

Supplemental Dataset 1

>1_Loxodonta_africana_AAGU03027606_endogenous
GIRKLSRIRGLGRVCLPLWSR--FHNVTPLGLIFLGYFMEGLHEALAGAGVKIRSAYISTS
ESQGQTIKATASPPPLVAFEEASVYKLRCDVLLGVV-GSSAKIHSNAEQVRRKLNAFMVI
DWKR-VQGTANLLIGYPAGPIIDWINRQSWVESLVFKLLSTNFASPEKKVMEQVHM-DSY
APMTAYDMVHGSLD-CVDGMIA-SDLLTEIPAFMETSKNVKAWLGNLLEYGEAV-HSAVA
QFAPWKFPSLSAAASY-TKKHTVPSGAFAAPE-TPRATVTIPVLAGASGSLIVRSGGLSG
PVSADIANILTML

>2_Loxodonta_africana_AAGU03066204_endogenous
GIGKLEDLALNVKTFDFPVMRSRFNEAAPGLTFLCYLIEGLHEALASTGVKIRSAYIST-
GE-WGTVKGTASLLPLIALEVASIYKFGCDVLFVGVFGSSAEIRSDVEQVQKRYSTFMVS
IRKDKYKDAANLLVVYPAGLVLDWIN-QLWVGSVHNLVSTDFGSPKKEMERVCMV-ASY
TQMTTCNTIGRYLQQCMDGTIA-QDLLS-IPAFIES-KNVKARPGNFFEYSGAIQHCCLR
TSPR-----

>3_Loxodonta_africana_AAGU03022981_endogenous
GIGK-EDVEINVKAMFDPEHRSKPDPATPCLIFLCLTAGELHDPLVAAGVKVRSIAKIVQ
GGVL-----
-----ALQLLTKRSVQIRQ--VLLGNSMGQFYVSVLRVYESKMLMVQVKVSSY
S-MTTYDK-RAYLNQFFNG-NC-YHMLLRSQHSLKLRSTQOMYWRSYLQYAGTDPYEEVL
RLAPKEFPDLSTAANYWNRKNTPS-GGFQASECTPGSTI-----

>4_Ictidomys_tridecemlineatus_AGTP01124043_endogenous
GIGDEKDLRKNVIALLEADRRALYHAVTPSLVFLCLLIPSLHAALIYGGVPRESYLTPV
TKGDQVLIKTA-DRELSELEVSSIFNHCCSLLIGVVIGSSAKIRAGAEQIRKRFKTLMAS
INRPAHGDTATLLQTFNPHEAIDWINSQPWVGSVLSLLTDFESPGKEFMEQIRLVASF
AQMTTYTTTIKEYLNECMDATLMIPAVAGEIKEFLDTASKLKHADHGEIFKYLGAIRHPDAI
KLAPRSFPNLASAAFYWSKKENPTMSGYRASTIVPGAIVKEAQLARYRRREISRGEDGSH
IPDEIAQIMKIIG

>5_Mus_musculus_AAHY01095884_endogenous
-----TSLMLSHDLRTRFHPATGSLIFMCYLFPLWEALCSAGVPEWSCLSLPV
QKDGDPAYETSVEHVITSLEMSSI---CCTLLIGLAIGSSEKIRSGSEQV--STRPMVM
LGKSGHAESETHLNTYPPSAVDWFNSQPWVGTLLFGFLATKLSKPGKELMDHIRMVTSY
AQMTTYVLIKQYLEQCMDGTTALSQVSYEILPFLSMEKNIKKSLREWFEFIASL-HGDSI
-----NLSLAALFRSKKESATMMASKAPVIQPGTTLTGSLLCRA-EQQIVRSGIGGE
LSPNVQDVLKAIG

>6_Mus_musculus_20616448_endogenous
GIGKR-DIEVNTVSVLDSEHRARFYPVTGSLIFVCYVFPWMWESLAAADVSEQSCLSTPM
QKDGSPAYETS-ERPLTALEMFSIVSHCCPFMNGLVTPPEKIRSGLAQIKHRVKTLMVT
LGKSGCVAATHLNTYPPSADIDWLKSQPWLGILTV-VL-STFWSPGKEVMVQIRMVASY
AQVTMYVPIKQYLGQCMDGTFA-----LPAEFEIPTFLSVEKNLRKHTGE-RHS-TI
KLASRAPNLSSAALFRSKLESAMMAPKTPVIQP---LTPLELLY-AQEHQVIRQGTVRE
TSPG-----

>7_Mus_musculus_AHBB01025016_endogenous

GAAYETSFAFCK-GRVLTSLLEMSSIVGPDWTCW--IV-EDL-KWVGANQMPK--IKTFMVT
LGKSGHTDTATHL----PTKCSH-LSQLPAL-FLLFGFLSTKFOSPGKEVMGQIGMVASY
AQMTTYILIKQYLEQCVDGTTALPQAAFEIPFSLSLEKNLKKRLVNDLNLFGIMTPSDLL
RRHSRTFPQ--AFFSFLSKRESARMTAFKAPIIQPGSTLL----HRARERQIIRSGIGGE
MSLKVQAVLRATG

>8_Homo_sapiens_AADD01105699_endogenous
IGDVK-DIEKATKSMLDPAQRSHFYLVTPSLVFLCFIFDGLHKALLSVGVSKRSNIVIGN
ENKETGTLYAS-DVLPTFLEMSSILRHCCDLLIGIAARSSDPICNTSLQVQRQFKAMMIS
IGRPLHSESADLLISYNAGPAIDWINSRPWVGGLMFTFLFGEFESPACELLDQVKVASK
AQMTTYTTRMFLDQCVDGSTALLPAVVLEIPVFEQKKPLAKKVLGDFEFEGGVLRRHPVIG
VLSQPMFPNLATAANYWAKRRNSTFSGFEALDIIPGSTITFPVLQMASAQKISR---GSD

MDPYTLNLRGYG

>9_Homo sapiens_ABSL01057266_endogenous

IGDIK-DIKKAAKSMMLDPAHKSHFHPVTPSLVFLCFIFDGLHQALLSVGVSKRSNTVVGN
ENEERGTPYAS-DM-PNFLEKSSVLRHCCDLLIGVAAGSSDKICTSSLQVQRRFKAMMAS
IGRLSHGESADLLISCNAESAIGWISSRPWVGELMFTFLFGDFESP--TQATQVKLVAKK
AQMTPINAVRFMDQCMDGSIALRAIVSEIPVLRKKTVMVKKALGKYFEFGGVLCHPIIG
ELSPRMFPNLATAANYWAKMSNPTFLGFKAPDVIPGSTI-----

>10_Cavia porcellus_AAKN02042182_endogenous

IGKLE-SYQIMSNHFLTNKHRPLFHPVYWFVAV--YVVAFSWTLKILRDVESQKSHHSQQ
LSKT--TTGVT-LEAGLETNVSSTCGHCCDLLLVL-----ASAQVRR-VQIVHQS
NGQPSHNATAVVLVSYANKATDWFLQQSWVGSMMFEFKKTDQSPWKKFMDQVRL-ASY
TQMTTYTMTKQYLEQCMNGTLT-FWL-----TKRGSKIQGSRAEWFEEFTGVLCHPVTL
ELAPRVFLNLASAGRYWSRKESATISGYRIPS-----

>11_Crotallus mitchellii_contig_173953_endogenous

GIGKSAEIEHATKCFLNQHSRIYHPVTPSLVFLCYLIPGLWSAFREAGVPTISYFAD-I
GGKIETSSFIN-NDPLTTLELSSVIAHCTTLLIGVIIHQHQL-----SAQIKKRIKALFVT
LGKPTHAEANALQFLPPTAAID-INSQPWARNLILGLLTTTFESPGKEMMAQLSMIAEH
AQMTTYSTINSYLNQCMDATIA-SLLL-R-IEFERVTRDLKIKLKLKLFKYAGAIRHPDVI
QIAPKAFPNLATAALNWSKRKSTSMGAYKSPDIIPGATITEFMLSRRKSRIVRSGGEE
MGSAT-NILLKYG

>12_Crotallus mitchellii_contig_72541_endogenous

GIRKKTIEHATKCFLNPERRTLYHPMTPSLVFLCYLIPGLWTAFAKNAGVPTSSYFTQLI
GGHVQSQSLTN-DVPLTALELSSVIAHCTTLLISIVLESSTKIAAGSAQIKKRIKAMFVT
LGKPTHADIANALQFLPPTAAVDWLNQSPWIGNLILVFLDTTFKTPGKEMMDQVHLVAGY
AQMTTYSTIQAYLEHCMDGTIA-YLLLSK-IEFAKVSQIHLKLRQWFKFAGAIRHSEVI
KLAPKAFPNL---ALYWSKQESTSMGAYKAPDIVPGAIIEFTLAHTRRGIVRVGIGYE
MGPNTTRILSAYG

>13_Python bivittatus_AEQU02058304_endogenous

-----F-CALFSMDYTOFKTVGVSETSGLLTPK
EGRPKGTSTLHKDAGLTATELTLLLCRCCDLFIGLAIGSSDKIRINSAQVHKHFETLMVS
LQKKTTSK-AMPITLYNAGHAIDWINSKPWIGHLVNLIELEAESPAKELIDQMCLVANK
AQMTCFSSV-EAYLKQCMDGTIAMRQVVAEIPKFEAAVSIVKKKTGSMFKFASAIRHPAII
NLAPRNFPNLSTAANYWKKWHSFSAFGFKALKVTPGAAIPMLQLAATRILREVRPIQSGK
LGMLRVPLAK---

>14_Human Bornavirus_FJ792853

GIGDEKDIRKNAVALLDQSRRELYHNVTSLVFLCLLIPGLHSAALLFAGVQRESYLSTPV
KQGERLITKTANDRELTELQVSSIFNHCCSLLIGVVIGSSAKIKAGAEQIKKRFKTLMAS
INRPGHGETANLLSVFNPHEAIDWINAQPWVGSFVLALLTTDFESPGKEFMDQIKLVAGF
AQMTTYTTIKEYLNECMDATLTIPAVALEIKEFLDVTTKLKAHEGDMFKYLGAIRHSDAI
KLAPRNFPNLASAAFYWSKKNPTMAGYRASTIQPGSIVKEAQLARFRRREITRGDDGST
MSPEIADVMRLIG

>15_Avian bornavirus_KC464480

GIGDEKDIKKNALAFDPSRREKFHVSPTSLVFLCLLIPGLHRALLYGGVPRESYLSTVV
DRGGEQI IKAGRDRELSELEVSSIFNHCCSLLIGVVIGSSAKIKAGAEQIKKRFKTLMAS
LNRPAHGETATLLQMFNPHEAIDWINGQPWVGSVLSLITTTDFESPGKEFMDQIKLVASY
AQMTTYTTIKEYLSECMDATLTIPAVAYEIKEFIKVSSDLKTEHGELFKYLGAIRHSDAI
KLAPRNFPNLASAAFYWSKKNPTMSGYRASTIQPGSTVKEAQLARYRRREISRGEDGVH
LSEIEAIEIMRMIG

>16_Avian bornavirus_KC464481

GIGDEKDIKKNALAFDPSRREKFHVSPTSLVFLCLLIPGLHRALLYGGVPRESYLSTVV
DRGGEQI IKAGRDRELSELEVSSIFNHCCSLLIGVVIGSSAKIKAGAEQIKKRFKTLMAS
LNRPAHGETATLLQMFNPHEAIDWINGQPWVGSVLSLITTTDFESPGKEFMDQIKLVASY
AQMTTYTTIKEYLSECMDATLTIPAVAYEIKEFIKVSSDLKTEHGELFKYLGAIRHSDAI

