

**Table S1** Sequences found in VIZIONS study (in black) and related sequences (in grey) from Genbank

Genus	cluster	virusname/Access.No	host.species	country	year
<i>Hunnivirus</i>	Hunnivirus Rat-C1	16715x9-74	<i>Rattus argentiventer</i>	VietNam	2014
<i>Hunnivirus</i>	Hunnivirus Rat-C1	16715x17-77	<i>Rattus argentiventer</i>	VietNam	2014
<i>Hunnivirus</i>	Hunnivirus Rat-C1	KT944198.1	<i>Bandicota indica</i>	VietNam	2012
<i>Hunnivirus</i>	Hunnivirus Rat-C1	22084x8-856	<i>Rattus argentiventer</i>	VietNam	2014
<i>Hunnivirus</i>	Hunnivirus Rat-C1	KT944208.1	<i>Rattus argentiventer</i>	VietNam	2012
<i>Hunnivirus</i>	Hunnivirus Rat-C1	22084x38-545	<i>Rattus argentiventer</i>	VietNam	2014
<i>Hunnivirus</i>	Hunnivirus Rat-C1	KT944209.1	<i>Rattus argentiventer</i>	VietNam	2012
<i>Hunnivirus</i>	Hunnivirus Rat-C1	22084x13-215	<i>Rattus argentiventer</i>	VietNam	2014
<i>Hunnivirus</i>	Hunnivirus Rat-C1	16715x33-264	<i>Rattus argentiventer</i>	VietNam	2014
<i>Hunnivirus</i>	Hunnivirus Rat-C1	KT944205.1	<i>Rattus tanezumi</i>	VietNam	2012
<i>Hunnivirus</i>	Hunnivirus Rat-C1	16715x25-289	<i>Rattus argentiventer</i>	VietNam	2014
<i>Hunnivirus</i>	Hunnivirus Rat-C1	16715x41-103	<i>Rattus argentiventer</i>	VietNam	2014
<i>Hunnivirus</i>	Hunnivirus Rat-C1	16715x49-624	<i>Rattus argentiventer</i>	VietNam	2014
<i>Hunnivirus</i>	Hunnivirus Rat-C1	16715x73-28	<i>Rattus argentiventer</i>	VietNam	2014
<i>Hunnivirus</i>	Hunnivirus Rat-C1	22084x6-4204	<i>Rattus argentiventer</i>	VietNam	2014
<i>Hunnivirus</i>	Hunnivirus Rat-C1	22084x4-164	<i>Rattus argentiventer</i>	VietNam	2014
<i>Hunnivirus</i>	Hunnivirus Rat-C1	16715x81-177	<i>Rattus argentiventer</i>	VietNam	2014
<i>Hunnivirus</i>	Hunnivirus Rat-C1	KT944202.1	<i>Rattus argentiventer</i>	VietNam	2012
<i>Hunnivirus</i>	Hunnivirus Rat-C1	16715x89-10	<i>Rattus argentiventer</i>	VietNam	2014
<i>Hunnivirus</i>	Hunnivirus Rat-C1	16715x25-288	<i>Rattus argentiventer</i>	VietNam	2014
<i>Hunnivirus</i>	Hunnivirus Rat-C1	KT944203.1	<i>Rattus norvegicus</i>	VietNam	2012
<i>Hunnivirus</i>	Hunnivirus Rat-C1	KT944207.1	<i>Rattus argentiventer</i>	VietNam	2012
<i>Hunnivirus</i>	Hunnivirus Rat-C1	KT944214.1	<i>Rattus tanezumi</i>	VietNam	2013
<i>Hunnivirus</i>	Hunnivirus Rat-C1	MF352430.1	<i>Rattus tanezumi</i>	China	2012
<i>Hunnivirus</i>	Hunnivirus Rat-C2	16715x41-120	<i>Rattus argentiventer</i>	VietNam	2014
<i>Hunnivirus</i>	Hunnivirus Rat-C2	16715x65-350	<i>Rattus argentiventer</i>	VietNam	2014
