

### Molecular Detection and Genetic Characterization of Porcine Circovirus 3 in Yunnan, China

<sup>1</sup>Jintao Zhang, <sup>2</sup>Junlong Bi, <sup>3</sup>Zhuo Ha, <sup>1</sup>Chao Yang, <sup>1</sup>Caihong Zeng, <sup>1</sup>Xianguo Sun, <sup>1</sup>Xiaoying Yang, <sup>1</sup>*Runhuan Yang, <sup>4</sup>Yingbo Lin, <sup>2, 5</sup>Kai-Xing Qu and <sup>1</sup>Gefen Yin* 

<sup>1</sup>College of Animal Veterinary Medicine, Yunnan Agricultural University, Kunming, Yunnan 650201, China <sup>2</sup>Institute of Science and Technology, Chuxiong Normal University, Chuxiong, Yunnan 675000, China

<sup>3</sup>College of Veterinary Medicine, Northeast Agricultural University, Harbin, Heilongjiang 150030, China

<sup>4</sup>Department of Oncology-Pathology, Karolinska Institute, Stockholm, Sweden

<sup>5</sup>Yunnan Academy of Grassland and Animal Science, Kunming, Yunnan 650212, China

**Key words:** Molecular detection, phylogeny, PCV3, *cap* gene, Yunnan

**Corresponding Author:** 

Gefen Yin College of Animal Veterinary Medicine, Yunnan Agricultural University, Kunming, Yunnan 650201, China

Page No.: 91-109 Volume: 20, Issue 4, 2021 ISSN: 1680-5593 Journal of Animal and Veterinary Advances Copy Right: Medwell Publications Abstract: Porcine Circovirus 3 (PCV3) infections have been widely diagnosed and impaired the swine farm industry worldwide. The current study carried out molecular detection of PCV3 in 481 clinical samples collected from 44 swine farms with reported reproductive failures in Yunnan province of China during the period of from 2017 to 2018. The overall PCV3 positive rate was 21.4% (103/481) with relatively low positive rate of 11.91% (28/235) in 2017 while a dramatic increase to 30.49% (75/246) in 2018 which implied the expansion of PCV3 in Yunnan. The detection of PCV3 in pigs with no observable clinical symptom indicated the demand of molecular diagnostic method for more effective PCV3 control. Four entire viral genomes and 15 cap genes of PCV3 strains from the positive cases were sequenced. The phylogenetic and population expansion analyses revealed the genetic diversity of PCV3 genome and immunogenic *cap* gene with no obvious association with geographical origin and pathogenic differentiation. The four Yunnan strains fell into a mini-clade in PCV3b, indicating a novel viral genotype. Our results contributed to better understanding of PCV3 prevalence in Yunnan province, China and provided supporting data for future development of specific and effective PCV3 recombinant vaccine.

### INTRODUCTION

*Circoviruses* which belong to the genus *Circovirus* of the family *Circoviridae* have the smallest circular single-strand DNA genomes (~ 2 kb) among all viruses that can replicate autonomously. The *circovirus* genome contains

only two open reading frames (ORFs), i.e., *rep* (ORF 1) and *cap* (ORF 2) of which the ORF 2 hosting the *cap*gene locates in the opposite orientation<sup>[1-3]</sup>. Porcine CircoVirus (PCV) is a group of circoviruses including PCV1, PCV2 and PCV3 that infect swine. PCV1 can't manifest any clinical symptoms while infection with PCV2 is

associated with Postweaning Multisystemic Wasting Syndrome (PMWS), Porcine Dermatitis and Nephropathy Syndrome (PDNS), reproductive disorders, respiratory signs and myocarditis<sup>[1,2,4-6]</sup>.

PCV3 which is closely related to Bat Circovirus or undergoes recombination<sup>[5, 7, 8]</sup> was firstly identified from USA in 2016<sup>[2]</sup>. PCV3 infection is related to clinical symptoms of PDNS, reproductive disorders<sup>[3, 9-11]</sup>, diarrhea<sup>[7]</sup> and respiratory diseases<sup>[7, 12]</sup>. PCV3 infection has deteriorated the whole pig industry worldwide with substantial economic losses. Till now, the presence of PCV3 has been reported in Denmark. Italy. Spain<sup>[3, 13]</sup>. Sweden<sup>[14]</sup>, Poland<sup>[15]</sup>, Russia<sup>[16]</sup>, Japan<sup>[17]</sup>, South Korea<sup>[18-20]</sup>, Brazil<sup>[21, 22]</sup> and Thailand<sup>[12]</sup>. In China, PCV3 has been detected circulating in >20 provinces<sup>[5,6,8-10,22-32]</sup>. Reproductive failure is one of the main drawbacks associated with PCV3 infection. However, to what extent reproductive failures in pig herds are correlated to PCV3 infections remains unclear. Many PCV3 genomes were sequenced elucidation for of the genetic relationships<sup>[6, 9, 13, 32-36]</sup>. PCV3 are genetically rather different from PCV2 and PCV2 vaccination does not protect against PCV3 infection<sup>[37]</sup>. Cap encodes the capsid protein (cap) of Circovirus which is the structural protein that triggers the immune responses from the hosts $^{[1,6]}$ . Therefore, *cap* protein is well recognized as an effective marker for genotyping and phylogenetic analysis of circoviruses<sup>[6, 32]</sup>.

In order to investigate the contribute of PCV3 infections to reproductive failures in pig herds, characterize the genetic diversity and prevailing variants

Table 1: Breeding and sampling records from the 44 pig herds that were involved \*

of PCV3 in Yunnan province of China, the authors performed molecular diagnosis in pig samples from farms with reported reproductive failures and sequenced the PCV3 strains detected. Furthermore, the PCV3 genomes and *cap* gene sequences obtained in this study were phylogenetically analyzed. Our results shed more lights on the clinical impact and genetic diversity of PCV3 which will promote the control and prevention of PCV3.

### MATERIALS AND METHODS

Sampling: During the period of from 2017 to 2018, pig farms in Yunnan Province have reported to our lab at Yunnan Agricultural University for reproductive failures and suspicious PCV3 infections. Data including location, farrowing sow number, stillborn rate, nursing mortality rate and inventory herd size et al. were obtained from farms through their management logbooks (Table 1). The production of piglets weaned Per farrowing Sow per Year (PSY) was chosen as a parameter for reproduction efficiency characterization. Totally 44 herds including 20 from 2017 and 24 from 2018, were selected for this study with the criteria of >0% decrease of PSY in the past 12 months comparing with the 5-year average PSY before the year of sampling or the average PSY since establishment if the history was <5 years (Table 1). From each farm, half percent of the inventory pig herds were selected for serum sampling. Considering that PCV3 infections could be subclinical with no observable symptoms<sup>[7, 13, 14, 38]</sup>, both healthy and sick pigs were randomly selected regardless of clinical symptoms in

| Herd |       | Citv/      | At bi |     |      |      |     |     |      |      |     | eaning |      |      |      |    |    |        |         |
|------|-------|------------|-------|-----|------|------|-----|-----|------|------|-----|--------|------|------|------|----|----|--------|---------|
| No.  | Years | prefecture |       | 2   | 3    | 4    | 5   | 6   | 7    | 8    | 1   | 2      | 3    | 4    | 5    | 6  | 7  | 8      | 9       |
| 1    | 2017  | Kunming    | 63    | 120 | 1337 | 1265 | 53  | 72  | 44.2 | 5.39 | 39  | 3.08   | 19.5 | 19.9 | 1563 | 8  | 0  | -      | 38/130  |
| 2    | 2017  | -          | 34    | 61  | 624  | 593  | 22  | 31  | 36.1 | 4.97 | 20  | 3.37   | 16.9 | 28.6 | 914  | 5  | 0  | -      | (29.2%) |
| 3    | 2017  |            | 90    | 210 | 2650 | 2540 | 82  | 110 | 39.0 | 4.15 | 122 | 4.80   | 26.9 | 12.5 | 2184 | 11 | 3  | 27.27% |         |
| 4    | 2017  |            | 70    | 169 | 2011 | 1893 | 79  | 118 | 46.7 | 5.87 | 143 | 7.55   | 25.0 | 12.0 | 2173 | 11 | 4  | 36.36% |         |
| 5    | 2018  |            | 118   | 254 | 2943 | 2831 | 84  | 112 | 33.1 | 3.81 | 81  | 2.86   | 23.3 | 17.1 | 3087 | 15 | 0  | -      |         |
| 6    | 2018  |            | 81    | 165 | 2142 | 2078 | 46  | 64  | 27.9 | 2.99 | 33  | 1.59   | 25.2 | 13.2 | 2096 | 10 | 4  | 40.00% |         |
| 7    | 2018  |            | 220   | 420 | 4740 | 4497 | 127 | 243 | 30.2 | 5.13 | 193 | 4.29   | 19.6 | 22.1 | 6765 | 34 | 15 | 44.12% |         |
| 8    | 2018  |            | 286   | 526 | 6312 | 6002 | 202 | 310 | 38.4 | 4.91 | 273 | 4.55   | 20.0 | 30.9 | 7269 | 36 | 16 | 44.44% |         |
| 9    | 2017  | Chuxiong   | 62    | 130 | 1687 | 1621 | 38  | 66  | 29.2 | 3.91 | 69  | 4.26   | 25.0 | 11.9 | 3549 | 18 | 4  | 22.22% | 31/145  |
| 10   | 2017  |            | 277   | 523 | 6021 | 5670 | 228 | 351 | 43.6 | 5.83 | 226 | 3.99   | 19.7 | 18.5 | 6827 | 34 | 7  | 20.59% | (21.4%) |
| 11   | 2017  |            | 93    | 172 | 1908 | 1823 | 81  | 85  | 47.1 | 4.45 | 37  | 2.03   | 19.2 | 18.6 | 3148 | 16 | 0  | -      |         |
| 12   | 2017  |            | 60    | 132 | 1512 | 1462 | 42  | 50  | 31.8 | 3.31 | 9   | 0.62   | 24.2 | 13.8 | 2738 | 14 | 0  | -      |         |
| 13   | 2018  |            | 360   | 680 | 8140 | 7720 | 322 | 420 | 47.4 | 5.16 | 304 | 3.94   | 20.6 | 16.6 | 8043 | 40 | 10 | 25.00% |         |
| 14   | 2018  |            | 123   | 223 | 2459 | 2299 | 72  | 160 | 32.3 | 6.51 | 78  | 3.39   | 18.1 | 30.8 | 4281 | 21 | 9  | 42.86% |         |
| 15   | 2018  |            | 40    | 73  | 802  | 770  | 26  | 32  | 35.6 | 3.99 | 12  | 1.56   | 19.0 | 12.7 | 456  | 2  | 1  | 50.00% |         |
| 16   | 2017  | Qujing     | 209   | 436 | 5669 | 5454 | 141 | 215 | 32.3 | 3.79 | 95  | 1.74   | 25.6 | 8.1  | 4011 | 20 | 0  | -      | 11/75   |
| 17   | 2017  |            | 95    | 182 | 2325 | 2232 | 66  | 93  | 36.3 | 4.00 | 276 | 12.37  | 20.6 | 16.3 | 2372 | 12 | 3  | 25.00% | (14.7%) |
| 18   | 2017  |            | 87    | 180 | 2161 | 2068 | 64  | 93  | 35.6 | 4.30 | 310 | 14.99  | 20.2 | 15.1 | 2280 | 11 | 2  | 18.18% |         |
| 19   | 2017  |            | 218   | 443 | 5542 | 5347 | 135 | 195 | 30.5 | 3.52 | 96  | 1.80   | 24.1 | 20.8 | 2361 | 12 | 0  | -      |         |
| 20   | 2018  |            | 156   | 315 | 3795 | 3637 | 151 | 158 | 47.9 | 4.16 | 141 | 3.88   | 22.4 | 20.8 | 2176 | 11 | 2  | 18.18% |         |
| 21   | 2018  |            | 80    | 159 | 1908 | 1813 | 42  | 95  | 26.4 | 4.98 | 146 | 8.05   | 20.8 | 10.2 | 1885 | 9  | 4  | 44.44% |         |
| 22   | 2017  | Dali       | 110   | 230 | 1410 | 1318 | 70  | 92  | 30.4 | 6.52 | 23  | 1.75   | 11.8 | 48.4 | 682  | 3  | 0  | -      | 0/7     |
| 23   | 2017  |            | 44    | 90  | 1125 | 1080 | 35  | 45  | 38.9 | 4.00 | 12  | 1.11   | 24.3 | 11.7 | 876  | 4  | 0  | -      | (0%)    |
| 24   | 2018  | Yuxi       | 80    | 180 | 2342 | 2234 | 59  | 108 | 32.8 | 4.61 | 42  | 1.88   | 27.4 | 11.0 | 1473 | 7  | 5  | 71.43% | 9/20    |
| 25   | 2018  |            | 110   | 232 | 2924 | 2784 | 92  | 140 | 39.7 | 4.79 | 64  | 2.30   | 24.7 | 13.8 | 825  | 4  | 2  | 50.00% | (45.0%) |
| 26   | 2018  |            | 86    | 187 | 2436 | 2333 | 68  | 103 | 36.4 | 4.23 | 65  | 2.79   | 26.4 | 11.2 | 773  | 4  | 2  | 50.00% |         |
| 27   | 2018  |            | 60    | 116 | 1465 | 1418 | 36  | 47  | 31.0 | 3.21 | 14  | 0.99   | 23.4 | 18.8 | 1074 | 5  | 0  | -      |         |
| 28   | 2017  | Baoshan    | 48    | 90  | 1060 | 1024 | 30  | 36  | 33.3 | 3.40 | 13  | 1.27   | 21.1 | 14.4 | 1572 | 8  | 0  | -      | 0/17    |

| TT 1        |       | Cites/              | At bi | rth |      |      |     |     |      |       | At w | eaning |      |      |         |    |   |        |                 |
|-------------|-------|---------------------|-------|-----|------|------|-----|-----|------|-------|------|--------|------|------|---------|----|---|--------|-----------------|
| Herd<br>No. | Years | City/<br>prefecture | 1     | 2   | 3    | 4    | 5   | 6   | 7    | 8     | 1    | 2      | 3    | 4    | 5       | 6  | 7 | 8      | 9               |
| 29          | 2017  |                     | 76    | 156 | 1858 | 1796 | 44  | 62  | 28.2 | 3.34  | 24   | 1.34   | 23.3 | 17.6 | 1766    | 9  | 0 | -      | (0%)            |
| 30          | 2017  | Honghe              | 86    | 180 | 1971 | 1899 | 60  | 72  | 33.3 | 3.65  | 20   | 1.05   | 21.8 | 17.2 | 1952    | 10 | 0 | -      | 0/22            |
| 31          | 2017  | 0                   | 72    | 162 | 1907 | 1843 | 86  | 64  | 53.1 | 3.36  | 19   | 1.03   | 25.3 | 13.5 | 963     | 5  | 0 | -      | (0%)            |
| 32          | 2018  |                     | 34    | 72  | 846  | 724  | 23  | 122 | 31.9 | 14.42 | 9    | 1.24   | 21.0 | 14.9 | 836     | 4  | 0 | -      |                 |
| 33          | 2018  |                     | 40    | 84  | 1041 | 1019 | 17  | 22  | 20.2 | 2.11  | 14   | 1.37   | 25.1 | 13.1 | 594     | 3  | 0 | -      |                 |
| 34          | 2018  | Lincang             | 82    | 160 | 2060 | 1970 | 49  | 90  | 30.6 | 4.37  | 47   | 2.39   | 23.5 | 15.3 | 691     | 3  | 1 | 33.33% | 2/8             |
| 35          | 2018  | -                   | 23    | 48  | 605  | 580  | 11  | 25  | 22.9 | 4.13  | 13   | 2.24   | 24.7 | 10.0 | 406     | 2  | 1 | 50.00% | (25.0%)         |
| 36          | 2018  |                     | 25    | 47  | 519  | 498  | 17  | 21  | 36.2 | 4.05  | 8    | 1.61   | 19.6 | 26.9 | 518     | 3  | 0 | -      |                 |
| 37          | 2017  | Zhaotong            | 145   | 302 | 3800 | 3615 | 124 | 185 | 41.1 | 4.87  | 78   | 2.16   | 24.4 | 16.2 | 3052    | 15 | 3 | 20.00% | 5/23            |
| 38          | 2018  | -                   | 80    | 162 | 1846 | 1743 | 48  | 103 | 29.6 | 5.58  | 54   | 3.10   | 21.1 | 22.7 | 1637    | 8  | 2 | 25.00% | (21.7%)         |
| 39          | 2018  | Lijiang             | 156   | 360 | 4022 | 3827 | 91  | 195 | 25.3 | 4.85  | 116  | 3.03   | 23.8 | 15.6 | 2576    | 13 | 4 | 30.77% | 4/13<br>(30.8%) |
| 40          | 2017  | Wenshan             | 80    | 155 | 1902 | 1815 | 57  | 87  | 36.8 | 4.57  | 62   | 3.42   | 21.9 | 27.4 | 777     | 4  | 2 | 50.00% | 3/8             |
| 41          | 2018  |                     | 58    | 120 | 1331 | 1271 | 38  | 60  | 31.7 | 4.51  | 37   | 2.91   | 21.3 | 24.3 | 839     | 4  | 1 | 25.00% | (37.5%)         |
| 42          | 2017  | Nujiang             | 86    | 202 | 2236 | 2154 | 60  | 82  | 29.7 | 3.67  | 24   | 1.11   | 24.8 | 10.3 | 930     | 5  | 0 | -      | 0/13            |
| 43          | 2018  |                     | 160   | 342 | 4266 | 4125 | 101 | 141 | 29.5 | 3.31  | 46   | 1.12   | 25.5 | 10.5 | 1392.00 | 7  | 0 | -      | (0%)            |
| 44          | 2018  |                     | 10    | 16  | 158  | 151  | 4   | 7   | 25.0 | 4.43  | 9    | 5.96   | 14.2 | 39.1 | 274     | 1  | 0 | -      |                 |

At birth; 1 = Farrowing sows; 2 = Litters; 3 = Total born piglets; 4 = Live born piglets; 5 = Litters with stillborn; 6 = Stillborn piglets; 7 = Litters with stillborn (%); 8 = Stillborn rate (%); At weaning; 1 = Nursing mortality; 2 = Nursing mortality rate (%); 3 = Weaning PSY \*\*; 4 = PSY decrease (%) \*\*\*; 5 = Inventory pig herd; 6 = Number of specimens; 7 = PCV3 positive cases; 8 = PCV3 positive rate; 9 = Positive rate per city/prefecture; All periodical data refer to 12 months before the date of sampling. \*\* PSY refers to the production of piglets weande per farrowing sow per year; \*\*\* PSY decrease refers to the decrease of weaning PSY in the past 12 months comparing to 5-year average PSY before the year of sampling or the average PSY since establishment if the history is less than 5 years

order to eliminate sampling bias. In total 481 specimens were collected with each sample corresponding to one individual pig (Table 1).

**Primers:** Three pairs of primers designed by Ku et al. according to a PCV3 reference sequence (PCV3/CN/Fujian-5/2016 strain, Accession numbers KY075986) were used in this study<sup>[9]</sup>. For the detection of PCV3 infection, a pair of primers amplifying the cap gene (PCV3-F: TTACTTAGAGAACGGACTTGTAACG and PCV3-R: AAATGAGACACAGAGCTATATTCAG) with a 649 bp product was employed. Meanwhile, two pairs of primers that amplify the whole PCV3 genome, i.e., PCV3-genome-1-F (TAGTATTACCCGGCA CCTCGGAACC) and PCV3-genome-1-R (ACAGGT AAACGCCCTCGCATGTGGG), PCV3-genome-2-F (TTGCACTTGT GTAC AAT TATTGCG) and PCV3-genome-2-R (ATCTTCAGGACACTCGTAGCACCAC), were used for genome cloning and sequencing<sup>[9]</sup>.

PCR amplification and PCV3 detection: DNA was extracted from all the serum samples using Genomic DNA purification Kit from Sangon Biotech Shanghai Co. Ltd. (#B518251) according to the manufacture's protocol. PCR was performed in a 25  $\mu$ L reaction containing 1  $\mu$ L extracted DNA using GC-rich PCR Master Mix from Sangon (#B639283). The PCR program consisted of an initial cycle at 94°C for 5 min, followed by 35 amplification cycles (94°C for 1 min, 60 °C for 1 min and 72°C for 1 min) and a final extension step at 72°C for 7 min. The PCR products were subjected to 1.5% agarose gel electrophoresis and ultraviolet light for visualization after staining with 1.0  $\mu$ g mL<sup>-1</sup> Ethidium Bromide (EB).

**Genome sequencing:** The PCV3 positive DNA samples were subjected to PCR amplification with genome cloning

primers PCV3-genome-1-F/PCV3-genome-1-R and PCV3-genome-2-F/PCV3-genome-2-R. The PCR products were electrophoresed on 2.5% agarose gel and extracted with SanPrep Spin Column and Collection Tube (Sangon, #515103). The purified PCR products were TA cloned into pMD18-T vectors for transformation into competent DH5a *E. coli* cells (Takara Biotech. Co. Ltd., Dalian, #D101A and #9057). After a subsequent culture of the positive *E. coli* clones for 16-18 h, plasmid DNA extraction and sequencing (by Shanghai Sangon Biotech Co. Ltd.) were performed as described in our previous study<sup>[39]</sup>.

Sequence analysis: The raw sequences were aligned using DNAStar 6.0 (DNAStar Inc., WI). The sequences of complete genome and cap genes were identified and aligned by comparing with PCV3 reference genomes (GenBank Accession numbers: KX966193, KX778720 and KT869077). The comparison of nucleotide identities was performed using MEGALIGN of DNAStar. A total of 89 PCV3 genome sequences were retrieved from GenBank for further analysis together with the four PCV3 genomes from Yunnan province identified in this study (Table 2). Tajima's neutral test was estimated and mismatch distribution under constant population size model was determined using DnaSP Software (Version 5.0) for population expansion<sup>[40]</sup>. Neighbor-Joining (N-J) trees were constructed by the p-distance matrix among the viral strains using MEGA7.0<sup>[41]</sup>, based on the genome and cap gene data sets, respectively.