KLAPRNFPNLASAAFYWSKKNPTMSGYRASTIQPGSTVKEAQLARYRRREISRGEDGVH
LSEEIAEIMRMIG

>17_Human_Borna disease virus_AY374549

GIGHEKDIRQNAVALLDQSRDMFHTVTPSLVFLCLLIPGLHAAFVHGGVPRESYLSTPV
TRGEQTVVKTAQRDLTELEISSIFSHCCSLLIGVVIGSSSKIKAGAEQIKKRFKTMMAA
LNRPSHGETATLLQMFNPHEAIDWINGQPWVGSLVLSLLTTDFESPGKEFMDQIKLVASY
AQMTTYTTIKEYLAECMDATLTIPVVAYEIRDFLEVSAKLKEEHADLFPFLGAIRHPDAI
KLAPRSFPNLASAAFYWSKKNPTMAGYRASTIQPGASVKETQLARYRRREISRGEDGAE
LSGEISAIMKMIG

>18_Avian bornavirus_KC464475

GIGDERDIKKNALAFDPSRREKFHNSVTPSLVFLCLLIPGLHGALLYGGVPRESYLSTVI
DRGGEQLIKVGRDRELTELEVSSIFNHCCSLLIGVVIGSSAKIKAGAEQIKKRFKTLMAS
LNRPSHGETATLLQMFNPHEAIDWINGQPWVGSLVLSLITTTDFESPGKEFMDQIKLVASY
AQMTTYTTIKEYLSECMDATLTIPAVAYEIKEF-KTSSDLKNEHGELFKYLGAIRHPDAI
KLAPRNFPNLASAAFYWSKKNPTMSGYRASTIQPGSSVKEAQLARYRRREVSRRGEDGLH
LSDEIADIMRMIG

>19_Avian bornavirus_KC464472

GIGDEKDIKKNALAFDPSRREKFHNSVTPSLVFLCLLIPGLHGALLYGGVPRESYLSTVI
DRGGEQLIKVGRDRELTELEVSSIFNHCCSLLIGVVIGSSAKIKAGAEQIKKRFKTLMAS
LNRPSHGETATLLQMFNPHEAIDWINGQPWVGSLVLSLITTTDFESPGKEFMDQIKLVASY
AQMTTYTTIKEYLSECMDATLTIPAVAYEIKEFIKTSSDLKNEHGELFKYLGAIRHPDAI
KLAPRNFPNLASAAFYWSKKNPTMSGYRASTIQPGSSVKEAQLARYRRREVSRRGEDGLH
LSDEIADIMRMIG

>20_Spermophilus tridecemlineatus_AB516287_endogenous

GIGDEKDLRKNVIALLEADRRLYHAVTPSLVFLCLLIPSLHAALIYGGVPRESYLSTTPV
TKGDQVLIKTAKDRELSELEVSSIFNHCCSLLIGVVIGSSAKIRAGAEQIRKRFKTLMAS
INRPAHGDTATLLQTFNPHEAIDWINSQPWVGSLVLSLLTTDFESPGKEFMEQIRLVASF
AQMTTYTTIKEYLNECMDATLMIPAVAGEIKEFLDTASKLKADHGEIFKYLGAIRHPDAI
KLAPRSFPNLASAAFYWSKKNPTMSGYRASTIVPGAIVKEAQLARYRRREISRGEDGSH
IPDEIAQIMKIIG

>21_Avian bornavirus_KF680099

GIGREEDIRKNALNFLDPGRREKFHNVTTPSLVFLCLLIPGLHAALLYGGVPRESYLSAPI
MQEGEMLVKVDRDRELSELEISSIFSHCCSLLIGVVIGSSAKIKAGAEQIKKRFKTLMAS
LNRPAHGETATLLQTFNPHEAIDWINGQPWVGSLILSLITTTDFESPGKEFMDQIKLVASY
AQMTTYTTIKEYLSECMDATLTIPAVAYEIRDFLKVSELKAEHGELFKYLGAIRHSDVI
KLAPRNFPNLASAAFYWSKKNPTMSGYRASTIQPGSTVKEAQLARFRRREVSRRGEDGAN
LSDEIADIMRMIG

>22_Bornavirus parrot_FJ169440

GIGNEKDIHKNVALLDQSRRELYHNVTTPSLVFLCLLIPGLHSALLFAGVQRESYLSTTPV
KQGERLITKTANDQELTELQISSIFNHCCSLLIGVVIGSSAKIKAGAEQIKKRFKTLMAS
INRPGHGETANLLSVFNPHEAIDWINAQPWVGSLVLLALLTTDFESPGKEFMDQIKLVAGF
AQMTTYTTIKEYLNECMDATLTIPAVALEIKEFLDITTTLKAHEGDMFKYLGAIRHSDAI
KLAPRNFPNLASAAFYWSKKNPTMAGYRASTIQPGSIVKEAQLARFRRREITRGDDGTT
MSPEIADVMKRIG

>23_Avian bornavirus_KC464471

GIGDERDIKKNALAFDPSRREKFHNSVTPSLVFLCLLIPGLHGALLYGGVPRESYLSTVI
DRGGEQLIKVGRDRELTELEVSSIFNHCCSLLIGVVIGSSAKIKAGAEQIKKRFKTLMAS
LNRPSHGETATLLQMFNPHEAIDWINGQPWVGSLVLSLITTTDFESPGKEFMDQIKLVASY
AQMTTYTTIKEYLSECMDATLTIPAVAYEIKEFIKTSSDLKNEHGELFKYLGAIR-PDAI
KLAPRNFPNLASAAFYWSKKNPTMSGYRASTIQPGSSVKEAQLARYRRREVSRRGEDGLH
LSDEIADIMRMIG

>24_Human_Borna disease virus_AJ311522

GIGHEKDIRQNAVALLDQSRDMFHTVTPSLVFLCLLIPGLHAAFVHGGVPRESYLSTPV
TRGEQTVVKTAQRDLTELEISSIFSHCCSLLIGVVIGSSSKIKAGAEQIKKRFKTMMAA
LNRPSHGETATLLQMFNPHEAIDWINGQPWVGSLVLSLLTTDFESPGKEFMDQIKLVASY

AQMTTYTTIKEYLAECMDATLTIPVVAYEIRDFLEVS AKLKEEHADLFPFLG AIRHPDAI
KLAPRSFPNLASAAFYWSKKENPTMAGYRASTIQPGASVKETQLARYRRREISRGEDGAE
LSGEISAIMRMIG

>25_Sorex araneus_AALT02140945

-----QITKR FNV MHIS
VKRGLQPPTVEISPSFDFREAAAWLTPSFIVRGLLELENHSSTGPTAKVFTGQIKLVATY
AEMTPYMTKAFINEELSHGVMLPGVATEVKAFLEVENNLKAEHGEENY YFKALKLKR V-
TKALHLFLNLCKVVNTRKQKVDGAFHDYRST-----

>26_Sorex araneus_AALT02088745

-----ATQIN-RFNSMYPT
IKKGVQPPLIKLSTTFNFRGATTWLISSPVI-GIPDLDDKKPRINEPCHAMIAQIKLIANY
AEMTPYVTMKGFI SEGLSHGALLPGVVTEIEVFLQVEKPLKEEHGKENFHLKILRLSGHD
QLAPAKFPNLCKAV-----

>27_Otolemur garnettii_AAQR03106311

-----IRKPQKNPMSQITRRFNALHST
IRPGVQPPQVDLDP AIDFKAAASWLSK TILSALLASEGQETIGPTGRAFIEQIKLVSGY
AEMTTYLTMKAFINEGLSKGALLPGVGT EMKAFLDAEKDLKERHGVGLFY LKALRLEGYE
TLAPVHYPNLCKVANSRKRKMDVAFRDYRCA-----

>28_Myotis brandtii_ANKR01245074

-----QIGRRFSALYST
VKPGVQPPPVDIDPLFDLKETALWLLAKIIPSTLLEMEDHTPLWPTAKAFISQLKLVSSY
AEMTPYLTIKSFISDGLSKASMLPGVGA EIQAFLKAEDELKEQHGD KM FYLKCLRLPGHE
RLAPVNFRNLCKVANARKRWIDGTFGDYKST-----

>29_Dipodomys ordiiABRO01003680

-----AKAFLNQVRMF SAY
AEMTPYIVMREFIQAGLSHAATLPGVGS DILKCHEAETDLRRRHGDEVFFIKALSSPGGE
RLEAAAYPNL FKVASSQKRR-DHTYKDY-----

>30_Rhinolophus ferrumequinum_AWHA01050524

ID-----EYATKSVFNLAH-SLFHPVTASLMFFCFLFDGLHEKFLSVGVPWESH LITP-
-----VS-----FLELSSII-HCCDLLIGGVTGSSDKVRVNSL-IRKCFKTL MVI
LQOPHGDQANLLFNYNAGPANDWVNSQH WV--K-FVLVVIN FESPSK EML-QIRLVASI
AHMMTYL-MIQMFLEQ-----FFGGVLRHPAML
EISPRMFPNLGMLASYWARRSNPTFSGFKAPDIIPGATVHWP-ST-RQOEKSRGSG-SSE
MDLRTLNLKQCG

>31_Megaderma lyra_AWHB01421187

IR-----CAIKSMFVPTHLSLFHPVTASPIFLCWTILHEN--FLSVGVPKESH LIAP-
VGGKIKTKSLY-GKVPSFLEMP SII RHCCDL-IG-VGGSSDMVRTNSFQVQKRFKTL MVT
LQRLAPGDSVNL-FNYNAGPAINWI---PWVGS--FVFAVLTFESSGKEMLDQVRLVAWR
AQMT PSTILLGCS-----WISAWMDPYLQ---LL-QIISLRRN-RQYRSCLDNISNTKEY
-DTPWMFPNPAPVASYWTRRSNAPYSGFKVPVVFLEPAS-----QSH
-YRWHLYARYHRG

>32_Rattus norvegicus_AABR06065682

VGIGRRDIDISTLSVLSREHRTRFHPATGSLMFCYLFPELWEALCSAGVPEWSYLSSPV
Q GKDRAAAYEPL-ELVIISLEISSTVGHCC TLLIGLVISC-ENL-RL-MSQHPVKTLLVI-

LGKSGYAVSETCLNTYQPSASVDWFTSQSWVGSLLFGFLATKFKSPGKELID-IPMVASY
AQMTVYVLIKQFLELCMDGTIALSQVVYGMPPFLSMEKNLKRSLGEWFEFTGALRHGDSI
KLAPRAFPNLFSTALFWNK-ESATMMAFKAPVIQPGSTLTPLELLCRA-EQQIRRPRIIGGE
MSPNVQAVLRAIG

>33_Rattus_norvegicus_AAH-01065642

IGKRR-ETDIDTSLMLNHEHRAVSSSHW-QLDIYVLPPIPRDVESPAVAGVSERSYLTPV
QDKDGPSEYETP-E-VLVSLEMSSIVGHFCILLIRLVISSGKI-SGLKQIKHQVAELRPSG
LGKTRPC-S-NAPQLLPAKCCCHSLAQLPALVRSLLFGFLSIKFRSP-KEIMNQTWMEASY
AQMTTYVVLNKQ-LEQCMDGTIALSKVAFEILPFLSVEKIFKKHLSEWFEFIGALWQNDISI
KLVPGAFNLFSAALFGSKLQSAMMAFKAFYHST-FNLP-WSLIT-G-SQIIQSGIGGE
MSSGIQAVLKVID

>34_Rattus_norvegicus_AABR06095622

IGKRR-GTEINALSLLNREHGAKLHPAPTSLLFVCYLIPGLQEALSAGGVIRCRSVQTKD
SLAGETAVALPV-STQSLHSSCFPMLGHGRTLVIGLAISSEKMHVHSGSKQTEGRFKTLVVT
IGKSGHGESATHLSMSQPRASVHWLNSQPWGVVSLLLGLLSTKFKSPGKDL----HMVASI
AQMLAYVMIKQHLDRCMARTTALLOAANEILPFLSTERDLKKGGLGEWFESIGAIKHSISM
TLDPQAFPNLSLAHFWSKRESAATTVCAPVIQP-----

>35_Human_AADB02012985

IGDVK-VIEKATKSMMLDPAQRSHFYLVTPSLVFLCFIFDGLHKLALLSVGVSKRSNIVIGN
ENKETGTLYAS-DVLPTFLEMSSILRHCCDLI-GIAARSSDPICITNSLQVQRQFKAMMIS
IGRPLHSESADLLISYNAGPAIDWINSRPWVGGLMFTFLFGEFESPACELLDQVKVASK
AQMTTYTVMFLDQCVDGSTALLPAVVLEIPVFEQKKPLAKKVLGDFEFGGVLRHPVIG
VLSPQMFPNLATAANYWAKRRNSTFSGFEALDIIPGSTITFPVLQMASAQKISRGSMDMP
YTLNLRGYGISG