<i>Hunnivirus</i>	Hunnivirus Rat-C2	KT944204.1	<i>Rattus argentiventer</i>	VietNam	2013
<i>Hunnivirus</i>	Hunnivirus Rat-C2	22084x6-5619	<i>Rattus argentiventer</i>	VietNam	2014
<i>Hunnivirus</i>	Hunnivirus Rat-C2	22084x22-123	<i>Rattus argentiventer</i>	VietNam	2014
<i>Hunnivirus</i>	Hunnivirus Rat-C2	KT944212.1	<i>Rattus argentiventer</i>	VietNam	2012
<i>Hunnivirus</i>	Hunnivirus Rat-C2	22057x58-10	<i>Rattus argentiventer</i>	VietNam	2014
<i>Hunnivirus</i>	Hunnivirus Rat-C2	16715x33-233	<i>Rattus argentiventer</i>	VietNam	2014
<i>Hunnivirus</i>	Hunnivirus Rat-C2	22056x78-1	<i>Rattus argentiventer</i>	VietNam	2014
<i>Hunnivirus</i>	Hunnivirus Rat-C2	KT944213.1	<i>Rattus argentiventer</i>	VietNam	2012
<i>Hunnivirus</i>	Hunnivirus Rat-C2	KT944206.1	<i>Rattus argentiventer</i>	VietNam	2012
<i>Hunnivirus</i>	Hunnivirus Rat-C3	16715x57-54	<i>Rattus argentiventer</i>	VietNam	2014



<i>Hunnivirus</i>	Hunnivirus Rat-C3	16715x89-9	<i>Rattus argentiventer</i>	VietNam	2014
<i>Hunnivirus</i>	Hunnivirus Rat-C3	22084x7-3389	<i>Rattus argentiventer</i>	VietNam	2014
<i>Hunnivirus</i>	Hunnivirus Rat-C3	22057x33-1	<i>Rattus argentiventer</i>	VietNam	2014
<i>Hunnivirus</i>	Hunnivirus Rat-C3	22084x14-23	<i>Rattus argentiventer</i>	VietNam	2014
<i>Hunnivirus</i>	Hunnivirus Rat-C3	KT944200.1	<i>Bandicota indica</i>	VietNam	2012
<i>Hunnivirus</i>	Hunnivirus Rat-C3	KT944199.1	<i>Bandicota indica</i>	VietNam	2012
<i>Hunnivirus</i>	Hunnivirus Rat-C4	KT944211.1	<i>Rattus norvegicus</i>	VietNam	2014
<i>Hunnivirus</i>	Hunnivirus Rat-C4	KT944204.1	<i>Rattus norvegicus</i>	VietNam	2013
<i>Hunnivirus</i>	Hunnivirus Rat-C4	KT944210.1	<i>Rattus norvegicus</i>	USA	2012
<i>Hunnivirus</i>	Hunnivirus Rat-C4	MW417242.1	<i>Rattus norvegicus</i>	China	2017
<i>Hunnivirus</i>	Hunnivirus Rat-C5	22084x6-2255	<i>Rattus argentiventer</i>	VietNam	2014
<i>Hunnivirus</i>	Hunnivirus Rat-C5	22084x1-8350	<i>Rattus argentiventer</i>	VietNam	2014
<i>Hunnivirus</i>	Hunnivirus Rat-C5	22054x5-16	<i>Rattus argentiventer</i>	VietNam	2013
<i>Hunnivirus</i>	Hunnivirus Rat-C5	22084x1-20374	<i>Rattus argentiventer</i>	VietNam	2014
<i>Hunnivirus</i>	Hunnivirus Rat-C5	22084x7-1893	<i>Rattus argentiventer</i>	VietNam	2014
<i>Hunnivirus</i>	HuV-A6	MF352413.1	<i>Niviventer confucianus</i>	China	2012
<i>Hunnivirus</i>	HuV-A6	KX156157.1	<i>Rodentia</i>	China	2015
<i>Hunnivirus</i>	Hunnivirus Rat-C6	16715x18-31	<i>Rattus argentiventer</i>	VietNam	2014
<i>Hunnivirus</i>	Hunnivirus Rat-C6	22084x8-313	<i>Rattus argentiventer</i>	VietNam	2014
