

Animal Rabies Surveillance, China, 2004–2018

Appendix

Appendix Table 1. Detection of suspected rabies in brain samples submitted during 2004–2018 (positive/total)*

| Province | Dog | Cattle | Sheep | Camel | Pig | Donkey | Wolf† | Fox | Raccoon dog | Total |
|----------|--------|--------|-------|-------|-----|--------|-------|-----|-------------|---------------------|
| CQ | 57/70 | – | – | – | – | – | 0/2 | – | – | 57/72 |
| HN | 6/7 | – | – | – | 2/2 | – | – | – | – | 8/9 |
| SD | – | 2/2 | – | – | – | – | – | – | – | 2/2 |
| TJ | 4/5 | 2/2 | – | – | – | – | – | – | – | 6/7 |
| GD | 2/5 | – | – | – | – | – | – | – | – | 2/5 |
| SX | 10/11 | 1/1 | 3/3 | – | – | 1/1 | – | – | – | 15/16 |
| HE | 0/1 | – | – | – | – | – | – | – | – | 0/1 |
| JS | 2/2 | – | – | – | – | – | – | – | – | 2/2 |
| YN | 0/1 | – | – | – | – | – | – | – | – | 0/1 |
| SH | 9/12 | – | – | – | – | – | – | – | – | 9/12 |
| IM‡ | 3/3 | 11/14 | 5/5 | 4/4 | – | – | – | 2/3 | 1/1 | 26/30 |
| GS | 1/3 | – | – | – | – | – | – | – | – | 1/3 |
| XJ‡ | 1/1 | 1/2 | 6/8 | 2/2 | – | – | – | 1/1 | – | 11/14 |
| SN | 0/2 | – | – | – | – | – | – | – | – | 0/2 |
| HLJ | 0/1 | 1/1 | – | – | – | – | – | – | – | 1/2 |
| ZJ | 4/6 | – | – | – | – | – | – | – | – | 4/6 |
| LN | 0/1 | – | – | – | – | – | – | – | – | 0/1 |
| Total | 99/131 | 18/22 | 14/16 | 6/6 | 2/2 | 1/1 | 0/2 | 3/4 | 1/1 | 144/185 (77.84%) |

*CQ, Chongqing; GD, Guangdong; GS, Gansu; HA, Henan; HE, Hebei; HLJ, Heilongjiang; HN, Hunan; IM, Inner Mongolia; JS, Jiangsu; LN,

Liaoning; SD, Shandong; SH, Shanghai; SN, Shaanxi; SX, Shanxi; TJ, Tianjin; XJ, Xinjiang; YN, Yunnan; ZJ, Zhejiang.

†Two dead wolves were submitted by a zoo.

‡In IM and XJ, 3 dog rabies cases (2 in IM and 1 in XJ) and all livestock and fox rabies cases were caused by a steppe-type subclade during 2013–2018, with foxes being transmission sources. In IM, the remaining dog rabies case and raccoon dog rabies case were caused by AL2 subclade (Figure 1).

Appendix Table 2. Detection of healthy-looking dogs for surveillance during 2004–2018 (positive/total)*

| Province | Free-roaming and ownerless dogs | Emergently killed dogs | Slaughtered dogs | Total |
|----------|---------------------------------|------------------------|------------------|------------------|
| GD | 7/6085 | – | 0/265 | 7/6350 |
| HN | 6/1211 | 2/41 | – | 8/1252 |
| SN | – | 0/112 | – | 0/112 |
| GX | 16/1175 | – | 0/145 | 16/1320 |
| ZJ | 0/6 | – | – | 0/6 |
| XJ | 2/988† | – | 0/7 | 2/995 |
| QH | 0/83 | – | – | 0/83 |
| Total | 0.32% (31/9,548) | 1.3% (2/153) | 0/417 | 0.33% (33/10118) |

*GD, Guangdong; GX, Guangxi; HN, Hunan; QH, Qinghai; SN, Shaanxi; XJ, Xinjiang; ZJ, Zhejiang.

†These 2 dog rabies cases were caused by steppe-type subclade, according to the phylogenetic analysis in Figure 1.

Appendix Table 3. Information on 300 full N gene sequences of RABVs used in the phylogenetic analyses

