NC\_034971.1 | Kobuvirus | SMCD-59 | Canis lupus familiaris | China | 2015 | NC\_015936.1 | Kobuvirus | Peromyscus crinitus | USA | 2010 | NC\_001918.1 | Kobuvirus | A846/88 | Homo sapiens | Japan | 1998 | OQ818322 | Kobuvirus | Eidolon dupreanum | Madagascar | 2019 | OP287812.1 | Madagascar bat kobuvirus | Eidolon dupreanum | Madagascar | 2018 | OQ8161 | B NC\_027054.1 | Kobuvirus | JS-02a-CHN/2014/China | Sus scrofa | China | 2014 NC\_016769.1 | Kobuvirus | SH-W-CHN/2010/China | Sus scrofa | China | 2010 NC\_011829.1 | Kobuvirus | Sus scrofa | Hungary | 2007 NC 023422.1 | Kobuvirus | 12Q108 | Capra hircus | South Korea | 2012 —NC\_004421.1 NC\_004421.1 | Kobuvirus | Bos taurus | Japan | 2003 NC\_027918.1 | Kobuvirus | Bos taurus | Japan | 2015 NC\_027919.1 | Kobuvirus | Bos taurus | Japan | 2014 Salivirus/Sakobuvirus ■NC\_038317.1 | Kunsagivirus | Coracias garrulus | Hungary | 2011 Passerivirus/Sicinvirus Gallivirus/Megrivirus Megrivirus/Parechovirus Oscivirus/Livupivirus/Rafivirus Rosavirus Harkavirus/Dicipivirus ■NC\_055108.1 | Poecivirus | Poecile atricapillus | USA | 2002 Apthovirus Bopivirus/Erbovirus NC\_040611.1 | Dicipivirus | Erinaceus roumanicus | Hungary | 2015 Cardiovirus/Senecavirus Megrivirus/Ailurivirus NC\_034381.1 | Mischivirus | Miniopterus schreibersii | China | 2010 ANC\_043072.1 | Mischivirus | Miniopterus schreibersii | Hungary | 2013

NC\_026470.1 | Mischivirus | PREDICT-06105 | Macronycteris gigas | Democratic Republic of the Congo | 2013

OQ818316 | Mischivirus | Pteropus rufus | Madagascar | 2018 Cosavirus Mosavirus Malagasivirus/Tottorivirus/Hunnivirus \_\_\_\_\_OQ818324 | Teschovirus | Rousettus madagascariensis | Madagascar | 2018 | Company | 2019 | 2019 | Company | 2019 | 2019 | Company | 2019 | 2019 | Company Ampivirus Avisivirus OQ818317 | Kunsagivirus | Eidolon dupreanum | Madagascar | 2018 NC\_033818.1 | Kunsagivirus | Eidolon helvum | Cameroon | 2013 — NC\_034206.1 | Kunsagivirus | baboon/M27-KuV/1986/TAN | Papio cynocephalus | Tanzania | 1986 -NC\_024766.1 | Avisivirus | 44C | Gallus gallus | Hong Kong | 2008 ●NC\_025432.1 | Orivirus | Gallus gallus | Hŭngary | 2013 Genus Limnipivirus/Potamipivirus Parechovirus/Shanbavirus/Avihepatovirus

NC\_038961.1 | Shanbavirus | BtMf-PicoV-1/SAX2011 | Miniopterus fuliginosus | China | 2011

NC\_038961.2 | Avihepatovirus | Anseriformes | USA | 2006

NC\_039004.1 | Megrivirus | KGI-Bel-P5/2015 | Pygoscelis adeliae | Antarctica | 2015

NC\_03904.1 | Aquamavirus | HO.02.21 | Pusa hispida | Canada | 2008

NC\_025474.1 | Crohivirus | Crocidura hirta | Zambia | 2012 Sapovirus Vesivirus Lagovirus Norovirus Calicivirus Salovirus Bavovirus NC\_030843.1 | Unclassified picornavirus | Chiroptera | USA | 2016 Minovirus •NC\_018506.1 | Limnipivirus | 04-032 | Lepomis macrochirus | USA | 2003 NC\_033819.1 | Crohivirus | Eidolon helvum | Cameroon | 2013 Recovirus OQ818318 | Teschovirus | Eidolon dupreanum | Madagascar | 2018
OQ818320 | Sapelovirus | Eidolon dupreanum | Madagascar | 2018
NC\_033820.1 | Sapelovirus | Eidolon helvum | Cameroon | 2013
OC 025890.1 | Torchivirus | Testudo hermanni | Germanny | 2004 Nacovirus Nebovirus Coronavirus NC\_038311.1 | Enterovirus | Homo sapiens | USA | 2009 NC\_003990.1 | Tremovirus | Gallus gallus | USA | 1999 NC\_03990.1 | Tremovirus | Gallus gallus | USA | 1999