<i>Hunnivirus</i>	Feline-hunnivirus	MF953886.2	<i>Felis catus</i>	China	2017
<i>Hunnivirus</i>	HuV-A1	NC_018668.1	<i>Bos taurus</i>	Hungary	2008
<i>Hunnivirus</i>	HuV-A2	HM153767.3	<i>Ovis aries</i>	Hungary	2009
<i>Hunnivirus</i>	HuV-A9	KY432925.1	<i>Rodentia</i>	China	2014
<i>Parechovirus</i>	Parechovirus-A1	17668x95-27	<i>Homo sapiens</i>	VietNam	2014
<i>Parechovirus</i>	Parechovirus-A1	19379x8-30	<i>Homo sapiens</i>	VietNam	2015
<i>Parechovirus</i>	Parechovirus-A1	16020x15-8	<i>Homo sapiens</i>	VietNam	2013
<i>Parechovirus</i>	Parechovirus-A1	16020x48-5	<i>Homo sapiens</i>	VietNam	2013
<i>Parechovirus</i>	Parechovirus-A1	16845x17-2	<i>Homo sapiens</i>	VietNam	2014
<i>Parechovirus</i>	Parechovirus-A1	19345x64-26	<i>Homo sapiens</i>	VietNam	2015
<i>Parechovirus</i>	Parechovirus-A1	17668x89-6	<i>Homo sapiens</i>	VietNam	2014
<i>Parechovirus</i>	Parechovirus-A1	19379x12-12	<i>Homo sapiens</i>	VietNam	2015
<i>Parechovirus</i>	Parechovirus-A1	19345x23-2	<i>Homo sapiens</i>	VietNam	2015
<i>Parechovirus</i>	Parechovirus-A1	16806x40-58	<i>Homo sapiens</i>	VietNam	2014
<i>Parechovirus</i>	Parechovirus-A1	16370x63-9	<i>Homo sapiens</i>	VietNam	2013
<i>Parechovirus</i>	Parechovirus-A1	19345x31-1	<i>Homo sapiens</i>	VietNam	2015
<i>Parechovirus</i>	Parechovirus-A1	16806x70-48	<i>Homo sapiens</i>	VietNam	2014
<i>Parechovirus</i>	Parechovirus-A1	19379x62-27	<i>Homo sapiens</i>	VietNam	2014
<i>Parechovirus</i>	Parechovirus-A1	16370x52-4	<i>Homo sapiens</i>	VietNam	2013



<i>Parechovirus</i>	Parechovirus-A1	L02971	<i>Homo sapiens</i>	USA	1992
<i>Parechovirus</i>	Parechovirus-A1	16318x54-27	<i>Homo sapiens</i>	VietNam	2014
<i>Parechovirus</i>	Parechovirus-A1	16370x64-9	<i>Homo sapiens</i>	VietNam	2013
<i>Parechovirus</i>	Parechovirus-A1	16806x9-1	<i>Homo sapiens</i>	VietNam	2013
<i>Parechovirus</i>	Parechovirus-A1	19344x62-6	<i>Homo sapiens</i>	VietNam	2014
<i>Parechovirus</i>	Parechovirus-A1	19379x60-27	<i>Homo sapiens</i>	VietNam	2015
<i>Parechovirus</i>	Parechovirus-A1	16806x76-33	<i>Homo sapiens</i>	VietNam	2014
<i>Parechovirus</i>	Parechovirus-A1	16317x75-2	<i>Homo sapiens</i>	VietNam	2014
<i>Parechovirus</i>	Parechovirus-A1	16806x82-189	<i>Homo sapiens</i>	VietNam	2013
<i>Parechovirus</i>	Parechovirus-A1	16845x1-6	<i>Homo sapiens</i>	VietNam	2014
<i>Parechovirus</i>	Parechovirus-A1	16806x27-1	<i>Homo sapiens</i>	VietNam	2014
<i>Parechovirus</i>	Parechovirus-C1	HF677705	<i>Apodemus sylvaticus</i>	Botambi	1972