| Country | Location | Virus name | Species | Year | Phylogenetic clade/subclade | GenBank accession no. |
|-------------|-----------|------------|---------|------|-----------------------------|-----------------------|
| Afghanistan | | 04027AFG | Dog | 1996 | Arctic-related/AL1 | EU086162 |
| Afghanistan | | 02052AFG | Dog | 2002 | Arctic-related/AL1 | KX148225 |
| Afghanistan | | 04029AFG | Dog | 2004 | Arctic-related/AL1 | KX148227 |
| Afghanistan | | 09032AFG | Dog | 2009 | Arctic-related/AL1 | JX987739 |
| Afghanistan | | BDR6 | Cattle | 2010 | Arctic-related/AL1 | AB699218 |
| Afghanistan | | ACS11 | Human | 2011 | Arctic-related/AL1 | KF992019 |
| Bhutan | | Btn115 | Cattle | 2010 | Arctic-related/AL1 | AB910532 |
| Brazil | | 95022BRE | Dog | 1995 | Cosmopolitan/other | KX148215 |
| Cambodia | | 9914CBG | Dog | 1997 | Asian/SEA3 | EU086170 |
| Cambodia | | 9911CBG | Dog | 1998 | Asian/SEA3 | EU086168 |
| Cambodia | | I0515204 | Dog | 1998 | Asian/SEA3 | KM366251 |
| Cambodia | | 9908CBG | Dog | 1999 | Asian/SEA3 | EU086167 |
| Cambodia | | M0516129 | Dog | 2002 | Asian/SEA3 | KM366209 |
| Cambodia | | N1011101 | Dog | 2003 | Asian/SEA3 | KM366270 |
| Cambodia | | O0405536 | Dog | 2004 | Asian/SEA3 | KM366206 |
| Cambodia | | S1030654 | Dog | 2008 | Asian/SEA3 | KM366202 |
| Cambodia | | T1002618 | Dog | 2009 | Asian/SEA3 | KM366262 |
| Cambodia | | U0821622 | Dog | 2010 | Asian/SEA3 | KM366267 |
| Cambodia | | V0808656 | Dog | 2011 | Asian/SEA3 | KM366221 |
| China* | Chongqing | CQWSD01 | Dog | 2005 | Asian/SEA1 | KT221095 |
| China* | Chongqing | CQWXD01 | Dog | 2005 | Asian/SEA1 | KT221093 |
| China* | Chongqing | CQQJD6 | Dog | 2006 | Asian/SEA1 | KT221097 |

| Country | Location | Virus name | Species | Year | Phylogenetic clade/subclade | GenBank accession no. |
|---------|----------------|------------|---------|------|-----------------------------|-----------------------|
| China* | Chongqing | CQWLD02 | Dog | 2006 | Asian/SEA1 | KT221094 |
| China* | Chongqing | CQFJD02 | Dog | 2007 | Asian/SEA1 | KT894569 |
| China* | Chongqing | CQBSD01 | Dog | 2008 | Asian/SEA1 | KT894564 |
| China* | Chongqing | CQYBD01 | Dog | 2008 | Asian/SEA1 | KT221098 |
| China* | Chongqing | CQWLD03 | Dog | 2009 | Asian/SEA1 | KT894559 |
| China* | Chongqing | CQD023 | Dog | 2010 | Asian/SEA1 | KT894560 |
| China* | Chongqing | CQCSD01 | Dog | 2011 | Asian/SEA1 | KT894563 |
| China* | Chongqing | CQJLPD01 | Dog | 2011 | Asian/SEA1 | KT894567 |
| China* | Chongqing | CQQJD11 | Dog | 2011 | Asian/SEA1 | KT894562 |
| China* | Chongqing | CQWSD11 | Dog | 2011 | Asian/SEA1 | KT894561 |
| China* | Chongqing | ZDW046 | Dog | 2011 | Asian/SEA1 | KT894571 |
| China* | Chongqing | CQJLPD13 | Dog | 2013 | Asian/SEA1 | KT894568 |
| China* | Chongqing | CQCSD17 | Dog | 2017 | Asian/SEA1 | MG383887 |
| China* | Chongqing | CQJJD17 | Dog | 2017 | Asian/SEA1 | MG383888 |
| China* | Chongqing | CQYCD17 | Dog | 2017 | Asian/SEA1 | MK124736 |
| China* | Chongqing | CQYCD18 | Dog | 2018 | Asian/SEA1 | MN784133 |
| China* | Gansu | GSHSD14 | Dog | 2014 | Asian/SEA1 | KT221103 |
| China* | Guangxi | GXBSD01 | Dog | 2009 | Asian/SEA1 | KT894576 |
| China* | Guangxi | GXQZD01 | Dog | 2009 | Asian/SEA2 | KT221107 |
| China* | Guangxi | GXRXD01 | Dog | 2010 | Asian/SEA1 | KT894575 |
| China* | Guangxi | GXWXD01 | Dog | 2013 | Asian/SEA2 | KT894577 |
| China* | Guangxi | GXWXD02 | Dog | 2013 | Asian/SEA2 | KT894578 |
| China* | Heilongjiang | HLJC16 | Cattle | 2016 | Asian/SEA1 | MG383884 |
| China* | Hunan | HN05 | Dog | 2005 | Asian/SEA2 | KT894558 |
| China* | Hunan | HuND02 | Dog | 2005 | Asian/SEA1 | KT221100 |
| China* | Hunan | HuND28 | Dog | 2005 | Asian/SEA1 | KT221101 |
| China* | Hunan | HN06 | Dog | 2006 | Asian/SEA1 | KT894557 |
| China* | Hunan | HNP02 | Pig | 2006 | Asian/SEA2 | KT221102 |
| China* | Hunan | HuNPN01 | Pig | 2006 | Asian/SEA2 | DQ496219 |
| China* | Hunan | HNYZD01 | Dog | 2010 | Asian/SEA2 | KT894572 |
| China* | Hunan | HNNYD03 | Dog | 2011 | Asian/SEA2 | KT894573 |
| China* | Inner Mongolia | NMC01 | Cattle | 2013 | Cosmopolitan/ST | KJ152772 |
| China* | Inner Mongolia | NMSH01 | Sheep | 2013 | Cosmopolitan/ST | KJ152774 |
| China* | Inner Mongolia | NMAYC01 | Cattle | 2014 | Cosmopolitan/ST | KJ737435 |
| China* | Inner Mongolia | NMAYCAM03 | Camel | 2014 | Cosmopolitan/ST | KX533959 |
| China* | Inner Mongolia | NMC02 | Cattle | 2014 | Cosmopolitan/ST | KJ748634 |
| China* | Inner Mongolia | NMC03 | Cattle | 2014 | Cosmopolitan/ST | KJ748635 |