>36_Papio_anubis_AHZZ01069395

IGDVK-DIKKAAKSMMLDPAKSHFHPVTPSLVFLCFIFDGLHETLLSVGVSKRSNIVVEN
KNKEMDTPCAS-DM-PNFLEKSSVLRHCCDLLIGVAAGSSDKICASSLQVQRRFKAMMAS
IGRLSHGESADLLMSYNAESAIDWISSRPWVGELMFTFLFGEFESP-----QVKLVAKK
AQMTTYAVRMFLDQCMDGSIALPAIVSEIPVFEEKTMVKKTLGKYFEFGGVLCHPVIR
QLSPQMFPNLAATANCWPKRSNPTFSGFKAPDVIPGSTI-----

>37_Macaca_fascicularis_AEHL01267442

IGDVK-DIKKAAKSMMLDPAKSHFHLVTPSLVFLCFIFDGLHETLSLVGVSKRSNIVVEN
KNKEMDTPCAS-DM-PNFLEKSSVLRHCCDLLIGVAAGSSDKICASSLQVQRRFKAMMAS
IGRLSHGESADLLMSYSAESAIDWISSRPWVGELMFTFLFGEFESP-----QVKLVAKK
AQMTTYAVRMFLDQCMDGSIALPAIVSEIPVFEEKTMVKKTLGKYFEFGGVLCHPIIR
QLSPQMFPNLAATANCWPKRSNPTFSGFKAPDVIPGSTI-----

>38_Nomascus_leucogenys_ADFV01176629

IGDVK-DIEKAAKSMMLDPAHRSHFHLVTPSLVFLCFILDGLHKLALLSVGVSKRSNIVIGN
ENKETGTLYAS-DVLPTFLEMSSILCHCCDLLIGIAARSSDPICITNSLQVQRQFKAMMIS
IGRPLHSERADLLIS-NAGPAIDWINSRPWVGGLMFTFLFGEFESPALLELDQVKVANK
ARMTTYTVMFLDQCVDGSIVLPAVVSEIPVFEEKKALVKKALGDFEFGDILCHPVIG
ELSPRIFPNLATAANYWAKRRNPTFSG-KPSTFIPGSTITFTLLQMASAWKISRGS---

>39_Procavia_capensis_ABRQ01717982

-----TAENRFKAFKAA
----TMEHA-PYPAINVSAYVIYLSLQPWCHRVLRRILSTKFTGPAEQMMVQVHMVARW
SQMTTLSAIKRFINECDSSLILPEVKAIEPKFFEAYERLREKTGEWFPYAKAIKHPEAQ
KVKTAAFPNLASAALYHAAETPTMRNYRAGKNIRGGLPSTLKS SAFECKISRERAAIYS
QGFTGEVS-----

>40_Procavia_capensis_ABRQ01490479

-----VIYLSLQPWCHRVLRRILSTRFTGPAEQMMVQVHMVARW
SQMTTLSAIKRFLNECDSSLILIPVKAIEIPKFCEAYERLREKTGEWFFPYAKAIKHPEAQ
KVKTAAFPNLASAALYHAAETTPTRNYRAGKNIRGGLPSTLKS SAFEQKISQEERAAIYF
RGEVS-----

>41_Bitis gabonica_AB516291

-----MFKYLGAVRHPDAI
KLAPRSFPNLASAIFYWSKKNATMTGYKASTIQPGATVKEAQLARLRRREIVRGGERE
LDDKAVDVMARIG

>42_Microcebus murinus_ABDC01288276

GIGKVEALERNGKMLLSAEWRSKFNDVTLGLVFLCFVIDGLHDALNGVGSKRE----TTV
QVYENRVLKMAATPEFSMMEIASIYRVVCDTLIGVVFRSSSKVRANA EWFRRLMHLNGL
ARAQRYSKPLAWLSIWGFG---DWLISQPWACTLVLQVLNVSIO SPGKELMEQICMFAKG
A-ITTYNMIKGYLDHCMDGTILISSVALEI-----

-----Alignment of circovirus capsid sequences:

>1_Crotalus mitchellii_contig_224958_eSCV1

--WDYYRIRKLVKVEFFPTFLGSQEEYSRGTTVIDL DGNIPAAATTPAYDPFMDRSSAHPH
RYHSRYFTP K PQLFFQPNNKYNQWLNPKDANVLHWGLGFSMESLTATQWLVKITYYVQFR
EFIF

>2_Crotalus mitchellii_contig_224959_eSCV2

YLWDYCRIRKMKVEFFPTFLGSQEEYSRGTTVIDL DGNLPQPGTTAANDPFEDRSTAHPH
RYHSRYFTP N PQLFFQPNNKYNQWLN CNDDTMLHWGLGFSMESFTASQWLVKITYYVQFR
EFIF

>3_Muscovy duck circovirus_EF451157

YPYDYMIKGVAITLRPAYNIYQKSKTQGSTVIDKDGQIVKTATTGWIDPYGSTSSRRPS
RVHRRYFV PKPIIFFL-GGRNFTWINCTQDQVVHYGMGMSLDNTTGVNIEAQFTFYIKFG
QFTG

>4_Mulard duck circovirus_AY228555

YPYDYMIKGVAITLRPAYNIYQKSKTQGSTVIDKDGQIVKTATTGWIDPYGSTSSRRPS
RVHRRYFV PKPIIFFL-GGRNFTWINCTQDQVVHYGMGMSLDNTTGVNIEAQFTFYIKFG
QFTG

>5_Duck circovirus_HM162351

YPYDYMIKGVAITLRPAYNIYQKSKTQGSTVIDKDGQIVKTSTTTGWIDPYGSTSSRRPS
RVHRRYFIPKPIIFFL-GGRNFTWINCTQDQVVHYGMGMSLDNTTGVNIEAQFTFYIKFG
QFTG

>6_Mulard duck circovirus_HQ180266

YPYDYMIKGVAITLRPAYNIYQKSKTQGSTVIDKDGQIVKTSTTTGWIDPYGSTSSRRPS
RVHRRYFIPKPIIFFL-GGRNFTWINCTQDQVVHYGMGMSLDNTTGVNIEAQFTFYIKFG
QFTG

>7_Muscovy duck circovirus_GQ423744

YPYDYMIKGVAVTLRPAYNIYQKSKTQGSTIIDKDGQIVRTSTTTGWIDPYGSTSSRRPS
RIHRRYFV PKPTIIFFL-GGKNFTWINCSQDQVVHYGMGMSLDNATGDEIEAQFTFYIKFG
QFTG

>8_Duck circovirus_GU131341

YPYDYMIKGVAVTLRPAYNIYQKSKTQGSTIIDKDGQIVRTSTTTGWIDPYGSTSSRRPS
RIHRRYFV PKPTIIFFL-GGKNFTWINCSQDQVVHYGMGMSLDNATGDEIEAQFTFYIKFG
QFTG

>9_Duck circovirus_JX241046

YPYDYMIKGVAVTLRPAYNIYQKSKTQGSTIIDKDGQIVRTSTTTGWIDPYGSTSSRRPS
RIHRRYFV PKPTIIFFL-GGKNFTWINCSQDQVVHYGMGMSLDNATGDEIEAQFTFYIKFG
QFTG

>10_Goose circovirus_DQ192284
YPFDYIRMVVKVELRPAFNPFFQVRVTOGSTYIDKEGNI-TTTTSGSVDPYAAMSSRKP
RYHKRIFIPKPTIWYTPGGR--QWLNSIQDNVVFYGMGMSLEDTAAPLIEATITYYIRFG
QWTG
>11_Bat circovirus_JX863737
IPWAYRIRKMKFEILPKMIPAQTPYRYGSTAIYL-G-MQAPAP-TQYDPHLKHVKQ
DQLKRYFTPKPDLWFQPNKANQWINMTNDNITHGQVGWMSISM-AQFKIRVTLYVQFR
EFNL
>12_Bat circovirus_KC339249
-PFKYRIRKVKVEFQPRLPITSPFRGYGSTVPILDGAFVTPATGESWDPYINFSGRHP
WYHKRYFTPKPLIWF-PN-KQGQWS-----GLGFAMNEAYNYQ--VRF'TLYVQFR
EFDL
>13_Porcine circovirus_JN133302
LPFQYYRIRKAKYEFYPRDPITSNERGVGSTVVILDANFVTPSTNLAYDPYINYSRHP
TYHSRYFTPKPELWFHPNNKRNOQLHLNTHTNVHTGLGYALQNAATAQYVVRLTIYVQFR
EFIL
>14_Porcine circovirus_1_AF012107
LPFQYYRIRKAKYEFYPRDPITSNQRGVGSTVVILDANFVTPSTNLAYDPYINYSRHP
TYHSRYFTPKPELWFQPNNKRNQWLHLNTHTNVHTGLGYALQNAATAQYVVRLTIYVQFR
EFIL
>15_Porcine circovirus_2_GQ861253
IPFEYYRIRKVKVEFWPCSPITQGDRGVGSSAVILDDNFVVKATALTYDPYVNYSSRHP
SYHSRYFTPKPVLYFQPNNKRNQWLRLOQTSRNVHVGLGTAFENSKYDQYNIRVTMYVQFR
EFNL
>16_Rhinolophus ferrumequinum circovirus_JQ814849
NYFDMYRIAKVRVQWLPMSIS-EVRAWGATVIDLTDTTVP-STGRT-DFTID-DSTRPT
RIHSRYFTPKPEIAVQPNNPRNQWIDSRD-KDVHGGIAYYFDDIGDDVFSYIVTYFFQFR
QFAG
>17_Porcine circovirus_2_GQ861252
IPFEYYRIRKVKVEFWPCSPITQGDRGVGSSAVILDDNFVVKATALTYDPYVNYSSRHP
SYHSRYFTPKPVLYFQPNNKRNQWLRLOQTSRNVHVGLGTAFENSKYDQYNIRVTMYVQFR
EFNL
>18_Porcine circovirus_JX524206
IPFEYYRIRKVKVEFWPCSPITQGDRGVGSSAVILDDNFVVKATALTYDPYVNYSSRHP
SYHSRYFTPKPVLYFQPNNKRNQWLRLOQTSRNVHVGLGTAFENSKYDQYNIRVTMYVQFR
EFNL
>19_Canine circovirus_JQ821392
PPFRFYKFKKVIYIRAWINWPKTLMENVLGRALDLDQGRGNATRSHLDPGTVEPPKDPF
IYDPLQDRSSSRSGFKRGLTPKPFQDITSPSAAPWLTRGTPWVSVIQANMVWNGLSISL
R-QMAlignmentofcircovirusRepsequences:
>1_Crotalus mitchellii_contig_24347_Endogenous_eSCV4

-----EKRSDLKEAIALNSGSSMTELARAYPSVYIRY
GMGLIDYVIRDFKTDVHVITGIPGCGKSKFCSELYWKPHGKWWGTYTGQEIIVILDDFYGW
IPFDELLRICDRYSYRVETKGGTMEFVSKSI-----
>2_Crotalus mitchellii_contig_9220_Endogenous_eSCV3
AKDMYLLLTIPPKKXMXLXKDFITPENCVYAIVGEE-QVLHLQGFVNLKKKMRFNPFKAA
IGGRAHVEKAKGTDLDNKRYCSKQ-KVGKRLDLKEAIALNSGSSMTELAQAYPSVYIRY
GRGLKDYVIRDFKTDVHVITGIPGCGKSKFYSELYWKPRGKWWGTYTGQEIIVILDDFYGW
LPFDKLLRICDRYPYRVETKGGTMEFVSKCIYITSKQA-----
>3_Bat guano_HM228875
SVNWCFTLNNTNEDVNKLKQVKCR----YICLGFVGDPHIQGFQFEKKVRLSVWKKI
N-KKIHAEIMKGTIEQAINYCKKSGTFGERRDLKEAKKCAEVG-LRAITDCESTYNLQV
IRNCQIMLERDFKPEVIWIYGESGAGKTKYISEKYWKDATKWWNGYDRHEITVMDDFRAN
MKMNELLKLIDRYPHRVEIKGGFRQMLSKKIYISSIMHPKDVYNLPQLLRRIDTIKI-