**Statistic analysis:** All statistics were calculated using Microsoft Excel. A p = 0.05 was considered as statistically significant. A p = 0.01 was considered as extremely significant. Heatmap was generated using R\_V3.5.2 package "pheatmap".

| $T 11 \Delta DOV\Delta C$      | 1 1                | • . • • • •           |                     | .1          |
|--------------------------------|--------------------|-----------------------|---------------------|-------------|
| Table 2: PCV3 reference see    | mences and enider  | nic strains in Yunnar | i province lised in | this smay   |
| Tuble 2. T C ( 5 Telefence set | quenees una optaci | me strams m i anna    | i province abea in  | i uno ocaaj |

| Table 2: PCV3 reference sequences                 | and epidemic strains  | in Yunnan province used in    | this study                         |                          |
|---|-----------------------|-------------------------------|------------------------------------|--------------------------|
| Strain name                                       | Collection date       | Geographic location           | Gene type                          | GenBank Accession No.    |
| PCV3/CN/GDSJ1/2017                                | 2017/11/31            | Guangdong, China              | Complete genome                    | MF405271.1               |
| PCV3/CN/GXLJ1/2017                                | 2017/11/31            | Guangdong, China              | Complete genome                    | MF405272.1               |
| PCV3/CN/GXHJ2/2017                                | 2017/11/31            | Guangdong, China              | Complete genome                    | MF405277.1               |
| PCV3/CN/GDLC1/2016                                | 2017/11/31            | Guangdong, China              | Complete genome                    | MF069115.1               |
| PCV3/CN/GDQG1/2017                                | 2017/11/31            | Guangdong, China              | Complete genome                    | MF405275.1               |
| PCV3/CN/GXLJ2/2017                                | 2017/11/31            | Guangdong, China              | Complete genome                    | MF405274.1               |
| PCV3/CN/GDHE2/2016                                | 2017/11/1             | Guangdong, China              | Complete genome                    | MF069116.1               |
| PCV3/CN/GXLJ2/2017                                | 2017/11/31            | Guangdong, China              | Complete genome                    | MF405273.1               |
| PCV3/CN/GXHJ1/2017                                | 2017/11/31            | Guangdong, China              | Complete genome                    | MF405276.1               |
| PCV3/CN/Guangdong-MX3/2015                        | 2017/10/8             | Guangdong, China              | Complete genome                    | MF589104.1               |
| PCV3/CN/Jiangxi-3/2016                            | 2017/10/8             | Jiangxi, China                | Complete genome                    | MF589106.1               |
| PCV3/CN/Guangdong-HZ4/2015                        | 2017/10/8             | Guangdong, China              | Complete genome                    | MF589103.1               |
| NWHUN2  | 2018/1/10             | Hunan, China                  | Complete genome                    | MG564175                 |
| PCV3/KU-1606                                      | 2017/7/5              | South Korea                   | Complete genome                    | KY996342.1               |
| PCV3/KU-1605                                      | 2017/7/5              | South Korea                   | Complete genome                    | KY996341.1               |
| PCV3/KU-1607                                      | 2017/7/5              | South Korea                   | Complete genome                    | KY996343.1               |
| PCV3-IT/MN2017                                    | 2017/9/27             | Italy                         | Complete genome                    | MF162299.1               |
| PCV3-CHN/CC2016                                   | 2017/11/16            | Guangdong, China              | Complete genome                    | KY421348.1               |
| PCV3/KU-1603                                      | 2017/7/5              | South Korea                   | Complete genome                    | KY996339.1               |
| CHN_Shanghai_0708_2016                            | 2017/7/15             | Shanghai, China               | Complete genome                    | KY865243.1               |
| DE7.3   | 2018/2/13             | German                        | Complete genome                    | MG014364.1               |
| DE13.20   | 2018/2/13             | German                        | Complete genome                    | MG014365.1               |
| DE53.8  | 2018/2/13             | German                        | Complete genome                    | MG014375.1               |
| PCV3-IT/CO2017                                    | 2017/9/27             | Italy                         | Complete genome                    | MF162298.1               |
| PCV3-IT/MN2017                                    | 2017/9/27             | Italy                         | Complete genome                    | MF162299.1               |
| 37-8_Spain_2017                                   | 2018/3/8              | Spain                         | Complete genome                    | MF805720.1               |
| PCV3-BR/RS/8                                      | 2018/7/19             | Brazil                        | Complete genome                    | MF079254.1               |
| 621_Italy_2017                                    | 2018/3/8              | Italy                         | Complete genome                    | MF805719.1               |
| 4289_Italy_2016                                   | 2018/3/8              | Italy                         | Complete genome                    | MF805722.1               |
| 32941_Italy_2016                                  | 2018/3/8              | Italy                         | Complete genome                    | MF805721.1               |
| PCV3-US/SD2016                                    | 2016/11/22            | America                       | Complete genome                    | KX966193.1               |
| PCV3/CN/Jiangxi-62/2016                           | 2017/4/8              | Jiangxi, China                | Complete genome                    | KY075989.1               |
| PCV3/CN/Chongqing-147/2016                        | 2017/4/8              | Chongqing, China              | Complete genome                    | KY075990.1               |
| PCV3/GXFC2017-9                                   | 2018/6/5              | Guangxi, China                | Complete genome                    | MG250183.1               |
| CHN_Shanghai_0706_2016                            | 2017/7/15             | Shanghai, China               | Complete genome                    | KY865242.1               |
| PCV3/KU-1601                                      | 2017/7/5              | South Korea                   | Complete genome                    | KY996337.1               |
| PCV3/GXFC2017-7                                   | 2018/6/5              | Guangxi, China                | Complete genome                    | MG250186.1               |
| PCV3-US/MO2015<br>PCV2/CN/Unbai 610/2016          | 2016/11/15            | America                       | Complete genome                    | KX778720.1               |
| PCV3/CN/Hubei-610/2016<br>PCV2/CN/Een avi B1/2017 | 2017/1/19             | Hubei, China                  | Complete genome<br>Complete genome | KY354038.1               |
| PCV3/CN/Jiangxi-B1/2017                           | 2017/10/8<br>2017/7/5 | Jiangxi, China<br>South Korea | Complete genome                    | MF589107.1<br>KY996344.1 |
| PCV3/KU-1608<br>NWHEB21                           | 2018/1/10             | Hebei, China                  | Complete genome                    | MG564174                 |
| PCV3 strain 2164                                  | 2016/11/1             | America                       | Complete genome                    | KX458235.1               |
| PCV3-CHN/GD2016                                   | 2017/11/16            | Guangdong, China              | Complete genome                    | KY421347.1               |
| PCV3/GXFC2017-11                                  | 2018/6/5              | Guangxi, China                | Complete genome                    | MG250185.1               |
| PCV3/KU-1609                                      | 2017/7/5              | South Korea                   | Complete genome                    | KY996345.1               |
| PCV3/CH/HB/CZ-1/2017                              | 2018/3/28             | Hebei, China                  | Complete genome                    | MG727539.1               |
| 4332-5 Denmark 2017                               | 2018/3/8              | Denmark                       | Complete genome                    | MF805723.1               |
| 4332-7_Denmark_2017                               | 2018/3/8              | Denmark                       | Complete genome                    | MF805724.1               |
| DE52.18   | 2018/2/13             | German                        | Complete genome                    | MG014374.1               |
| PCV3-Chian/GX2016-2                               | 2018/1/14             | Guangxi, China                | Complete genome                    | MF155642.1               |
| PCV3-China/GX2016-3                               | 2018/1/14             | Guangxi, China                | Complete genome                    | MF155643.1               |
| DE18.2  | 2018/2/13             | German                        | Complete genome                    | MG014366.1               |
| DE55.1  | 2018/2/13             | German                        | Complete genome                    | MG014376.1               |
| PCV3/KU-1602                                      | 2017/7/5              | South Korea                   | Complete genome                    | KY996338.1               |
| PCV3/KU-1604                                      | 2017/7/5              | South Korea                   | Complete genome                    | KY996340.1               |
| PCV3 strain 29160                                 | 2016/11/1             | America                       | Complete genome                    | KT869077.1               |
| Thailand/PB01/17                                  | 2018/2/15             | Thailand                      | Complete genome                    | MG310152.1               |
| PCV3/CN/Anhui-14/201611                           | 2017/9/19             | Anhui, China                  | Complete genome                    | MF084994.1               |
| CH/GX/1776D/2017                                  | 2018/2/28             | Guangxi, China                | Complete genome                    | MG550107                 |
| PCK3-1701   | 2017/9/17             | South Korea                   | Complete genome                    | MF611876.1               |
| PCV3/CN/Fujian-5/2016                             | 2017/4/8              | Fujian, China                 | Complete genome                    | KY075986.1               |
| PCV3-BR/RS/6                                      | 2018/7/19             | Brazil                        | Complete genome                    | MF079253.1               |
| PCK3-1702   | 2017/9/17             | South Korea                   | Complete genome                    | MF611877.1               |
| PCV3/CN/Fujian-12/2016                            | 2017/4/8              | Fujian, China                 | Complete genome                    | KY075987.1               |
| CV3-CN/FuJian-420-2017                            | 2018/4/15             | Fujian, China                 | Complete genome                    | MF069252.1               |
|   |                       |                               | 1                                  |                          |

| Table 2: Continue          |                 |                      |                      |                       |
|----------------------------|-----------------|----------------------|----------------------|-----------------------|
| Strain name                | Collection date | Geographic location  | Gene type            | GenBank Accession No. |
| PCV3/CN/Guangdong-HY1/2016 | 2017/10/8       | Guangdong, China     | Complete genome      | MF589102.1            |
| PCV3/SWE84/2004            | 2018/4/3        | Sweden               | Complete genome      | MG765473.1            |
| DE3.7                      | 2018/2/13       | Germany              | Complete genome      | MG014362.1            |
| PCV3-US/MN2016             | 2016/11/22      | America              | Complete genome      | KX898030.1            |
| DE48.7                     | 2018/2/13       | German               | Complete genome      | MG014373.1            |
| PCV3/CN/Chongqing-155/2016 | 2017/4/8        | Chongqing, China     | Complete genome      | KY075993.1            |
| PCV3/CN/Chongqing-156/2016 | 2017/4/8        | Chongqing, China     | Complete genome      | KY075994.1            |
| PCV3/CN/Chongqing-150/2016 | 2017/4/8        | Chongqing, China     | Complete genome      | KY075992.1            |
| PCV3-RU/TY17               | 2018/7/1        | Russia               | Complete genome      | MG679916.1            |
| PCV3-RU/SM17               | 2018/7/1        | Russia               | Complete genome      | MG679917.1            |
| PCK3-1703                  | 2018/4/4        | South Korea          | Complete genome      | MF611878.1            |
| PCV3/CN/Shandong-1/201703  | 2017/7/12       | Shandong, China      | Complete genome      | KY778776.1            |
| PCV3/CN/Shandong-2/201703  | 2017/7/12       | Shandong, China      | Complete genome      | KY778777.1            |
| PCV3-China/GX2016-1        | 2018/2/14       | Guangxi, China       | Complete genome      | MF155641.1            |
| DE41.16                    | 2018/2/13       | Germany              | Complete genome      | MG014372.1            |
| PCV3-China/GD2016          | 2017/3/31       | Guangdong, China     | Complete genome      | KY418606.1            |
| DE23.17                    | 2018/2/13       | German               | Complete genome      | MG014368.1            |
| PCV3-CN/FuJian-1215-2016   | 2018/4/11       | Fujian, China        | Complete genome      | KY924474.1            |
| PCV3-CN/FuJian-318-2017    | 2018/4/11       | Fujian, China        | Complete genome      | KY924475.1            |
| ZT2018-YN                  | 2018/3/24       | Zhaotong/Herd No. 38 | Full-length cap gene | MN517975.1            |
| QJ2018-YN                  | 2018/4/21       | Qujing/Herd No. 20   | Full-length cap gene | MN517976.1            |
| LJ2018-YN                  | 2018/4/12       | Lijiang/Herd No. 39  | Full-length cap gene | MN517977.1            |
| LQ2018-YN                  | 2018/5/10       | Kunming/ /Herd No. 6 | Full-length cap gene | MN517978.1            |
| CX12018-YN                 | 2018/6/26       | Chuxiong/Herd No. 13 | Full-length cap gene | MN517979.1            |
| QB2018-YN                  | 2018/7/1        | Yuxi/Herd No.24      | Full-length cap gene | MN517980.1            |
| XW2018-YN                  | 2018/7/2        | Qujing /Herd No. 21  | Full-length cap gene | MN517981.1            |
| CX22018-YN                 | 2018/7/15       | Chuxiong/Herd No. 14 | Full-length cap gene | MN517982.1            |
| SB2018-YN                  | 2018/7/15       | Kunming/Herd No. 7   | Full-length cap gene | MN517983.1            |
| YM2018-YN                  | 2018/7/20       | Kunming/Herd No. 8   | Full-length cap gene | MN517984.1            |
| YX2018-YN                  | 2018/7/26       | Yuxi/Herd No.25      | Full-length cap gene | MN5179851             |
| LF2018-YN                  | 2018/8/10       | Wenshan/Herd No. 41  | Full-length cap gene | MN517986.1            |
| CX32018-YN                 | 2018/9/8        | Chuxiong/Herd No. 15 | Full-length cap gene | MN5179871             |
| LP2018-YN                  | 2018/9/30       | Lincang/Herd No. 35  | Full-length cap gene | MN517988.1            |
| SJ2018-YN                  | 2018/10/5       | Lincang/Herd No. 34  | Full-length cap gene | MN517989.1            |
| YN1-2017                   | 2017/5/26       | Kunming/Herd No.3    | Complete genome      | MG902939.1            |
| YN2-2017                   | 2017/6/26       | Kunming/Herd No. 4   | Complete genome      | MG902940.1            |
| YN3-2017                   | 2017/8/10       | Chuxiong/Herd No. 9  | Complete genome      | MG902941.1            |
| YN4-2017                   | 2017/8/10       | Chuxiong/Herd No.10  | Complete genome      | MG902942.1            |

#### **RESULTS AND DISCUSSION**

Swine serum is well accepted for PCV3 detection due to its high virus load and nonfatal feature<sup>[38,42]</sup>. To examine the prevalence of PCV3, 481 serum samples from 44 pig farms in Yunnan province of China were tested. The overall PCV3 positive rate was 21.4% (103/481), ranging from 0% (0/7) to 37.5% (3/8) for different geographic areas (Fig. 1). PCV3 infection in Yunnan was sporadic in 2017 (11.9%, 28/235) but prevalent in 2018 (30.5%, 75/246) which implied the fast spreading of PCV3 from 2017 to 2018. At the farm level, the positive rate ranged from 0-71.4% (5/7, Herd. No. 24). 40.0% (8/20) of the farms detected in 2017 were positive while this rate increased to 66.7% (16/24) in 2018. These data also indicated the spreading of PCV3. This is the first report of PCV3 detection in Yunnan and revealed the prevalence of PCV3 in Yunnan province, China.

Although, reported to cause PDNS, the infection of PCV3 can be either acute or mild. Reproductive failure including increase in abortion and sow/piglets mortality rates, is one of the costliest drawbacks associated with

PCV3 infection<sup>[43]</sup>. To address the question that to what extent the observed reproductive failures in pig farms were related to PCV3 and to eliminate the sampling bias, the sampling was performed randomly in pig farms with reproductive failures regardless of clinical PCV3 symptom. The detection of PCV3 in pigs with no clinical symptom confirmed that PCV3 infections could be subclinical with no observable symptoms<sup>[7, 13, 14, 38]</sup>. Therefore, molecular detection of PCV3 with PCR should be suggested as more efficient diagnostic tool rather than clinical signs for an earlier and thus better control of PCV3, especially at critical events for example the choose of breeding sows and transboundary transportations.

Out of the cohort of 44 pig herds, 24 were diagnosed PCV3 positive. The positive herds had an average positive rate of 36%. The positive PCV3 detection was extremely significantly correlated to nursing mortality rate (p<0.01) (Fig. 1b). This confirmed the impact of PCV3 infection on pig reproductions. The PSY decreases in our cohort were quite dramatic, ranging from 10.0-48.4% (Table 1). However, neither stillborn rate, PSY nor PSY decrease was correlated to PCV3 infection (Fig. 1b). The

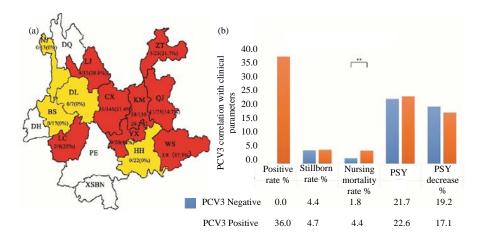


Fig. 1(a, b): Porcine Circovirus type 3 (PCV3) prevalence and correlation with clinical symptoms in Yunnan province,
(a) Geographical distribution of PCV3 diagnoses. The areas in red or yellow illustrate where the samples were collected from with the sample amounts and the positive rates indicated in each area. However, the areas where no samples were collected are left white. Abbreviations for the geographical areas are as follows. ZT: Zhaotong; QJ: Qujing; KM: Kunming; CX: Chuxiong; LJ: Lijiang; YX: Yuxi; WS: Wenshan; LC: Lincang; HH: Honghe; DL: Dali; BS: Baoshan; NJ: Nujiang; DQ: Diqing; DH: Dehong; PE: Pu'er; XSBN: Xishuangbanna and (b) The correlation of positive PCV3 detection with clinical reproductive failure symptoms. PCV3 infection was found to be extremely significantly correlated to nursing mortality rate (p<0.01) but not to other clinical symptoms including stillborn rate, PSY and PSY decrease</li>

reproductive failure in pig farms can be an outcome of many reasons including poor nutrition, infection of pathogens and bad management et al. Our results indicated that PCV3 infection had significantly impaired the swine industry but was still not the dominant reason of pig reproduction failures in Yunnan province, China.

Four whole genome sequences (MG902939-MG902942) and 15 ORF2(MN517975-MN517989) genes of PCV3 strains were amplified and sequenced, with detailed information including their corresponding pig herds shown in Table 2. The genomes were 2,000 nucleotides in length comprising two Open Reading Frames (ORF2) encoding the rep (296 aa) and cap (214 aa) proteins respectively which were consistent with previous reports<sup>[1-3]</sup>. The comparison of our sequencing data displayed 97.7-100% and 99.3 to 99.4% nucleotide identities for the ORF2 and complete genome sequences, respectively. The newly identified PCV3 strains meanwhile shared 97.1-99.7 and 97.1-99.6% nucleotide similarities for the ORF2 and complete genome sequences with the 85 PCV3 reference strains available in GenBank, respectively. Thus, our analysis revealed high genetic stability of PCV3 strains.

Taking the first sequenced PCV3 genome (GenBank Acc. No. KX778720) as a reference for comparison<sup>[33]</sup>, 335 variants in total were identified with a ratio of 16.75% of the complete genomes (Fig. 2). The nucleotide similarity of the complete genomes of 89 PCV3 strains ranged from 96.8-100% of which the maximum

divergence of the genomes was between PCV3/CN/GXHJ1/2017 (MF405276) and PCV3-China/GD2016 (KY418606) while 100% identities and the same haplotypes were observed between PCV3/CN/Fujian-12/2016 (KY075987) and PCV3/CN/Henan-13/2016 (KY075991) and PCV3/CN/Chongqing-148/2016 (KY075991) and PCV3/CN/Chongqing-147/2016 (KY075990), PCV3/CN/Hubei-610/2016 (KY354038) and PCV3/CN/Hubei-618/2016 (KY354039).

As for *cap* genes, they were in the same size of 645 bp long which contained 151 nucleotide variant sites but without any insertion/deletion. The nucleotide similarity of the cap genes from the 104 PCV3 strains ranged from 97.1-99.1% with the similarity of deduced amino acid (aa) sequences ranging from 96.8-100%. However, there were 7 sets of strains shared the same genotypes shown by comparison of cap nucleotide sequence (Fig. 3). Based on the deduced 214 amino acid residues of cap protein,53 haplotypes were determined, of which the representative as KX458235 type from PCV3b was predominant (28/93, 30.11%), containing the strains from China (in total 17 strains, 11 from Guangdong, 2 from Jiangxi, 2 from Chongqing, 1 from Jilin and 1 from Hebei), Italy (4), Spain (1), South Korea (3), USA (2) and Brazil (1), without distinct geographical origin (Fig. 4 and 5). The cap protein is considered as an effective marker for PCV3a and PCV3b genotyping based on both <sup>24</sup>A/V and <sup>27</sup>R/K substitutions<sup>[2, 5, 13, 27, 31, 33, 44, 45]</sup>. About 35 aa