| Country | Location | Virus name | Species | Year | Phylogenetic clade/subclade | GenBank accession no. |
|---------|----------------|------------|---------|------|-----------------------------|-----------------------|
| China* | Inner Mongolia | NMC04 | Cattle | 2014 | Cosmopolitan/ST | KJ748636 |
| China* | Inner Mongolia | NMCAM01 | Camel | 2014 | Cosmopolitan/ST | KJ748631 |
| China* | Inner Mongolia | NMCAM02 | Camel | 2014 | Cosmopolitan/ST | KJ748632 |
| China* | Inner Mongolia | NMFOX01 | Fox | 2014 | Cosmopolitan/ST | KJ748633 |
| China* | Inner Mongolia | NMXLHT | Dog | 2014 | Arctic-related/AL2 | KU041697 |
| China* | Inner Mongolia | NMXYQD14 | Dog | 2014 | Cosmopolitan/ST | KT894582 |
| China* | Inner Mongolia | NMCAM15 | Camel | 2015 | Cosmopolitan/ST | KX533961 |
| China* | Inner Mongolia | NMFOX15 | Fox | 2015 | Cosmopolitan/ST | KX533960 |
| China* | Inner Mongolia | NMHLBEC16 | Cattle | 2016 | Cosmopolitan/ST | KX533963 |
| China* | Inner Mongolia | NMXYQC16 | Cattle | 2016 | Cosmopolitan/ST | KX533962 |
| China* | Inner Mongolia | NMHLBES17 | Sheep | 2017 | Cosmopolitan/ST | MG383886 |
| China* | Inner Mongolia | NMALSS18 | Sheep | 2018 | Cosmopolitan/ST | MK124741 |
| China* | Inner Mongolia | NMHLBED18 | Dog | 2018 | Cosmopolitan/ST | MK124739 |
| China* | Jiangsu | JSWXD18 | Dog | 2018 | Asian/SEA1 | MK124742 |
| China* | Shandong | SDJNC02 | Cattle | 2007 | Asian/SEA1 | KT894585 |
| China* | Shanghai | SHCMD01 | Dog | 2010 | Asian/SEA1 | KT894579 |
| China* | Shanghai | SHPDD01 | Dog | 2011 | Asian/SEA1 | KT894581 |
| China* | Shanghai | SHPDD02 | Dog | 2013 | Asian/SEA1 | KT894580 |
| China* | Shanghai | SHBSD16 | Dog | 2016 | Asian/SEA1 | MG383885 |
| China* | Shanghai | SHJDD18 | Dog | 2018 | Asian/SEA1 | MN784135 |
| China* | Shanxi | SXLFD03 | Dog | 2007 | Asian/SEA1 | KT221111 |
| China* | Shanxi | SXD01 | Dog | 2008 | Asian/SEA1 | KT221109 |
| China* | Shanxi | SXD01 | Dog | 2010 | Asian/SEA1 | KT221108 |
| China* | Shanxi | SXD01 | Dog | 2013 | Asian/SEA1 | KT894584 |
| China* | Shanxi | SXYL15 | Cattle | 2015 | Asian/SEA1 | KR230090 |
| China* | Tianjin | TJD03 | Dog | 2008 | Asian/SEA1 | KT221106 |
| China* | Tianjin | TJC14 | Cattle | 2014 | Asian/SEA1 | KT894574 |
| China* | Xinjiang | XJTCS01 | Sheep | 2013 | Cosmopolitan/ST | KJ152773 |
| China* | Xinjiang | XJTKSFOX14 | Fox | 2014 | Cosmopolitan/ST | KU041696 |
| China* | Xinjiang | XJTKSS02 | Sheep | 2014 | Cosmopolitan/ST | MK321229 |
| China* | Xinjiang | XJFYCA15 | Camel | 2015 | Cosmopolitan/ST | MG383882 |
| China* | Xinjiang | XJHMS16 | Sheep | 2016 | Cosmopolitan/ST | MK321230 |
| China* | Xinjiang | XJHMD17 | Dog | 2017 | Cosmopolitan/ST | MK124737 |
| China* | Xinjiang | XJYLC17 | Cattle | 2017 | Cosmopolitan/ST | MK124738 |
| China* | Xinjiang | XJYLD181 | Dog | 2018 | Cosmopolitan/ST | MK124744 |
| China* | Xinjiang | XJYLD182 | Dog | 2018 | Cosmopolitan/ST | MK124745 |
| China* | Xinjiang | XLGLMC18 | Cattle | 2018 | Cosmopolitan/ST | MK124740 |