>4_Bat guano_JF938078
ARYWLLTIPYEHFTP-----YLPPNCAYIKGQLEQGSLSHWQLVVYFVSQKKSLSNYVKLI
FGDGIHCEPSK-SKAAEYVWKEDTSSISIKRDSTKDWDLIVKHAREGDFASIPGDVLVRC
YGNLKKIRVESIVREIYVYVYGRGTGAGKSRRAWEEYPKPNTKFWDDGYAGQECVVIDEFRGA
ISISHLLRWLD RY P V I V E I K G S S C V F K A K K I W I T S N L S P D D W Y P D L A L R R R F T E V V H F N
>5_Bat circovirus_AGL09969
CERYCFTINNYSEEDIEAVKAFLVPD NAEYAI V G K E - K G P H L Q G F V N L K K K M R F N P F K A A
LGGRAHIEQARGTDL DN K R Y C S K G G D L G K R S D L K E A V T L L N S G A N M T A V A R A Y P E V F I R Y
GRGLRDYVIRAWKTEVHVIVGVPGV G K S R H V S E Q Y W K P R G K W W D G Y C N Q E V V C L D D Y Y G W
IPYDDLRLCDRYPLRVETKGGTVS F V A K K I Y I T S N K Q I K D W Y N F E A L Y R R V T S Y K V M R
>6_Rhinolophus ferrumequinum circovirus 1_AFK85001
GRRWCFTINNYDTPDLTAVNEAFKEKDVVYAVCGKE-VGKHLQGF IHFTGNWRFNRVKS L
LGGRAHIEKARGNDEQNKVYCTKE-ETGKRNDLGRAVAALEGGSSLSSEVAQANPEVFIRY
GRGLRDYMNRFKTHVIVLVGEPGSGKSKYANEVYWKPRGQWWDGYNGEEVVLD D D F Y G W
VPYDELLRVGDRYPLKVQVKGAFVDFVSKTLVITSNKRPEEWYDKEAMWRRFNEMYCE
>7_Bat circovirus_YP_007974237
AKRWVFTLNPNPSPKEIDHILGQDMN-MFDYLVCGKEGMGPHLQGFANFSKKKTFNQVKKI
FGSRCHIEKAKGTDKDNQOYCTKEGDVGQRTDLASAVSTVLESGLRAVAESHVPQFVRY
HRGLSELLKRDKWTSVHVIIIGPPGCGKSKYANFNFWKPRNKWWDGYCGQEVVILDDFYGW
LPYDEMLRLCDRYPLTVETKGGTVPF L A R T I L I T S N K V P Q E W Y S S E A L F R R I T T L Q L W K
>8_Canine circovirus_AGI42842
VRRWCFTINNP T P E E E D A V K N L A P - - D A K Y L I C G R E V G E P H L Q G F V N L K R T T R M G A L K A R
LGGRGHFEPARGDDCSNRDYCSKGGDIGKRNDLHDAVVKLKETKSLAAVASAYPETYVKY
SRGLRELLLRKWKTEVEVLCGPPGCGKSRYCMETYWKPRGKWWDDGYDGHQDVILDDFYGW
LPFDDMLRLCDRYPLRVETKGGTMNFLARRIYITSNR L P H E W Y S D E A L Y R R L S I I K V W D
>9_Canine circovirus_YP_007697652
VRRWCFTINNP T P E E E D A V K N L A P - - D A K Y L I C G R E V G E P H L Q G F V N L K R T T R M G A L K A R
LGGRGHFEPARGDDCSNRDYCSKGGDIGKRNDLHDAVVKLKETKSLAAVASAYPETYVKY
SRGLRELLLRNWKTEVEVLCGPPGCGKSRYCMETYWKPRGKWWDDGYDGHQDVILDDFYGW
LPFDDMLRLCDRYPLRVETKGGTMNFLARRIFITSNR L P H E W Y S D E A L Y R R L T L I K V W D
>10_Canine circovirus_AGI42840
VRRWCFTINNP T P E E E D A V K N L A P - - D A K Y L I C G R E V G E P H L Q G F V N L K K T T R M G A L K A R
LGGRGHFEPARGDDCSNKDYCSKGGDIGKRNDLHDAVATLQTKSLAAVAAAHPETYVKF
SRGLRELLLRNWKTEVHVLCGPPGCGKSRYCLETYWKPRGKWWDDGYDGHSDVILDDFYGW
LPFDDMLRLCDRYPLRVETKGGTMNFIARRMFI T S N K L P H E W Y S D E A L Y R R L S L I T V W D
>11_Canine circovirus_AFK82575
VRRWCFTINNP T P E E E D A V K N L A P - - D A K Y L I C G R E V G E P H L Q G F V N L N R T T R M G A L K A R
LGGRGHFEPARGDDCSNRDYCSKGGDIGKRNDLHDAVVKLKETRSLAAVASAFPETYVKY
SRGLRELLLRRTWKTEVEVLCGPPGCGKSRYCMETYWKPRGKWWDDGYDGHQDVILDDFYGW
LPFDDMLRLCDRYPLRVETKGGTMNFLARRIFITSNR L P H E W Y S D E A L Y R R L T L I K V W D
>12_Goose circovirus_ABA39141
YKRWFVFTINNP T F E D Y C A V V E F C N L D N C K F A I V G E E K G D P H L Q G F L S L R K N A K A A A L E V K
LGGRAWLSRARGSD E D N E E Y C S K E S T Y G R S S D L S D A A S D V L A G L P I T D V A R K Y P T T Y V M F
GRGLERLRQRDWKTEVIVLIGRPGSGKSRYAFEFYKSRGKWWDDGYNGQDVVVMDDFYGW
LPYDDLRLICDRYPLRVEYKGGMTQFVSKTLIITSNREPRDWYKCEALYRRINQYLILT
>13_Duck circovirus_AFJ74615
YKRWFVFTINNP T F E D Y V H V L E F C T L D N C K F A I V G E E K G A P H L Q G F L N L R S N A R A A A L E E S
LGGRAWLSRARGSD E D N E E Y C A K E S T Y G R S S D L A E A T S A V M A G V P L T E V A R K F P T T Y V I F
GRGLERLRHRDWKTEVIVLIGPPGTGKSRYAFEFYKPRGKWWDDGYSGNDVVMDDFYGW
LPYDDLRLITDRYPLRVEFKGGMTQFVAKTLIITSNREPRDWYKSEALYRRINKYLVYN
>14_Muscovy duck circovirus_ACT79249
YKRWFVFTINNP T F E D Y V H V L E F C T L D N C K F A I V G E E K G A P H L Q G F L N L R S N A R A A A L E E S
LGGRAWLSRARGSD E D N E E Y C A K E S T Y G R S S D L A E A T S A V M A G V P L T E V A R K F P T T Y I I F
GRGLERLRHRDWKTEVIVLIGPPGTGKSRYAFEFYKPRGKWWDDGYSGNDVVMDDFYGW
LPYDDLRLITDRYPLRVEFKGGMTQFVAKTLIITSNREPRDWYKSEALYRRINKYLVYN

>15_Duck_circovirus_ADX06802
YKRWVFTINNPTFEDYVHVLEFCTLDNCKFAIVGEEKGAPHLQGFNLNRSNARAAALEES
LGGRAWLSRARGSDDEDNEEYCAKESTYGRSSDLAEATSAVMAGVPLTEVARKFPPTYVIF
GRGLERLRHRDWKTEVIVLIGPPGTGKSRYAFEFYKPRGKWWDGYSGNDVVVMDDFYGW
LPYDDLRLRITDRYPLRVELKGGMTQFVAKTLIITSNREPRDWYKSEALYRRINKYLVYN

>16_Muscovy_duck_circovirus_ABO37838
YKRWVFTINNPTFEDYVHVLEFCTLDNCKFAIVGEEKGAPHLQGFNLNRSNARAAALEES
LGGRAWLSRARGSDDEDNEEYCAKESTYGRSSDLAEATSAVMAGVPLTEVARKFPPTYVIF
GRGLERLRHRDWKTEVIVLIGPPGTGKSRYAFEFYKPRGKWWDGYSGNDVVVMDDFYGW
LPYDDLRLRITDRYPLRVEFKGGMTQFVAKTLIITSNREPRDWYKSEALYRRINKYLVYN

>17_Muscovy_duck_circovirus_ACV69945
YKRWVFTINNPTFEDYVHVLEFCTLDNCKFAIVGEEKGAPHLQGFNLNRSNARAAALEES
LGGRAWLSRARGSDDEDNEEYCAKESTYGRSSDLAEATSAVMAGVPLTEVARKFPPTYVIF
GRGLERLRHRDWKTEVIVLIGPPGTGKSRYAFEFYKPRGKWWDGYSGNDVVVMDDFYGW
LPYDDLRLRITDRYPLRVEFKGGMTQFVAKTLIITSNREPRDWYKSEALYRRINKYLVYN

>18_Mulard_duck_circovirus_ADX07732
YKRWVFTINNPTFEDYVHVLEFCTLDNCKFAIVGEEERGAPHLQGFNLNRSNARAAALEES
LGGRAWLSRARGSDDEDNEEYCAKESTYGRSSDLAEATSAVMAGVPLTEVARKFPPTYVIF
GRGLERLRHRDWKTEVIVLIGPPGTGKSRYAFEFYKPRGKWWDGYSGNDVVVMDDFYGW
LPYDDLRLRITDRYPLRVEFKGGMTQFVAKTLIITSNREPRDWYKSEALYRRINKYLVYN

>19_Mulard_duck_circovirus_NP_877978
YKRWVFTLNNPTFEDYVHVLEFCTLDNCKFAIVGEEKGAPHLQGFNLNRSNARAAALEES
LGGRAWLSRARGSDDEDNEEYCAKESTYGRSSDLAEATSAVMAGVPLTEVARKFPPTYVIF
GRGLERLRHRDWKTEVIVLIGPPGTGKSRYAFEFYKPRGKWWDGYSGNDVVVMDDFYGW
LPYDDLRLRITDRYPLRVEFKGGMTQFVAKTLIITSNREPRDWYKSEALYRRINKYLVYN

>20_Duck_circovirus_ABY58003
YKRWVFTINNPTFEDYVHVLEFCTLDNCKFAIVGEEKGAPHLQGFNLNRSNARAAALEES
LGGRAWLSRARGSDDEDNEEYCAKESTYGRSSDLAEATSAVMAGVPLTEVARKFPPTYVIF
GRGLERLRHRDWKTEVIVLIGPPGTGKSRYAFEFYKPRGKWWDGYSGNDVVVMDDFYGW
VPYDDLRLRITDRYPLRVEFKGGMTQFVAKTLIITSNKEPRDWYRSEALYRRINKYLVYN

>21_Duck_circovirus_ABY58009
YKRWVFTINNPTFEDYVHVLEFCTLDNCKFAIVGEEKGAPHLQGFNLNRSNARAAALEES
LGGRAWLSRARGSDDEDNEEYCAKESTYGRSSDLAEATSAVMAGVPLTEVARKFPPTYVIF
GRGLERLRHRDWKTEVIVLIGPPGTGKSRYAFEFYKPRGKWWDGYSGNDVVVMDDFYGW
VPYDDLRLRITDRYPLRVEFKGGMTQFVAKTLIITSNKEPRDWYRSEALYRRINKYLVYN