| KT869077  | 7841394588                             | 11111<br>8889902334<br>0360815466<br>GCTATCTGTC | 7147125836                             | 0111788800<br>6459856735        | 1225579000<br>7463585568 | 1257899234<br>0661948226 | 5689234667<br>7163168296  | 8890012233<br>5703900325        | 3488888901<br>8401459979  | 3444566778<br>4346518013   |
|---|--|---|--|---------------------------------|--------------------------|--------------------------|---|---------------------------------|---|--|
| KX458235  |  | G   |  |                                 |                          |                          |   |                                 |   |  |
| KX778720  |  | π   |  |                                 |                          |                          |   |                                 |   |  |
| KX966193  |  |   |  |                                 |                          |                          |   |                                 |   |  |
| KY075986  |  |   |  |                                 |                          |                          |   |                                 |   | .cc  |
| KY075987  |  | T   |  |                                 |                          |                          |   |                                 |   | .cc  |
| KY875988  |  | T   |  |                                 |                          |                          |   |                                 |   | .cc  |
| KY075990  |  |   |  |                                 |                          |                          |   |                                 |   |  |
| KY875991  |  |   |  |                                 |                          |                          | G   | T.                              |   | c  |
| KY075992  |  |   |  |                                 |                          |                          |   |                                 |   |  |
| KY875993<br>KY875994  |  |   |  |                                 |                          |                          |   |                                 |   |  |
| KY354038  |  |   |  |                                 |                          |                          |   |                                 |   |  |
| KY354039  |  |   |  |                                 |                          |                          |   |                                 |   |  |
| KY418606  |  |   |  |                                 |                          |                          |   |                                 |   |  |
| KY421347  |  |   |  |                                 |                          |                          |   | T                               |   | ·  |
| (Y421348  |  | c   |  |                                 |                          |                          |   |                                 |   |  |
| KY778777  |  |   |  |                                 |                          |                          |   |                                 |   |  |
| KY865242  |  |   |  |                                 |                          |                          |   |                                 |   |  |
| KY865243  | GC                                     |   |  | c                               |                          |                          |   | c.                              |   | c  |
| CY924474  |  |   |  |                                 |                          |                          |   |                                 |   |  |
| KY924475  |  |   |  |                                 |                          |                          |   |                                 |   |  |
| KY996337<br>KY996338  |  |   |  |                                 |                          |                          |   |                                 |   |  |
| KY996338  | T                                      |   |  | A                               |                          |                          |   | т.                              |   |  |
| CY996340  |  | G   |  |                                 |                          |                          |   |                                 |   | c  |
| CY996341  |  |   |  | A                               |                          |                          | G   | T.                              |   | c  |
| CY996342  |  |   |  | A                               |                          |                          |   | T.                              |   | ···C·····  |
| CY996343  | •••••                                  |   |  | A                               |                          |                          |   | ·····T.                         |   |  |
| CY996344  |  | G   |  |                                 |                          |                          |   |                                 |   |  |
| 4F869115  |  |   |  |                                 |                          |                          |   |                                 |   |  |
| 1F069116  |  |   |  |                                 |                          |                          | G   | T.                              |   | c  |
| IF869252  |  | T   |  |                                 |                          |                          |   |                                 |   |  |
| 4F079253  |  |   |  |                                 |                          |                          |   |                                 |   |  |
| 1F079254  |  |   |  |                                 |                          |                          | ···G·····   |                                 |   |  |
| F155641   |  |   |  |                                 |                          |                          |   |                                 |   |  |
| F155642   |  |   |  |                                 |                          |                          |   |                                 |   |  |
| (F155643  |  | c   |  |                                 |                          |                          |   |                                 |   |  |
| 1F162298  |  |   |  |                                 |                          |                          |   |                                 |   |  |
| 4F162299  |  |   |  |                                 |                          |                          |   |                                 |   |  |
| 4F405271<br>4F405272  |  |   |  |                                 |                          |                          |   |                                 |   |  |
|   |  |   |  |                                 |                          |                          |   |                                 |   |  |
|   |  |   |  |                                 |                          |                          |   | T.                              |   |  |
| MF405273  |  |   |  |                                 |                          |                          |   | CT.                             |   | c.c  |
| MF405273<br>MF405274<br>MF405275  |  |   |  |                                 |                          |                          | 6<br>6  | CT.<br>TT                       |   | c  |
| MF405273<br>MF405274<br>MF405275<br>MF405276  | ·····                                  |   |  |                                 |                          |                          | 6<br>6<br>6   | CT.<br>TT<br>T.                 |   | c<br>c<br>c  |
| MF405273<br>MF405274<br>MF405275<br>MF405276<br>MF405277  |  |   | ······                                 |                                 |                          |                          | 6<br>6<br>6   | CT.<br>TT<br>T.<br>T.           |   | c.c<br>c<br>c  |
| MF405273<br>MF405274<br>MF405275<br>MF405276<br>MF405276<br>MF589102  |  |   |  |                                 |                          |                          | 6<br>6<br>6<br>6<br>6   | CT.<br>TT<br>T.<br>T.<br>C.T.   |   | c.c<br>c<br>c<br>c   |
| 4F405273<br>4F405275<br>4F405275<br>4F405275<br>4F405277<br>4F405277<br>4F589102<br>F589103<br>F589104  |  |   |  |                                 |                          |                          | 6<br>6<br>6<br>6<br>  | CT.<br>T.<br>T.<br>C.T.         | ······  |  |
| 4F405273<br>4F405274<br>4F405275<br>4F405275<br>4F405277<br>4F589102<br>F589103<br>F589104<br>F589106   |  |   |  |                                 |                          |                          | 6.<br>6.<br>6.<br>6.<br>6.<br>  | CT.<br>T.<br>T.<br>C.T.         | r. T  |  |
| 4F405273<br>4F405274<br>4F405275<br>4F405275<br>4F405277<br>4F589102<br>F589103<br>F589104<br>F589104<br>F589107  |  |   |  |                                 |                          |                          | 6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.  | CT.<br>T.<br>T.<br>C.T.         | r. T  |  |
| 1F405273<br>1F405274<br>1F405275<br>1F405275<br>1F405277<br>1F589102<br>F589104<br>F589104<br>F589106<br>F589107<br>F611876   |  |   |  |                                 |                          |                          | 6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6   | CT.<br>T.<br>T.<br>C.T.<br>C.T. | r. T  |  |
| 1F405273<br>1F405274<br>1F405275<br>1F405275<br>1F405277<br>1F589102<br>F589103<br>F589104<br>F589107<br>F589107<br>F611876<br>F611877  |  |   |  |                                 |                          |                          | 6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.  | CT.<br>T.<br>T.<br>C.T.         | r. T  |  |
| 4F405273<br>4F405274<br>4F405275<br>4F405275<br>4F405277<br>4F589103<br>F589104<br>F589104<br>F589106<br>F589107<br>F611877<br>F611878  |  |   | ······································ |                                 |                          | T6.                      | 6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6   | CT.<br>T.<br>T.<br>C.T.<br>     | Г. Т<br>Г. Т  |  |
| 4F405273<br>4F405275<br>4F405275<br>4F405275<br>4F405275<br>4F405277<br>4F589102<br>F589104<br>F589104<br>F589106<br>F589106<br>F589106<br>F589107<br>F611876<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877   |  |   |  |                                 |                          | TG                       |   |                                 | r. T  | C.c<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C                               |
| 4F405273<br>4F405275<br>4F405275<br>4F405276<br>4F405277<br>4F505276<br>4F405277<br>4F505276<br>4F505276<br>4F505107<br>F501078<br>F501077<br>F611876<br>F611877<br>F611877<br>F6018720<br>F805720<br>F805720   |  |   | ······································ |                                 |                          | TG                       | . G   |                                 | r. T  | C.C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C                |
| 4F405273<br>4F405275<br>4F405275<br>4F405275<br>4F405276<br>4F405276<br>4F405276<br>4F405277<br>4F589102<br>F589107<br>F589107<br>F589107<br>F589107<br>F611876<br>F611876<br>F611877<br>F611876<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F612720<br>F805722  |  |   | T.                                     |                                 |                          | T6                       |   |                                 | L. T  | C.C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C |
| 4F405273<br>4F405275<br>4F405275<br>4F405276<br>4F405276<br>4F405276<br>4F405276<br>4F405277<br>4F589102<br>4F589102<br>4F589102<br>4F589107<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F611877<br>4F605272<br>4F805720<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805722<br>4F805723<br>4F805722<br>4F805722<br>4F805723<br>4F805722<br>4F805722<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805723<br>4F805774<br>4F805774<br>4F805774<br>4F805774<br>4F805774<br>4F805774<br>4F8057  |  |   | T.                                     |                                 |                          | T6                       | 6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7   |                                 | G. T  | C.c<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C                |
| 4F405273<br>4F405274<br>4F405274<br>4F405275<br>4F405275<br>4F405277<br>4F589100<br>F589100<br>F589104<br>F589100<br>F589100<br>F589100<br>F589100<br>F589100<br>F589100<br>F589107<br>F611876<br>F611876<br>F611876<br>F611877<br>F611876<br>F611877<br>F6118720<br>F805720<br>F805722<br>F805723<br>F805723<br>F805723  | ······                                 |   |  |                                 |                          |                          |   |                                 | T. T  |  |
| F405273<br>F405275<br>F405275<br>F405276<br>F405276<br>F405276<br>F589102<br>F589102<br>F589104<br>F589104<br>F589104<br>F589104<br>F589107<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F805722<br>F805722<br>F805723<br>F805724<br>5014362  |  |   | T.                                     |                                 |                          | T6                       | 6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.6<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7<br>.7 |                                 | f. T  | C.C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C |
| Fr465273<br>fr465274<br>fr465275<br>fr465276<br>fr465276<br>fr465276<br>fr4529102<br>F589102<br>F589104<br>F589104<br>F589104<br>F589104<br>F589104<br>F589104<br>F589104<br>F589107<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611876<br>F611877<br>F611876<br>F611877<br>F611876<br>F611877<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611877<br>F611876<br>F611877<br>F611876<br>F611877<br>F611876<br>F611877<br>F611876<br>F611877<br>F611876<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F61187<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605745<br>F605745<br>F605745<br>F6057  | ······································ |   |  |                                 |                          |                          | 6<br>6  |                                 | F. T  |  |
| F+465273<br>F+465275<br>F+465276<br>F+465276<br>F+465276<br>F+465277<br>F589103<br>F589104<br>F589104<br>F589106<br>F589106<br>F589106<br>F589106<br>F589107<br>F611878<br>F6018778<br>F6018778<br>F605720<br>F805721<br>F805722<br>F805722<br>F805722<br>F805722<br>F805722<br>F805722<br>F805722<br>F805724<br>500136<br>F805724<br>500136<br>F805725<br>F805726<br>F805725<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F8057  |  |   | т.<br>                                 |                                 |                          | T                        | 6   |                                 | f. T  |  |
| F405273<br>F405274<br>F405274<br>F405275<br>F405276<br>F589103<br>F589104<br>F589104<br>F589106<br>F589106<br>F589107<br>F611876<br>F611876<br>F611876<br>F611876<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611876<br>S01724<br>F805721<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805724<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F805726<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F80576<br>F805 |  |   | T                                      |                                 |                          | T                        |   |                                 | Г. Т  |  |
| F+465273<br>F+465275<br>F+465276<br>F+465276<br>F+465276<br>F+465277<br>F589102<br>F589104<br>F589104<br>F589104<br>F589106<br>F589107<br>F611876<br>F611876<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611876<br>F611877<br>F611877<br>F611876<br>F611877<br>F611876<br>F611877<br>F611876<br>F611877<br>F611876<br>F611877<br>F611876<br>F605221<br>F805722<br>F605722<br>F605722<br>F605722<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F605724<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F60574<br>F6057474<br>F6057475757<br>F60574757757575775775757757757  |  |   |  |                                 |                          | T6                       | 6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>77   |                                 | Γ. Τ  |  |
| F+465273<br>F+465274<br>F+465275<br>F+465276<br>F+465276<br>F+589103<br>F589104<br>F589104<br>F589106<br>F589106<br>F589106<br>F589106<br>F589106<br>F589107<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611877<br>F611876<br>F611876<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611876<br>F611877<br>F611876<br>F611877<br>F611876<br>F611876<br>F611877<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611877<br>F611876<br>F611877<br>F611876<br>F60177<br>F611876<br>F60177<br>F611877<br>F601727<br>F805721<br>F805721<br>F805721<br>F805721<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805727<br>F805777<br>F805777<br>F805777<br>F805777   |  |   | T                                      |                                 |                          | T                        | 6   |                                 | Г. Т  |  |
| F+465273<br>F+465275<br>F+465276<br>F+465276<br>F+465276<br>F+465277<br>F+589102<br>F589104<br>F589104<br>F589104<br>F589104<br>F589104<br>F589104<br>F589172<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611876<br>F611877<br>F611876<br>F611877<br>F611876<br>F611877<br>F611876<br>F605722<br>F805722<br>F805722<br>F805723<br>F805723<br>F805723<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F805725<br>F80575<br>F80575<br>F80575<br>F80575<br>F80575<br>F80575<br>F80575<br>F80575<br>F80575<br>F80575<br>F80575<br>F80575<br>F80575<br>F80575<br>F80575<br>F80575<br>F80575<br>F80575<br>F80575<br>F80575<br>F80575<br>F80575<br>F80575<br>F80575<br>F80575<br>F80575<br>F80575<br>F80575<br>F80575<br>F80575   |  |   |  |                                 |                          |                          |   |                                 | Г. Т.<br>   |  |
| Fr405273<br>Fr405274<br>Fr405275<br>Fr405276<br>Fr405276<br>Fr405276<br>Fr405277<br>Fr509102<br>F589104<br>F589104<br>F589104<br>F589104<br>F589104<br>F589104<br>F589107<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611876<br>F611877<br>F611876<br>F611877<br>F611876<br>F611877<br>F611876<br>F611877<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611877<br>F611876<br>F611877<br>F611876<br>F611877<br>F611876<br>F611877<br>F611876<br>F611877<br>F611876<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F61177<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F6118  |  |   |  |                                 |                          |                          | б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>бб<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>бб<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>б<br>ббб  |                                 | Г. Т.<br>Г.<br>Г.<br>Г.<br>Г.<br>Г.<br>Г.<br>Г.<br>Г.<br>Г.<br>Г.<br>Г.<br>Г.<br>Г.                                     |  |
| F405273<br>F405274<br>F405274<br>F405276<br>F405276<br>F405276<br>F405276<br>F589102<br>F589102<br>F589104<br>F589104<br>F589106<br>F589107<br>F589107<br>F611876<br>F611876<br>F611876<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611876<br>F611877<br>F611876<br>F611877<br>F611876<br>F611877<br>F611876<br>F611877<br>F611876<br>F611877<br>F611876<br>F611877<br>F611876<br>F611877<br>F611876<br>F611877<br>F611876<br>F611877<br>F611876<br>F611877<br>F611876<br>F611877<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F611876<br>F605722<br>F605722<br>F605722<br>F605722<br>F605722<br>F605722<br>F605722<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605725<br>F605755<br>F605755<br>F605755<br>F605755<br>F605755<br>F605755<br>F605755<br>F605755<br>F605755<br>F605755<br>F605755<br>F605755<br>F605755<br>F605755<br>F605755<br>F605755<br>F605755<br>F605755<br>F605755<br>F6057555<br>F6057555<br>F6057555<br>F6057555<br>F60575555<br>F605755555<br>F605755555555555555555555555555555555555  |  |   | T                                      |                                 |                          | T6                       |   |                                 | Γ. Τ<br>Γ. Τ<br>Γ. Γ. Γ.<br>Γ. Γ.<br>Γ. Γ.<br>Γ.<br>Γ.<br>Γ.<br>Γ.<br>Γ.<br>Γ.<br>Γ.<br>Γ.<br>Γ.<br>Γ.<br>Γ.<br>Γ.<br>Γ |  |
| F+465273<br>(F+465274<br>(F+465275<br>(F+465276<br>(F+465276<br>(F+465277<br>(F589104<br>F589104<br>F589106<br>F589106<br>F589106<br>F589107<br>F611876<br>F611876<br>F611876<br>F611877<br>F611876<br>F611877<br>F611877<br>F611877<br>F611877<br>F611876<br>F611877<br>F611876<br>F611877<br>F611877<br>F611876<br>F611877<br>F611876<br>F611877<br>F611876<br>F611877<br>F611877<br>F611876<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F605720<br>F805721<br>F805721<br>F805721<br>F805721<br>F805721<br>F805721<br>F805721<br>F805721<br>F805721<br>F805721<br>F805721<br>F805721<br>F805721<br>F805721<br>F805721<br>F805721<br>F805721<br>F805721<br>F805722<br>F805721<br>F805721<br>F805721<br>F805721<br>F805721<br>F805722<br>F805721<br>F805721<br>F805722<br>F805723<br>F805721<br>F805722<br>F805723<br>F805721<br>F805721<br>F805722<br>F805723<br>F805721<br>F805721<br>F805723<br>F805721<br>F805723<br>F805721<br>F805723<br>F805724<br>F805723<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724  | т.<br>                                 |   | T                                      | сА.<br>СА.                      |                          | T6.<br>                  | . 6   |                                 | Г. Т  |  |
| Fr405273<br>Fr405274<br>Fr405274<br>Fr405275<br>Fr405276<br>Fr405276<br>Fr589102<br>Fr589104<br>Fr589104<br>Fr589106<br>Fr589106<br>Fr589107<br>Fr611877<br>Fr611877<br>Fr611877<br>Fr611877<br>Fr611877<br>Fr611877<br>Fr611877<br>Fr611877<br>Fr611877<br>Fr611877<br>Fr611877<br>Fr611877<br>Fr611877<br>Fr611877<br>Fr611877<br>Fr611877<br>Fr611877<br>Fr611877<br>Fr611877<br>Fr611877<br>Fr611877<br>Fr611877<br>Fr611877<br>Fr611877<br>Fr611877<br>Fr611877<br>Fr611877<br>Fr611877<br>Fr611877<br>Fr611877<br>Fr611877<br>Fr611877<br>Fr611877<br>Fr611877<br>Fr611877<br>Fr611877<br>Fr611877<br>Fr611877<br>Fr611877<br>Fr605722<br>Fr805722<br>Fr805722<br>Fr805722<br>Fr805722<br>Fr805722<br>Fr805722<br>Fr805722<br>Fr805723<br>Fr805724<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr14375<br>Gr147  |  |   |  |                                 |                          | T6                       |   |                                 | Γ. Τ.<br>   |  |
| Fr405273<br>(F405274<br>(F405274<br>(F405274<br>(F405276<br>(F405276)<br>(F405277)<br>(F589103<br>F589104<br>F589104<br>F589104<br>F589106<br>F589107<br>F611876<br>F611876<br>F611876<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F605720<br>F805721<br>F805722<br>F805722<br>F805722<br>F805722<br>F805722<br>F805722<br>F805722<br>F805722<br>F805723<br>G014365<br>G014365<br>G014365<br>G014365<br>G014375<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014385<br>G014374<br>G014385<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374<br>G014374G014374<br>G014374<br>G014374<br>G014374G014374<br>G014374G014374<br>G014374<br>G014374G014374<br>G014374<br>G014374G014374<br>G014374<br>G014374G014374<br>G014374<br>G014374G014374<br>G014374<br>G014374G014374<br>G014374<br>G014374G014374<br>G014374<br>G014374G014374<br>G014374G014374<br>G014374G014374<br>G014374G014374<br>G014374G014374<br>G014374G014374<br>G014374G014374<br>G014374G014374<br>G014374G014374<br>G014374G014374<br>G014374G014374<br>G014374G014374<br>G014374G014374<br>G014374G014374<br>G014374G014374<br>G014374G014374<br>G014374G01474<br>G014374<br>G014374G01474<br>G01474G01474<br>G01474G01474<br>G01474G01474<br>G014   |  |   | TT.                                    |                                 |                          | T                        |   | C                               | Г. Т<br>Г. Т<br>Г<br>Г<br>Г<br>Г<br>Г<br>Г  |  |
| <pre>F4695273 #F4095274 #F4095274 #F4095274 #F4095276 #F4095276 #F4095276 #F4095277 #F589102 F589104 F589172 F611877 F611876 F605722 F805722 F805722 F805722 F805723 F8057 F80572 F805723 F805723 F8057 F80572 F80572 F80572 F80572 F80572 F805723 F80572 F805723 F80572 F8057 F8057 F8057 F8057 F8057 F805 F805 F805 F805 F805 F805 F805 F805</pre>  |  |   | T                                      |                                 |                          |                          | 6<br>6<br>6   |                                 | Г. Т  |  |
| <pre>F4605273 #F405274 #F405274 #F405274 #F405274 #F405276 #F405276 #F405277 #F589102 F589104 F589106 F589106 F589107 F611876 F611876 F611876 F611877 F611876 F611877 F611878 F805720 F805721 F805722 F805722 F805722 F805722 F805722 F805722 F805722 F805723 F805724 G614366 G614366 G614366 G614366 G614366 G614366 G614375 G614375 G614376 G259183 G250185 G259184 G259185 G259185 G3561174 </pre>   |  |   | T                                      |                                 |                          | T6                       |   |                                 |   |  |
| NF465273<br>WF465274<br>WF465275<br>WF465276<br>WF465276<br>WF589103<br>F589104<br>F589106<br>F589106<br>F589106<br>F589106<br>F589107<br>F611876<br>F611876<br>F618771<br>F6187720<br>F605721<br>F805722<br>F805724<br>G614365<br>G614356<br>G614365<br>G614375<br>G614375<br>G614376<br>G614376<br>G614376<br>G614376<br>G614376<br>G614376<br>G614376<br>G614376<br>G614376<br>G614376<br>G614376<br>G614376<br>G614377<br>G614376<br>G614377<br>G614376<br>G614377<br>G614376<br>G614377<br>G614376<br>G614377<br>G614376<br>G614377<br>G614376<br>G614377<br>G614376<br>G614377<br>G614376<br>G614377<br>G614376<br>G614377<br>G614376<br>G614377<br>G614376<br>G614377<br>G614376<br>G614377<br>G614376<br>G614377<br>G614376<br>G614377<br>G614376<br>G614377<br>G614376<br>G614376<br>G614376<br>G550186<br>G550187<br>G550187<br>G550187<br>G55017<br>G55017<br>G55017<br>G55017<br>G55017<br>G55017<br>G55017<br>G57017<br>G770<br>G770<br>G770<br>G770<br>G770<br>G770<br>G770   |  |   | TAAAAAAAAA                             | сА.<br>СА.<br>А.Т.<br>А.Т.      |                          | T<br>.6.<br>.A.<br>      |   | c                               | Г. Т  |  |
| NF465273<br>WF465274<br>WF465275<br>WF465276<br>WF465276<br>WF465276<br>WF589103<br>F589104<br>F589104<br>F589104<br>F589106<br>F589107<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F605722<br>F605723<br>F605723<br>F605724<br>F6014372<br>F605724<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014375<br>F6014372<br>F6014372<br>F6014375<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014372<br>F6014375<br>F6014372<br>F6014372<br>F6014375<br>F6014375<br>F6014372<br>F6014375<br>F6014375<br>F6014375<br>F6014375<br>F6014375<br>F6014375<br>F6014375<br>F6014375<br>F6014375<br>F6014375<br>F6014375<br>F6014375<br>F6014375<br>F6014375<br>F6014375<br>F6014375<br>F6014375<br>F6014375<br>F6014375<br>F601477<br>F601477<br>F601477<br>F601477<br>F601477<br>F601477<br>F601477<br>F601477<br>F601477<br>F601477<br>F601477<br>F601477<br>F601477<br>F601477<br>F601477<br>F601477<br>F601477<br>F601477<br>F601477<br>F601477<br>F601477<br>F601477<br>F601477<br>F601477<br>F601477<br>F601477<br>F601477<br>F601477<br>F601477<br>F601477<br>F601477<br>F601477<br>F601477<br>F601477<br>F601477<br>F601477<br>F601477<br>F601477<br>F601477<br>F601477<br>F601477<br>F601477<br>F60147  |  |   | TT.                                    |                                 |                          | T                        | 66  | C                               | F. T  |  |
| NF-465273<br>WF465274<br>WF465275<br>WF465276<br>WF465276<br>WF465276<br>WF589102<br>F589103<br>F589104<br>F589104<br>F589104<br>F589104<br>F589104<br>F589107<br>F611877<br>F6118776<br>F6118776<br>F6118776<br>F6118776<br>F6118776<br>F6118776<br>F6118776<br>F6118776<br>F6118776<br>G614365<br>G614364<br>G614364<br>G6143763<br>G614375<br>G614375<br>G614375<br>G614375<br>G614375<br>G614375<br>G614375<br>G614375<br>G614375<br>G614375<br>G614375<br>G614375<br>G614375<br>G614375<br>G564175<br>G564175<br>G564175   |  |   | T                                      |                                 |                          |                          |   |                                 | Г. Т  |  |
| wF+465273           wF+465273           wF+465274           wF4652754           wF4652754           wF4652754           wF4652774           wF4652774           wF4652774           wF589103           F589104           F589104           F589106           F589107           F611876           F611876           F611876           F611876           F605723           F805720           F805721           F805722           F805723           G614364           G614364           G614362           G614373           G614375           G614376           G250186           G310152           G564174           G564175           G672917           G727539  |  |   | TT.                                    | CA.<br>A.<br>A.<br>A.<br>A.<br> |                          | T                        |   | C                               | Γ. ΤΑ<br>Γ. ΤΑ<br>Γ. Γ. Γ  |  |
| wF+465273           wF+465273           wF465274           wF465275           wF465276           wF465276           wF465277           wF589102           F589103           F589104           F589104           F589107           F61877           F611877           F611877           F605721           F805724           6014362           6014362           6014364           6014375           6014375           6014374           6014375           6014375           6014376           6014375           6014375           6014374           6014375           6014375           6014374           6250185           6250185           6250185           6250185           6250185           6250185           6250185           6250185           6250185           6250185           6250185           6250185           6250185           6279916  |  |   |  | с                               |                          |                          | . 6   | C                               | Г. Т  |  |
| NF-465273           NF-465274           NF-465274           NF-465274           NF-465276           NF-465276           NF-589103           F589104           F589104           F589104           F589106           F589107           F611876           F611876           F611876           F605720           F805721           F805723           F805724           G614362           G614362           G614373           G614376           G259183           G259184           G259184           G259185           G319152           G614375           G614376           G259184           G259185           G319152           G564174           G564175           G679916           G727539           G72540           G72540           G72540           G725404           G725473           M1-2017  |  |   |  |                                 |                          | T6                       | 66.<br>66.<br>66.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.<br>6.   |                                 | Γ. Τ.<br>   |  |
| NF-405273           NF-405274           NF-405274           NF-405274           NF-405274           NF-405274           NF-405274           NF-405274           NF-405274           NF-405274           NF-589103           F589104           F589104           F589106           F589106           F589107           F611876           F611876           F611876           F605720           F805722           F805722           G014362           G014362           G014362           G014374           G014372           G014374           G014375           G072918           G259184           G259184           G2591916 <td></td> <td></td> <td></td> <td>с</td> <td></td> <td>T6.<br/></td> <td></td> <td>C</td> <td>Г. Т</td> <td></td>  |  |   |  | с                               |                          | T6.<br>                  |   | C                               | Г. Т  |  |
| MF405273<br>MF405274<br>MF405275  |  |   |  |                                 |                          |                          |   | C                               | Γ. Τ.<br>   |  |