<i>Parechovirus</i>	VZ-Rat	22057x67-9	<i>Rattus argentiventer</i>	VietNam	2014
<i>Parechovirus</i>	Parechovirus-E1	KY645497	<i>Falco vespertinus</i>	Hungary	2014
<i>Parechovirus</i>	Parechovirus-B1	AF327920	<i>Clethrionomys glareolus</i>	Sweden	1995
<i>Parechovirus</i>	Parechovirus Bat-C1	16715x38-55	<i>Scotophilus kuhlii</i>	VietNam	2014
<i>Parechovirus</i>	Parechovirus Bat-C1	17819x13-28	<i>Scotophilus kuhlii</i>	VietNam	2014
<i>Parechovirus</i>	Parechovirus Bat-C1	16715x40-76	<i>Scotophilus kuhlii</i>	VietNam	2014
<i>Parechovirus</i>	Parechovirus Bat-C1	16715x24-56	<i>Scotophilus kuhlii</i>	VietNam	2014
<i>Parechovirus</i>	Parechovirus Bat-C1	17819x45-5	<i>Scotophilus kuhlii</i>	VietNam	2014
<i>Parechovirus</i>	Parechovirus Bat-C1	16715x86-78	Unknown bat	VietNam	2014
<i>Parechovirus</i>	Parechovirus Bat-C1	16715x78-129	<i>Scotophilus kuhlii</i>	VietNam	2014
<i>Parechovirus</i>	Parechovirus Bat-C1	16715x14-80	<i>Scotophilus kuhlii</i>	VietNam	2014
<i>Parechovirus</i>	Parechovirus Bat-C1	16845x63-120	<i>Scotophilus kuhlii</i>	VietNam	2014
<i>Parechovirus</i>	Parechovirus Bat-C1	16715x78-130	<i>Scotophilus kuhlii</i>	VietNam	2014
<i>Parechovirus</i>	Parechovirus Bat-C1	16845x31-17	<i>Scotophilus kuhlii</i>	VietNam	2014
<i>Parechovirus</i>	Parechovirus Bat-C1	16715x39-32	<i>Scotophilus kuhlii</i>	VietNam	2014
<i>Parechovirus</i>	Parechovirus Bat-C1	20724x87-644	<i>Scotophilus kuhlii</i>	VietNam	2015
<i>Parechovirus</i>	Parechovirus Bat-C2	17819x11-22	<i>Scotophilus kuhlii</i>	VietNam	2014
<i>Parechovirus</i>	Parechovirus Bat-C2	17819x16-21	<i>Scotophilus kuhlii</i>	VietNam	2014
<i>Parechovirus</i>	Parechovirus Bat-C2	16715x13-17	Unknown bat	VietNam	2014
<i>Parechovirus</i>	Parechovirus Bat-C2	16845x8-27	<i>Scotophilus kuhlii</i>	VietNam	2014
<i>Parechovirus</i>	Parechovirus Bat-C2	20745x5-108	<i>Scotophilus kuhlii</i>	VietNam	2015
<i>Parechovirus</i>	Parechovirus Bat-C3	17819x48-10	<i>Scotophilus kuhlii</i>	VietNam	2014
<i>Parechovirus</i>	Parechovirus Bat-C3	16845x70-18	<i>Scotophilus kuhlii</i>	VietNam	2014
<i>Parechovirus</i>	Parechovirus Bat-C3	20745x18-15	<i>Scotophilus kuhlii</i>	VietNam	2015
<i>Parechovirus</i>	Parechovirus Bat-C3	20724x80-30	<i>Scotophilus kuhlii</i>	VietNam	2015
<i>Parechovirus</i>	Parechovirus Bat-C3	17819x11-28	<i>Scotophilus kuhlii</i>	VietNam	2014



<i>Parechovirus</i>	Parechovirus Bat-C3	20745x25-316	<i>Scotophilus kuhlii</i>	VietNam	2015
<i>Parechovirus</i>	Parechovirus Bat-C3	16715x40-44	<i>Scotophilus kuhlii</i>	VietNam	2014