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|---------|----------------|--------------|-------------|------|-----------------------------|-----------------------|
| China * | Zhejiang | ZJZSD1601 | Dog | 2016 | Asian/SEA1 | MG383893 |
| China* | Zhejiang | ZJNBD18 | Dog | 2018 | Asian/SEA1 | MN784136 |
| China | Anhui | HeF | Dog | 1989 | Asian/SEA1 | HQ118104 |
| China | Anhui | DRV-AH08 | Dog | 2008 | Asian/SEA1 | HQ450385 |
| China | Anhui | 11AF57 | Dog | 2011 | Asian/SEA1 | JQ798950 |
| China | Beijing | BeijingHu1 | Human | 2007 | Asian/SEA1 | EU700031 |
| China | Beijing | BJ16-13 | Dog | 2016 | Asian/SEA1 | KY214275 |
| China | Beijing | BJ16-51 | Dog | 2016 | Asian/SEA1 | KY362747 |
| China | Chongqing | CQ92 | Dog | 1992 | Asian/SEA1 | EU159388 |
| China | Chongqing | CQH1202D | Dog | 2012 | Arctic-related/AL2 | KM034905 |
| China | Fujian | FJ004 | Dog | 2008 | Cosmopolitan/Other | FJ561729 |
| China | Fujian | FJ010 | Dog | 2008 | Asian/SEA1 | FJ866827 |
| China | Guangdong | CGD0801D | Dog | 2008 | Asian/SEA2 | JN974823 |
| China | Guangxi | GX4 | Dog | 1994 | Asian/SEA2 | GU358653 |
| China | Guangxi | N11 | Dog | 1997 | Asian/SEA3 | FJ594278 |
| China | Guangxi | GXN119 | Dog | 2000 | Asian/SEA3 | DQ866111 |
| China | Guangxi | GXLA | Dog | 2003 | Asian/SEA2 | DQ866116 |
| China | Guangxi | GX304 | Dog | 2004 | Asian/SEA1 | DQ866117 |
| China | Guangxi | CGZ0501D | Dog | 2005 | Asian/SEA1 | JN974830 |
| China | Guangxi | GXSL | Cattle | 2005 | Asian/SEA2 | DQ866120 |
| China | Guangxi | CGX0601D | Dog | 2006 | Asian/SEA1 | JN974825 |
| China | Guangxi | CGX0602D | Dog | 2008 | Asian/SEA1 | JN974826 |
| China | Guangxi | CGX0801D | Dog | 2008 | Asian/SEA2 | JN974829 |
| China | Guizhou | Guizhou_A148 | Dog | 2004 | Asian/SEA1 | DQ666291 |
| China | Guizhou | gk5 | Dog | 2006 | Asian/SEA1 | HQ118102 |
| China | Heilongjiang | TJ11-RD | Raccoon dog | 2011 | Arctic-related/AL2 | KM016898 |
| China | Henan | Henan_Sq10 | Dog | 2004 | Asian/SEA1 | DQ666300 |
| China | Henan | Henan_Sq35 | Dog | 2004 | Asian/SEA1 | DQ666304 |
| China | Henan | Henan_Sq48 | Dog | 2004 | Cosmopolitan/other | DQ666305 |
| China | Hunan | Hunan_Wg22 | Dog | 2004 | Cosmopolitan/other | DQ666310 |
| China | Hunan | Hunan_Xx35 | Dog | 2004 | Asian/SEA1 | DQ666319 |
| China | Hunan | HuNDN16 | Dog | 2005 | Asian/SEA1 | DQ515993 |
| China | Hunan | CHN0635H | Human | 2006 | Asian/SEA2 | JN974843 |
| China | Hunan | CHN0504D | Dog | 2008 | Asian/SEA1 | JN974837 |
| China | Inner Mongolia | NeiMeng925 | Raccoon dog | 2007 | Arctic-related/AL2 | FJ415313 |
| China | Inner Mongolia | NeiMeng927A | Raccoon dog | 2007 | Arctic-related/AL2 | EU284093 |
| China | Inner Mongolia | CNM1104D | Dog | 2011 | Asian/SEA1 | KC465378 |