Fig. 2: Continue

| KT869877  | 8890001122<br>5773790507 | 3344556667<br>3658493498 | 9999000000<br>8899011122<br>3736214667 | 111111111<br>00000000000<br>4455666778<br>4713168780<br>TGGTGGGGAA   | 0001111111<br>9991122234<br>1232435791 | 1111111111<br>4445555555<br>2361235678 | 1111111111<br>66666667777<br>3457898248   | 1111111222<br>7888899000<br>9126906024 | 2222222222<br>0001122234<br>7897934564 | 22222223<br>55566668<br>01201480 |
|---|--------------------------|--------------------------|--|--|--|--|---|--|--|----------------------------------|
| KX458235  |                          |                          |  | 1001000044   |  |  |   |  |  |                                  |
| KX778720  |                          |                          |  |  |  |  | T   |  |  |                                  |
| KX898030  |                          |                          | T.                                     | GC   |  |  | T   | T                                      |  |                                  |
| 00966193  |                          |                          |  | Ť  |  |  |   |  |  |                                  |
| (Y075986<br>(Y075987  |                          |                          |  |  |  |  |   |  |  |                                  |
| (Y075988  |                          |                          |  |  |  |  |   |  |  |                                  |
| Y075989   |                          |                          |  |  |  |  |   |  |  |                                  |
| (Y875998  |                          |                          |  |  |  |  |   |  |  |                                  |
| Y075991   |                          |                          |  |  |  |  |   |  |  |                                  |
| Y075992   | T                        |                          |  | A  |  |  | T   |  |  |                                  |
| Y075993   | T                        | T                        |  |  |  |  | T   |  |  |                                  |
| (Y875994  |                          |                          |  |  |  |  |   |  |  |                                  |
| (Y354038  |                          |                          |  |  |  |  |   |  |  |                                  |
| Y354039   |                          |                          |  |  |  |  | ····T·····  |  |  |                                  |
| (Y418686<br>(Y421347  |                          |                          |  | .AA  | A                                      |  |   | .AA0                                   |  |                                  |
| Y421347   |                          |                          |  |  |  |  |   |  |  |                                  |
| Y778776   |                          |                          |  |  |  |  |   |  |  |                                  |
| Y778777   |                          |                          |  |  |  |  |   |  |  |                                  |
| (Y865242  |                          |                          |  |  |  |  | T   |  |  | A                                |
| Y865243   |                          |                          |  |  |  |  | ····T·····  | ····C·····                             |  |                                  |
| Y924474   |                          | C                        | C                                      | .A   | A                                      |  | T   | .AAG                                   |  |                                  |
| Y924475   |                          | ····C·····               | C                                      | .A   | A                                      | C66                                    | T   | .AAG                                   |  |                                  |
| (Y996337  |                          |                          |  |  |  |  |   |  |  |                                  |
| Y996338   |                          |                          |  |  |  |  |   |  |  |                                  |
| (Y996339<br>(Y996340  |                          |                          |  |  |  |  |   |  |  |                                  |
| Y996348   |                          |                          |  |  |  |  |   |  |  |                                  |
| (Y996341<br>(Y996342  |                          |                          |  |  |  |  |   |  |  |                                  |
| (Y996343  |                          |                          |  |  |  |  |   |  |  |                                  |
| Y996344   | ····T·····               |                          | ····C·····                             |  |  |  | ····C·····  |  |  |                                  |
| Y996345   |                          |                          | C                                      |  |  | .T                                     | T   |  |  |                                  |
| F069115   |                          |                          |  | C  |  |  | TA  |  |  |                                  |
| F069116   |                          |                          |  | c  |  |  | T   |  |  |                                  |
| FØ69252   |                          |                          |  |  | A                                      |  |   |  | *******                                |                                  |
| F079253   |                          |                          | <b>C</b>                               | T  | ····A·····                             |  |   |  |  |                                  |
| F079254   |                          |                          |  |  |  |  |   |  |  |                                  |
| F884994   |                          |                          |  |  |  |  |   |  | *********                              |                                  |
| F155642   |                          |                          |  | .A   |  | ····#*····                             | T T   |  | 1                                      |                                  |
| F155643   |                          |                          |  |  |  |  |   |  |  |                                  |
| F162298   |                          |                          |  | G.   |  |  |   |  |  |                                  |
| F162299   |                          |                          |  |  |  |  | T   | 6                                      |  |                                  |
| F405271   |                          | .c                       |  | C  |  | A                                      | T   |  |  |                                  |
| F405272   |                          | G                        |  | C  | C.                                     | *********                              | T   |  |  |                                  |
| F485273   |                          |                          |  | c  |  |  |   |  |  |                                  |
| F485274   |                          |                          |  | c  |  |  | ····T·····  |  |  |                                  |
| F405275   |                          |                          |  | c  |  |  |   |  |  |                                  |
| F405276   |                          |                          |  | C  |  | *********                              |   |  |  |                                  |
|   |                          |                          |  | 6  |  |  |   |  |  |                                  |
|   |                          |                          |  | c  |  |  | ····T·····  |  |  |                                  |
| F589102   |                          |                          |  |  |  |  | T   |  |  |                                  |
| F589102<br>F589103<br>F589104   |                          | с                        |  | <br>c  |  | ····T                                  | T<br>T  |  |  |                                  |
| F589102<br>F589103<br>F589104<br>F589106  |                          |                          |  | c  |  | ·····                                  | T<br>T<br>T   |  |  |                                  |
| F589102<br>F589103<br>F589104<br>F589106<br>F589107   |                          | c                        |  | c<br>c   |  | TT                                     | T<br>T<br>T<br>T<br>T   |  |  |                                  |
| F589102<br>F589103<br>F589104<br>F589106<br>F589107<br>F611876  |                          | c                        |  | c<br>c   | ·····                                  | TT                                     | T<br>T<br>T<br>T<br>T   |  |  |                                  |
| F589102<br>F589103<br>F589104<br>F589106<br>F589107<br>F611876<br>F611877   | c.                       | c                        | .a                                     | c<br>c<br>c  | ·····                                  | TT                                     | T<br>T<br>T<br>T<br>T   |  |  |                                  |
| F589102<br>F589103<br>F589104<br>F589106<br>F589107<br>F611876<br>F611877<br>F611878  | c.                       | c                        |  | c<br>c<br>c  |  | π                                      | T<br>T<br>T<br>T<br>T<br>T<br>T   |  |  |                                  |
| F589102<br>F589103<br>F589104<br>F589106<br>F589107<br>F611876<br>F611877<br>F611878<br>F805719   | c.                       | c                        |  | c<br>c<br>c  |  | п                                      | T<br>T<br>T<br>T<br>T<br>T<br>T   |  |  |                                  |
| F589102<br>F589103<br>F589104<br>F589106<br>F589107<br>F611876<br>F611877<br>F611878<br>F805719<br>F805720  | c.                       | c                        | .A                                     | C<br>C   |  | п                                      | T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T  |  |  |                                  |
| F589102<br>F589103<br>F589104<br>F589106<br>F589106<br>F589107<br>F611876<br>F611877<br>F611878<br>F805719<br>F805720<br>F805721  | c.                       | c                        | .A                                     | C<br>C   |  | π                                      | T<br>T<br>T<br>T<br>T<br>T<br>TT<br>TT<br>TT  |  |  |                                  |
| F589102<br>F589104<br>F589106<br>F589107<br>F611876<br>F611877<br>F611878<br>F805719<br>F805720<br>F805722<br>F805722   | c.                       | c                        | .A                                     | C<br>C<br>C  |  | п                                      | T<br>T<br>T<br>T<br>T<br>T<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.   |  |  |                                  |
| F589102<br>F589103<br>F589104<br>F589106<br>F589107<br>F611876<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F61272<br>F605720<br>F805723<br>F805723<br>F805724  |                          | c                        | .A                                     | C<br>C<br>C  |  | T                                      | T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br><br>  |  |  |                                  |
| F589103<br>F589104<br>F589104<br>F589106<br>F589107<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F805721<br>F805721<br>F805722<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723   | c.                       | c                        | .A                                     | C<br>C   |  | п                                      | T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br><br>   |  |  |                                  |
| F589102<br>F589104<br>F589104<br>F589106<br>F589107<br>F611876<br>F611876<br>F611877<br>F611878<br>F805720<br>F805722<br>F805722<br>F805722<br>F805723<br>F805724<br>G014364  |                          | c                        | .A                                     | C  |  | TT                                     | T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T |  |  |                                  |
| F589102<br>F589103<br>F589104<br>F589106<br>F589106<br>F589107<br>F611876<br>F611877<br>F611878<br>F805720<br>F805720<br>F805722<br>F805722<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805725<br>F805725<br>F805725<br>F8057575757575    |                          | c                        | .A                                     | C  |  |  | T<br>T<br>T<br>T<br>T<br>T<br>T   | 6                                      |  |                                  |
| F589102<br>F589104<br>F589104<br>F589106<br>F589107<br>F611876<br>F611876<br>F611878<br>F805721<br>F805721<br>F805722<br>F805722<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805724<br>G014364<br>G014365<br>G014365   |                          | c                        | .A                                     | C  |  |  | T<br>T<br>T<br>T<br>T<br>T<br>T   | 6                                      |  |                                  |
| F589102<br>F589103<br>F589104<br>F589106<br>F589107<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F805721<br>F805722<br>F805722<br>F805722<br>F805722<br>F805724<br>G014366<br>G014365<br>G014366   |                          | c                        | .A                                     | c<br>c<br>c<br>c   |  |  |   | G                                      |  |                                  |
| F589102<br>F589103<br>F589106<br>F589106<br>F589107<br>F611877<br>F611877<br>F611877<br>F611877<br>F805720<br>F805721<br>F805722<br>F805722<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>G014366<br>G014366<br>G014366  |                          | CC                       | .A                                     | C  |  |  |   | 6.<br>                                 |  |                                  |
| F589102<br>F589103<br>F589106<br>F589106<br>F589106<br>F589107<br>F611877<br>F611877<br>F611877<br>F611877<br>F611877<br>F805721<br>F805721<br>F805723<br>F805723<br>F805723<br>F805724<br>5014365<br>5014365<br>5014373  |                          | cc                       |  | C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C   |  |  |   | 6.<br>                                 |  |                                  |
| F589102<br>F589104<br>F589104<br>F589104<br>F589107<br>F611876<br>F611876<br>F611877<br>F805720<br>F805722<br>F805721<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805724<br>F805723<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F805724<br>F8057474<br>F8  |                          | C                        | .A6.                                   | C<br>C<br>C<br>C<br>C<br>C<br>C  |  |  |   | 6<br>AA6.                              |  |                                  |
| F589102<br>F589104<br>F589104<br>F589106<br>F589106<br>F589107<br>F611876<br>F611876<br>F611877<br>F605729<br>F805720<br>F805722<br>F805722<br>F805722<br>F805724<br>5014362<br>5014365<br>5014365<br>5014365<br>5014372<br>5014373<br>5014374  |                          | CC                       | .A6.                                   | C<br>C<br>C<br>C<br>C<br>C<br>G<br>C<br>G<br>C   |  |  |   | 6                                      |  |                                  |
| F589102<br>F589104<br>F589104<br>F589104<br>F589106<br>F589107<br>F611876<br>F611876<br>F611877<br>F611878<br>F805720<br>F805722<br>F805723<br>F805724<br>F805723<br>F805724<br>F805723<br>F805724<br>F805723<br>F805724<br>F805723<br>F805724<br>F805723<br>F805724<br>F805723<br>F805723<br>F805723<br>F805724<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>F80575723<br>F8057757575757575757575757575757575757575   |                          | сс<br>с                  | .A                                     | C<br>C<br>C<br>C<br>C<br>GC<br>T   |  |  |   | G                                      |  |                                  |
| F589102<br>F589104<br>F589104<br>F589106<br>F589106<br>F589107<br>F611876<br>F611876<br>F605720<br>F805721<br>F805722<br>F805722<br>F805722<br>F805722<br>F805724<br>5014362<br>5014365<br>5014365<br>5014365<br>5014365<br>5014375<br>5014375<br>5014375<br>5014375<br>5014375   |                          | сс                       | .A6.                                   | C<br>C<br>C<br>C<br>C<br>C<br>GC   |  |  |   | G                                      |  |                                  |
| F589102<br>F589104<br>F589104<br>F589106<br>F589107<br>F611876<br>F611877<br>F611878<br>F805721<br>F805722<br>F8057221<br>F8057221<br>F8057223<br>F805724<br>F8057224<br>F805724<br>G014366<br>G014366<br>G014376<br>G014375<br>G014375<br>G014375<br>G014375   |                          | CC                       | .A                                     | C<br>C<br>C<br>C<br>C<br>GC<br>T   |  |  |   | G                                      |  |                                  |
| F589102<br>F589104<br>F589104<br>F589106<br>F589107<br>F611876<br>F611877<br>F605720<br>F805721<br>F805722<br>F805722<br>F805722<br>F805722<br>G014362<br>G014365<br>G014366<br>G014366<br>G014376<br>G014376<br>G014375<br>G014375<br>G014375<br>G014375   |                          | сс                       |  | C<br>C<br>C<br>C<br>G<br>G<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C. |  |  |   | 6.<br>                                 |  |                                  |
| F589102<br>F589104<br>F589104<br>F589106<br>F589107<br>F611876<br>F611876<br>F611877<br>F805722<br>F805721<br>F805722<br>F805723<br>F805723<br>F805723<br>F805723<br>F805723<br>G014362<br>G014366<br>G014366<br>G014366<br>G014376<br>G014376<br>G014373<br>G014375<br>G014375<br>G014375<br>G014375<br>G014375  |                          | CC                       | .A                                     | C<br>C<br>C<br>C<br>C<br>GC<br>GC  |  |  |   | G                                      |  |                                  |
| F589102 F589103 F589104 F589104 F589106 F589107 F611877 F611877 F611877 F611877 F611877 F611877 F611877 F611877 F605724 F805722 F805724 F805724 G014365 G014364 G014365 G014364 G014376 G014376 G014376 G014376 G014376 G0250184 G0250184 G0250184 G0250185 G310152 G3564174  |                          | CC                       | .A                                     | CA.  |  |  |   | 6                                      |  |                                  |
| F589102<br>F589104<br>F589104<br>F589106<br>F589107<br>F611876<br>F611876<br>F611877<br>F611877<br>F605722<br>F805723<br>F805724<br>G614362<br>G614362<br>G614362<br>G614364<br>G614364<br>G614374<br>G614375<br>G614375<br>G614375<br>G614375<br>G614375   |                          | CC                       | .A                                     | C  |  |  |   | 6                                      |  |                                  |
| #589102<br>#589103<br>#589104<br>#589104<br>#589106<br>#589107<br>#6118776<br>#6118778<br>#6118778<br>#76118778<br>#76118778<br>#7605724<br>#7805724<br>#7805724<br>#7805724<br>#7805724<br>#7805724<br>#7805724<br>#7805724<br>#7805724<br>#7805724<br>#7805724<br>#7805724<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#780575<br>#   |                          | сс<br>с                  | .A6.                                   | CA.  |  |  |   | 6                                      |  |                                  |
| F589102<br>F589104<br>F589104<br>F589106<br>F589107<br>F611876<br>F611876<br>F611877<br>F611877<br>F611877<br>F611876<br>F613876<br>F805721<br>F805724<br>G614362<br>G614362<br>G614363<br>G614373<br>G614374<br>G614375<br>G614375<br>G614375<br>G614375<br>G614375<br>G564175<br>G564175<br>G6679917<br>G679916   |                          | CC                       |  | С<br>с<br>с<br>с<br>с<br>с<br>с<br>с   |  |  |   | 6                                      |  |                                  |
| #589102<br>#589104<br>#589104<br>#589106<br>#589107<br>#611876<br>#611876<br>#61877<br>#605721<br>#7805720<br>#7805721<br>#7805722<br>#7805723<br>#7805723<br>#7805723<br>#7805723<br>#7805723<br>#7805723<br>#7805723<br>#7805723<br>#7805723<br>#7805723<br>#7805723<br>#7805723<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#7805725<br>#78057575<br>#78057575<br>#78057575<br>#780575757575<br>#78057575<br>#780575  |                          | CC                       | .A<br>                                 | CA   |  |  |   | 6                                      |  |                                  |
| #589102<br>#589103<br>#589104<br>#589106<br>#589106<br>#589107<br>#611876<br>#611876<br>#611877<br>#F61877<br>#F605722<br>#F805724<br>#F805724<br>#F805724<br>#F805724<br>#F805724<br>#6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014376<br>\$6014775<br>\$6079917<br>\$60727540<br>\$60727540<br>\$60727540<br>\$60727540<br>\$60727540<br>\$60727540<br>\$60727540<br>\$60727540<br>\$60727540<br>\$60727540<br>\$60727540<br>\$60727540<br>\$60727540<br>\$60727540<br>\$60727540<br>\$60727540<br>\$60727540<br>\$60727540<br>\$60727540<br>\$60727540<br>\$60727540<br>\$60727540<br>\$60727540<br>\$60727540<br>\$60727540<br>\$60727540<br>\$60727540<br>\$60727540<br>\$60727540<br>\$60727540<br>\$60727540<br>\$60727540<br>\$60727540<br>\$60727540<br>\$60727540<br>\$60727540<br>\$60727540<br>\$60727540<br>\$60727540<br>\$60727540<br>\$60727540<br>\$60727540<br>\$60727540<br>\$60727540<br>\$60727540<br>\$60727540<br>\$60727540<br>\$60727540  |                          | CC                       |  | С<br>С<br>С<br>С<br>С<br>С<br>С  |  |  |   | 6                                      |  |                                  |
| IF-885277<br>IF-589103<br>IF-589104<br>IF-589106<br>IF-589106<br>IF-589107<br>IF-589107<br>IF-611876<br>IF-611876<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877<br>IF-611877  |                          | CC                       | .A<br>                                 | C<br>C<br>C<br>C<br>C<br>GC<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C.                    |  | TA.                                    |   | G                                      |  |                                  |
| #589102<br>#589104<br>#589104<br>#589106<br>#589106<br>#589107<br>#50177<br>#505722<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505725<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505723<br>#505725 |                          | CC                       |  | С<br>С<br>С<br>С<br>С<br>С<br>С  |  |  |   | 6                                      |  |                                  |
| #589102<br>#589103<br>#589104<br>#589104<br>#589106<br>#589107<br>#5118776<br>#5118776<br>#5018779<br>#505722<br>#505722<br>#505722<br>#505722<br>#505722<br>#505722<br>#505722<br>#505722<br>#505722<br>#505722<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#505725<br>#50575<br>#50575<br>#5057575<br>#5057575<br>#5057575<br>#5057575<br>#5057575<br>#5057575<br>#5057575<br>#5057575<br>#5057575<br>#5057575<br>#5057575<br>#5057575<br>#5057575<br>#5057575<br>#5057575<br>#5057575<br>#5057575<br>#5057575<br>#5057575<br>#5057575<br>#5057575<br>#5057575<br>#5057575<br>#5057575<br>#5057575<br>#5057575<br>#505757575<br>#505757575<br>#505757575<br>#505757575<br>#505757575757575<br>#505757575757575757575757575757575757575  |                          | сс<br>                   | .AC                                    | C<br>C<br>C<br>C<br>C<br>GC<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C.                    |  | TA.<br>                                |   | G                                      |  |                                  |