>22_Duck_circovirus_ADX06804
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LGGRAWLSRARGSDDEDNEEYCAKESTYGRSSDLAEATSAVMAGVPLTEVARKFPPTYVIF
GRGLERLRHRDWKTEVIVLIGPPGTGKSRYAFEFYKPRGKWWDGYSGNDVVVMDDFYGW
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>23_Duck_circovirus_ACY25176
YKRWVFTINNPTFEDYVHVLEFCTLDNCKFAIVGEEKGAPHLQGFNLNRSNARAAALEES
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GRGLERLRHRDWKTEVIVLIGPPGTGKSRYAFEFYKPRGKWWDGYSGNDVVVMDDFYGW
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>24_Duck_circovirus_ADX06810
YKRWVFTINNPTFEDYVHVLEFCTLDNCKFAIVGEEKGAPHLQGFNLNRSNARAAALEES
LGGRAWLSRARGSDDEDNEEYCAKESTYGRSSDLAEATSAVMAGVPLTEVARKFPPTYVIF
GRGLERLRHRDWKTEVIVLIGPPGTGKSRYAFEFYKPRGMWWDGYSGNDVVVMDDFYGW
LPYDDLRLRITDRYPLRVEFKGGMTQFVAKTLIITSNREPRDWYKSEALYRRINKYLVYN

>25_Duck_circovirus_CAI82279
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LGGRAWLSRARGSDDEDNEEYCAKESTYGRSSDLAEATSAVMAGVPLTEVARKFPPTYVIF
GRGLERLRHRDWKTEVIVLIGPPGTGKSRYAFEFYKPRGKWWDGYSGNDVVVMDDFYGW
LPYDDLRLRITDPYPLRVEFKGGMTQFVAKTLIITSNREPRDWYKSEALYRRINKYLVYN

>26_Duck_circovirus_ABY58005
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GRGLERLRHRDWKTEVIVLIGPPGTGKSRYAFEFYKPRGKWWDGYSNDVVMDDFYGW
LPYDDLRLRITDRYPLRVEFKGGMTQFVAKTLIITSNREPRDWYKSEALYRRINKYLVYN

>27_Muscovy_duck_circovirus_ACZ56128
YKRWVFTINNPTFEDYVHVLEFCTLDNCKFAIVGEEKGAPHLQGFNLNRSNARAAALEES
LGGRAWLSRARGSDENEEYCAKESTYGRSSDLAEATSAVMAGVPLTEVARKFPPTYVIF
GRGLERLRHRDWKTEVIVLIGPPGTGKSRYAFEFYKPRGKWWDGYSNDVVMDDFYGW
LPYDDLRLRITDRYPLRVEFKGGMTQFVAKTLIITSNREPRDWYKSEALYRRINKYLVYN

>28_Duck_circovirus_ACB10224
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GRGLERLRHRDWKTEVIVLIGPPGTGKSRYAFEFYKPRGKWWDGYSNDVVMDDFYGW
LPYDDLRLRITDRYPLRVEFKGGMTQFVAKTLIITSNREPRDWYKSEALYRRINKYLVYN

>29_Goose_circovirus_ABA39153
YKRWVFTINNPTFEDYCAVVEFCNLDNCKFAIVGEEKGEPHLQGFSLRKNKAAALEEN
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GRGLERLRQRDWKTDVIVLIGRPGSGKSRYAFEFYKSRGKWWDGYNQDVMDDFYGW
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>30_Goose_circovirus_ABA39169
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GRGLERLRQRDWKTEVIVLIGRPGSGKSRYAFEFYKSRGKWWDGYNQDVMDDFYGW
LPYDDLRLRITDRYPLRVEYKGGMTQFVAKTLIITSNREPRDWYKCEALYRRINQYLILP

>31_Goose_circovirus_ABA39157
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GRGLERLRQRDWKTEVIVLIGRPGSGKSRYAFEFYKSRGKWWDGYNQDVMDDFYGW
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>32_Porcine_circovirus_1_AGU01996
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FRGLAELLKRDWKTAVHVIVGPPGCGKSQWARNFYWKSRNKWWDGYPHGEVVVLDDFYGW
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>33_Porcine_circovirus_1_ABM67071
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FRGLAELLKRDWKTAVHVIVGPPGCGKSQWARNFYWKSRNKWWDGYPHGEVVVLDDFYGW
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>34_Porcine_circovirus_1_AAW78479
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FRGLAELLKRDWKTAVHVIVGPPGCGKSQWARNFYWKSRNKWWDGYPHGEVVVLDDFYGW
LPWDDLRLRITDRYPLTVETKGGTVPFLARSILITSNQAPQEWYSSTALYRRITTLQFWK

>35_Porcine_circovirus_1_ABG37025
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LGARCHIEKAKGTDQONKEYCSKEGHIGKRSDLSTAVSTLLETGSLVTVAEQFPVITYVRN
FRGLAELLKRDWKTAVHVIVGPPGCGKSQWARNFYWKSRNKWWDGYPHGEVVVLDDFYGW
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>36_Porcine_circovirus_1_AAT72755
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FRGLAELLKRDWKTAVHVIVGPPGCGKSQWARNFYWKSRNKWWDGYPHGEVVVLDDFYGW
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>37_Porcine_circovirus_2_ADA79654
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FRGLAELLKRDWKTNVHVIVGPPGCGKSKWAANFYWKPRNKWWDGYHGEEVVVIDDFYGW
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>38_Porcine_circovirus_2_ADU77003
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FRGLAELLKRDWKTNVHVIVGPPGCGKSKWAANFYWKPRNKWWDGYHGEEVVVIDDFYGW
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>39_Porcine_circovirus_2_ABY56254
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FRGLAELLKRDWKTNVHVIVGPPGCGKSKWAANFYWKPRNKWWDGYHGEEVVVIDDFYGW
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>40_Porcine_circovirus_2_ADG07990
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FRGLAELLKRDWKTNVHVIVGPPGCGKSKWAANFYWKPRNKWWDGYHGEEVVVIDDFYGW
LPWDDLLRLCDRYPLTVETKGGTVPFLARSILITSNQTPLEWYSSTALYRRITSLVFWK
>41_Porcine_circovirus_2_CBK52350
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LGARCHIEKAKGTDQONKEYCSKEGNLQQRSDLSTAVSTLLESGSLVTVAEQYPVTFVRN
FRGLAELLKRDWKTNVHVIVGPPGCGKSKWAANFYWKPRNKWWDGYHGEEVVVIDDFYGW
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>42_Opossum_AAFR03007912_Endogenous
-----KRWCFTIKNKEYLKGISP-N-YFHYLIVGEEKQPHLQGYCNLKKQVRLPGVKKL
ISQRGHFEMARVSDENLRYFSEEDNIGKRTDLSRVVDHLLHKSLSQSVAKAFPEQFVKY
FCGFGALILREWKTEVIVVWVGGPPIGKSCLCHECYWKAHGKWWDG-----W
LPFDDLLHICDRYPLCVETKGGTQNFLAKTLCITSNKLPODWYREDALYGRIPQHFWT
>43_Dog_AOCS01198411_Endogenous
-----FTVNNLTDKGASCVECGQT--CCKYFRVSTEVGELRLLGHFH----KRLSALKVS
GFLRARFEPAHGTDEDRYRYCSKDG--GKRTD-----
-----FKISVPVRIGSWGEGQSRFFAEKVCIL-VNGGGGYRGOQALVIDDSNGW
IPYGEMLGLLDYRPHNVPINGAFVKFNSRCIFIASISPPCTWYSNEIVYICILKM----
>44_Cat_AANG02107753_Endogenous
---WCFTISNFTTE-----EKSEPCCLKGSANLNRRDLSLSALKKV
PGHRAHFEPARTRD-DNKKNCCKDGVLG----VHCGVTSREWWWTCSVWLMRYRPFPMKY
GRGFCDFVLDVGSKS-CL-----GQVPFCCWEVWVWLASGK-WGGYRGOQAVVTHDLNGC
IPYGEMLDFMDRYPHKV-----
>45_Cat_AANG02135671_Endogenous
-----AL-AM
VKNLAHFEPVRRRDEDNKKYCSSEGGH-PKRMD-QESAVELPQEKALKHLAKEMSVLFIKY
GSGLCDVFLQDLKTYVSFTVGLGCSVAEKCASSYKPRGEGWD-WAG-----DDF-GC
ILNDEMLHIRDRYP-----A
lignmentofhepadnaviralsequences:
>46_Crotalus_mitchellii_eSCV5

-----KMRDFKTEVHVIMGIPRCGKSKFCNELYWKPRGKWWDGYTGOEIVILDDYYGW
LPFDELLRLCDRYPYRVETKGGTVEFVSKTIYITSNKP-----A
lignmentofhepadnavirussequences:
>1_Crotalus_mitchellii_contig_93260_Endogenous
-----PNYKSLSRILPPIMSRLSD
FSEAFNHLPHHPESA AHFAYGFRKCPN-----TIADHIHCRLFCFAYMDDF

ISSHPNRKYLAASHSCIOCLQTYRIRINYD-IMPEPVQDIHYIGGIPKEHQEKINILK
EIDCKKWYDWKTI AHFIGHLSFLAGFSSQWSFLITLYAICNK-SDVQFSKWKQLLLKT
VKTLI-----FKQSRPIHQOEL-FLLFIIN---FVLYFVIVCL
LCTNALIIYHGCFCYVLCVTHWKQNL CYMASEDN PAD
>2_Crotalus mitchellii_contig_192207_Endogenous
TGKCFVLNKNKSDSSKRLVDFSQFSRGS AKLHFPKYWSPNHL SLARMLPNDMWRISLD
MSEAFYHIPMHPHSS THLVYGRK SAMVGLSPFLLTMLNLLATNIRWTIFCFAYMDDF
ILCHPNYNYIHAASSAICNHLQNLGIVINKDKMTLTPAKEIKYLGRPPQSYRKELIKLLN
DININHWYDWKCIQRFIGKLGFLVLTFTVYGYAILQPLYTAMSEHCDVRF TLYYKNVLIKV
VKSISITLRTKEKYPINFAVDACLEFRNDYPIHVKELLITLYVIVNFQPKAIETDSMY
VLHKHFNTLPFGLMMFAYDTMRHVRMYFVRSQDNIAD
>3_Cobra_Endogenous
-----NPNYKCLSRIPLNRSRISLE
FSEAFYHLLHHPGVC-HLVYRFRKCPMEIGLSPFNLTFTNAIVDHIYHKISCFTYLDDF
IHSHPNPKYLAATSHGSIQGLQTYGT LINYDKSTPEPIQDIHYIGIGI-EYQEKCTNILK
EIDSKKRYDWKIMQCLVGLNFLDGF SFFQWSFLIPLY-AIWNRSDIQFSK-YKQLLLKI
IKT-----FKQSRPIHQOELLGFFALLFILNLMLYFLIVCL
LCTNTLIIYHGSFPCYVPCTCI-NKTYVASEDNSAD
>4_Melopsittacus undulatus_JQ978780_Endogenous
TGWVFLVDKNS-DTEKARLVADFSQFSRGTNKVSFPKYWCPNLTTLRRIPLGMPRISLD
VSQAFYHLPLNPASGSRVLYYFRKAAMGVGISPFFLHLFSTALAAEISSRIWAFAYMDDF
LLCHPNSCYLN TVSHSVCRFLEELGVTINVDKSTPSPTRDINFLGQIPETMWDKLRVIE
KIKIGEQYDFKIVQRFVGHNLNWL PFTTRGCVELLSSMYQAITAKQNF SFSKTYKYVLYKV
TMGVCRLVLDPHAPRPLPRVATDATLTFSKQYPIHIQESLVVLLCRLMLHPICILT DSTF
VLHKRFGSLPWRFAILCEQCLKGTPLYFVPSKYNPAD
>5_Melopsittacus undulatus_JQ978777_Endogenous
TGWVFLVDKNS-DTEKARLVADFSQFSRGTNKVSFPKYWCPNLTTLRRIPLGMPRISLD
VSQAFYHLPLNPASGSRVLYYFRKAAMGVGISPFFLHLFSTALAAEISSRIWAFAYMDDF
LLCHPNSCYLN TVSHSVCRFLEELGVTINVDKSTPSPTRDINFLGQIPETMWDKLRVIE
KIKIGEQYDFKIVQRFVGHNLNWL PFTTRGCVELLSSMYQAITAKQNF SFSKTYKYVLYKV
TMGVCRLVLDPHAPRPLPRVATDATLTFSKQYPIHIQESLVVLLCRLMLHPICILT DSTF
VLHKRFGSLPWRFAILCEQCLKGTPLYFVPSKYNPAD
>6_Taeniopygia guttata_j_ABQF01007435_Endogenous
-----LGQILLMDMPIMSLD
VS-AFYHLPLNPVSAMQLVYYFLKNPVILVSVSFLPLFSS-LILNGCQSI-TLANK--F
LLCYTASCYLNLSHS-CCFLESIGIIINFDKCTSSPVEELKFPGTISDEKLIASEQV DK
QIDCSDFCYFKILQRLICQVTFGIPFTTYSKCV-QALYASII SKKKFIFCCKTLLHKMY
YQGV-EWKLEPKTSVSPKLATDAMLKFCRTRPIDIQEFLTASVAVSLIKPQSLICDSTF
VCRKYLRFLPWRFALWARQTL SQVKVYWTPAKFNSAD
>7_Taeniopygia guttata_i_ABQF01038718_Endogenous
TGWFLVDKNSRNIKEARLVVVF SHFSQGNLSFPKYWAPNLCALSRIPLLEMFVWVSLD
VSQVFYHLPMTSPATRLTYSFRKAPMRVGLSPFLLHLFSTALTAKISHWIWAFAYMD-F
LLSHPRHCYLATASHAVCSFLOQLGIRIN YDKATPSPVCEILFLGQIPDEQWTKTRQKIK
KISTTKEYDWKILQRLVGHNLNFLIPFTTRFSICVLQPMYRAITVKCNFVFSKTYCAVLLKM
LDHRYKWKINLKPSIPIQLATDATP DFSKERHIHQE LLMVLCARLMIRPRSLLCDNHF
VCHKKFGTLPWLFALYANILLKKTLLHFVPSKYNPAD
>15_Parrot hepatitis B virus_J-274029
TGRIFLVDKNSRNTTEARLVDFSQFSKQNALRFPKYWSPNLSTLRRILPVGMRISLD
LSQAFYHIPLNPASGSRVLYYFRKTPMGVGISPFFLHLFSA AIGSEISRRIWTF TYMDDF
LLCHPNARHLNAVSHAVCTFLQEFGIRINFDKMTSPVTTIRFLGQIEDSRWTELRTVIK
KISVKGWYDWKCIQRLIGHIQFVLPFTKGNSEMLKPMYLAVKEQVNF SFSRYRNLLYKL
TMGVCRLTLNPKVSLPLPRVATDATLTFSKVRDIHQE LLMSC LAMLMIKPRCLLS DSTF
VCHKRYMTLPWNFAVLSKQLLGKVP IYYVPSKYNPAD
>16_Parrot hepatitis B virus_J-274023
TGRIFLVDKNSRNTTEARLVDFSQFSKQNALRFPKYWSPNLSTLRRIVPVGMRISLD