| Country | Location | Virus name | Species | Year | Phylogenetic clade/subclade | GenBank accession no. |
|---------|----------------|--------------|---------------|------|-----------------------------|-----------------------|
| China | Inner Mongolia | DG11248 | Dog | 2013 | Arctic-related | KT895593 |
| China | Inner Mongolia | IMDRV-13 | Deer | 2013 | Asian/SEA1 | KJ564280 |
| China | Inner Mongolia | WQ14 | Cattle | 2014 | Cosmopolitan/ST | KM016901 |
| China | Inner Mongolia | WQ15 | Cattle | 2015 | Asian/SEA1 | KU928249 |
| China | Jiangsu | Jiangsu_Wx1 | Dog | 2004 | Asian/SEA1 | DQ666321 |
| China | Jiangsu | CJS0847D | Dog | 2008 | Asian/SEA1 | JN974852 |
| China | Jiangxi | JX08-45 | Ferret badger | 2008 | Asian/SEA2 | GU647092 |
| China | Jiangxi | CJX0901D | Dog | 2009 | Asian/SEA1 | JN974853 |
| China | Jiangxi | JX09-17 fb | Ferret badger | 2009 | Asian/SEA1 | GU233765 |
| China | Jiangxi | JX10-37 | Ferret badger | 2010 | Asian/SEA1 | KP319222 |
| China | Jiangxi | JX11-05 | Ferret badger | 2011 | Asian/SEA2 | KP319193 |
| China | Jiangxi | JX11-30 | Ferret badger | 2011 | Asian/SEA1 | KP319225 |
| China | Jiangxi | JX12-150 | Ferret badger | 2012 | Asian/SEA1 | KP319228 |
| China | Jiangxi | JX12-244 | Ferret badger | 2012 | Asian/SEA2 | KP319196 |
| China | Jiangxi | JX13-09 | Ferret badger | 2013 | Asian/SEA2 | KP319201 |
| China | Jiangxi | JX13-345 | Ferret badger | 2013 | Asian/SEA1 | KP319235 |
| China | Jiangxi | JX13-418 | Ferret badger | 2013 | Asian/SEA1 | KP319220 |
| China | Jiangxi | JX14-717 | Ferret badger | 2014 | Asian/SEA1 | KX447687 |
| China | Jiangxi | JX14-719 | Ferret badger | 2014 | Asian/SEA1 | KX447689 |
| China | Jiangxi | JX15-475 | Ferret badger | 2015 | Asian/SEA1 | KY613018 |
| China | Ningxia | J | Human | 1986 | Asian/SEA1 | GU345747 |
| China | Ningxia | CNX1101H | Human | 2011 | Asian/SEA1 | KC465379 |
| China | Ningxia | NX15 | Camel | 2015 | Asian/SEA1 | KU928250 |
| China | Shaanxi | CSX0903D | Dog | 2009 | Asian/SEA1 | JN974876 |
| China | Shaanxi | Shaanxi-HZ-6 | Dog | 2009 | Asian/SEA1 | KC977995 |
| China | Shandong | CSD0709D | Dog | 2007 | Asian/SEA2 | HM486381 |
| China | Shanghai | SBD | Dog | 1992 | Asian/SEA1 | EU159393 |
| China | Shanghai | SBH | Human | 1992 | Asian/SEA1 | EU159392 |
| China | Shanghai | SH06 | Dog | 2006 | Asian/SEA1 | GU345748 |
| China | Sichuan | CSC0808D | Dog | 2008 | Asian/SEA1 | JN974857 |
| China | Sichuan | Sichuan-BZ-1 | Dog | 2009 | Asian/SEA1 | GU591792 |
| China | Taiwan | Nt2702 | Ferret badger | 2010 | Asian/SEA5 | KP860155 |
| China | Taiwan | TW-1680 | Ferret badger | 2013 | Asian/SEA5 | KF501181 |
| China | Taiwan | 2014-3145 | Ferret badger | 2014 | Asian/SEA5 | KP892527 |
| China | Tibet | CXZ1201D | Dog | 2012 | Arctic-related/AL2 | KC465372 |
| China | Tibet | CXZ1501H | Human | 2015 | Arctic-related/AL2 | KY175230 |
| China | Tibet | CXZ1704H | Human | 2017 | Indian Subcontinent | MH671332 |

| Country | Location | Virus name | Species | Year | Phylogenetic clade/subclade | GenBank accession no. |
|-----------|----------|----------------|---------------|-------|-----------------------------|-----------------------|
| China | Unknown | FY12 | Dog | 2005 | Asian/SEA1 | EU159372 |
| China | Yunnan | CYN0818D | Dog | 2008 | Asian/SEA3 | JF819603 |
| China | Yunnan | CYN1009D | Dog | 2010 | Asian/SEA3 | JX276405 |
| China | Yunnan | CYN1134H | Human | 2011 | Asian/SEA2 | JQ040592 |
| China | Yunnan | CYN1247D | Dog | 2012 | Asian/SEA1 | JX276411 |
| China | Yunnan | CYN14114D | Dog | 2014 | Asian/SEA1 | KP202447 |
| China | Yunnan | Yunnan_Tc06 | Dog | 2006 | Asian/SEA3 | EU275243 |
| China | Yunnan | Yunnan_Qj07 | Dog | 2007 | Asian/SEA1 | EU275245 |
| China | Zhejiang | F02 | Ferret badger | 2008 | Asian/SEA2 | FJ712195 |
| China | Zhejiang | F04 | Ferret badger | 2008 | Asian/SEA2 | FJ712196 |
| China | Zhejiang | Zhejiang_Wz1_H | Human | 2008 | Asian/SEA1 | EU700032 |
| China | Zhejiang | ZJF4 | Ferret badger | 2008 | Asian/SEA2 | HQ118117 |
| China | Zhejiang | ZJ-LA | Ferret badger | 2008 | Asian/SEA2 | FJ598135 |
| China | Zhejiang | D23 | Dog | 2010 | Asian/SEA1 | JX123685 |
| China | Zhejiang | ZJ12-03 | Ferret badger | 2012 | Asian/SEA1 | KP319236 |
| China | Zhejiang | ZJ13-66 | Ferret badger | 2013 | Asian/SEA1 | KP319237 |
| India | | ITN-R148 | Dog | 2005 | Indian Subcontinent | KX434506 |
| India | | IAP-R192 | Dog | 2009 | Arctic-related/AL1 | KX434512 |
| India | | IAP-R194 | Human | 2011 | Arctic-related/AL1 | KX434514 |
| India | | IUP-R197 | Equine | 2012 | Arctic-related/AL1 | KX434517 |
| India | | IGU-201 | Nilgai | 2013 | Arctic-related/AL1 | KM099392 |
| India | | IGU-R202 | Mongoose | 2014 | Arctic-related/AL1 | KM099393 |
| Indonesia | | FL97-01 | Dog | 1997 | Asian/SEA1 | AB154218 |
| Indonesia | | SN00-14 | Dog | 2000 | Asian/SEA1 | AB154235 |
| Indonesia | | FL01-27 | Dog | 2001 | Asian/SEA1 | AB154222 |
| Indonesia | | SC01-65 | Deer | 2001 | Asian/SEA1 | AB154214 |
| Indonesia | | SC01-68 | Cat | 2001 | Asian/SEA1 | AB154208 |
| Indonesia | | SC01-70 | Tiger | 2001 | Asian/SEA1 | AB154242 |
| Indonesia | | SC01-75 | Cat | 2001 | Asian/SEA1 | AB154210 |
| Indonesia | | FL02-10 | Dog | 2002 | Asian/SEA1 | AB154217 |
| Indonesia | | SC02-87 | Monkey | 2002 | Asian/SEA1 | AB154224 |
| Indonesia | | SW02-22 | Dog | 2002 | Asian/SEA1 | AB154240 |
| Indonesia | | 03003INDO | Dog | 2003 | Asian/SEA1 | KX148266 |
| Iran | | 87002IRA | Wolf | 1984 | Cosmopolitan/Other | KX148186 |
| Iraq | | RV2516 | Cattle | 2010 | Cosmopolitan/Other | KF155000 |
| Israel | | 93032ISR | Jackal | 1993 | Cosmopolitan/Other | KX148191 |
| Japan | | Komatsugawa | Dog | 1940s | Arctic-related/AL2 | AY352494 |