Fig. 2: Continue

| 1869077   | 3334444556<br>5680239251 | 3333344444<br>6788901113<br>8923132580<br>CGGCGACGAA | 3344456678<br>3958910954 | 9990222233<br>3782012678                 | 4488899901<br>0706723414   | 2326907878                            | 7777889999<br>0467891456 | 900002344<br>7034695325   | 5556666778<br>2480359587  | 11222222   |
|---|--------------------------|--|--------------------------|--|--|---------------------------------------|--------------------------|---|---|--|
| X458235   |                          |  |                          |  |  |                                       |                          |   |   |  |
| X778720   |                          | .c   |                          |  |  |                                       |                          |   |   |  |
| X898030   |                          | A  |                          | G  | T  |                                       | T                        | c   | c   | .A.C   |
| x966193   |                          |  |                          |  | T  |                                       |                          | C   | c   |  |
| 075986  |                          |  |                          |  |  |                                       |                          | C   |   |  |
| 075987  |                          |  |                          |  |  |                                       |                          | C   | C   |  |
| 075988  |                          |  |                          |  |  |                                       |                          | C   | C   |  |
| 075989  |                          |  |                          |  | T  | A                                     |                          | .TC   | c.c   |  |
| 075990  |                          |  |                          |  | T  |                                       |                          | .TC   | c.c   |  |
| 075991  |                          |  |                          |  | T  |                                       |                          | .TC   | c.c   |  |
| 075992  |                          |  | T                        |  | T  | G.                                    |                          | .T  |   | .A   |
| 075993  |                          |  | T                        |  | T  |                                       |                          | .T  | C   | .A   |
| 075994  |                          |  |                          |  |  |                                       |                          |   |   |  |
| /354038   |                          | .c   |                          |  |  |                                       |                          |   |   |  |
| 354039  |                          | .c   |                          |  |  |                                       |                          |   |   |  |
| 418606  | CT                       | TT   | C                        | GAT                                      | TA.T   | *********                             |                          |   | c   |  |
| (421347   |                          |  |                          |  |  |                                       |                          |   |   |  |
| 421348  |                          |  |                          |  |  |                                       |                          |   |   |  |
| 778776  | .cG                      |  |                          |  |  |                                       |                          | .TC   |   | .A   |
| 778777  |                          |  |                          |  |  |                                       |                          |   |   |  |
| 865242  |                          | .c   |                          |  |  |                                       |                          |   |   |  |
| 865243  |                          |  |                          |  | T  |                                       |                          | CT.   | T.C   |  |
| 924474  | C                        |  |                          |  | T  |                                       |                          |   | C   | .AA.   |
| 924475  |                          |  |                          |  |  |                                       |                          |   |   |  |
| 996337  |                          | .c   |                          |  |  |                                       |                          |   |   |  |
| 996338  |                          |  |                          |  |  |                                       |                          |   |   |  |
| 996339  |                          |  |                          |  | T  |                                       |                          |   | c.c   |  |
| 996340  |                          |  |                          |  |  |                                       |                          |   |   |  |
| 996341  |                          |  |                          |  | T  |                                       |                          |   |   |  |
| 996342  |                          |  |                          |  |  |                                       |                          |   |   |  |
| 996343  |                          |  |                          |  |  |                                       |                          |   |   |  |
| 996344  |                          |  |                          |  |  |                                       |                          |   |   |  |
| 996344  |                          | G.   |                          |  |  |                                       |                          |   |   |  |
| 996345  |                          |  |                          |  |  |                                       |                          |   |   |  |
| 069115  |                          |  |                          |  |  |                                       |                          |   |   |  |
| 069116<br>069252  |                          |  |                          |  |  |                                       |                          |   |   |  |
| 069252  |                          |  |                          |  |  |                                       |                          |   |   |  |
| 012622  |                          | A  |                          |  |  |                                       |                          |   |   |  |
| 079254  |                          |  |                          |  |  |                                       |                          |   |   |  |
| 084994  |                          | .TA  |                          |  |  |                                       |                          | ·····C··  |   |  |
| 155641  |                          |  |                          |  |  |                                       |                          |   |   |  |
| 155642  |                          | .c   | A                        |  | T  |                                       |                          |   | c   |  |
| 155643  |                          |  |                          |  |  |                                       |                          |   |   |  |
| 162298  |                          |  |                          |  | T  |                                       |                          | C   | c.c   |  |
| 162299  |                          |  |                          |  |  |                                       |                          |   |   |  |
| 405271  |                          |  |                          |  |  |                                       |                          |   |   |  |
| 405272  |                          |  |                          |  |  |                                       |                          |   |   |  |
| 405273  |                          |  |                          |  |  |                                       |                          |   |   |  |
| 405274  |                          |  |                          |  | T  |                                       |                          |   | C.G   |  |
| 405275  |                          |  | C.                       |  | TG.  |                                       |                          | C   | C.G   |  |
| 405276  |                          |  |                          |  | T  |                                       |                          | C   | C.G   |  |
|   |                          |  |                          |  |  |                                       |                          |   |   |  |
| 405277  |                          |  |                          |  | T  |                                       |                          | c   | C.G   |  |
| 405277  |                          |  |                          |  | T<br>T   |                                       | ·····                    | c<br>c  | C.G   | .AT  |
| 589102  |                          |  |                          |  | Τ  |                                       |                          | c   | CG  | .AT  |
| 589102  |                          |  |                          |  | ттт  |                                       | т                        | c   | c   | .AT  |
| 589102<br>589103<br>5589104   |                          |  | ·····                    | ·····                                    | T<br>TT<br>T   |                                       | T                        | c   |   | .AT  |
| 589102<br>589103<br>589104<br>589106  |                          |  | <br>t                    |  | T  |                                       |                          | c<br>c<br>c   | CG<br>C.G<br>C.G  | .AT  |
| 589102<br>589103<br>589104<br>589106<br>589107  |                          |  |                          |  | TTT  |                                       | т                        | c<br>c<br>c   | CG<br>C.G<br>C.G  | .AT  |
| 589102<br>589103<br>589104<br>589106<br>589107  |                          |  |                          |  | TTT  |                                       | т                        | c<br>c<br>c   | CG<br>C.G<br>C.G  | .AT  |
| 589102<br>589103<br>5589104<br>5589106<br>5589107<br>569107<br>5611876  |                          |  | т                        | A  | TT   |                                       | т                        | c<br>c<br>c<br>c  | C6<br>C.6<br>C.6<br>C.6   | .AT<br>  |
| 589102<br>589103<br>589104<br>589106<br>589107<br>611876<br>611877  |                          |  | т                        | A  | TT   | ·····                                 | т                        | c<br>c<br>c<br>c<br>c   | CG<br>C.G<br>C.G<br>C.G   | .AT<br>  |
| 589102<br>589103<br>589104<br>589106<br>589107<br>611876<br>611877<br>611878  | G                        |  | T                        |  | TT.<br>TT.<br>TT.<br>TC.   | A                                     | т                        | c<br>c.<br>c.<br>c.<br>c.<br>c.<br>c.   |   | .AT.   |
| 589102<br>589103<br>589104<br>589106<br>589107<br>611876<br>611877<br>611878<br>805719  | G                        |  | T                        | A  | TT.<br>TT.<br>TT.<br>TT.<br>TC.<br>TT.   | ·····                                 |                          | c<br>c<br>c<br>c<br>c<br>c<br>c   | CG<br>C.G<br>C.G<br>C.G<br>C  | .AT<br>.AC.<br>.AT.  |
| 589102<br>589103<br>589104<br>589106<br>589107<br>611876<br>611877<br>611878<br>805719<br>805720  |                          |  | T                        |  | TT.<br>TT.<br>TT.<br>TC.<br>T.<br>T.   |                                       |                          | c<br>c<br>c<br>c<br>c<br>c<br>c<br>c  | C.G<br>C.G<br>C.G<br>C.G<br>C<br>C<br>C<br>C  | .AT.<br>.AC.<br>.AT.   |
| 589102<br>589103<br>589104<br>589106<br>589107<br>611876<br>611877<br>611878<br>8805719<br>8805720<br>8805721   |                          |  | T                        | A  | TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.  |                                       |                          | c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c   | C.G<br>C.G<br>C.G<br>C<br>C<br>C<br>C<br>C.C  | .AC.<br>.AC.   |
| 589102<br>589103<br>589104<br>589106<br>589107<br>611876<br>611876<br>611877<br>611878<br>805720<br>805722  |                          |  | T                        |  | TT.<br>TT.<br>TC.<br>TT.<br>TT.<br>TT.<br>TT.  | · · · · · · · · · · · · · · · · · · · | ·······                  | c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c   | C.G<br>C.G<br>C.G<br>C.G<br>C.G<br>C.C<br>C.C<br>C.C<br>C.C   | .AT.<br>.AT.   |
| 589102<br>589103<br>589104<br>589104<br>589106<br>589107<br>611876<br>611876<br>611877<br>611878<br>805729<br>805722<br>805722<br>805722  |                          |  | T                        |  | TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.   | · · · · · · · · · · · · · · · · · · · |                          | c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,  |   | .AT.<br>.AC.<br>.AT.   |
| 589102<br>589103<br>589104<br>589106<br>589107<br>589107<br>611876<br>611876<br>611877<br>611878<br>805720<br>805721<br>805722<br>805723<br>805724  |                          |  | T                        | A  | TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.  |                                       |                          | c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c.,<br>c., |   | .AT<br>.AC.<br>.AT.  |
| 589102<br>589103<br>589104<br>589106<br>589107<br>589107<br>611876<br>611876<br>611877<br>611878<br>805720<br>805721<br>805722<br>805723<br>805724  |                          |  | T                        | A  | TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.  | ·····A                                |                          |   | C.G<br>C.G<br>C.G<br>C.G<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C | .AT.<br>.AC.<br>.AT.   |
| 589103<br>589104<br>589104<br>589106<br>589107<br>611876<br>611876<br>611877<br>611878<br>805720<br>805721<br>805722<br>805723<br>805723<br>805723  |                          |  | T                        | A  | TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.  | ·····A                                |                          |   | C.G<br>C.G<br>C.G<br>C.G<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C | .AT.<br>.AC.<br>.AT.   |
| 589102<br>589103<br>589104<br>589106<br>589107<br>611876<br>611877<br>611878<br>805720<br>805721<br>805722<br>805723<br>805723<br>805724<br>805723<br>805724<br>805723  |                          |  | T                        | A  | T<br>T<br>T<br>T<br>T<br>T<br>T.   | A                                     |                          |   |   | .AT<br>.AC.<br>.AT.  |
| 589103<br>589104<br>589106<br>589107<br>611877<br>611877<br>805729<br>805729<br>805722<br>805722<br>805723<br>805724<br>014362<br>014364<br>014365  |                          |  | T                        |  | TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.   |                                       |                          |   | CG<br>C.G<br>C.G<br>C.G<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C<br>C.C  | .AT.<br>.AC.<br>.AT.   |
| 589103<br>589104<br>589106<br>589106<br>589106<br>611876<br>611876<br>601876<br>601877<br>611878<br>805720<br>805721<br>805722<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723  |                          |  | Ť                        |  | TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.   |                                       |                          |   |   | .AT.<br>.AT.   |
| 589103<br>589104<br>589106<br>589106<br>589106<br>589107<br>611876<br>611877<br>611878<br>805719<br>805721<br>805722<br>805721<br>805723<br>805723<br>805723<br>805723<br>805723<br>805724<br>014366<br>014366<br>014366  |                          |  | T                        |  | T<br>T<br>T<br>T<br>T<br>T<br>T.   |                                       |                          |   |   | .AT.   |
| 589103<br>589104<br>589104<br>589106<br>589107<br>611876<br>611876<br>611877<br>611878<br>805720<br>805720<br>805722<br>805722<br>805723<br>805723<br>805724<br>014362<br>014366<br>014366<br>014372  |                          |  | T                        |  | T<br>T<br>T<br>T<br>T<br>T<br>T<br>T.  |                                       |                          |   |   | .AT.<br>.AT.<br>.AT.<br>.AT.<br>.AT.<br>.AT.   |
| 589103<br>589104<br>589104<br>589107<br>611876<br>611876<br>611877<br>611878<br>805721<br>805722<br>805722<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>8014365<br>8014365<br>8014365<br>8014365<br>8014365<br>8014365<br>8014365<br>8014365<br>8014365<br>8014365<br>8014365<br>8014365<br>8014365<br>8014365<br>8014375<br>8014365<br>8014365<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>8014375<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80145<br>80158<br>80158<br>801580   |                          |  | T                        |  | T<br>T<br>T<br>T<br>T<br>T<br>T  |                                       |                          |   |   | .AT  |
| 589103<br>589104<br>589104<br>589104<br>589107<br>611876<br>611877<br>611878<br>805721<br>805721<br>805722<br>805722<br>805723<br>805722<br>805723<br>805722<br>804365<br>014366<br>014366<br>014366<br>014372<br>014373  |                          |  | T                        | · · · A · · · · ·                        | TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.  |                                       |                          |   |   | .AT<br>.A  |
| 589103<br>589104<br>589104<br>589104<br>589107<br>611876<br>611876<br>611877<br>611878<br>805721<br>805721<br>805722<br>805723<br>805722<br>805723<br>805722<br>805723<br>805724<br>8014365<br>014365<br>014366<br>014368<br>014372<br>014374   |                          |  | T                        |  | T<br>T<br>T<br>T<br>T<br>T<br>T  |                                       |                          |   |   | .AT.<br>.AT.<br>.AT.<br>.AT.<br>.AT.<br>.AT.<br>.AT.   |
| 589103<br>589104<br>589106<br>589106<br>589106<br>611877<br>611877<br>611877<br>805720<br>805721<br>805722<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>805723<br>8014365<br>8014365<br>8014365<br>8014355<br>8014355<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>8014357<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>801457<br>80   |                          |  | T                        |  | T<br>T<br>T<br>T<br>T<br>T<br>T  |                                       |                          |   |   | .AT<br>.AT<br>.AT<br>.A<br>.A<br>.A<br>.A  |
| 589102<br>589103<br>589106<br>589106<br>589106<br>611877<br>611877<br>611877<br>611878<br>805721<br>805722<br>805722<br>805722<br>805722<br>805722<br>805722<br>805722<br>805722<br>804366<br>014366<br>014366<br>014376<br>014376  |                          |  | T                        |  | T<br>T<br>T<br>T<br>T<br>T<br>T.   |                                       |                          |   |   | .A T<br>.A C.<br>.A T.<br>.A T.<br>.A T.<br>.A C.<br>.A  |
| 589102<br>589103<br>589106<br>589106<br>611877<br>611876<br>611877<br>611878<br>805720<br>805721<br>805722<br>805721<br>805722<br>805723<br>805724<br>014364<br>014365<br>014366<br>014366<br>014373<br>014374<br>014375<br>014375  |                          |  | T                        |  | T<br>T<br>T<br>T<br>T<br>T<br>T<br>T.  |                                       |                          |   |   | .AT.<br>.AT.<br>.AT.<br>.AT.<br>.AT.<br>.AT.   |
| 589102<br>589103<br>589106<br>589106<br>589107<br>611877<br>611877<br>611877<br>611878<br>805720<br>805721<br>805722<br>805722<br>805723<br>805722<br>805723<br>805722<br>805723<br>805722<br>805723<br>805724<br>014365<br>014365<br>014365<br>014365<br>014375<br>8014374<br>014375<br>8014374<br>8014375<br>8014374<br>8014376<br>2250183  |                          |  | T                        |  | T<br>T<br>T<br>T<br>T<br>T<br>T<br>T.  |                                       | т<br>т<br>               |   |   | .A T<br>.A C.<br>.A T.<br>.A T.<br>.A T.<br>.A T.<br>.A C.<br>.A<br>.A   |
| 589102<br>589104<br>589104<br>589104<br>589104<br>589106<br>611876<br>611876<br>601876<br>601876<br>805720<br>805721<br>805721<br>805722<br>805722<br>805724<br>805722<br>805724<br>805722<br>805724<br>805722<br>805724<br>805724<br>805724<br>805725<br>805724<br>805724<br>805725<br>805724<br>805725<br>805724<br>805725<br>805724<br>805725<br>805724<br>805725<br>805724<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>80575<br>805                      |                          |  | T                        | · · · A. · · · · · · · · · · · · · · · · | TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.   |                                       |                          |   |   | .AT.<br>.AT.<br>.AT.<br>.AT.<br>.AT.<br>.AT.<br>.AT.<br>.AA.<br>.AA.   |
| 589182<br>589182<br>589186<br>589186<br>589186<br>589186<br>589187<br>611877<br>611878<br>685729<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>88572<br>885 |                          |  | T                        |  | T<br>T<br>T<br>T<br>T<br>T<br>T  |                                       |                          |   |   | .AT.<br>.AT.<br>.AT.<br>.AT.<br>.AT.<br>.AT.<br>.AA.<br>.AA.<br>.AA.<br>.AA.<br>.AA.   |
| \$89182<br>\$89184<br>\$59184<br>\$59186<br>\$59186<br>\$59186<br>\$61876<br>611876<br>611876<br>865721<br>865722<br>865722<br>865722<br>865722<br>865722<br>865722<br>865722<br>865722<br>865722<br>865722<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724<br>865724   |                          |  | T<br>                    |  | T<br>T<br>T<br>T<br>T<br>T<br>T.   |                                       |                          |   |   | .AT.<br>.AC.<br>.AT.<br>.AC.<br>.AT.<br>.A<br>A  |
| 589182<br>589184<br>589184<br>589184<br>589186<br>589187<br>611876<br>611877<br>611878<br>885729<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724<br>885724  |                          |  | T                        |  | T<br>T<br>T<br>T<br>T<br>T<br>T.   |                                       |                          |   |   | .AT.<br>.AC.<br>.AT.<br>.AC.<br>.AT.<br>.A<br>A  |
| 589182<br>589184<br>559184<br>559184<br>559186<br>559187<br>559187<br>559187<br>559187<br>559187<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720<br>805720  |                          |  | TT.<br>                  | · · · · · · · · · · · · · · · · · · ·    | T<br>T<br>T<br>T<br>T<br>T<br>T<br>T.  |                                       | T.<br>                   |   |   | .AT.<br>.AC.<br>.AT.<br>.AT.<br>.AT.<br>.A<br>.AA.<br>.AA.<br>.AA.<br>.AA.<br>.AA.   |
| 589182<br>559184<br>559184<br>559186<br>559187<br>559187<br>559187<br>559187<br>559187<br>559187<br>559187<br>559187<br>641877<br>641877<br>6405723<br>6405724<br>6405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724<br>8405724   |                          |  | T                        |  | T<br>T<br>T<br>T<br>T<br>T<br>T<br>T.  |                                       |                          |   |   | .AT.<br>.AC.<br>.AT.<br>.AT.<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br> |
| 589182<br>559184<br>559184<br>559186<br>559186<br>559187<br>559186<br>559187<br>611877<br>611878<br>6611877<br>641878<br>685722<br>885721<br>885721<br>885721<br>885722<br>885721<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>885722<br>88572  |                          |  | TT.<br>                  |  | T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T   |                                       | T<br>                    |   |   | .AT<br>.AC.<br>.AT.<br>.AT.<br>.AT.<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A  |
| 589182<br>589184<br>559184<br>559186<br>559186<br>559186<br>559187<br>559187<br>559187<br>805721<br>805721<br>805721<br>805721<br>805721<br>805721<br>805721<br>805723<br>805724<br>805723<br>805724<br>805721<br>804725<br>804374<br>804364<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>804365<br>80455<br>80455<br>80455<br>80455<br>80455<br>80455<br>80455<br>80455<br>80455<br>80455<br>80455<br>80455<br>80455<br>80455<br>80455<br>80455<br>80455<br>80455<br>80455<br>80455<br>80455<br>80455<br>80455<br>80455<br>80455<br>80455<br>80455<br>80455<br>80455<br>80455<br>80455<br>80455<br>80455<br>80455<br>80455<br>80455<br>80455<br>80455<br>80455<br>80455<br>80455<br>80455<br>80455<br>80455<br>80455<br>80455<br>80455<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>80556<br>805566<br>805566<br>805566<br>805566<br>805566<br>805566<br>805566<br>805566<br>805566<br>805566<br>80  |                          |  | T                        |  | T<br>T<br>T<br>T<br>T<br>T<br>T.   |                                       |                          |   |   | .AT<br>.AC.<br>.AC.<br>.AT.<br>.AT.<br>.AT.<br>.AA.<br>.AA.<br>.AA.<br>.AA.  |
| 589102<br>589104<br>589104<br>589104<br>589104<br>589107<br>611876<br>611876<br>805720<br>805722<br>805722<br>805723<br>805724<br>805723<br>805724<br>805723<br>805724<br>805723<br>805724<br>805723<br>805724<br>805723<br>805724<br>805723<br>805724<br>805723<br>805724<br>805723<br>805724<br>805723<br>805724<br>805723<br>805724<br>805723<br>805724<br>805723<br>805724<br>805723<br>805724<br>805723<br>805724<br>805723<br>805724<br>805723<br>805724<br>805723<br>805724<br>805723<br>805724<br>805723<br>805724<br>805723<br>805724<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805755<br>805755<br>8057555<br>80575  |                          |  | T                        |  | T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T<br>T |                                       |                          |   |   | .AT  |
| 589102<br>589104<br>589104<br>589104<br>589104<br>589107<br>611876<br>611876<br>805720<br>805722<br>805722<br>805723<br>805724<br>805723<br>805724<br>805723<br>805724<br>805723<br>805724<br>805723<br>805724<br>805723<br>805724<br>805723<br>805724<br>805723<br>805724<br>805723<br>805724<br>805723<br>805724<br>805723<br>805724<br>805723<br>805724<br>805723<br>805724<br>805723<br>805724<br>805723<br>805724<br>805723<br>805724<br>805723<br>805724<br>805723<br>805724<br>805723<br>805724<br>805723<br>805724<br>805723<br>805724<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805755<br>805755<br>8057555<br>80575  |                          |  | T                        |  | T<br>T<br>T<br>T<br>T<br>T<br>T<br>T.  |                                       | T<br>                    |   |   | .AT<br>.AT<br>.AT<br>.AT<br>.AT<br>.AT<br>.A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A   |
| 589182<br>589184<br>559184<br>559184<br>559186<br>559186<br>559187<br>559187<br>559187<br>559187<br>805721<br>805721<br>805721<br>805723<br>805724<br>805723<br>805724<br>805723<br>805724<br>805723<br>805724<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805725<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755<br>805755  |                          |  | T                        |  | T<br>T<br>T<br>T<br>T<br>T<br>T<br>T.  |                                       | T<br>                    |   |   | .AT<br>.AT<br>.AT<br>.AT<br>.AT<br>.AT<br>.A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A   |
| 589182<br>559184<br>559184<br>559186<br>559187<br>559187<br>559187<br>559187<br>559187<br>559187<br>559187<br>561876<br>561876<br>561876<br>568772<br>568772<br>568772<br>568772<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614376<br>5614575<br>5614376<br>5614575<br>5614376<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>5614575<br>561  |                          |  | T                        |  | TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.  |                                       |                          |   |   | .AT<br>.AT<br>.AT<br>.AT<br>.AT<br>.AT<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A<br>.A   |
| 589102<br>589104<br>589106<br>589106<br>589106<br>589106<br>589107<br>6611876<br>6611876<br>6611877<br>6805721<br>8805721<br>8805722<br>8805722<br>8805724<br>3014362<br>3014362<br>3014362<br>3014362<br>3014376<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014375<br>3014376<br>3250185<br>3310152<br>3564174<br>4174<br>3564174<br>4175<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372539<br>372559<br>372559<br>372559<br>372559<br>372559  |                          |  | TT.<br>TT.<br>TT.<br>T   |  | TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.   |                                       | T<br>                    |   |   | .AT  |
| 589182<br>589184<br>559184<br>559184<br>559186<br>559186<br>559187<br>559187<br>559187<br>805721<br>805721<br>805723<br>805724<br>805723<br>805724<br>805724<br>805724<br>805724<br>805724<br>804376<br>8014366<br>8014366<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146<br>80146  |                          |  | T                        |  | TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.   |                                       |                          |   |   | .AT  |
| 589102<br>589104<br>589104<br>589104<br>589104<br>589104<br>589107<br>611876<br>611876<br>805720<br>805721<br>805722<br>805724<br>805724<br>805724<br>805724<br>805724<br>805724<br>805724<br>805724<br>805724<br>805724<br>805724<br>805724<br>805724<br>805724<br>805725<br>8014376<br>8014375<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014376<br>8014776<br>8014776<br>8014777<br>8014776<br>8014777<br>8014777<br>8014777<br>8014777<br>8014777<br>8014777<br>8014777<br>8016<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80<br>80  |                          |  | TT.<br>T.<br>T.<br>      |  | TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.<br>TT.   |                                       | T<br>                    |   |   | .AT<br>.AC<br>.AT<br>.AT<br>.AT<br>.A  |

Fig. 2: Continue

| 1 r                    | 111111111 11111111 111111111 1111111    |           |        |
|------------------------|---|-----------|--------|
| È                      | 100000000000000000000000000000000000000 | #MF589103 | TTTA   |
| F                      | 6778990011 1112222333 4444455666 66778] | #MF589104 | TTA    |
| ř                      | 5470248901 3475789459 0367859235 78568] | #MF589106 | TTA    |
| #KT869077              | CGTGCTCGTC TCGCTTCGCG TTCCTGCCTC GACTT  | #MF589107 | TT     |
| #KX(458235             | TTA                                     | #MF611876 |        |
| #KX778728              | T                                       |           |        |
| #KX898030              | ·····.T ······· ······ ······           | #MF611877 | T      |
| #KX966193              | TTAC                                    | #MF611878 | T      |
| #KY075986              | ······                                  | #MF805719 | .ATTA  |
| #KY075987              | ·····                                   | #MF805720 | TTA    |
| #KY075988<br>#KY075989 | TAC                                     | #ME805721 | .ATTA  |
| #KY875998              | TTAC                                    | #MF805722 | .ATTA  |
| #KY875991              | TTAC                                    | #MF805723 |        |
| #KY875992              |   |           |        |
| #KY875993              |   | #MF805724 | T G    |
| #KY875994              | ····· · · · · · · · · · · · · · · · ·   | #MG014362 | T      |
| #KY354038              | ·····T·· ·····                          | #MG014364 | TTA    |
| #KY354839              | ·····T·· ····                           | #MG014365 | T.TTAT |
| #KY418606              | T                                       | #MG014366 | AT.T   |
| #KY421347<br>#KY421348 | TTA                                     | #MG014368 |        |
| #KY778776              | ·······                                 | #MG014372 |        |
| #KY778777              |   | #MG014373 |        |
| #KY865242              | TC A                                    |           |        |
| #KY865243              | T.TTA.GT                                | #MG014374 | T G    |
| #KY924474              | T                                       | #MG014375 | TTAT   |
| #KY924475              | TGT                                     | #MG014376 | T      |
| #KY996337              | ·····T·· ··A····· ····· ······          | #MG250183 | TT     |
| #KY996338              | ······I·· ······ ········               | #MG250184 | TTA    |
| #KY996339<br>#KY996348 | TTATC.                                  | #MG250185 | TTA    |
| #KY996341              | TTA                                     | #MG250186 |        |
| #KY996342              | TTAT                                    | #MG310152 | G      |
| #KY996343              | TTA                                     |           |        |
| #KY996344              | ·····π                                  | #MG564174 | TTA    |
| #KY996345              | TTA                                     | #MG564175 | TTA    |
| #MF869115              | TTAC                                    | #MG679916 | T      |
| #MF869116              | TTAC                                    | #MG679917 |        |
| #MF869252<br>#MF879253 | ······                                  | #MG727539 | TTA    |
| #MF079253              | T                                       | #MG727540 | TTA    |
| #MF884994              | т.ст                                    | #MG765473 | T C    |
| #MF155641              |   | #YN1-2017 | TTAC   |
| #MF155642              | T                                       |           |        |
| #MF155643              | T                                       | #YN2-2017 | TTAC   |
| #MF162298              | TTA                                     | #YN3-2017 | TTAC   |
| #MF162299              | TTA                                     | #YN4-2017 | CTTAC  |
| #MF405271              | TTAC                                    | #MG550107 | T      |
| #MF485272              | TTAC                                    |           |        |
| #MF405273<br>#MF405274 | TTA                                     |           |        |
| #MF405274              | TTAC                                    |           |        |
| #MF485276              | TT                                      |           |        |
| #MF485277              | TTA                                     |           |        |
| #MF589102              | T CG                                    |           |        |
| 10 00 C 20 C           |   |           |        |

Fig. 2: The 335 variant sites of 93 PCV3 genome sequences

substitutions were identified in the *cap* residues after alignment and all the four Yunnan strains were clustered to PCV3b. Moreover, five specific aa substitutions from Yunnan strains were discovered when compared with the *cap* protein residues of the other strains, i.e.,  ${}^{32}R/G$ ,  ${}^{88}V/A$ , <sup>116</sup>T/A, <sup>132</sup>R/G/H and <sup>164</sup>F/L/S (Fig. 4). Cap protein plays pivotal roles in the binding and penetration of virus particles. The aa substitutions in cap protein could alter the infectivity of different PCV3 strains with the underlying mechanisms deserving further investigation. Vaccination is the most effective protective measure against viral diseases. Although PCV2 and PCV3 belong to the same family, the commercially available PCV2 vaccines did not appear to protect against PCV3 infection<sup>[37]</sup>, because PCV3 only shares 37-40% nucleotide homology with PCV2<sup>[2]</sup>. The illustration of diversity in the immunogenic cap protein of PCV3 revealed the most conserved domains and provided useful information for the development of effective and specific PCV3 recombinant vaccine.