<i>Parechovirus</i>	Parechovirus Bat-C3	16715x86-30	<i>Unknown bat</i>	VietNam	2014
<i>Parechovirus</i>	Parechovirus Bat-C3	17819x20-34	<i>Scotophilus kuhlii</i>	VietNam	2014
<i>Parechovirus</i>	Parechovirus-D1	KF006989	<i>Mustela putorius furo</i>	Netherlands	2013
<i>Parechovirus</i>	Parechovirus-D	IMK348056.1	<i>Pipistrellus pipistrellus</i>	China	2016
<i>Parechovirus</i>	Parechovirus-F1	MG600084	<i>Teratoscincus roborowski</i>	China	2015
<i>Cardiovirus</i>	cardiovirus-D1	16020x71-3	<i>Homo sapiens</i>	VietNam	2013
<i>Cardiovirus</i>	cardiovirus-D1	EF165067	<i>homo sapiens</i>	USA	1981
<i>Cardiovirus</i>	cardiovirus-B1	JX443418	<i>Mus musculus</i>	USA	1952
<i>Cardiovirus</i>	cardiovirus-B2	M94868	<i>homo sapiens</i>	Russia	1955
<i>Cardiovirus</i>	cardiovirus-E1	KY432930	<i>Myodes andersoni</i>	China	2014
<i>Cardiovirus</i>	marmot-cardiovirus	KY855434	<i>Marmota himalayana</i>	China	2013
<i>Cardiovirus</i>	genet-fecal-theilovirus	KF823815	<i>Genetta genetta</i>	Spain	2012
<i>Cardiovirus</i>	cardiovirus-C1	JQ864242	<i>Rattus norvegicus</i>	USA	2010
<i>Cardiovirus</i>	cardiovirus-C2	JX683808	<i>Rattus norvegicus</i>	USA	2012
<i>Cardiovirus</i>	cardiovirus-C3	MF352424	<i>Rattus norvegicus</i>	China	2012
<i>Cardiovirus</i>	Cardiovirus Rat-C3	16715x57-28	<i>Rattus argentiventer</i>	VietNam	2014
<i>Cardiovirus</i>	Cardiovirus Rat-C3	16715x33-171	<i>Rattus argentiventer</i>	VietNam	2014
<i>Cardiovirus</i>	Cardiovirus Rat-C2	22084x1-3992	<i>Rattus argentiventer</i>	VietNam	2014
<i>Cardiovirus</i>	Cardiovirus Rat-C1	22084x5-1820	<i>Rattus argentiventer</i>	VietNam	2014
<i>Cardiovirus</i>	Cardiovirus Rat-C1	22084x8-300	<i>Rattus argentiventer</i>	VietNam	2014
<i>Cardiovirus</i>	Cardiovirus Rat-C1	22084x1-3987	<i>Rattus argentiventer</i>	VietNam	2014
<i>Cardiovirus</i>	Cardiovirus Rat-C1	KT944132.1	<i>Bandicota indica</i>	VietNam	2012
<i>Cardiovirus</i>	Cardiovirus Rat-C1	KT944133.1	<i>Rattus argentiventer</i>	VietNam	2012
<i>Cardiovirus</i>	Cardiovirus Rat-C1	16715x33-215	<i>Rattus argentiventer</i>	VietNam	2014
<i>Cardiovirus</i>	cardiovirus-A1	M81861	<i>Rattus norvegicus</i>	NA	1992
<i>Cardiovirus</i>	cardiovirus-A2	JX257003	<i>Apodemus sylvaticus</i>	Germany	2005
<i>Cardiovirus</i>	cardiovirus-F1	KY432929	<i>Myodes andersoni</i>	China	2014
<i>Mupivirus</i>	Mupivirus Rat-C1	22057x86-7	<i>Rattus argentiventer</i>	VietNam	2014
<i>Mupivirus</i>	Mupivirus Rat-C1	16715x73-23	<i>Rattus argentiventer</i>	VietNam	2014