LSQAFYHIPLNPASGSRLVYYFRKTPMGVGISPFFLHLFSAAGSEISRRIWTFYMDDF
LLCHPNARHLNAVSHAVCTFLQEFGIRINFDKMTSPVTTIRFLGQIEDTRWTELNRVIK
KISVGKWDWKCIQRLIGHIQFVLPFTKGNSEMLKPMYLAVKEQVNFSSRYRNLLYKL
TMGVCRLTLNPKVSLPLPRVATDATLTFKVRDIHVQELLMSCSLAMLMIKPRCLLSDSTF
VCHKRYMTLPWNFAVLSKQLLSKVPIYYVPSKYNPAD

>17_Parrot hepatitis B virus_J-274030

TGRIFLVDKNSRNTEEARLVVDFSQFSKGNALRFPKYWSPNLSTLRRILPVGMRISLD
LSQAFYHIPLNPASGSRLVYYFRKTPMGVGISPFFLHLFSAAGSEIARRIWTFYMDDF
LLCHPNARHLNAVSHAVCTFLQEFGIRINFDKMTSPVTTIRFLGQIEDARWTELRTVIK
KISVGKWDWKCIQRLIGHIQFVLPFTKGNSEMLKPMYLAVKEQVNFSSRYKNLLYKL
TMGVCRLTLNPKVSLPLPRVATDATLTFKVRDIHIQELLMSCSLAMLMIKPRCLLSDSTF
VCHKRYMTLPWNFAVLSKQLLGKVPPIYYVPSKYNPAD

>18_Ross' goose hepatitis B virus_AY494849

TGRIFLVDKNSRNTEEARLVVDFSQFSKGNAMRFPKYWSPNLSTLRRILPMGMPRISLD
LSQAFYHPLNPASSRSLVYYFRKAPMGVGLSPFLLHLFTTALGSEISRRVWTFYMDDF
LLCHPNARHLNAISHAVCSFLQELGVRINFDKTPSPVTEIKFLGKIEDQRWNELRQVIK
KIQVGKWDWKCIQRFIGHLNFILPFTKGNVEMLKPMYHAVTHRNVNFSSSYRTLLYKL
TMGVCKLRLNPKVSLPLPRVATDATLTFKVRDIHIQELLMACSLAKLMIKPRCLLTDSTF
VIHKRYQTLPWHFVAVLAKQLMQNIQLYFVPSKYNPAD

>19_Snow goose hepatitis B virus_AF110996

TGKFLVDKNSRNTEEARLVVDFSQFSKGNAMRFPKYWSPNLSTLRRILPVGMPRISLD
LSQAFYHPLNPASSRSLVYYFRKAPMGVGLSPFLLHLFTTALGSEISRRVWTFYMDDF
LLCHPNARHLNSISHAVCTFLQELGIRINFDKTPSPVNEIRFLGRIEESRWKELRTVIK
KIKPGEWYDWKCIQRFVGHNLNFVLPFTKGNIEMLKPMYAAITNKVNFSSAYRTLLYKL
TMGVCKLQINPKSSVPLPRVATDATPTFSKVRDIHIQELLMVCLAGIMIKPRCILSDSTF
VCHKRYQTLPWHFAMYAKQLLSPIQLYFVPSKYNPAD

>20_Heron hepatitis B virus_M22056

TGRIFLVDKNSRNTEEARLVVDFSQFSKGNAMRFPKYWCPNLSTLRRILPVGMPRISLD
LSQAFYHPLAPASSRSLVYYFRKAPMGVGLSPFLLHLFTTAIGAEIASRVWTFYMDDF
LLCHPSARHLNTISHAVCTFLQEFGIRINFDKMTSPVTTIRFLGKIEESRWNELRRTVIK
KIKVGQWYDWKCIQRFIGHLNFVLPFTKGNIEMLKPMYDACTHRVNFVAFSSRYKILLYKL
TMGVCKLTLDPKVSPLPRVATDATLTFKVRDIHIQELLMVCLAKLMIKPRCILTDSTY
VCHRKFSKLPWHFAMYAKQLLTRLTLYYVPSKYNPAD

>21_Snow goose hepatitis B virus_AF110998

TGKFLVDKNSRNTEEARLVVDFSQFSKGNAMRFPKYWSPNLSTLRRILPVGMPRISLD
LSQAFYHPLNPASSRSLVYYFRKAPMGVGLSPFLLHLFTTALGSEISRRVWTFYMDDF
LLCHPNARHLNSISHAVCTFLQELGIRINFDKTPSPVNEIRFLGKIEESRWKELRTVIK
KIKPGEWYDWKCIQRFVGHNLNFVLPFTKGNIEMLKPMYAAITNKVNFSSAYRTLLYKL
TMGVCKLQINPKSSVPLPRVATDRTPFSKVRDIHIQELLMVCLARIMIKPRCILSDSTF
VCHKRYQTLPWHFAMYAKQLLSPIQLYFVPSKYNPAD

>22_Parrot hepatitis B virus_J-274019

TGRVFLVDKNSRNTEEARLVVDFSQFSKGNALRFPKYWSPNLSTLRRIVPVGMYRISLD
MSQAFYHIPINPASGSRLVYYFRKAPMGVGLSPFLLHLFTTAIGSEIARRIWTFYMDDF
LLCHSNPRYLNNAVSHAVCTFLQEYGIRINFDKTPQPVKTIRFLGKIEESRWMDLRQIIK
KIVVGKWDWKCIQRFIGHLQFVLPFTKGNSEMLKPLYAAVTNQVNFVAFSSRFKILLYKL
TMGVSKLKLNPVTLPLPRVATDATLTFKVRDIHIQELLMSCSLAMLMIKPRCLLSDSTF
VCHKRYMTLPWHFAMFAKQLLTKVPVYFVPSKYNPAD

>23_Duck hepatitis B virus_DQ276978

TGKFLVDKNSRNTEEARLVVDFSQFSKGNAMRFPKYWSPNLSALRRILPLGMPRISLD
LSQAFYHPLNPASSRSLVYYFRKAPMGVGLSPFLLHLFTTALGSEIARRVWTFYMDDF
LLCHPNARHLNSISHAVCSFLQELGIRINFDKTPSPVNEIRFLGKIEESRWSELRTVIK
KIKVGEWYDWKCIQRFVGHNLNFVLPFTKGNVEMLKPMYAAITHKVNFSSAYRTLLYKL
TMGVCKLSIKPKSSVPLPRVATDATPTFSKVRDIHIQELLMVCLARIMIKPRCILSDSTF
VCHKRYQALPWHFVAVLAKQLLSPIPLYFVPSKYNPAD

>24_Crane hepatitis B virus_AJ441113

TGRLFLVDKNSRNTEEARLVVDFSQFSKGNAMHFPRYWSPNLSTLRRILPVGMPRISLD
LSQAFYHLPLNPASSSRLVYYFRKAPMGVGLSPFLLHLFTTALGTEISRRVWTFYMDDF
LLCHPNARHLNAISHAVCTFLOELGIRINFDKMTPSPVNEIRFLGKIEESRWIELRQVIK
KIQIGQWYDWKCIQRFVGHNLNFVLPFTKGNIEFMFKPMYAAITNQVNFSSAYRTLLYKL
TMGVCKLRLKPKASVPLPRVATDATPTFSKVRDIHVQELLMTCLAKLMIKPRCLLSDSTF
VCHKRYQTLPWHPAMFAKQLLKNIQLYFVPSKYNPAD

>25_Ross' goose hepatitis B virus_AY494849

TGRIFLVDKNSRNTEEARLVVDFSQFSKGNAMRFPKYWSPNLSTLRRILPMGMPRISLD
LSQAFYHLPLNPASSSRLVYYFRKAPMGVGLSPFLLHLFTTALGSEISRRVWTFYMDDF
LLCHPNARHLNAISHAVCSFLQELGVRINFDKTTPSPVTEIKFLGKIEDQRWNELRQVIK
KIQVGKQWYDWKCIQRFVGHNLNFILPFTKGNVEMLKPMYHAVTHRNVNFSFSSSYRTLLYKL
TMGVCKLRLNPKVSLPLPRVATDATLTFKVRDIHIQELLMACLAKLMIKPRCLLTDSTF
VIHKRYQTLPWHPAVLAKQLMQNIQLYFVPSKYNPAD

>26_Heron hepatitis B virus_M22056

TGRIFLVDKNSRNTEEARLVVDFSQFSKGNAMRFPKYWCPNLTTLRRILPVGMPRISLD
LSQAFYHLPLAPASSSRLVYYFRKAPMGVGLSPFLLHLFTTAIGAEIASRVWTFYMDDF
LLCHPSARHLNTISHAVCTFLOEFGIRINFDKMTPSPVTTIRFLGKIEESRWNELRVVIK
KIKVGQWYDWKCIQRFVGHNLNFVLPFTKGNIEMLKPMYDACTHRVNFASFSSRYKILLYKL
TMGVCKLTLDPKVSPLPRVATDATLTFKVRDIHIQELLMVCLAKLMIKPRCILT DSTY
VCHRKFSKLPWHPFAMYAKQLLTRLTLTYVPSKYNPAD