A Neighbor-Joining (N-J) tree based on the 89 complete PCV3 genomes was constructed as illustrated in Fig. 6a including the 85 reference sequences retrieved from GenBank and the four Yunnan strains from our study (YN1-2017 ~ YN4-2017, GenBank Accession No. MG902939 ~ MG902942). The genome sequences were clustered into two clades, i.e., PCV3a and PCV3b (Fig. 7)<sup>[6, 30, 34, 44]</sup> where <sup>24</sup>A and <sup>27</sup>R defined clade PCV3a while <sup>24</sup>V and <sup>27</sup>K defined clade PCV3b. In addition, the four Yunnan strains fell into a mini-clade within PCV3b, closest to the strains from Chongging (PCV3/CN/Chongqing-147/2016, KY075990), Jiangxi (PCV3/CN/Jiangxi-62/2016, KY075989) and USA (PCV3-US/SD2016, KX966193). The phylogeny of PCV3 genomes showed no obvious geographical origin, which confirmed the results of Ku et al.<sup>[9]</sup>. The N-J topology based on the 104 cap gene sequences was similar to the counterpart of PCV3 genome and the four Yunnan strains clustered together into a mini-clade, belonging to PCV3b (Fig. 6b). Although, no correlation

|  | 0105000105                                     | 667777778                                    | 9901122345   | 5666677700  | 1112223344  | 5566788888  | 9999900111   | 3333333333<br>1222233333   | 444566778  |
|--|--|--|--|---|---|---|--|--|--|
| AGTCGAGAGO                                       | 0125893490<br>AGGAACGCGA                       | 1314567890<br>AGCGAAGAAG                     | 4681437573<br>AGCACGTCTT   | 9256712818<br>TTGAATATCA  | 0393580136<br>CGAGATOCTO  | 5934924578<br>GATTATCTCA  | 1247902124<br>TCGAC44TCC   | SO14701589<br>CCACATCACC   | GCAAAGACT  |
| AUTCOROROC                                       | . A  | G  |  | C   |   | . G   |  |  |  |
|  |  |  |  | CC.C  | . A G   |   |  | G  | G  |
|  |  |  |  | C G   | . A   | C   | GT.  | AT   |  |
| *******  |  | ···  |  | CC  | .A G  | I.  |  | · · · · · · C. · · ·   |  |
| ********   |  |  |  | C. G.   | . A   |   |  | *********  |  |
|  | G  |  |  | CC  | .A G  |   |  |  |  |
|  | G  | T A  |  | CC  | . A G   |   |  |  |  |
|  | G  | T A  | G  | CC  | . A G   |   |  |  | G  |
|  | G  | I  |  | CC  | . A G   |   |  |  |  |
|  |  |  |  | C C   | A G   |   |  |  |  |
|  |  |  |  | C   | · A V   | G   |  |  |  |
|  |  |  |  | C G   | . A   |   |  |  | ¢  |
|  |  |  |  | C G   | . A   | . G   |  |  |  |
|  |  | G.   |  | C   | T   |   |  |  |  |
| ********   |  | T G A  | C  | CC  | .AG   |   | *******  | · · · · · C · · · ·  |  |
|  | ······································         |  |  | C   |   |   |  | • • • • • • • • • • •  | G  |
|  |  | C.   | AA.  | CC  | .A C  | AG  |  |  |  |
|  |  |  |  | C   | TA  |   | G  | C  |  |
|  |  | A  |  |   | A   | G   | A  |  |  |
|  |  | T A  |  | C   | . A   |   |  |  |  |
|  | G  |  |  | G   | · · · A. · · · · ·  |   | *****  | . T A.   |  |
| ·····  |  |  |  | CC  | .A  | A   |  |  |  |
| · · · · · · · · · · · ·                          |  | + 1  | · · · · · · · · · · · · ·  | ·····   |   |   |  |  |  |
|  |  | · · · · · · · · · · · ·                      |  | C C   | A   |   |  |  |  |
|  | T  |  |  | CGG.  | . A. TT   |   |  |  |  |
|  |  | A  |  | C   | . A   |   |  |  |  |
|  |  | G  |  | C   | .AC   | G   |  |  |  |
|  |  |  |  | c   | · A   | G   | · · · · A · · · · ·  | *********  |  |
|  |  |  | ·····.   | c   | 46 6  | ç   |  |  |  |
|  |  |  |  | c   | A   | A   |  | c  |  |
|  |  |  |  |   |   |   |  |  |  |
|  |  |  |  | C   |   | A   |  |  |  |
|  |  |  |  |   |   |   |  |  |  |
| . C  | C. C   |  | C.   | CC  | . A   | C. A. G   |  |  |  |
|  |  | A  |  | C G   | · A   |   | . AA   |  | A.   |
|  |  | ******                                       |  | ç   | . A C   |   |  |  |  |
| T  |  |  |  | c   | · A   |   |  |  |  |
|  |  |  |  |   | . A   | C. A. G   |  |  |  |
|  | . A C  |  |  |   | . A   | C. A. G   |  |  |  |
|  |  | <b>T</b>                                     |  |   |   |   |  |  |  |
|  |  |  | A.   | CC  | . A C   | A G   |  |  |  |
| 4  |  |  | 4  | •   | 4   | r .   |  |  |  |
|  |  | T  | A  | C   | A   |   |  |  |  |
|  |  |  |  | A. CC   | A C.  |   |  |  |  |
|  |  |  |  |   |   | ** *******  |  |  |  |
|  |  |  | C A  | A. CC   | AC.   |   |  |  | ••••   |
|  |  |  | G. A   | A. C C<br>C. C. G   |   | A   |  |  | · · · · · · · · · · · · · · · · · · ·                |
|  | х с  |  | G. A   | A. C C<br>A. C C<br>C. C G  |   |   |  |  | · · · · · · · · · · · · · · · · · · ·                |
|  | AC   |  | G. A   | A. C C<br>A. C C<br>C. C G<br>. C C   | AC.<br>AC.<br>AA.<br>AA.  | A   |  | T. T   | G  |
|  | AC<br>C  | G  | G. A   | A. C C<br>C. C G<br>C. C C.   | AC.<br>AC.<br>AA.<br>AA.<br>AA.   | A   |  | ,T. TT   |  |
|  | AC<br>C<br>C                                   | G  | G, A<br>A  | A. C C<br>C. C G<br>C. C G<br>G C C<br>C. A   | AC.<br>AC.<br>AA.<br>AA.<br>AA.   | . A   | .c   | . T. T T   |  |
|  |  |  |  | A. V  | AC.<br>AC.<br>AA.<br>AA.<br>AC.<br>AC.<br>AC.   | A   |  | T. TT  | 6  |
|  |  |  |  | A. V  | AC.<br>AC.<br>AA.<br>AA.<br>AC.<br>AC.<br>AC.   | A   |  | T. TT  | 6  |
|  |  |  |  | A. V  | AC.<br>AC.<br>AA.<br>AA.<br>AC.<br>AC.<br>AC.   | A   |  | T. TT  | 6  |
|  |  |  |  | A. V  | AC.<br>AC.<br>AA.<br>AA.<br>AC.<br>AC.<br>AC.   | A   |  | T. TT  | 6  |
|  |  |  |  | A. V  | AC.<br>AC.<br>AA.<br>AA.<br>AC.<br>AC.<br>AC.   | A   |  | T. TT  | 6  |
|  |  |  |  | A. V  | AC.<br>AC.<br>AA.<br>AA.<br>AC.<br>AC.<br>AC.   | A   |  | T. TT  | 6  |
|  |  |  |  | A. V  | AC.<br>AC.<br>AA.<br>AA.<br>AC.<br>AC.<br>AC.   | A   |  | T. TT  | 6  |
|  |  |  |  | A. V  | AC.<br>AC.<br>AA.<br>AA.<br>AC.<br>AC.<br>AC.   | A   |  | T. TT  | 6  |
|  |  |  |  | A. V  | AC.<br>AC.<br>AA.<br>AA.<br>AC.<br>AC.<br>AC.   | A   |  | T. TT  | 6  |
| . C  | C. C       | A  |  | A. C C.<br>CA   | AC.<br>AC.<br>A.<br>A.<br>A.<br>A.<br>C.<br>A.<br>C.<br>A.<br>C.<br>A.<br>C.<br>A.<br>C.<br>A.<br>C.<br>A.<br>C.<br>A.<br>C.<br>A.<br>C.<br>A.<br>C.<br>A.<br>C.<br>A.<br>C.<br>A.<br>C.<br>A.<br>C.<br>A.<br>C.<br>A.<br>C.<br>C.<br>C.<br>C.<br>C.<br>C.<br>C.<br>C.<br>C.<br>C.<br>C.<br>C.<br>C.  | . A   | 00000000000000000000000000000000000000                                     | A  |  |
| . C  | c. c.  |  | T  | A. C. C.<br>CA. C.<br>C. C.<br>CA. C.<br>C.<br>CA. C.<br>C.<br>C.<br>C.<br>C.<br>C.<br>C.<br>C.<br>C.<br>C.<br>C.<br>C.<br>C.<br>C  | A C.<br>A C.<br>A C.<br>A C.<br>A C.<br>A C.<br>A C.<br>A C.<br>A C.<br>A A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A   | A   | 00 00000 A   | A. A                                   |  |
| .c   | c. c.  | AA.  |  | A. C C.<br>CA C.<br>C C C.<br>C C C.<br>C C C.<br>C C C.<br>C C C C.<br>C C C C.<br>C C C C C.<br>C C C C C C C C C C C   | A. C.<br>A. C.<br>A. C.<br>A. C.<br>A. C.<br>A. C.<br>A. C.<br>A. C.<br>A. C.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.   | A   | 00.000000.0000000000000000000000000000                                     | . T. T T<br>A  |  |
| .c   | c. c.  | AA.  |  | A. C C.<br>CA C.<br>C C C.<br>C C C.<br>C C C.<br>C C C.<br>C C C C.<br>C C C C.<br>C C C C C.<br>C C C C C C C C C C C   | A. C.<br>A. C.<br>A. C.<br>A. C.<br>A. C.<br>A. C.<br>A. C.<br>A. C.<br>A. C.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.   | A   | 00.000000.0000000000000000000000000000                                     | . T. T T<br>A  |  |
| . C.   | C. C.  |  | T  | A C C C<br>CA C<br>C C C<br>C C<br>C C<br>C C<br>C C<br>C C<br>C  | A. C.<br>A. C.<br>A.<br>A.<br>A.<br>A.<br>A.<br>C.<br>A.<br>C.<br>A.<br>C.<br>A.<br>C.<br>A.<br>C.<br>A.<br>C.<br>A.<br>C.<br>A.<br>C.<br>A.<br>C.<br>A.<br>C.<br>A.<br>C.<br>A.<br>C.<br>C.<br>A.<br>C.<br>C.<br>C.<br>C.<br>C.<br>C.<br>C.<br>C.<br>C.<br>C.<br>C.<br>C.<br>C.  | А<br>с.   | 00.00000000000000000000000000000000000                                     | . T. T T<br>A  |  |
| .C.  | C. C.  |  |  | A C C C<br>CA C<br>C C C<br>C C C<br>C C<br>C C<br>C C<br>C C   | A. C.<br>A. C.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.  | A   | С С  | T. T T<br>A  |  |
| .c.  |  |  | T  | A C C C<br>C A C<br>C C C C C C<br>C C C C C C C<br>C C C C C C C<br>C C C C C C C C<br>C C C C C C C C C<br>C C C C C C C C C C C<br>C    | A. C.<br>A. C.<br>A. A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>C.<br>A.<br>C.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.   |   | 00<br>00<br>00<br>00<br>00<br>00<br>00<br>00<br>00<br>00<br>00<br>00<br>00 | .T. T  |  |
| .C.  | C  |  | T  | A C C C<br>CA C<br>C C C<br>C C<br>C C<br>C C<br>C C<br>C C<br>C  | A. C.<br>A. C.<br>A. A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A  |   | 00<br>000000<br>00000<br>00000<br>00000<br>00000<br>000000                 | .T. T 7<br>A   | G.<br>. T  |
| С.<br>С.<br>СА.                                  | c. c.  | A. A. T. | T  | Â         C         C           CA         C         C           C         C         C           C         C         C           C         C         C           C         C         C           C         C         C           C         C         C           C         C         C           C         C         C           C         C         C           C         C         C           C         C         C           C         C         C           C         C         C           C         C         C           C         C         C           C         C         C           C         C         C           C         C         C           C         C         C  | A. C.<br>A. C.<br>A. A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A  |   | 00<br>000000<br>000000<br>000000<br>00000000000000                         | .T. T 7<br>A   | G.<br>T  |
| .C.<br>.C.<br>.C.                                | C. C.  | A A A  | A A .<br>A<br>A<br>A   | Â         C         C           CA         C         C           C         C         C           CA         C         C           CA         C         C           CA         C         C           CA         C         C           C         C         C           C         C         C           C         C         C           C         C         C           C         C         C           C         C         C           C         C         C           C         C         C           C         C         C           C         C         C           C         C         C           C         C         C           C         C         C           C         C         C           C         C         C  | Å         C.           Å         C.           Å         Å           Å         Å           Å         C.           Å         A.           Å         C.           Å         G.           Å         G.           Å         G.           Å         G.           Å         A.  | .A  | 00<br>00<br>00<br>00<br>00<br>00<br>00<br>00<br>00<br>00<br>00<br>00<br>00 | .T. T  |  |
| C.<br>C.   | c. c.  |  | A A A<br>A A<br>A A<br>A T<br>A T<br>A T<br>A A<br>A A<br>A A<br>A   | Â         C         C           C         C         C   | A         C           A         C           A         A           A         C           A         C           A         C           A         C           A         C           A         C           A         C           A         C           A         C           A         A           A         C                                 | .A  | 00<br>0000000<br>000000000000000000000000000                               | .T. T  |  |
| .C.<br>.C.<br>.C.                                | c. c.  |  |  | A         C         C           C         C         C   | Å         C.           Å         C.           Å         Å           Å         Å           Å         C.           Å         A.           Å         A.           Å         A.           Å         C.           Å         C.           Å         C.           Å         C.           Å         C.           Å         G.           Å         G.           Å         G.           Å         G.           Å         G.           Å         A.           Å         A.           Å         A.           Å         A.           Å         A.           Å         A.   | A   |  | .т. т. т.<br>А.<br>А.<br>А.  |  |
| C.<br>C.   | c.c<br>c.                                      |  |  | A         C         C           CA         C         C           CA         C         C           C         C         C           CA         C         C           CA         C         C           CA         C         C           C         C         C           C         C         C           C         C         C           C         C         C           C         C         C           C         C         C           C         C         C           C         C         C           C         C         C           C         C         C           C         C         C           C         C         C           C         C         C           C         C         C  | A. C.<br>A. C.<br>A. A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A.<br>A  | . A   | 00 000000 0000000000000000000000000000                                     | .T. T  |  |
| .C.<br>.C.<br>.C.                                |  |  | TT<br>AA<br>AT.<br>AT.<br>AT.<br>AT.<br>AT.<br>AT.<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA |   | Å         C.           Å         C.           Å         Å           Å         C.           Å         A.           Å         A.           Å         A.           Å         C.  | A   | C  | .T. T  |  |
| .C.<br>.C.<br>.C.                                |  |  | TT<br>AA<br>AT.<br>AT.<br>AT.<br>AT.<br>AT.<br>AT.<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA |   | Å         C.           Å         C.           Å         Å           Å         C.           Å         A.           Å         A.           Å         A.           Å         C.  | A   | C  | .T. T  |  |
| .C.<br>.C.<br>.C.                                |  |  | TT<br>AA<br>AT.<br>AT.<br>AT.<br>AT.<br>AT.<br>AT.<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA<br>AA |   | Å         C.           Å         C.           Å         Å           Å         C.           Å         A.           Å         A.           Å         A.           Å         C.  | A   | C  | .T. T  |  |
| C  | с.с.<br>с.с.                                   |  |  | A         C.         C.           CA         C.         C.           C.         C.         C.           C.         C.         C.           CA         C.         C.           C.         C.         C.  | Å         C.           Å         C.           Å         Å           Å         C.           Å         A.           Å         A.           Å         A.           Å         A.           Å         A.           Å         C.           Å         G.           Å         G. <tr td=""></tr>     | A   |  | T. T T. A  |  |
|  |  |  |  |   |   |   |  |  |  |
| C  | с.с.<br>с.с.                                   |  |  | A         C.         C.           CA         C.         C.           C.         C.         C.           C.         C.         C.           CA         C.         C.           C.         C.         C.  | Å         C.           Å         C.           Å         Å           Å         C.           Å         A.           Å         A.           Å         A.           Å         A.           Å         A.           Å         C.           Å         G.           Å         G. <tr td=""></tr>     | A   |  | T. T T. A  |  |
|  |  |  |  |   |   |   |  |  |  |
| .C.<br>.C.<br>.C.<br>.C.<br>.C.<br>              |  |  | TT<br>A.A.A.A.A.A.A.A.A.A.A.A.A.A.A.A.A  |   | Å         C.           Å         C.           Å         Å           Å         C.           Å         A.           Å         C.           Å         C. <tr td=""></tr>     | A   | CC   | .T. T  |  |
|  |  |  |  |   |   |   |  |  |  |
| с.<br>.с.<br>.с.<br>.с.<br>.с.<br>.с.<br>.с.<br> | с.<br>с.с.<br>с.                               | T. T     | . T  |   | A         C           A         C           A         A           A         C           A         C           A         C           A         C           A         C           A         C           A         C           A         C           A         C           A         A           A         A           A         C   | .A. A   | 00 000000 0000000000000000000000000000                                     | .T. T  |  |
| .C.<br>.C.<br>.C.<br>.C.<br>.C.<br>.C.<br>       |  |  | TT<br>A.A.A.A.A.A.A.A.A.A.A.T.A.A.T.A.A.T.A.A.T.A  |   | Å         C.           Å         C.           Å         Å           Å         C.           Å         A.           Å         C.           Å         C. <tr td=""></tr>     | A   | 00<br>00<br>00<br>00<br>00<br>00<br>00<br>00<br>00<br>00<br>00<br>00<br>00 | .T. T  |  |
|  |  |  |  |   |   |   |  |  |  |
| с.<br>.с.<br>.с.<br>.с.<br>.с.<br>.с.<br>.с.     | с.<br>с.с.<br>с.                               | T. T     | . T  |   | A         C           A         C           A         A           A         C           A         C           A         C           A         C           A         C           A         C           A         C           A         C           A         C           A         A           A         A           A         C           A         C           A         C           A         C           A         C           A         C           A         C           A         C           A         C           A         C           A         C           A         C           A         C           A         C           A         C           A         C           A         C           A         C   | . A   | 00 000000 0000000000000000000000000000                                     | .Т. Т  |  |
| C  | C. C       |  |  |   | Å         C.           Å         C.           Å         Å           Å         C.           Å         A.           Å         A.           Å         A.           Å         A.           Å         A.           Å         A.           Å         C.           Å         G.           Å         G. <tr td=""></tr>     | A   |  | T. T T. A  |  |
|  |  |  |  |   |   |   |  |  |  |
| С.<br>С.<br>СА<br>СА<br>СА                       | C. C       |  | T  |   | A         C           A         C           A         A           A         C           A         C           A         C           A         C           A         C           A         C           A         C           A         C           A         C           A         A           A         A           A         C                                 | A A   | 00 000000 0000000000000000000000000000                                     | .Т. Т  |  |
| С.<br>С.<br>СА<br>СА<br>СА                       | C. C       |  | T  |   | A         C           A         C           A         A           A         C           A         C           A         C           A         C           A         C           A         C           A         C           A         C           A         C           A         A           A         A           A         C                                 | A A   | 00 000000 0000000000000000000000000000                                     | .Т. Т  |  |
| . C  | C. C       | A  | T  |   | A         C           A         C           A         A           A         C                                 | .A  |  | .Т.Т<br>А.<br>А.<br>А.<br>А.   |  |
| CA.  | C.C.<br>C.C.<br>A.A.A.A.A.A.A.A.A.A.A.A.A.A.A. |  |  |   | Å          C.           Å          Å           Å          Å           Å          Å           Å          Å           Å          Å           Å          Å           Å          Å           Å          Å           Å          Å           Å          Å           Å          Å           Å          Å           Å             Å             Å             Å             Å             Å             Å             Å             Å             Å             Å             Å             Å   | A   |  | T. T T. A  |  |
| CA.  | C.C.<br>C.C.<br>A.A.A.A.A.A.A.A.A.A.A.A.A.A.A. |  |  |   | Å          C.           Å          Å           Å          Å           Å          Å           Å          Å           Å          Å           Å          Å           Å          Å           Å          Å           Å          Å           Å          Å           Å          Å           Å          Å           Å             Å             Å             Å             Å             Å             Å             Å             Å             Å             Å             Å             Å   | A   |  | T. T T. A  |  |
| C  | C. C       |  |  |   | Å         C.           Å         C.           Å         A.           Å         C.           Å         A.           Å         A.           Å         A.           Å         C.           Å         C. <tr tbody=""></tr> | .A  |  | .т. т. т.<br>А.<br>А.<br>А.  |  |
|  |  |  |  |   |   |   |  |  |  |
|  | C.   | .C. C.C.                                     |  | 0         1         0         1         0         1         0         1         0         1         0         1         0         1         0         1         0         1         0         1         0         1         0         1         0         1         0         1         0         1         0         1         0         1         0         1         1         0         1         1         0         1         1         0         1 | V   | V         I         A         C         C         A         C           G         I         G         A         C         C         C         A         G           A         G         I         G         C         C         C         A         G           A         G         I         G         C         G         A         G         I         A         G         I         A         G         I         A         G         I         A         G         I         A         G         I         A         G         I         A         G         I         I         A         G         I         I         A         G         I         I         A         G         I         I         A         G         I         I         A         G         I         I         A         C         I |  | $ \begin{array}{c} \begin{array}{c} & & & & & & & & & & & & & & & & & & &$ | $\begin{array}{cccccccccccccccccccccccccccccccccccc$ |