NC\_015626.1 | Unclassified picornavirus | Columbidae | Norway | 2003

NC\_055156.1 | Rabovirus | RtMp-PicoV/YN2014 | Rodentia | China | 2017

NC\_040605.1 | Sapelovirus | Marmota himalayana | China | 2013

NC\_055160.1 | Rabovirus | MPV/NYC/2014/M005/0074 | Mus musculus | USA | 2014

NC\_015934.1 | Unclassified picornavirus | Rhinolophus sinicus | Hong Kong | 2008

NC\_016156.1 | Unclassified picornavirus | Felis catus | Hong Kong | 2007

QR18328 | Picornavirus | Rousettus madagascariensis | Madagascar | 2018

QR18325 | Picornavirus | Rousettus madagascariensis | Madagascar | 2018

NC\_015940.1 | Unclassified picornavirus | Miniopterus pusillus | Hong Kong | 2008

NC\_035779.1 | Unclassified picornavirus | Falco vespertinus | Hungary | 2014 •NC\_035779.1 | Unclassified picornavirus | Falco vespertinus | Hungary | 2014 →NC\_015941.1 | Unclassified picornavirus | Miniopterus magnater | Hong Kong | 2005 OQ818329 | Sapelovirus | Rousettus madagascariensis | Madagascar | 2018 | OQ818321 | Sapelovirus | Eidolon dupreanum | Madagascar | 2019 | NC\_003987.1 | Sapelovirus | Sus scrofa | Germany | 2002 | NC\_016403.1 | Unclassified picornavirus | Coturnix coturnix | Hungary | 2010 | NC\_006553.1 | Anativirus | TW90A | Anseriformes | Taiwan | 2007 | OR | Control | NC 028366.1 | Hepatovirus | M32Eidhel2010 | Eidolon helvum | Ghana | 2010 OQ818337 | Hepatovirus | Eidolon dupreanum | Madagascar | 2018 NC\_028981.1 | Hepatovirus | TN1 | Tupaia chinensis | China | 2012 NC\_028365.1 | Hepatovirus | Igel8Erieur2014 | Erinaceus europaeus | Germany | 2014 | NC\_038316.1 | Hepatovirus | BUO2BF86Colafr2010 | Coleura afra | Ghana | 2010 -NC\_027818.1 | Hepatovirus | Phoca vitulina | USA | 2011
-NC\_038314.1 | Hepatovirus | CIV459Lopsik2004 | Lophuromys sikapusi | Cote d'Ivoire | 2004
-NC\_038313.1 | Hepatovirus | SMG18520Minmav2014 | Miniopterus | Madagascar | 2014 Hepatovirus NC\_004451.1 | Sapelovirus | Simiiformes | USA | 2003
 NC\_016964.1 | Mischivirus | 325 | Canis lupus familiaris | Hong Kong | 2008
 NC\_040673.1 | Tremovirus | Pelodiscus sinensis | China | 2011 NC\_038312.1 | Enterovirus | Homo sapiens | USA | 2019
NC\_001490.1 | Enterovirus | Homo sapiens | USA | 1985
NC\_001617.1 | Enterovirus | Homo sapiens | USA | 1988
NC\_038878.1 | Enterovirus | NAT001 | Homo sapiens | USA | 2001
NC\_00996.1 | Enterovirus | Homo sapiens | Hong Kong | 2007
NC\_010354.1 | Aphthovirus | Bos taurus | United Kingdom | 2008 -NC\_018226.1 | Pasivirus | Sus scrofa | France | 2010 NC\_030886.1 | Coronavirus | GCCDC1 356 | Rousettus leschenaulti | China | 2018