| Country | Location | Virus name | Species | Year | Phylogenetic clade/subclade | GenBank accession no. |
|-------------|----------|------------------|-------------|------|-----------------------------|-----------------------|
| Kazakhstan | | RV259 | Red fox | 1988 | Cosmopolitan/ST | AY352491 |
| Kazakhstan | | 4867 | Cattle | 2014 | Cosmopolitan/ST | KT965738 |
| Kazakhstan | | 5300 | Jackal | 2014 | Cosmopolitan/other | KT965733 |
| Kazakhstan | | 5303 | Cat | 2014 | Cosmopolitan/ST | KT965734 |
| Kazakhstan | | 5304 | Cattle | 2014 | Cosmopolitan/ST | KT965735 |
| Kazakhstan | | 5317 | Dog | 2014 | Cosmopolitan/ST | KT965736 |
| Kazakhstan | | 5328 | Cattle | 2014 | Cosmopolitan/ST | KT965737 |
| Laos | | 02001LAO | Dog | 2002 | Asian/SEA3 | EU086194 |
| Laos | | Lao2 | Dog | 2011 | Asian/SEA3 | AB981663 |
| Laos | | Lao7 | Dog | 2011 | Asian/SEA3 | AB981668 |
| Laos | | Lao23 | Dog | 2012 | Asian/SEA3 | AB981677 |
| Madagascar | | 04033MAD | Dog | 2004 | Cosmopolitan/ other | KX148209 |
| Mexico | | 91010MEX | Mouse | 1991 | Cosmopolitan/ other | KX148112 |
| Mongolia | | MGL/34 | Cat | 2005 | Cosmopolitan/ST | AB571016 |
| Mongolia | | MGL/35 | Sheep | 2005 | Cosmopolitan/ST | AB571017 |
| Mongolia | | MGL/36 | Dog | 2005 | Cosmopolitan/ST | AB571018 |
| Mongolia | | MGL/26 | Cattle | 2006 | Cosmopolitan/ST | AB571008 |
| Mongolia | | MGL/28 | Cattle | 2006 | Cosmopolitan/ST | AB571010 |
| Mongolia | | MGL-10 | Cattle | 2006 | Cosmopolitan/ST | AB570997 |
| Mongolia | | MGL/22 | Dog | 2007 | Arctic-related/AL2 | AB571004 |
| Mongolia | | MGL/30 | Cattle | 2007 | Cosmopolitan/ST | AB571012 |
| Mongolia | | MGL/25 | Dog | 2008 | Cosmopolitan/ST | AB571007 |
| Morocco | | RV2627 | Cattle | 2009 | Cosmopolitan/ other | KF155001 |
| Myanmar | | 9909BIR | Dog | 1999 | Asian/SEA3 | EU086164 |
| Myanmar | | 9913BIR | Dog | 1999 | Asian/SEA3 | EU086165 |
| Myanmar | | 9915BIR | Dog | 1999 | Asian/SEA3 | EU086166 |
| Nepal | | 4403-13_09030NEP | Human | 2003 | Arctic-related/AL1 | JX944565 |
| Nepal | | 4403-17 | Dog | 2009 | Indian Subcontinent | JX944597 |
| Nepal | | 11016NEP | Dog | 2011 | Arctic-related/AL1 | JX987742 |
| Nepal | | NPBUF12-1 | Cattle | 2012 | Arctic-related/ AL1 | KM979366 |
| Pakistan | | Pk 23 | Mouse | 2010 | Arctic-related/AL1 | HE802675 |
| Philippines | | 94270PHI | Dog | 1994 | Asian/SEA4 | EU086200 |
| Philippines | | 94281PHI | Dog | 1994 | Asian/SEA4 | KX148261 |
| Philippines | | 03006PHI | Human | 2000 | Asian/SEA4 | EU086203 |
| Philippines | | 03007PHI | Human | 2001 | Asian/SEA4 | EU086204 |
| Russia | | 304c | Steppe fox | 1977 | Arctic-related/AL2 | AY352459 |
| Russia | | 857r | Raccoon dog | 1980 | Arctic-related/AL2 | AY352458 |