>27_Snow goose hepatitis B virus_AF111000

TGKFLVDKNSRNTEEARLVVDFSQFSKGNAMRFPKYWSPNLTTLRRILPVGMPRISLD
LSQAFYHLPLNPASSSRLVYYFRKAPMGVGLSPFLLHLFTTALGSEISRRVWTFYMDDF
LLCHPNARHLNSISHAVCTFLOELGIRINFDKTTPSPVNEIRFLGKIEESRWKELRTVIK
KIKPGEWYDWKCIQRFVGHNLNFVLPFTKGNIEMLKPMYAAITNKVNFSSAYRTLLYKL
TMGVCKLQINPKSSVPLPRVATDATPTFSKVRDIHIQELLMVCLARIMIKPRCILSDSTF
VCHKRYQTLPWHPFAMYAKQLLSPIQLHFVPSKYNPAD

>28_Stork hepatitis B virus_AJ251937

TGRIFLVDKNSRNTEEARLVVDFSQFSKGNAMRFPKYWSPNLTALRRIVPLGMPRISLD
LSQAFYHLPLNPASSSRLVYYFRKAPMGVGLSPFLLHLFTTAIGAEISRRVWTFYMDDF
LLCHPSARHLNSISHAVCTFLOEFGIRINFDKMTPSPVTTIRFLGKIEESRWNELRQVIK
KIKVGQWYDWKCIQRLIGHNLNFVLPFTKGNVEMLKPMYDACTHRVNFASFSSRYKILLYKL
TMGVCKLTLKPKSSLPLPRVATDATLTFKVRDIHVQELLMVCLARLMIKPRCILT DSTY
VCHRFKNKLPWHPFAMYAKQLLTRLTLTYVPSKYNPAD

>29_Duck hepatitis B virus_AY494851

TGKFLVDKNSRNTEEARLVVDFSQFSKGNAMRFPKYWSPNLTTLRRILPVGMPRISLD
LSQAFYHLPLNPASSSRLVYYFRKAPMGVGLSPFLLHLFTTALGSEISRRVWTFYMDDF
LLCHPNARHLNAISHVCSFLQELGVRINFDKTTPSPVNEIRFLGKIEESRWKELRTVIK
KIKIGEWYDWKCIQRFVGHNLNFVLPFTKGNIEMLKPMYAAITNQVNFSSAYRTLLYKL
TMGVCKLQIKPKSSVPLPRVATDATPTFSKVRDIHVQELLMTCLAKIMIKPRCLLSDSTF
VCHKRYQTLPWHPAMFAKQLLKIPLYFVPSKYNPAD

>30_Woolly monkey hepatitis B virus_AY226578

TGGVFLVDKNPHNATESRLVVDFSQFSRGNTSVSWPKFAVNLQSLTNLLSTDLSWVSLD
VSAAFYHLPLHPASMPHLIMGFRKVPMLGLSPFLLAQFTSAICS-VVRRCMFAFSYMDDV
VLGAKSVQHLESLLASVTTFLALGIHLNPEKTKRWG-RALNFMGLPQQHIRDKIALCFQ
KLPCNRPIDWKVCQRIVGLLGFVAPFTQCGYAALMPIYTCIQKHQAFTFSLVYKTFKLDQ
YMHLYPVARQRAGHCQVFA---DATPTFLSPLPIHTAELLAACFARCWSGAKLIGTDNAV
VLSRKYTHFPWLLGCAATWILRGTCFVYVPSKLN PAD

>31_Arctic ground squirrel hepatitis B virus_AGU29144

TGGVFLVDKHPHNSSESRLVVDFSQFSRGHTRVHWPKFVAVLNLQALANLLSTNLQWLSLD
VSAAFYHIPVSPAAPVPHLIMGFRKLPMPGVGLSPFLLAQFTSALAS-MVRRCVAFAYMDDL
VLGARTHEHLTAIYSHICSVFLDLGIHLNVAKTKWWG-HHLHFMGLPQDKHVQKVSTYLK
SIPLNKPLDYKICERLTGILNYVAPFTKCGYAALLPLYQATS-RTAFVFSVLYHSWLLSL
YaelwPVARQRGVVCSVS----DATPTGAFALPIATADVIAACLARCWTGARLLGTDNSV
VLSGKLTSPWLLACVANWILRGTSFCYVPSAANPAD

>32_Hepatitis B virus isolate_AY330912
TGGVFLVDKNPHNTAESRLVVDFSQFSRGS TRVPWPKF AVPNLQSLTNLLSTNLSWLSLD
VSAAFYHLP LHPAAMPHLILGFRKIPMGVGLSPFLLAQFTSAICS-VVRRCLAFSYMDDV
VLGAKSVQHLES LYTAVTNFLLSLGIHLNPNKTKRWG-YSLHFMGLPQNHIVQKIKQCFR
KLPVNRPIDWKVCQRIVGLLGFAAPFTQCGYPALMPLYACIQAKQAF TFSPTYKAFLSQ
YSTLYPVARQRFGLCQVFA---DATPTFVAPLPIHTAELLAACFARSRSGANIIGTDNSV
VLSRKYTSFPWLLGCAANWILRGTSFVYVPSALNPAD

>33_Hepatitis B virus_AJ131574
TGGVFLVDKNPHNSTESRLVVDFSQFSRGS TRVSWPKF AVPNLQSLTNLLSSNLSWLSLD
VSAAFYHLP LHPAAMPHLVLGFRKIPMGVGLSPFLLAQFTSAICS-VVRKCLAFNYMDDV
VLGAKSVQHLES LYTAVTNFLLSLGIHLNPTKTKRWG-YSLNFMGLPQEHIVYKIKQCFK
KLPVNRPIDWKVCQRIVGLLGFAAPFTQCGYPALMPLYACIQAKQAF TFSPTYKAFLRQ
YLTLYPVARQRPGLCQVFA---DATPTFVAPLPIHTAELLAACFARSRSGANLIGTDNSV
VLSRKYTSFPWLLGCAANWILRGTSFVYVPSALNPAD

>34_Hepatitis B virus_AJ131567
TGGVFLVDKNPHNTAESRLVVDFSQFSRGS TRVPWPKF AVPNLQSLTNLLSSNLSWLSLD
VSAAFYHLP LHPAAMPHLVLGFRKIPMGVGLSPFLLAQFTSAICS-VVRRCLAFSYMDDV
VLGAKSVQHLES LYTAVTNFLLSLGIHLNPTKTKRWG-YSLNFMGLPQEHIVQKIKHCFR
KIPVNRPIDWKVCQRIVGLLGFAAPFTQCGYPALMPLYACIQAKQAF TFSPIYKAFLSKQ
YATLYPVARQRAGLCQVFA---DATPTFVAPLPIHTAELLAACFARSRSGANIIGTDNSV
VLSRKYTSFPWLLGCAANWILRGTSFVYVPSALNPAD

>35_Ground squirrel hepatitis virus_NC_001484
TGGIFLVDKNPNYNSESRLVVDFSQFSRGS RVHWPKF AVPNLQTLANLLSTNLQWLSLD
VSAAFYHIPVSPA AVPHFIMGFRKIPMGVGLSPFLLAQFTSALTS-MVRRCLAFAYMDDL
VLGARSYEH LTA VYSHICSVFLDLGIHLNVEKTKWWG-HTLHFMGLPQDKHVHKVT TYLK
SIPINQPLDYKICERLTGILNYVAPFTKCGYAALLPLYQAIASHTAFV FSSLYKNWLLSL
YGELWPVARQRGVVCSVFA---DATPTFGFSLPIATAELIAACLARCWTGARLLGTDNSV
VLSGKLTSPWLLACVANWILRGTSFCYVPSADNPAD

>36_Hepatitis B virus_FJ787490
TGGVFLVDKNPHNTTESRLVVDFSQFSRGS TRVSWPKF AVPNLQSLTNLLSSNLSWLSLD
VSAAFYHIP LHPAAMPHLILGFRKIPMGVGLSPFLMAQFTSAICS-VVRRCLVFSYIDDV
VLGAKSVQHLES LFTAITNFLLSLGIHLNPHRTRRWG-YSLNFMGLPQEHIVQKIKQCFR
KLPINRPID-KVCQRIVGLLGFAAPFTQCGYPALMPLYTCIQSKQAF TFSPTYKAFLCKQ
YLNLYPVARQRSGLCQVFA---DATPTFVAPLPIHTAELLAACFARSRSGAKLIGTDNSV
VLSQKYTSFP-LLGCAANWILRGTSFVYVPSALNPAD

>37_Orangutan hepatitis B virus_AF193864
TGGVFLVDKNPHNSSESRLVVDFSQFSRGS TSVSWPKF AVPNLQSLTNLLSSNLSWLSLD
VSAAFYHIP LHPADMPHLIMGFRKIPMGVGLSPFLLAQFTSAICS-VVRRCLAFSYMDDM
VLGAKSVQHLES LYTAVTNFLLSLGIHLNPSKTKRWG-YSLHFMGLPQDHIVQKIKHCFR
KLPVNRPIDWKVCQRIVGLLGFAAPFTQCGYPALMPLYNCIQNRQAF TFSPTYKAFLRTO
YLTLYPVARQRPGMCQVFA---DATPTFVAPLPIHTAELLAACFARSRSGANIIGTDNSV
VLSRKYTSFPWLLGCAANWILRGTSFVYVPSALNPAD

>38_Woodchuck hepatitis B virus_AY628098
TGGVFLVDKNPNNSSESRLVVDFSQFSRGS TRVHWPKF AVPNLQTLANLLSTDLOWLSLD
VSAAFYHIP I SPA AVPHLIMGFRKIPMGVGLSPFLLAQFTSALAS-MVRRCVVFAYMDDL
VLGARTSEHLTAIYTHICSVFLDLGIHLNVNKTWWG-NHLHFMGLPQDKHVKKLSRYLR
SVPVNQPLDYKICERLTGILNYVAPFTLCGYAALMPLYHAIASRTAFV FSSLYKSWLLSL
YEELWPVVRQRGVVCSVFA---DATPTFAFPLPIATAELIAACLARCWTGARLLGTDNSV
VLSGKLTSPWLLACVANWILRGTSFCYVPSALNPAD

>39_Bat hepatitis virus_472438220
TGGVFLVDKNPGNRQESRLVVDFSQFSRGS DTRVHWPKF AVPNLQSLTNLLSTNMHWLSLD
VAAAFYHIP LSSAAMCHLIMGFRKIPMGVGLSPFLLAQFTSALAS-LVRRCMAF TYMDDV
VLGAKSPHHLRALHTSVCSLFRDLGIVVNP TKTKWWG-KHLHFMGLPQDKHHQKALKLIS
SLPVNKPLDWKILQRITGLLGFLAPFTTCGYPALMPLYHAITRRQALKI SWPFKNFLYSL
YKQPLPVIRQKPAICQVFA---DATPTFPRPLPIHCAELIAACLARRWTGARVIGTDNSI

VASGKRTSFPWLLGCVANWMLRGTSFCFVPSALNPAD
>40_Bat_hepatitis_virus_460417887
TGGVFLVDKNPGRQESRLVVDFSQFSRQDTRVHWPKFVAVPNLQSLTNLLSTNMHWLSLD
VAAAFYHIPLSSAAMCHLIMGFRKIPMGVGLSPFLLAQFTSALAS-LVRRCMFTYMDDV
VLGAKSPHLLRALHTSVCSLFRDLGIVVNPTKTKWWG-KHLHFMGLPQDKHHQKALKLIS
SLPVNKPLDWKILQRITGLLGFLAPFTTCGYPALMPLYHAITRRQALKISWPFKNFLYSL
YKQPLPVIRQKPAICQVFA---DATPTFFRPLPIHCAELIAACLARRWTGARVIGTDNSI
VASGKRTSFPWLLGCVANWMLRGTSFCFVPSALNPAD
>8_Crane_hepatitis_AJ441112
TGRLFLVDKNSRNTTEEARLVVDFSQFSKGKNAMEHFPYRWSPNLSTLRRILPAGMPRISLD
LSQAFYHLPLNPASSRSLVYYFRKAPMGVGLSPFLHLFTTALGTEISRRTVFTYMDDF
LLCHPNARHLNAISHAVCTFLQELGIRINFDMTPSPVNEIRFLGKIEESRWIELRQVIK
KIQIGQWYDWKCIQRFVGHNLNVLFPFTKGNIEFMKPMYAAITNQVNFSSAYRTLLYKL
TMGVCKLRLKPKASVPLPRVATDATPTFSKVRDIHVQELLMTCLAKLMIKPRCLLSDSTF
VCHKRYQTLPWHFAMFAKQLLKNIQLYFVPSKYNPAD
>9_Duck_hepatitis_B_virus_-58569
TGKFLVDKNSRNTSEARLVVDFSQFSKGKNAMEHFPYRWSPNLSTLRRILPVGMPRISLD
LSQAFYHLPLNPASSRSLVYYFRKAPMGVGLSPFLHLFTTALGSEIARRVWFTYMDDF
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Supplemental Dataset 5