Fig. 3: Continue

| KX7787201seq   | 9900002224<br>5612680451<br>GTTTATAAGG  | 4556666689<br>8010267860<br>ATCATAGCCT | 4445555555<br>9990111223<br>1454369387<br>TTTAATCATC | 4445557778 0390580365                     | 7569007369  |
|--|---|--|--|---|---|
| QB2018YNseq  | G.C   |  |  |   |   |
| QJ2018YNseq  | AC  | G                                      | C  | C   | <u>C</u>  |
| SE2018YNseq<br>SJ2018YNseq   | c   |  |  |   |   |
| XW2018YNseq  | C   |  | c  |   | C   |
| YM2018YNseq  | C   |  | G  | A   | C   |
| YN12017seq   | AC  |  |  |   | C   |
| YN22017seq   | C   | C                                      |  | *********                                 | C   |
| YN32017seq<br>YN42017seq   |   | *********                              |  | c   |   |
| YX2018YNseq  |   | *********                              | C  | **********                                |   |
| ZT2018YNseq  |   |  | . c  | C   | C   |
| CX12018YNseq   |   |  |  |   |   |
| CX22018YNseq   | C   |  | ·····  |   | C   |
| CX32018YNseq<br>LF2018YNseq  | c   |  | •••••  |   | C   |
| LJ2018YNseq  |   |  |  |   | C   |
| LP201SYNseq  | C   |  | c  |   | CG  |
| LQ2018YNseq  | C   |  | C  | C   | C   |
| KT8690771seq   | c   | C                                      | *********  |   |   |
| KX4582351seq<br>MG2501831seq   | c   | c                                      | ********   | . G                                       |   |
| MG2501851seq   | C   |  |  |   | C T   |
| G2501861seq  | C   | C                                      |  |   |   |
| G3101521seq  | C   | C                                      |  |   | C   |
| 4G5501071seq   | c   | c                                      | ********   |   | C A   |
| MG5641741seq<br>MG6799161seq   | c   | ********                               | ******   | AA.                                       | C   |
| 4G6799171seq   | C   | ¢                                      |  | A.  | C   |
| MG7275391seq   |   | G                                      |  |   | C   |
| MG7654731seq   | C   |  |  |   |   |
| X8980301seq<br>X0759861seq   | c   | C                                      |  | T.  |   |
| (Y0759871seq   | C   | C                                      |  |   | C.  |
| Y0759921seq  | C   |  |  | A   |   |
| (Y0759931seq   |   |  |  | A   | C G.  |
| (Y0759941seq<br>(Y3540381seq   | C   |  | *********  | A   | C G.  |
| XY4186061seq   | CC  | 470                                    |  | A.  | A.C. A  |
| Y4213471seq  | c   |  |  |   |   |
| Y7787761seq  |   | C                                      |  |   | C C   |
| Y7787771seq<br>Y8652421seq   | c   | C                                      | *********  |   | C C   |
| (Y9244741seq   | C   |  |  |   | C A   |
| Y9244751seq  | C   |  |  |   | C A.  |
| Y9963371seq  | C   |  |  |   | A   |
| (Y9963381seq<br>(Y9963401seq   | c   | C                                      |  |   |   |
| Y9963441seq  | C   |  |  |   | C   |
| KY9963451seq   | C   |  |  | C   | C   |
| MF0692521seq<br>MF0792531seq   | ·····   | ç                                      |  |   | ç   |
| (F0849941seq   | .GC   | Č                                      |  | T.  | A   |
|  |   |  |  |   |   |
|  | AA  |  |  |   | C   |
| MF1556411seq<br>MF1556421seq   | AA<br>C   |  |  |   | C   |
| MF1556421seq   | c   |  | ······   |   | c<br><u>c</u>   |
| MF1556421seq<br>MF1556431seq<br>MF5891021seq   | c   |  | ······i  |   | c   |
| MF1556421seq   | c   |  |  |   | c   |
| WF1556421seq<br>WF1556431seq<br>WF5891021seq<br>WF5891071seq<br>WF6118761seq<br>WF6118771seq   | c   | <br>c<br>c                             |  |   | c   |
| WF1556421seq<br>WF1556431seq<br>WF5891021seq<br>WF5891071seq<br>WF6118761seq<br>WF6118771seq<br>WF6118781seq   | c   |  |  |   | c   |
| MF1556421seq<br>MF1556431seq<br>MF5891021seq<br>MF5891071seq<br>MF6118761seq<br>MF6118771seq<br>MF6118781seq<br>MF6017231seq   | c   |  |  |   | c   |
| MF1556431seq<br>MF5891021seq<br>MF5891071seq<br>MF6118761seq<br>MF6118761seq<br>MF6118781seq<br>MF6118781seq<br>MF8057231seq<br>MF8057241seq   | c   |  |  |   | c<br>   |
| MF1556431seq<br>MF5591021seq<br>MF5891071seq<br>MF6118761seq<br>MF6118781seq<br>MF6118731seq<br>MF6057231seq<br>MF8057241seq<br>MF8057241seq<br>MC0143621seq   | cc  | c                                      |  |   | c   |
| MF1556421seq<br>MF5891021seq<br>MF5891071seq<br>MF5891071seq<br>MF6118771seq<br>MF6118771seq<br>MF6118781seq<br>MF8057241seq<br>MF8057241seq<br>MC0143621seq<br>MC0143661seq   | cc  | c                                      | ·····  |   |   |
| EF1556421seq<br>MF5891021seq<br>MF5891071seq<br>MF518761seq<br>MF6118761seq<br>MF6118771seq<br>MF6118781seq<br>MF6057241seq<br>MF0057241seq<br>MC0143661seq<br>MC0143681seq<br>MC0143681seq  | cc  | c                                      | A  |   |   |
| MF1556421seq<br>MF5891021seq<br>MF5891071seq<br>MF518761eq<br>MF6118761eq<br>MF6118771seq<br>MF6057231seq<br>MF6057231seq<br>MC0143621seq<br>MC0143661seq<br>MC014361seq<br>MC0143721seq   | c   | C                                      |  |   | C<br>C<br>C<br>C<br>C<br>C<br>C<br>C.   |
| EF1556421seq<br>MF1556421seq<br>MF5891021seq<br>MF5891071seq<br>MF6118761seq<br>MF6118781seq<br>MF6118781seq<br>MF6118781seq<br>MF6057221seq<br>MC0143661seq<br>MC0143651seq<br>MC0143651seq<br>MC0143731seq<br>MC0143731seq   | c   | C                                      | · · · · · · · · · · · · · · · · · · ·                |   | CCCCCCCCC   |
| <pre>F1556421seq WF15591021seq WF5591071seq WF5191071seq WF6118771seq WF6118771seq WF6118771seq WF6118761seq WF6057241seq WC0445651seq WC0445651seq WC044561seq WC044561seq WC044571seq WC044571seq WC044571seq WC045731seq WC045751seq</pre>  | c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>_c   | c                                      | · · · · · · · · · · · · · · · · · · ·                |   | CCCCCCCCC   |
| <pre>#F1556421seq<br/>MF5591021seq<br/>MF5591021seq<br/>MF5691071seq<br/>MF518761seq<br/>MF6118781seq<br/>MF6118781seq<br/>MF618781seq<br/>MF618781seq<br/>MF0143621seq<br/>MF0143621seq<br/>MF0143721seq<br/>MF0143731seq<br/>MF0143731seq<br/>MF0143731seq<br/>MF0143731seq<br/>MF5191031seq<br/>MF5891031seq</pre>  | c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c | C                                      | · · · · · · · · · · · · · · · · · · ·                |   | CCCCCCCCC   |
| F1556421seq<br>NF1556421seq<br>NF5591021seq<br>NF5591071seq<br>NF6518771seq<br>NF6118771seq<br>NF6118771seq<br>NF6118771seq<br>NF6118781seq<br>NF6118781seq<br>NF6118781seq<br>NF6118781seq<br>NF0143621seq<br>NF0143731seq<br>NF0143731seq<br>NF0143761seq<br>NF5591041seq  | c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>_c   | c                                      | · · · · · · · · · · · · · · · · · · ·                |   | CCCCCCCCC   |
| <pre>#F1556421seq<br/>MF1556421seq<br/>MF5591021seq<br/>MF5591021seq<br/>MF518761seq<br/>MF518761seq<br/>MF518771seq<br/>MF518771seq<br/>MF518781seq<br/>MF518781seq<br/>MF518731seq<br/>MF0143761seq<br/>MF0143731seq<br/>MF0143741seq<br/>MF5191031seq<br/>MF5591041seq<br/>MF5591041seq</pre>   | C C C C C C C C C C C C C C C C C C C   | c                                      | · · · · · · · · · · · · · · · · · · ·                |   | CCCCCCCCCC  |
| <pre>#F1556421seq<br/>WF1556421seq<br/>WF5891021seq<br/>WF5891071seq<br/>WF6118761seq<br/>WF6118761seq<br/>WF6118781seq<br/>WF6128781seq<br/>WF6128781seq<br/>WF6128781seq<br/>WF0143621seq<br/>WF0143731seq<br/>WF0143731seq<br/>WF0143731seq<br/>WF0143741seq<br/>WF0143731seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143741seq<br/>WF0143745745745745745745745745747457475774574777777</pre>  | c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>c<br>_c  | c                                      | · · · · · · · · · · · · · · · · · · ·                |   |   |
| F1356421xeq<br>HF1556421xeq<br>HF5591021xeq<br>HF5591071xeq<br>HF6118771xeq<br>HF6118771xeq<br>HF6118771xeq<br>HF6118771xeq<br>HF6118771xeq<br>HF6057241xeq<br>HC0143621xeq<br>HC0143621xeq<br>HC0143731xeq<br>HC0143761xeq<br>HC0143761xeq<br>HC5591041xeq<br>HC5591041xeq<br>HF5591041xeq<br>HF5591041xeq<br>HF5591041xeq<br>HF5591041xeq<br>HF5591041xeq<br>HF5591041xeq<br>HF559121xeq<br>HF5057221xeq   |   | C                                      |  |   | C   |
| F1356421 xeq<br>WF15561021 xeq<br>WF5591021 xeq<br>WF5591021 xeq<br>WF5118761 xeq<br>WF5118761 xeq<br>WF5118761 xeq<br>WF5057231 xeq<br>WC0143621 xeq<br>WC0143651 xeq<br>WC0143731 xeq<br>WC0143731 xeq<br>WC0143761 xeq<br>WF5091041 xeq<br>WF5091201 xeq<br>WF50912000 xeq<br>WF5091000 xeq<br>WF5091000 xeq<br>WF5091000 xeq<br>WF5091000 xeq<br>WF5091   |   | ¢                                      |  | А<br>А<br>С.<br>А<br>А                    | CC.<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC   |
| F1356421seq<br>NF1559102iseq<br>NF559102iseq<br>NF559107iseq<br>NF651877iseq<br>NF611877iseq<br>NF611877iseq<br>NF611877iseq<br>NF611877iseq<br>NF611877iseq<br>NF611877iseq<br>NF601723iseq<br>NF605722iseq<br>NC014366iseq<br>NC014376iseq<br>NC014376iseq<br>NC014376iseq<br>NC014376iseq<br>NC014376iseq<br>NC014376iseq<br>NF559106iseq<br>NF559106iseq<br>NF559106iseq<br>NF505722iseq<br>NC014365iseq   |   | C                                      |  |   |   |
| <pre>FI356421seq WF1556421seq WF5181021seq WF5181021seq WF518771seq WF518761seq WF518761seq WF518761seq WF518761seq WF5057241seq WF0057241seq WF005721seq WF005721seq WF5891031seq WF5891031seq WF5891031seq WF5891041seq WF6057131seq Wf60571351seq Wf60571351seq Wf60571351seq Wf60571351seq Wf60571351seq Wf60571351seq Wf60571551seq Wf605715551seq Wf6057155551seq Wf605715551seq Wf605715555555 Wf6057155555555555555555555555555555555555</pre>  |   | C                                      |  | A<br>A<br>C<br>A<br>A<br>A                | CC.<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC |
| <pre>F1356421seq WF1556421seq WF5181021seq WF5181021seq WF518771seq WF518761seq WF518761seq WF518761seq WF5057231seq WF5057241seq WF0343661seq WF0343661seq WF0343651seq WF0343761seq WF5891031seq WF589</pre>   |   | C                                      |  |   | C   |
| F1356421 xeq<br>WF1556431 xeq<br>WF5591021 xeq<br>WF5187612 xeq<br>WF518761 xeq<br>WF518761 xeq<br>WF518761 xeq<br>WF518761 xeq<br>WF518761 xeq<br>WF518761 xeq<br>WF518761 xeq<br>WF519101 xeq  |   | C                                      |  |   | C<br>C<br>C<br>C<br>C<br>C<br>C<br>C.   |
| <pre>F1556421seq WF1556421seq WF5187021seq WF518701seq WF518701seq WF5118761seq WF5118761seq WF5118761seq WF51231seq WF5057241seq WC0443761seq WC0443721seq WC0443761seq WC0443761seq WC0443761seq WF5891031seq WF5891031seq WF5891031seq WF5891041seq WF5891894804 WF5891894804 WF5891894804 WF5891894804 WF5891894804 WF5891894804 WF5891894804 WF5891894 W</pre>   |   | ¢                                      |  | А<br>А<br>С.<br>А<br>А<br>А<br>А          | C<br>C<br>C<br>C<br>C<br>C<br>C<br>C  |
| <pre>#F1356421seq<br/>MF1556421seq<br/>MF5591021seq<br/>MF5591021seq<br/>MF518761seq<br/>MF518761seq<br/>MF518761seq<br/>MF518761seq<br/>MF518761seq<br/>MF518761seq<br/>MF518761seq<br/>MF5191031seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF5191041seq<br/>MF519104154154154154154154154154154154154154154</pre> |   | C                                      |  | A<br>A<br>C<br>A<br>A<br>A<br>A           | C<br>C<br>C<br>C<br>C<br>C<br>C<br>C.   |
| F1356421 xeq<br>HF1556421 xeq<br>HF5581071 xeq<br>HF5181071 xeq<br>HF5181071 xeq<br>HF5181071 xeq<br>HF518761 xeq<br>HF518761 xeq<br>HF5618761 xeq<br>HF5618761 xeq<br>HF5618761 xeq<br>HF561721 xeq<br>MC0143661 xeq<br>MC0143761 xeq<br>HF5691041  |   | C                                      |  | Å<br>Å<br>Å<br>Å                          | C<br>C<br>C<br>C<br>C<br>C<br>C<br>C.   |
| <pre>F1356421seq WF15591021seq WF1591021seq WF5891071seq WF6118771seq WF6118771seq WF6118771seq WF6118771seq WF6118771seq WF6118761seq WF6118761seq WF6118761seq WF6057241seq WF0043741seq WF0043741seq WF0043741seq WF0043741seq WF0047741seq WF0047211seq WF0047211seq WF0045721seq WF005221seq WF005221seq</pre>  |   | Ст.                                    |  | A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A | C<br>C<br>C<br>C<br>C<br>C<br>C<br>C.   |
| F1356421 ±eq<br>WF1556431 ±eq<br>WF15591021 ±eq<br>WF5591021 ±eq<br>WF518761 ±eq<br>WF518761 ±eq<br>WF518761 ±eq<br>WF51271 ±eq<br>WF505721 ±eq<br>WF014361 ±eq<br>WF014361 ±eq<br>WF0143761 ±eq<br>WF0143651 ±eq  |   | СТ.                                    |  | A<br>A<br>C<br>A<br>A<br>A                | C<br>C<br>C<br>C<br>C<br>C<br>C<br>C.   |
| F1356421 ±eq<br>HF1556421 ±eq<br>HF15591021 ±ed<br>HF5591071 ±ed<br>HF5181071 ±ed<br>HF6118771 ±eq<br>HF6118771 ±eq<br>HF6118771 ±eq<br>HF6118771 ±eq<br>HF6017241 ±eq<br>MC0143621 ±eq<br>MC0143621 ±eq<br>MC0143731 ±eq<br>MC0143761 ±eq<br>MC0143   |   | C                                      |  |   | C   |
| F1356421 ±eq<br>WF1556431 ±eq<br>WF55891021 ±eq<br>WF55891071 ±eq<br>WF518771 ±eq<br>WF518761 ±eq<br>WF518761 ±eq<br>WF5057231 ±eq<br>WF0057241 ±eq<br>WF0057241 ±eq<br>WF014761 ±eq<br>WF014761 ±eq<br>WF014761 ±eq<br>WF014761 ±eq<br>WF014771   |   | С<br>Т.                                |  |   | C<br>C<br>C<br>C<br>C<br>C<br>C<br>C.   |
| <pre>F1556421seq WF1556421seq WF15561021seq WF55891071seq WF518761sr61sr61sr61seq WF518761sr61sr61seq WF518761seq WF518761seq WF5057241seq WF5057241seq WF0243661seq WF0243661seq WF0243661seq WF0243761seq WF508721seq WF5085381seq WF50891seq WF50891seq WF0598161seq WF508391seq WF0598161seq WF5085381seq WF705901seq W7275401seq WF5085381seq WF705901seq WF0589161seq WF0589161seq WF0589161seq WF0589161seq WF0589161seq WF0589161seq WF0589161seq WF0589161seq WF0583181seq WF058318151seq WF0583181515seq WF0583181515seq WF0583181515seq WF0583181551852433815539385423853938543393854539393854539393854339385453939385453939385453939339385453939339385453933339385453939339385453333339385453333333333</pre>   |   | C                                      |  | А<br>А<br>А<br>А<br>А<br>А<br>А           | C<br>C<br>C<br>C<br>C<br>C<br>C<br>C.   |
| <pre>F1356421seq WF15591021seq WF5591071seq WF5591071seq WF5191071seq WF6118771seq WF601721seq WF0143761seq WF0143751seq WF0143751seq WF0143751seq WF0143851seq WF0143851seq WF0143851seq WF0143851seq WF0143851seq WF014381seq WF0143831seq WF01438331seq WF01438331seq WF0143833333333333333333333333333333333333</pre>  |   | C                                      |  |   | C<br>C<br>C<br>C<br>C<br>C<br>C<br>C.   |
| <pre>F1356421seq WF1556421seq WF15561021seq WF5891071seq WF5891071seq WF518761seq WF518761seq WF518761seq WF518761seq WF518761seq WF5057241seq WF037241seq WF037241seq WF037241seq WF03721seq WF03721seq WF03721seq WF03721seq WF03891041seq WF038910418411seq WF038910413411seq WF038910413411seq WF038910413411seq WF038910413411seq WF038910413411seq WF038910413411seq WF038910413411seq WF038910413411seq WF038910413411seq WF0389104211seq WF038910413411seq WF038411seq WF03841154111seq WF03841154115804158158041580041581580415800415815800</pre>   |   | C                                      |  | А<br>А<br>С.<br>А<br>А<br>А               | C<br>C<br>C<br>C<br>C<br>C<br>C<br>C.   |
| <pre>F1356421seq WF15591021seq WF15891071seq WF5891071seq WF5891071seq WF6118771seq WF6017241seq WF0143721seq WF0143761seq WF0143751seq WF0143751seq WF0143751seq WF0143751seq WF0143851seq WF01438551seq WF01438551seq WF01438551seq WF01438551seq WF01438551seq WF01438551seq WF01438551seq WF01438551seq WF01438551seq WF0143855541seq WF0143855541seq WF01438555555555555555555555555555555555555</pre>   |   | С<br>С<br>Т.                           |  |   | C<br>C<br>C<br>C<br>C<br>C<br>C<br>C.   |
| F1356421 xeq<br>F1356421 xeq<br>HF15591021 xed<br>HF5591071 xed<br>HF5591071 xed<br>HF6118771 xeq<br>HF6118771 xeq<br>HF61187771 xeq<br>HF61187771 xeq<br>HF61187771 xeq<br>HF61187771 xeq<br>HF61187771 xeq<br>HF61187771 xeq<br>HF61187771 xeq<br>HF611877771 xeq<br>HF611877771 xeq<br>HF611877777777777777777777777777777777777  |   | C                                      |  |   | C<br>C<br>C<br>C<br>C<br>C<br>C<br>C.   |
| F1356421 xeq<br>F1356421 xeq<br>F559102 xeq<br>HF519102 xeq<br>HF519107 xeq<br>HF519107 xeq<br>HF519107 xeq<br>HF51971 xeq<br>HF519723 xeq<br>HF519723 xeq<br>HF5057241 xeq<br>MC0143651 xeq<br>MC014361 xeq<br>MC014373 xeq<br>MC0143751 xeq<br>MC0143651 xeq<br>MC014351 xeq<br>MC0   |   | C                                      |  |   | C<br>C<br>C<br>C<br>C<br>C<br>C<br>C.   |
| <pre>F1356421seq WF1356431seq WF5181071seq WF5181071seq WF5181071seq WF6118771seq WF6017241seq WF0143761seq WF0143751seq WF0143751seq WF0143751seq WF0143751seq WF0143751seq WF0143751seq WF0143751seq WF014381seq KT1456441seq WF014381seq WF014383841seq WF0143841seq WF01443841seq WF01443841seq WF01443841seq WF01443841seq WF01443841seq WF01443841seq WF01443841seq WF014443841seq WF014443841seq WF014443841seq WF0144443841seq WF01444444444444444444444444444444444444</pre>   |   | C                                      |  |   | C<br>C<br>C<br>C<br>C<br>C<br>C<br>C.   |
| MF1556421seq<br>MF1556431seq<br>MF5891021seq<br>MF5891071seq<br>MF5118761seq   |   | C                                      |  |   | C<br>C<br>C<br>C<br>C<br>C<br>C<br>C.   |

Fig. 3: The 151 variant sites of *cap* gene sequences

| J. Anim. Vet. Adv., 20 (4): 91-109, 2021 | J. Anin | ı. Vet. | Adv., | 20(4 | !): 9 | 01-109 | , 2021 |
|--|---------|---------|-------|------|-------|--------|--------|
|--|---------|---------|-------|------|-------|--------|--------|

|              |                                       |                               | 11111               | 11111111111    | 11111111111            | 222   |
|--------------|---------------------------------------|-------------------------------|---------------------|----------------|------------------------|-------|
|              | 111222                                | 2234556777                    |                     |                | 4455566778             |       |
|              |                                       |                               |                     |                | 0204645354             |       |
|              |                                       |                               |                     |                | KSITSFFLTA             |       |
| KX778720seq  |                                       |                               |                     |                |                        |       |
| F201SYNseq   |                                       |                               |                     |                |                        |       |
| 4G014368seq  | P                                     |                               |                     |                |                        |       |
| KY418606seq  | P                                     |                               |                     |                |                        | D     |
| MG014362seq  | K                                     |                               |                     |                |                        |       |
| WF155641seq  |                                       |                               |                     |                |                        |       |
| SE2018YNseq  |                                       |                               |                     |                |                        |       |
| X22018YNseq  |                                       |                               |                     |                |                        |       |
| CX32018YNseq |                                       |                               |                     |                |                        |       |
|              |                                       |                               |                     |                |                        |       |
| QB2018YNseq  | K                                     | ********                      |                     | *********      | . G                    | 1.1.1 |
| CX12018YNseq | a Marrie                              |                               | Bergererer          |                | . G                    |       |
| 4G014376seq  |                                       |                               |                     |                |                        |       |
| MF805723seq  |                                       |                               |                     |                |                        |       |
| MG014366seq  |                                       | K                             | Y                   |                |                        |       |
| X898030seq   |                                       | . D                           | K                   |                |                        |       |
| M2018YNseq   |                                       | D                             |                     |                | AT                     | -     |
| MG679916seq  |                                       |                               |                     |                |                        |       |
| MF611877seq  |                                       |                               |                     |                | L                      |       |
| MG679917seq  |                                       |                               |                     |                | L                      |       |
| MG014373seq  |                                       |                               |                     |                | L                      |       |
| (Y778776seq  |                                       |                               |                     |                |                        |       |
|              |                                       |                               |                     |                |                        |       |
| (F155642seq  |                                       |                               |                     |                |                        |       |
| &G550107seq  |                                       |                               |                     |                | L                      |       |
| XY924475seq  | KP                                    |                               |                     |                |                        |       |
| &G250186seq  |                                       |                               |                     |                | L                      |       |
| KY996337seq  | V.                                    |                               |                     |                |                        |       |
| MF589107seq  |                                       | . K                           |                     |                |                        |       |
| KY996344seq  | . Y                                   | . K                           |                     |                |                        |       |
| KY421347seq  |                                       | . K D                         | K                   |                |                        |       |
| MG250183sec  |                                       | K T                           | E                   |                | L                      |       |
| KX458235seq  |                                       |                               |                     |                |                        |       |
| Q2018YNseq   |                                       |                               |                     |                |                        |       |
| KYYYHS334sed | КУ.                                   |                               |                     |                |                        |       |
|              | · · · · D. · · · · V.                 |                               | ******              | *****          |                        | + + + |
| MG014365seq  | X-                                    | · Berrers Is                  | * * * * * * * * * * | ********       |                        | + + + |
| KY865243seq  |                                       |                               |                     |                |                        |       |
| &G564175seq  |                                       |                               |                     |                |                        |       |
| SJ2018YNseq  |                                       |                               |                     |                |                        |       |
| WF589103seq  |                                       | - K                           | K                   |                |                        |       |
| 4G727539seq  | V.                                    | . K                           |                     |                | · · · · R. · · · ·     |       |
| YN42017sec   |                                       |                               |                     |                | · · · · · · S. · · · · |       |
| YN22017sec   |                                       |                               |                     |                | L                      |       |
| 4G250185seg  |                                       |                               |                     |                |                        |       |
| 4G014364seq  | PY V.                                 |                               |                     |                |                        |       |
| (Y996342seq  |                                       |                               |                     |                |                        |       |
| G014375seq   |                                       | -                             | ********            | ********       |                        |       |
| W2018YNseq   |                                       | - B 4-                        | ********            | ********       |                        |       |
|              | ·····                                 |                               | · · · · · · R. · ·  |                | ····· P                |       |
| LP2018YNseq  | · · · · · · · · ·                     |                               |                     |                | P                      |       |
| YX2018YNseq  | ¥.                                    |                               |                     |                | N                      |       |
| LJ2018YNseq  | ¥.                                    |                               | *********           |                |                        |       |
| N32017seq    | W.                                    |                               |                     |                |                        |       |
| N12017seq    | ¥.                                    |                               | . A                 |                |                        |       |
| ZT2018YNseq  | V.                                    |                               |                     |                | S                      |       |
| 072018YNseq  | · · · · · · · · · · · · · · · · · · · | K R                           |                     | G G            | . N. A                 |       |
| Creater and  |                                       | 1 101 1 1 1 1 1 1 1 1 1 1 1 1 |                     | MANA AN MANANA | 3 474 E81 + 4 + 2 +    |       |