| Country | Location | Virus name | Species | Year | Phylogenetic clade/subclade | GenBank accession no. |
|---------|----------|-------------------------------|---------|------|-----------------------------|-----------------------|
| Russia | | 686Cattle | Cattle | 1989 | Cosmopolitan/ST | AY352482 |
| Russia | | RV1596 | Red fox | 1990 | Cosmopolitan/other | AY352474 |
| Russia | | RV245 | Human | 1990 | Cosmopolitan/other | AY352475 |
| Russia | | RV1589 | Cat | 1991 | Cosmopolitan/ST | AY352456 |
| Russia | | 3561d | Dog | 1996 | Cosmopolitan/ST | AY352481 |
| Russia | | wolf-kras | Wolf | 2002 | Cosmopolitan/ST | JX423819 |
| Russia | | Rus_YamaloNenets _7405rdr | Deer | 2006 | Arctic-related/ AL1 | KY002910 |
| Russia | | 1350KRA | Dog | 2008 | Cosmopolitan/ST | JQ944705 |
| Russia | | 1352KRA | Dog | 2008 | Cosmopolitan/other | JQ944706 |
| Russia | | 1564NNO | Red fox | 2008 | Cosmopolitan/other | JQ944708 |
| Russia | | 7445f | Fox | 2008 | Cosmopolitan/ST | KJ958248 |
| Russia | | 7461f | Red fox | 2008 | Cosmopolitan/ST | KJ958249 |
| Russia | | 7466Cattle | Cattle | 2008 | Cosmopolitan/ST | KJ958257 |
| Russia | | 7499fA | Red fox | 2008 | Cosmopolitan/ST | KJ958231 |
| Russia | | 7504f | Red fox | 2008 | Cosmopolitan/ST | KJ958237 |
| Russia | | 7514f | Red fox | 2008 | Cosmopolitan/ST | KC794011 |
| Russia | | 7548f | Red fox | 2008 | Cosmopolitan/ST | KC794014 |
| Russia | | Rus_YamaloNenets _7557af | Fox | 2008 | Arctic-related/ AL1 | KY002909 |
| Russia | | 7604c | Cat | 2009 | Cosmopolitan/ST | KJ958251 |
| Russia | | 7891Cattle | Cattle | 2011 | Cosmopolitan/ST | KJ958225 |
| Russia | | 7894w | Wolf | 2011 | Cosmopolitan/ST | KJ958228 |
| Russia | | 8000f | Red fox | 2011 | Cosmopolitan/ST | KJ958254 |
| Russia | | 8052f | Red fox | 2011 | Cosmopolitan/ST | KC595280 |
| Russia | | 8057f | Red fox | 2011 | Cosmopolitan/ST | KC595283 |
| Russia | | 8060c | Cat | 2011 | Cosmopolitan/ST | KJ958262 |
| Russia | | Rus_Altai_8041 | | 2011 | Cosmopolitan/ST | KY172632 |
| Russia | | Rus_Sakha/Yakutia _7985rdr | Deer | 2011 | Arctic-related/ AL1 | KY002904 |
| Russia | | 8061Cattle | Cattle | 2012 | Cosmopolitan/ST | KC538853 |
| Russia | | fox-2012 | Red fox | 2012 | Cosmopolitan/ST | JX423818 |
| Russia | | wolf-bur | Wolf | 2012 | Cosmopolitan/ST | JX423817 |
| Russia | | PO- 01_2014_Primorye | Bear | 2014 | Cosmopolitan/ST | KP997032 |
| Russia | | Kha-f1-15 | Fox | 2015 | Cosmopolitan/ST | KY242672 |
| Russia | | Zbk_ct12-15 | Cattle | 2015 | Cosmopolitan/ST | KY242676 |