Genus

Cardiovirus

EnterovirusHepatovirus

Kobuvirus

Erbovirus

Teschovirus

Tremovirus

Anativirus

Sapelovirus

Avihepatovirus

Aquamavirus

Aphthovirus

Senecavirus

Passerivirus

Unclassified picornavirus

Cosavirus

Salivirus

Oscivirus

Mischivirus

Limnipivirus

Hunnivirus

Dicipivirus

Megrivirus

Potamipivirus

Sicinivirus

Aalivirus

Mosavirus

Rosavirus

Avisivirus

Crohivirus

Torchivirus

Malagasivirus

HarkavirusAmpivirus

Livupivirus

Kunsagivirus

Shanbavirus

Rafivirus

PoecivirusRabovirus

TottorivirusAilurivirus

PicornavirusCoronavirus

Host

▲ Bat host

Bootstrap

75

50

25

100

Non-bat host

Madagascar bat kobuvirus

0.2

Bopivirus

Orivirus

Sakobuvirus

PasivirusGallivirus

Parechovirus

NC\_039476.1 | Norovirus | BJSMQ | Homo sapiens | China | 2016 NC\_039477.1 | Norovirus | NORO\_226\_06\_01\_2016 | Homo sapiens | United Kingdom | 2016 | -ONC\_044046.1 | Norovirus | Yuzawa/Gira2HS | Homo sapiens | Japan | 2014 •NC\_029646.1 | Norovirus | Homo sapiens | Vietnam | 2000 ◆NC\_039475.1 | Norovirus | Homo sapiens | South Korea | 2015 -●NC\_044932.1 | Norovirus | Hu/GII.PNA4-GII.NA4/PNV06929/2008/PER | Homo sapiens | Peru | 2008 r NC\_040876.1 | Norovirus | NORO\_176-1\_17\_12\_2015 | Homo sapiens | United Kingdom | 2015 └ONC\_044045.1 | Norovirus | Sapporo/HK299 | Homo sapiens | Japan | 2014 NC\_044855.1 | Norovirus | Homo sapiens | USA | 2016 , LONC\_029647.1 | Norovirus | Homo sapiens | Australia | 2010 ◆NC\_045762.1 | Norovirus | Felis catus | USA | 2010 —ONC\_044047.1 | Norovirus | Canis lupus familiaris | Hong Kong | 2007 NC\_044854.1 | Norovirus | Homo sapiens | Japan | 2000 NC\_044853.1 | Norovirus | Homo sapiens | Japan | 1998 →NC\_001959.2 | Norovirus | Homo sapiens | USA | 1993 NC\_031324.1 | Norovirus | Pan troglodytes | USA | 2013 NC\_039897.1 | Norovirus | Shimizu/KK2866 | Homo sapiens | Japan | 2007 🖟 NC\_044856.1 | Norovirus | Homo sapiens | Bangladesh | 2011 →NC\_029645.1 | Norovirus | Bos taurus | Norway | 2006 →NC\_008311.1 | Norovirus | Mu/NoV/GV/MNV1/2002/USA | Homo sapiens | USA | 2002 •NC\_012699.1 | Calicivirus | Sus scrofa | Canada | 2006 ►NC\_040674.1 | Norovirus | Marmota himalayana | China | 2013 -NC\_035675.1 | Minovirus | FHMCV/USA/MN/2012 | Pimephales promelas | USA | 2012 NC\_024031.1 | Salovirus | Nordland/2011 | Salmo salar | Norway | 2011 NC\_004064.1 | Nebovirus | Bovinae | USA | 2002 NC\_006875.1 | Calicivirus | TCG 14 | Bos taurus | Japan | 2003 NC\_007916.1 | Nebovirus | Bos taurus | United Kingdom | 2005 NC\_030793.1 | Nebovirus | Bos taurus | Turkey | 2012 →NC\_017936.1 | Sapovirus | Chiroptera | Hong Kong | 2011 →NC\_024078.1 | Calicivirus | Anatidae | China | 2012 -■NC\_043516.1 | Nacovirus | L11043 | Meleagris gallopavo | Germany | 2011 NC\_033081.1 | Bavovirus | Gallus gallus | Brazil | 2015 NC\_034444.1 | Vesivirus | Homo sapiens | USA | 2016 NC\_011050.1 | Vesivirus | SSL2004-250F | Eumetopias jubatus | USA | 2004 NC\_002551.1 | Vesivirus | Sus scrofa | USA | 1996 NC\_008580.1 | Vesivirus | Oryctolagus cuniculus | USA | 2004 NC\_004541.1 | Vesivirus | Odobenus rosmarus | USA | 2000 NC\_001481.2 | Vesivirus | Felidae | USA | 2000 NC\_019712.1 | Vesivirus | Mustela lutreola | China | 2007 NC\_025676.1 | Vesivirus | Otariinae | USA | 1981 NC\_004542.1 | Vesivirus | Canidae | Japan | 2000 -NC\_027122.1 | Vesivirus | Melogale | China | 2012 -●NC\_000940.1 | Sapovirus | Sus scrofa | USA | 1999 NC\_006554.1 | Sapovirus | Homo sapiens | Japan | 2004 NC\_010624.1 | Sapovirus | Homo sapiens | Thailand | 2003 └─●NC\_006269.1 | Sapovirus | Homo sapiens | Germany | 2004 NC\_027026.1 | Sapovirus | Homo sapiens | Japan | 2012 NC\_011704.1 | Lagovirus | MIC-07 | Oryctolagus cuniculus | Australia | 2007 NC\_001543.1 | Lagovirus | Oryctolagus | Germany | 2000 LONC\_002615.1 | Lagovirus | Lepus europaeus | France | 1996 NC\_033776.1 | Sapovirus | Bat-SaV/Limbe65/CAM/2014 | Eidolon helvum | Cameroon | 2014 --NC\_043512.1 | Recovirus | Macaca mulatta | USA | 2008 OQ818347 | Sapovirus | Rousettus madagascariensis | Madagascar | 2018 OQ818348 | Sapovirus | Rousettus madagascariensis | Madagascar | 2018 OQ818319 | Sapovirus | Eidolon dupreanum | Madagascar | 2018 —≜OQ818345 | Sapovirus | Rousettus madagascariensis | Madagascar | 2018 OQ818340 | Sapovirus | Eidolon dupreanum | Madagascar | 2018 ► NC\_030886.1 | Coronavirus | GCCDC1 356 | Rousettus leschenaulti | China | 2018

0.2