<i>Mupivirus</i>	Mupivirus Rat-C1	16715x10-93	<i>Rattus argentiventer</i>	VietNam	2014
<i>Mupivirus</i>	Mupivirus Rat-C1	22056x85-3	<i>Rattus losea</i>	VietNam	2014
<i>Mupivirus</i>	Mupivirus Rat-C1	22084x13-82	<i>Rattus argentiventer</i>	VietNam	2014
<i>Mupivirus</i>	mupivirus-A2	KY432934.1	<i>Niventer confucianus</i>	China	2015
<i>Mupivirus</i>	mupivirus-A1	KY432924.1	<i>Mus caroli</i>	China	2014
<i>Mosavirus</i>	Mosavirus Rat-C1	22084x10-70	<i>Rattus argentiventer</i>	VietNam	2014



<i>Mosavirus</i>	Mosavirus Rat-C1	22084x1-1109	<i>Rattus argentiventer</i>	VietNam	2014
<i>Mosavirus</i>	Mosavirus Rat-C1	22084x6-985	<i>Rattus argentiventer</i>	VietNam	2014
<i>Mosavirus</i>	Mosavirus Rat-C1	22084x7-1073	<i>Rattus argentiventer</i>	VietNam	2014
<i>Mosavirus</i>	MoV-A1	JF973687.1	<i>Peromyscus crinitus</i>	USA	2010
<i>Mosavirus</i>	MoV-A2	KF958461.1	<i>Coracias garrulus</i>	Hungary	2011
<i>Mosavirus</i>	MoV-B1	KY855435.1	<i>Marmota himalayana</i>	China	2013
<i>Unclassified</i>	Unclassified Bat-C1	16715x40-55	<i>Scotophilus_kuhlui</i>	VietNam	2014
<i>Unclassified</i>	Unclassified Bat-C1	16845x14-8	<i>Scotophilus_kuhlui</i>	VietNam	2014
<i>Unclassified</i>	Unclassified Bat-C1	20745x7-311	<i>Scotophilus_kuhlui</i>	VietNam	2015
<i>Unclassified</i>	Unclassified Bat-C1	16845x77-12	<i>Scotophilus_kuhlui</i>	VietNam	2014
<i>Unclassified</i>	Unclassified Bat-C1	16845x22-8	<i>Scotophilus_kuhlui</i>	VietNam	2014
<i>Unclassified</i>	Unclassified Bat-C1	16845x56-22	<i>Scotophilus_kuhlui</i>	VietNam	2014
<i>Unclassified</i>	Unclassified Bat-C1	20745x13-25	<i>Scotophilus_kuhlui</i>	VietNam	2015
<i>Unclassified</i>	Unclassified Bat-C1	16715x14-68	<i>Scotophilus_kuhlui</i>	VietNam	2014
<i>Unclassified</i>	Unclassified Bat-C1	16845x64-33	<i>Scotophilus_kuhlui</i>	VietNam	2014
<i>Unclassified</i>	Unclassified Bat-C1	16715x40-52	<i>Scotophilus_kuhlui</i>	VietNam	2014
<i>Unclassified</i>	Unclassified Bat-C1	16715x54-52	<i>Scotophilus_kuhlui</i>	VietNam	2014
<i>Unclassified</i>	Unclassified Bat-C1	16715x45-12	<i>Scotophilus_kuhlui</i>	VietNam	2014
<i>Unclassified</i>	Unclassified Bat-C1	16715x38-16	<i>Scotophilus_kuhlui</i>	VietNam	2014
<i>Unclassified</i>	Unclassified Bat-C1	16715x55-49	<i>Unknown bat</i>	VietNam	2014
<i>Unclassified</i>	Unclassified Bat-C1	16715x71-53	<i>Scotophilus_kuhlui</i>	VietNam	2014
<i>Unclassified</i>	Unclassified Bat-C1	16845x40-27	<i>Scotophilus_kuhlui</i>	VietNam	2014
<i>Unclassified</i>	Ia-io-picornavirus-1	JQ814852.1	<i>Unknown bat</i>	China	2010