| Country | Location | Virus name | Species | Year | Phylogenetic clade/subclade | GenBank accession no. |
|-------------|----------|----------------------|---------------|------|-----------------------------|-----------------------|
| South Korea | | BV9901PJ | Raccoon dog | 1999 | Arctic-related/AL2 | KC171645 |
| South Korea | | SKRDG0203CW | Dog | 2002 | Arctic-related/AL2 | DQ076124 |
| South Korea | | BD0406CC | Raccoon dog | 2004 | Arctic-related/AL2 | KC171644 |
| South Korea | | KRH3-04 | Dog | 2004 | Arctic-related/AL2 | AY730596 |
| South Korea | | KRVB0910 | Cattle | 2009 | Arctic-related/AL2 | KJ476821 |
| South Korea | | KRVC1305 | Dog | 2013 | Arctic-related/AL2 | KF709096 |
| Sri Lanka | | H-1218-12 | Human | 2012 | Indian Subcontinent | LC110310 |
| Tajikistan | | Tajik_FTA | Dog | 2012 | Cosmopolitan/ other | KY765901 |
| Tanzania | | RV2772 | Dog | 2010 | Cosmopolitan/ other | KF155002 |
| Thailand | | 8738THA | Human | 1983 | Asian/SEA3 | EU086208 |
| Thailand | | 8743THA | Human | 1983 | Asian/SEA3 | EU086207 |
| Thailand | | THA1015 | Dog | 1985 | Asian/SEA3 | AB178893 |
| Thailand | | THA1017 | Dog | 1985 | Asian/SEA3 | AB178894 |
| Turkey | | 93100TUR | Dog | 1993 | Cosmopolitan/other | KX148164 |
| USA | | CASK2 | Striped skunk | 1974 | Cosmopolitan/other | JQ685970 |
| USA | | CA982 | Striped skunk | 1994 | Cosmopolitan/other | JQ685894 |
| USA | | A10-0511 | Gray fox | 2009 | Cosmopolitan/other | JQ685943 |
| Vietnam | | 01017VNM | Dog | 2001 | Asian/SEA3 | EU086210 |
| | | Flury_LEP | Vaccine | 1985 | Cosmopolitan/other | GU992324 |
| | | CVS-11 | Vaccine | ND | Cosmopolitan/other | GQ918139 |
| | | SAD_Bern_Sana fox | Vaccine | ND | Cosmopolitan/other | EF206720 |
| | | PV-2061 | Vaccine | ND | Cosmopolitan/other | JX276550 |
| China (CN) | | CTN-1 | Vaccine | 1956 | Asian/SEA2 | FJ959397 |

*Discussed in this study. ND, no date.

Appendix Table 4. Predicted transmission events of rabies virus subclades by BEAST

| From | To | Bayes factor† | Posterior probability | Clade | Subclade |
|-------------|-------------|---------------|-----------------------|----------------|-------------|
| China (IM) | China (XJ) | 229.87 | 0.98 | Cosmopolitan | Steppe-type |
| China (XJ) | Kazakhstan | 167.9 | 0.98 | Cosmopolitan | Steppe-type |
| China (IM) | Russia | 153.93 | 0.97 | Cosmopolitan | Steppe-type |
| China (YN) | Thailand | 84.99 | 0.94 | Asian | SEA3 |
| China | Indonesia | 76.91 | 0.73 | Asian | SEA1 |
| Mongolia | China (HLJ) | 15.59 | 0.75 | Arctic-related | AL2 |
| Russia | China (IM) | 13.63 | 0.76 | Cosmopolitan | Steppe-type |
| Russia | South Korea | 6.85 | 0.56 | Arctic-related | AL2 |
| Mongolia | China (XZ) | 5.93 | 0.53 | Arctic-related | AL2 |
| China (XJ) | China (IM) | 5.81 | 0.58 | Cosmopolitan | Steppe-type |
| Cambodia | China (YN) | 5.35 | 0.5 | Asian | SEA3 |
| South Korea | Russia | 5.2 | 0.5 | Arctic-related | AL2 |
| China (YN) | China (GX) | 5.18 | 0.5 | Asian | SEA3 |
| Mongolia | China (IM) | 4.97 | 0.49 | Arctic-related | AL2 |
| Cambodia | Myanmar | 4.65 | 0.47 | Asian | SEA3 |
| Cambodia | China (GX) | 4.61 | 0.47 | Asian | SEA3 |
| Kazakhstan | China (IM) | 4.59 | 0.52 | Cosmopolitan | Steppe-type |
| China (YN) | Myanmar | 4.56 | 0.46 | Asian | SEA3 |
| Russia | China (XJ) | 4.39 | 0.51 | Cosmopolitan | Steppe-type |
| China (YN) | Cambodia | 4.31 | 0.45 | Asian | SEA3 |
| Russia | Mongolia | 4.11 | 0.49 | Cosmopolitan | Steppe-type |
| China (XZ) | Mongolia | 3.62 | 0.41 | Arctic-related | AL2 |
| China (IM) | Mongolia | 3.41 | 0.39 | Arctic-related | AL2 |
| Laos | Vietnam | 3.33 | 0.39 | Asian | SEA3 |
| Kazakhstan | Russia | 3.18 | 0.43 | Cosmopolitan | Steppe-type |
| Vietnam | Laos | 3.17 | 0.38 | Asian | SEA3 |
| China (IM) | Mongolia | 3.17 | 0.43 | Cosmopolitan | Steppe-type |

*GX, Guangxi ; HLJ, Heilongjiang; IM, Inner Mongolia; XJ, Xinjiang; XZ, Tibet; YN, Yunnan.

†Bayes factor was used to determine the best supported transmission event between two geographic locations, which is calculated by SpreaD3 software with a value >3 as the cutoff value.