Fig. 4: The amino acid variants of cap gene in PCV3. Amino acid sites 24 and 27 were highlighted in light green and purple, respectively, where <sup>24</sup>A and <sup>27</sup>R indicated clade PCV3a while <sup>24</sup>V and <sup>27</sup>K suggested clade PCV3b. Fiftythree as haplotypes were determined according to the deduced as residues, of which the representative as KX458235 type from PCV3a was predominant with a ratio of 36.54 % (38/104), containing KX458235, MG564174, KY996345, MF589104, MF58910 MF805719 MF805720, MF805721, MF805722, MG7275401, KX966193, KY075989, KY075990, KY421348, KY996341, KY996343, MF069115, MF069116, MF079254, MF162298, MF162299, MF405271, MF405272, MF405273, MF405274, MF405275, MF405276, MF405277, KY996339, MG014365, KY865243, MG564175, MF589103, MG727539, MG250185, MG014364, KY996342 and MG014375; the second type, comprising of KX778720, MG765473, KY075992, KY075993, KY075994, KY354038, KY865242, KY924474, MF155643, MF589102, MF611878, MG014372, MG014368, KY418606, MG014362, MF155641, MG014376, MG0143661, KX898030, MG679916, MF611877, MG679917, MG014373, MF155642, MG550107, KY924475, MG250186, KY996337, MF589107, KY996344, KY421347 and MG250183, accounted for 30.77% (32/104), the third type, including KY778776, KT869077, MG310152, KY075986, KY075987, KY778777, KY996338, KY996340, MF069252, MF079253, MF084994 and MF611876, accounted for 11.54% (12/104), and the fourth type, containing MF805723, MF805724 and MG014374, accounted for 2.88% (3/104), while the others shared one haplotype (19/104=18.27%). The dots (.) indicated the same amino acids as the reference KX778720 harbors

|                              |        |            |            |   |        | 000      |
|------------------------------|--------|------------|------------|---|--------|----------|
|                              | 111222 | 2234556777 |            | 111111111111111111111111111111111111111 |        |          |
|                              |        |            | 7856801457 |   |        |          |
| #KX778720seg                 |        |            | KVSPQTKFGT |   |        |          |
| #LF2018YNseq                 |        |            | Real dia a |   |        | U.S.     |
| #MG014368seg                 |        |            |            |   |        |          |
| #KY418606seg                 |        |            |            |   |        | D        |
| #MG014362seg                 |        |            |            |   |        |          |
| #MF155641sec                 |        |            |            |   |        |          |
| #SB2018YNseq                 |        | D          |            |   |        | 222      |
| #CX22018YNseq                |        |            |            |   |        |          |
| #CX32018YNseq                |        | D          | E          |   |        |          |
| #QB2018YNseq                 | K      |            | E          |   | . G    |          |
| #CX12018YNseq                | K      |            | E          |   | . G    |          |
| #MG014376seq                 |        | T          |            |   |        |          |
| #MF805723seq                 |        |            | Y          |   |        |          |
| #MG014366seq                 |        |            | Y          |   |        |          |
| #KX898030seq                 |        |            | K          |   |        | * * *    |
| #YM2018YNseq                 |        |            |            |   |        | + + +    |
| #MG679916seq                 |        |            |            |   |        |          |
| #MF611877seq                 |        |            |            |   |        |          |
| #MG679917seq                 |        |            |            |   |        | e. x. e. |
| #MG014373seq                 |        |            |            |   |        |          |
| #KY778776seq                 |        | T          |            |   |        |          |
| #MF155642seq                 |        |            |            |   |        |          |
| #MG550107seq                 |        |            |            |   |        | 2.2.2    |
| #KY924475seq                 |        |            |            |   |        | + - +    |
| #MG250186seq                 |        |            | I          |   |        | + + +    |
| #KY996337seq                 |        |            |            |   |        |          |
| #MF589107seq                 |        |            |            |   |        |          |
| #KY996344seq<br>#KY421347seq |        |            |            |   |        |          |
| #MG250183seg                 |        |            |            |   |        |          |
| #KX458235seq                 |        | . K T.     |            |   |        | * * *    |
| #LQ2018YNseq                 |        |            |            |   |        |          |
| #KY996339seq                 |        |            |            |   |        |          |
| #MG014365seq                 |        | . K T.     |            |   |        | * * *    |
| #KY865243seq                 |        |            |            |   |        |          |
| #MG564175seg                 |        |            |            |   |        |          |
| #SJ2018YNseq                 | v      |            | L          |   |        |          |
| #MF589103seq                 | V.     | K          | K          |   |        |          |
| #MG727539zeg                 | V.     |            |            |   |        |          |
| #YN42017seq                  |        |            |            |   |        |          |
| #YN22017seq                  |        |            |            |   |        |          |
| #MG250185seg                 |        |            |            |   |        | L        |
| #MG014364seq                 |        |            |            |   |        | 107      |
| #KY996342seq                 |        |            |            |   |        | 222      |
| #MG014375seq                 | KV.    | . K T.     |            |   |        |          |
| #XW2018YNseq                 | V.     | . K        | R          | N                                       | P      |          |
| #LP2018YNseq                 | V.     | . K        |            | P. N                                    | P      | . E.     |
| #YX2018YNseq                 | V.     | GK. H      |            |   | N      |          |
| #LJ2018YNseq                 | V.     |            |            |   |        |          |
| #YN32017seq                  | V.     |            |            | A                                       |        |          |
| #YN12017seq                  |        |            | . A        |   |        |          |
| #ZT2018YNseq                 | V.     |            |            | A                                       |        |          |
| #QJ2018YNseq                 | V.     | . K R      |            | GG                                      | . N. A | 1.1.1    |

J. Anim. Vet. Adv., 20 (4): 91-109, 2021

Fig. 5: The 53 aa variants of all the cap gene sequences

was found between the two main clades and the geographical origin or time period including the strains from USA, German, Korea and China<sup>[6,9,18,30,31,33,43,46]</sup>, a more complicated scenario was observed that the PCV3 strains clustered together in sub-clades according to the place of sampling, as observed in Japan<sup>[17]</sup>, Denmark, Italy and Spain<sup>[13]</sup>. The four Yunnan strains fell into a novel mini-clade within PCV3b, suggesting a sub-clade of completely novel viral genotypes.

The new identified Yunnan strains were grouped into 4 sub-clusters according to the N-J topology of *cap* gene (Fig. 6b, indicated respectively in orange, light blue, dark green and yellow colors) and plotted against clinical reproductive parameters including litters with stillborn (%), stillborn rate (%), nursing mortality rate(%), PSY decrease (%) and PCV3 positive rate (%) (Fig. 6c). Statistical analyses did not reveal any significant difference among clusters (p>0.05). These results implied that the Yunnan strains are not pathogenically differentiated. The mismatch distribution of pairwise nucleotide differences from *cap* gene of PCV3 exhibited a smooth unimodal distribution characteristic with a test value of Tajima's D = -2.54 (p<0.001), supporting that all the PCV3 strains has been undergoing population expansion(Fig. 8) in accord with recent occurrence since  $2013^{[5, 6, 21, 22, 32]}$ .

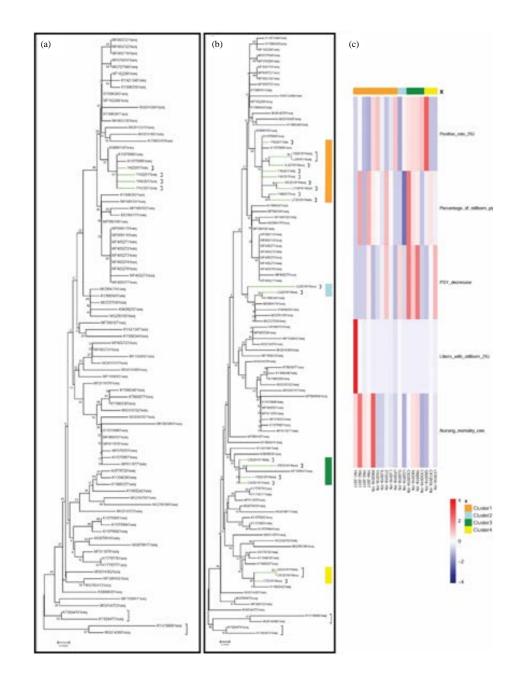


Fig. 6(a-c): Phylogenetic analysis and correlation with clinical parameters, (a) Phylogenetic analysis based on 89 PCV3 genome available from GenBankusing N-J method, MEGA 7.0. Green lines indicated the strains from Yunnan province, (b) Phylogenetic analysis based on 104 *cap* genes using N-J method, MEGA 7.0. Green lines indicated the strains from Yunnan province. The phylogeny was tested using bootstrap method with 1,000 replications and the evolutionary distances were computed using the p-distance method. The bootstrap values were shown with >50% support from 1,000 replicates on the main branches and (c) The four *cap* genes sub-clusters (indicated respectively in orange, light blue, dark green and yellow colors) from the newly identified Yunnan strains were plotted against clinical reproductive parameters including litters with stillborn (%), stillborn rate (%), nursing mortality rate(%), PSY decrease (%) and PCV3 positive rate (%). Statistical analyses did not reveal any significant difference among clusters

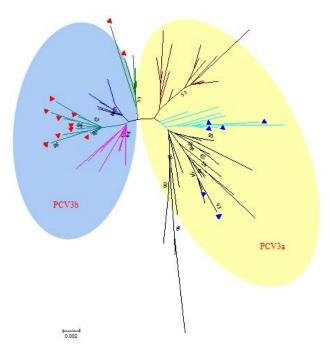


Fig. 7: Phylogenetic analysis based on 104 PCV3 cap genes

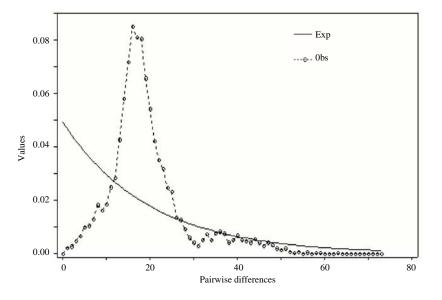


Fig. 8: Mismatch distribution analysis of all the cap gene of PCV3. Full and dashed lines indicated the expected and observed distributions as the values of abscissa and ordinate represented the pairwise differences and haplotype frequencies of PCV3 *cap* gene, respectively

### CONCLUSION

The dramatic elevation of PCV3 positive rate in such a short time period from 2017 to 2018, suggested the PCV3 prevalence and expansion in Yunnan province, China. The detection of PCV3 in pigs with no observable clinical symptom indicated the demand of molecular diagnostic method for more effective PCV3 control. PCV3 infection had significantly impaired the swing industry but was still not the dominant reason for pig reproduction failure in Yunnan province, China. The four Yunnan strains fell into a novel mini-clade within PCV3b, indicating a sub-clade of completely novel viral genotypes. No significant pathogenic differentiation was observed among the Yunnan strains. The illustration of N-J tree and the revelation of genetic polymorphism of PCV3 *cap* gene and the immunogenic *cap* protein provided supporting data for future development of specific and effective PCV3 recombinant vaccine.

### ACKNOWLEDGMENTS

This research was supported by Grant from the Key Projects of Yunnan Provincial Natural Science Foundation (2016FA018), Key Technology Innovation Team for Prevention and Control of Important Diseases of Pigs in Yunnan Provincial University and the Young and Middle-aged Academic Technology Leader Backup Talent Cultivation Program in Yunnan Province, China (2018HB045). Jintao Zhang, Junlong Bi, Zhuo Ha researchers contributed equally to this work.

### REFERENCES

- 01. Nawagitgul, P., I. Morozov, S.R. Bolin, P.A. Harms, S.D. Sorden and P.S. Paul, 2000. Open reading frame 2 of *Porcine circovirus* type 2 encodes a major capsid protein. J. Gen. Virol., 81: 2281-2287.
- 02. Palinski, R., P. Pineyro, P. Shang, F. Yuan and R. Guo *et al.*, 2017. A novel *Porcine circovirus* distantly related to known circoviruses is associated with porcine dermatitis and nephropathy syndrome and reproductive failure. J. Virol., Vol. 91, 10.1128/JVI.01879-16
- Faccini, S., I. Barbieri, A. Gilioli, G. Sala and L.R. Gibelli *et al.*, 2017. Detection and genetic characterization of *Porcine circovirus* type 3 in Italy. Transboundary Emerging Dis., 64: 1661-1664.
- 04. Collins, P.J., J. McKillen and G. Allan, 2017. *Porcine circovirus* type 3 in the UK. Vet. Rec., 181: 599-599.
- 05. Fu, X., B. Fang, J. Ma, Y. Liu and D. Bu *et al.*, 2018. Insights into the epidemic characteristics and evolutionary history of the novel *Porcine circovirus* type 3 in Southern China. Transboundary Emerging Dis., 65: e296-e303.
- 06. Li, G., W. He, H. Zhu, Y. Bi and R. Wang *et al.*, 2018. Origin, genetic diversity and evolutionary dynamics of novel *Porcine circovirus* 3. Adv. Sci., Vol. 5, 10.1002/advs.201800275
- 07. Zhai, S.L., X. Zhou, H. Zhang, B.M. Hause, T. Lin, R. Liu and F. Li, 2017. Comparative epidemiology of porcine circovirus type 3 in pigs with different clinical presentations. Virology J., 14: 222-222.

- 08. Zhao, D., X. Wang, Q. Gao, C. Huan, W. Wang, S. Gao and X. Liu, 2018. Retrospective survey and phylogenetic analysis of *Porcine circovirus* type 3 in Jiangsu province, China, 2008 to 2017. Arch. Virol., 163: 2531-2538.
- Ku, X., F. Chen, P. Li, Y. Wang and X. Yu *et al.*, 2017. Identification and genetic characterization of *Porcine circovirus* type 3 in China. Transboundary Emerging Dis., 64: 703-708.
- Chen, G.H., K.J. Mai, L. Zhou, R.T. Wu and X.Y. Tang *et al.*, 2017. Detection and genome sequencing of *Porcine circovirus* 3 in neonatal pigs with congenital tremors in South China. Transboundary Emerging Dis., 64: 1650-1654.
- Mora-Diaz, J., P. Pineyro, H. Shen, K. Schwartz and F. Vannucci *et al.*, 2020. Isolation of PCV3 from perinatal and reproductive cases of PCV3-associated disease and *in vivo* characterization of PCV3 replication in CD/CD growing pigs. Viruses, Vol. 12, 10.3390/v12020219
- Kedkovid, R., Y. Woonwong, J. Arunorat, C. Sirisereewan and N. Sangpratum *et al.*, 2018. *Porcine circovirus* type 3 (PCV3) infection in grower pigs from a Thai farm suffering from Porcine Respiratory Disease Complex (PRDC). Vet. Microbiol., 215: 71-76.
- Franzo, G., M. Legnardi, C.K. Hjulsager, F. Klaumann, L.E. Larsen, J. Segales and M. Drigo, 2018. Full genome sequencing of *Porcine circovirus* 3 field strains from Denmark, Italy and Spain demonstrates a high within Europe genetic heterogeneity. Transboundary Emerging Dis., 65: 602-606.
- Ye, X., M. Berg, C. Fossum, P. Wallgren and A.L. Blomstrom, 2018. Detection and genetic characterisation of *Porcine circovirus* 3 from pigs in Sweden. Virus Genes, 54: 466-469.
- Stadejek, T., A. Wozniak, D. Milek and K. Biernacka, 2017. First detection of *Porcine circovirus* type 3 on commercial pig farms in Poland. Transboundary Emerging Dis., 64: 1350-1353.
- 16. Yuzhakov, A.G., S.A. Raev, K.P. Alekseev, T.V. Grebennikova, O.A. Verkhovsky, A.D. Zaberezhny and T.I. Aliper, 2018. First detection and full genome sequence of *Porcine circovirus* type 3 in Russia. Virus Genes, 54: 608-611.
- Hayashi, S., Y. Ohshima, Y. Furuya, A. Nagao and K. Oroku *et al.*, 2018. First detection of *Porcine circovirus* type 3 in Japan. J. Vet. Med. Sci., 80: 1468-1472.
- Kim, H.R., Y.R. Park, D.R. Lim, M.J. Park and J.Y. Park *et al.*, 2017. Multiplex real-time polymerase chain reaction for the differential detection of *Porcine circovirus* 2 and 3. J. Virol. Methods, 250: 11-16.

- Kwon, T., S.J. Yoo, C.K. Park and Y.S. Lyoo, 2017. Prevalence of novel *Porcine circovirus* 3 in Korean pig populations. Vet. Microbiol., 207: 178-180.
- Kim, S.C., S. Nazki, S. Kwon, J.H. Juhng and K.H. Mun *et al.*, 2018. The prevalence and genetic characteristics of *Porcine circovirus* type 2 and 3 in Korea. BMC Vet. Res., 14: 1-9.
- Tochetto, C., D.A. Lima, A.P.M. Varela, M.R. Loiko and W.P. Paim *et al.*, 2018. Full genome sequence of *Porcine circovirus* type 3 recovered from serum of sows with stillbirths in Brazil. Transboundary Emerging Dis., 65: 5-9.
- Rodrigues, I.L.F., A.C.M. Cruz, A.E. Souza, F.B. Knackfuss, C.H.C. Costa, R.L. Silveira and T.X. Castro, 2020. Retrospective study of *Porcine circovirus* 3 (PCV3) in swine tissue from Brazil (1967-2018). Braz. J. Microbiol., 51: 1391-1397.
- Fan, S., X. Ku, F. Chen, Y. Wang, X. Yu and Q. He, 2017. Complete genome sequence of a novel *Porcine circovirus* type 3 strain, PCV3/CN/Hubei-618/2016, isolated from China. Genome Announce., Vol. 5, No. 15. 10.1128/genomeA.00100-17
- Zheng, S., X. Wu, L. Zhang, C. Xin and Y. Liu *et al.*, 2017. The occurrence of *Porcine circovirus* 3 without clinical infection signs in Shandong Province. Transboundary Emerging Dis., 64: 1337-1341.
- Liu, C., S. Chen, F. Meng, R. Chen, Z. Zhang, E. Du and Q. Xue, 2018. Full-length genome sequences of two Chinese *Porcine circovirus* type 3 strains, NWHEB21 and NWHUN2. Genome Announc., Vol. 6, No. 7. 10.1128/genomeA.00062-18
- Lu, B., Y. Qin, Y. He, L. Liu and Q. Duan *et al.*, 2018. Complete genome sequence of a novel *Porcine circovirus* type 3 strain, CH/GX/1776D/2017, isolated from Guangxi, China. Genome Announc., Vol. 6, No. 17. 10.1128/genomeA.00285-18
- Wen, S., W. Sun, Z. Li, X. Zhuang and G. Zhao *et al.*, 2018. The detection of *Porcine circovirus* 3 in Guangxi, China. Transboundary Emerging Dis., 65: 27-31.
- Xu, P.L., Y. Zhang, Y. Zhao, H.H. Zheng and H.Y. Han *et al.*, 2018. Detection and phylogenetic analysis of *Porcine circovirus* type 3 in central China. Transboundary Emerging Dis., 65: 1163-1169.
- Zou, Y., N. Zhang, J. Zhang, S. Zhang and Y. Jiang et al., 2018. Molecular detection and sequence analysis of *Porcine circovirus* type 3 in sow sera from farms with prolonged histories of reproductive problems in Hunan, China. Arch. Virol., 163: 2841-2847.
- Liu, Y., S. Zhang, X. Song, B. Hou and X. Gu *et al.*, 2019. The prevalence of novel *Porcine circovirus* type 3 isolates in pig farms in China. Transboundary Emerging Dis., 66: 2143-2151.

- Ouyang, T., G. Niu, X. Liu, X. Zhang, Y. Zhang and L. Ren, 2019. Recent progress on *Porcine circovirus* type 3. Infect. Gen. Evol., 73: 227-233.
- 32. Qi, S., M. Su, D. Guo, C. Li, S. Wei, L. Feng and D. Sun, 2019. Molecular detection and phylogenetic analysis of *Porcine circovirus* type 3 in 21 Provinces of China during 2015-2017. Transboundary Emerging Dis., 66: 1004-1015.
- 33. Phan, T.G., F. Giannitti, S. Rossow, D. Marthaler and T.P. Knutson *et al.*, 2016. Detection of a novel circovirus PCV3 in pigs with cardiac and multisystemic inflammation. Virol. J., 13: 1-8.
- 34. Fux, R., C. Sockler, E.K. Link, C. Renken and R. Krejci *et al*, 2018. Full genome characterization of *Porcine circovirus* type 3 isolates reveals the existence of two distinct groups of virus strains. Virol. J., 15: 1-9.
- 35. Saraiva, G.L., P.M.P. Vidigal, J.L.R. Fietto, G.C. Bressan, A.S. Junior and M.R. de Almeida, 2018. Evolutionary analysis of *Porcine circovirus* 3 (PCV3) indicates an ancient origin for its current strains and a worldwide dispersion. Virus Genes, 54: 376-384.
- Chung, H.C., V.G. Nguyen, Y.H. Park and B.K. Park, 2020. Genotyping of PCV3 based on reassembled viral gene sequences. Vet. Med. Sci., 7: 474-482.
- Wozniak, A., D. Milek, P. Baska and T. Stadejek, 2019. Does *Porcine circovirus* type 3 (PCV3) interfere with porcine circovirus type 2 (PCV2) vaccine efficacy?. Transboundary Emerging Dis., 66: 1454-1461.
- Klaumann, F., G. Franzo, M. Sohrmann, F. Correa Fiz and M. Drigo *et al.*, 2018. Retrospective detection of *Porcine circovirus* 3 (PCV 3) in pig serum samples from Spain. Transboundary Emerging Dis., 65: 1290-1296.
- Song, C., L. Gao, W. Bai, X. Zha, G. Yin and X. Shu, 2017. Molecular epidemiology of pseudorabies virus in Yunnan and the sequence analysis of its gD gene. Virus Genes, 53: 392-399.
- 40. Librado, P. and J. Rozas, 2009. DnaSP v5: A software for comprehensive analysis of DNA polymorphism data. Bioinformatics, 25: 1451-1452.
- Kumar, S., G. Stecher and K. Tamura, 2016. MEGA7: Molecular Evolutionary Genetics Analysis version 7.0 for bigger datasets. Mol. Biol. Evolut., 33: 1870-1874.
- Zhang, S., D. Wang, Y. Jiang, Z. Li and Y. Zou *et al.*, 2019. Development and application of a baculovirusexpressed capsid protein-based indirect ELISA for detection of porcine circovirus 3 IgG antibodies. BMC Vet. Res., 15: 1-10.

- 43. Klaumann, F., F. Correa-Fiz, G. Franzo, M. Sibila, J.I. Nunez and J. Segales, 2018. Current knowledge on *Porcine circovirus* 3 (PCV-3): A novel virus with a yet unknown impact on the swine industry. Front. Vet. Sci., Vol. 5, 10.3389/fvets.2018.00315
- Ha, Z., C.Z. Xie, J.F. Li, S.B. Wen and K.L. Zhang *et al.*, 2018. Molecular detection and genomic characterization of *Porcine circovirus* 3 in pigs from Northeast China. BMC Vet. Res., 14: 1-7.
- 45. Sukmak, M., N. Thanantong, P. Poolperm, A. Boonsoongnern and N. Ratanavanichrojn *et al.*, 2019. The retrospective identification and molecular epidemiology of *Porcine circovirus* type 3 (PCV 3) in swine in Thailand from 2006 to 2017. Transboundary Emerging Dis., 66: 611-616.
- Sun, J., L. Wei, Z. Lu, S. Mi and F. Bao *et al.*, 2018. Retrospective study of *Porcine circovirus* 3 infection in China. Transboundary Emerging Dis., 65: 607-613.