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>C. aquilus_eSCV3

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Supplemental Dataset 9

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Supplemental Dataset 10

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Supplemental Dataset 11

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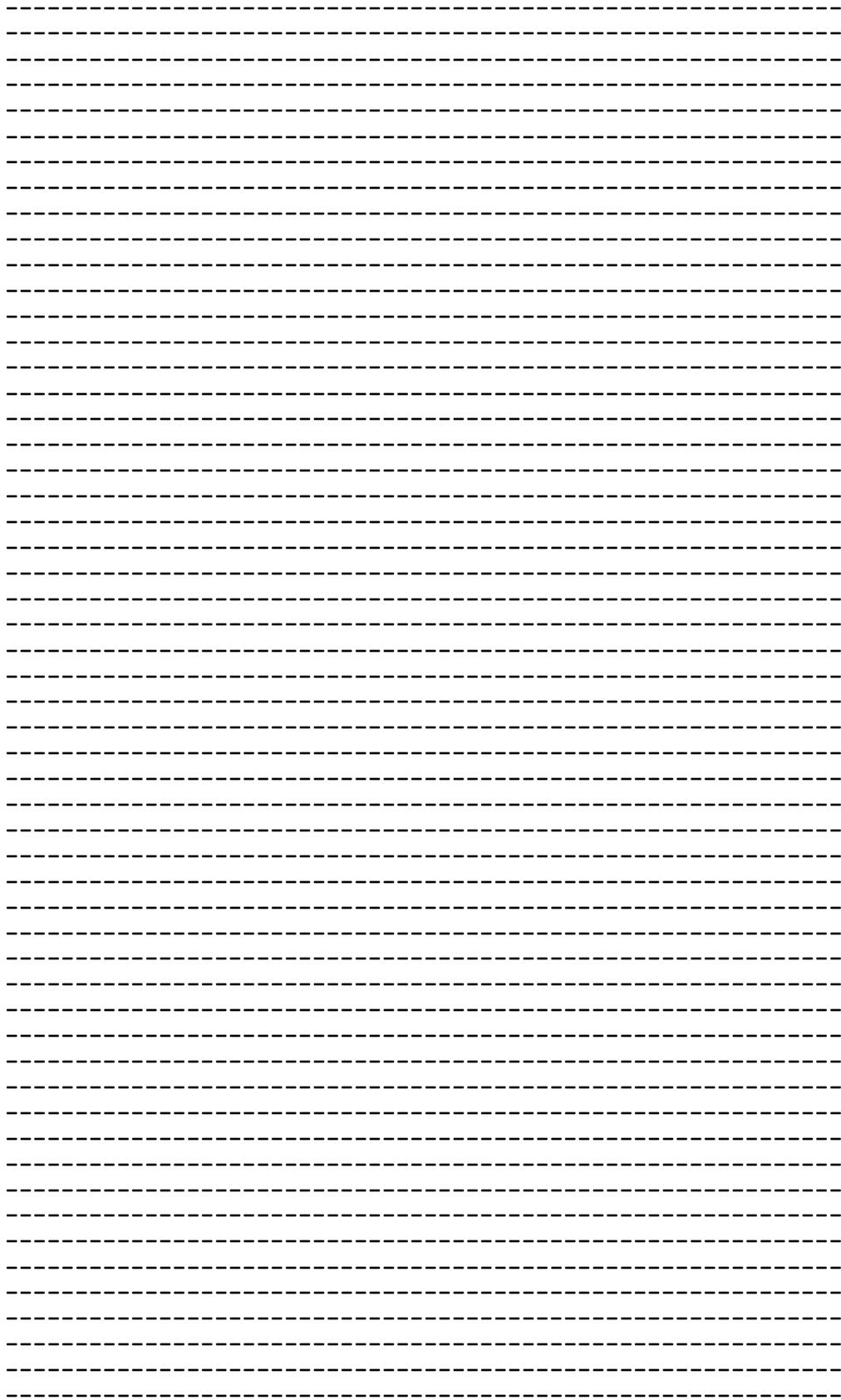


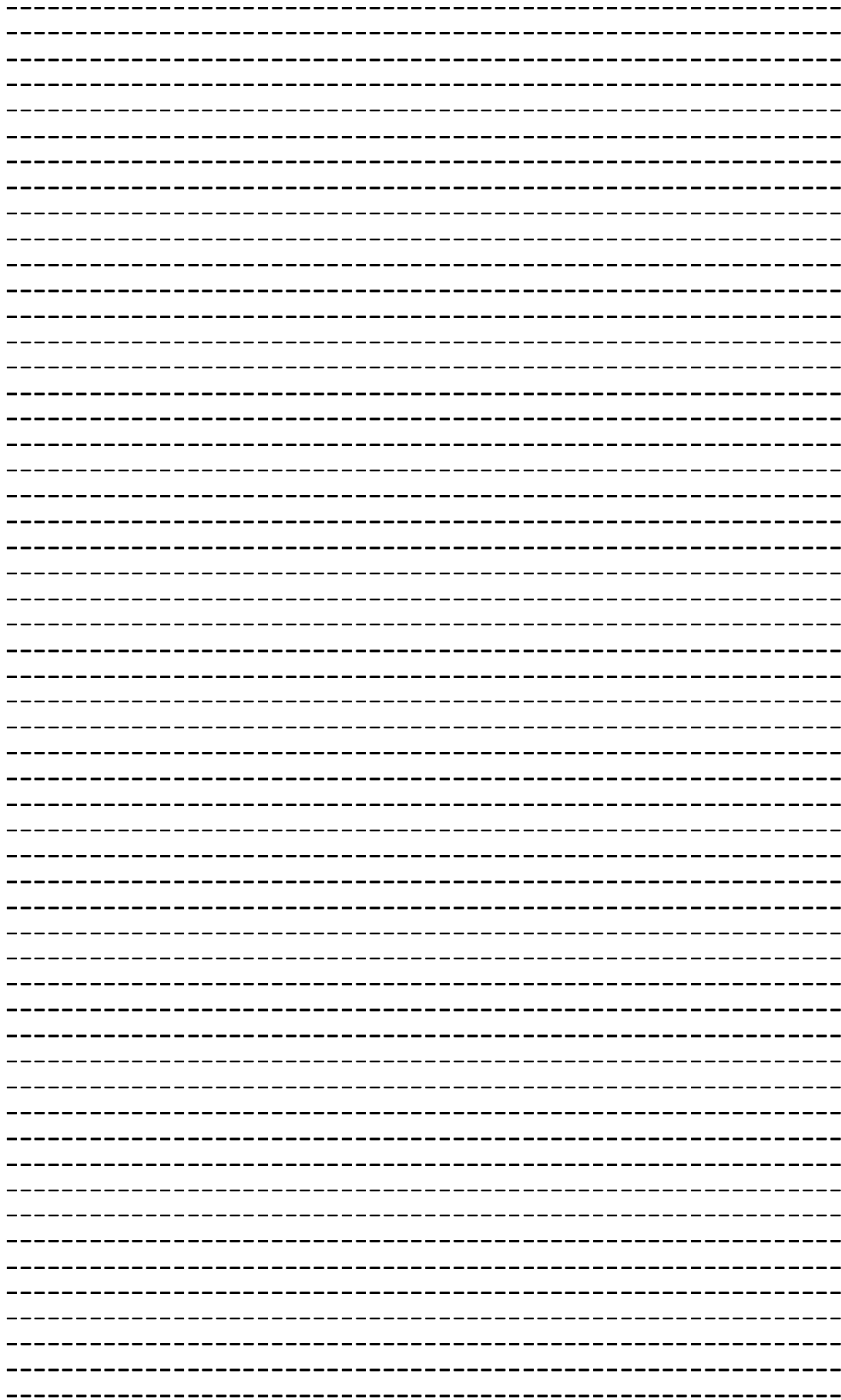
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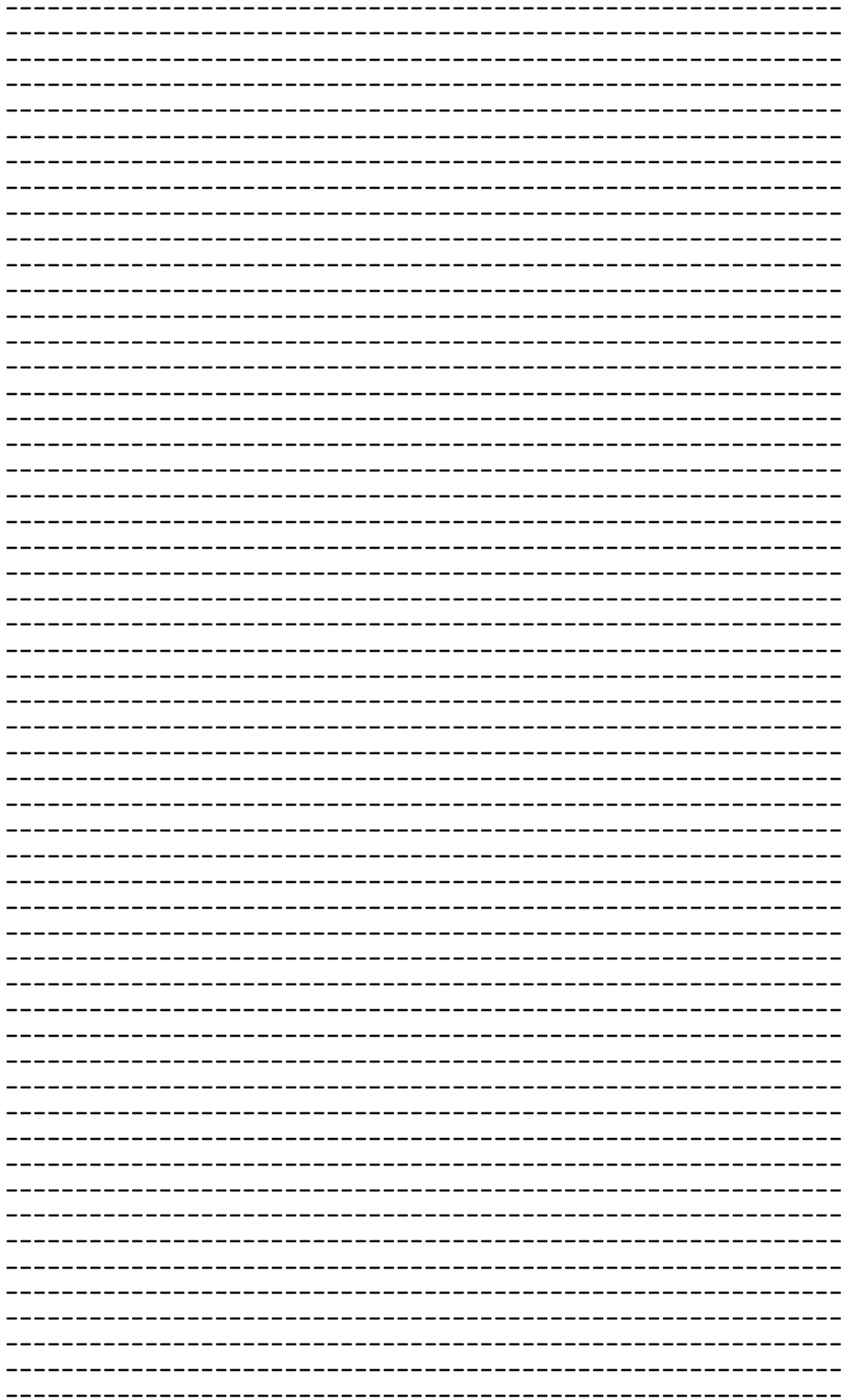
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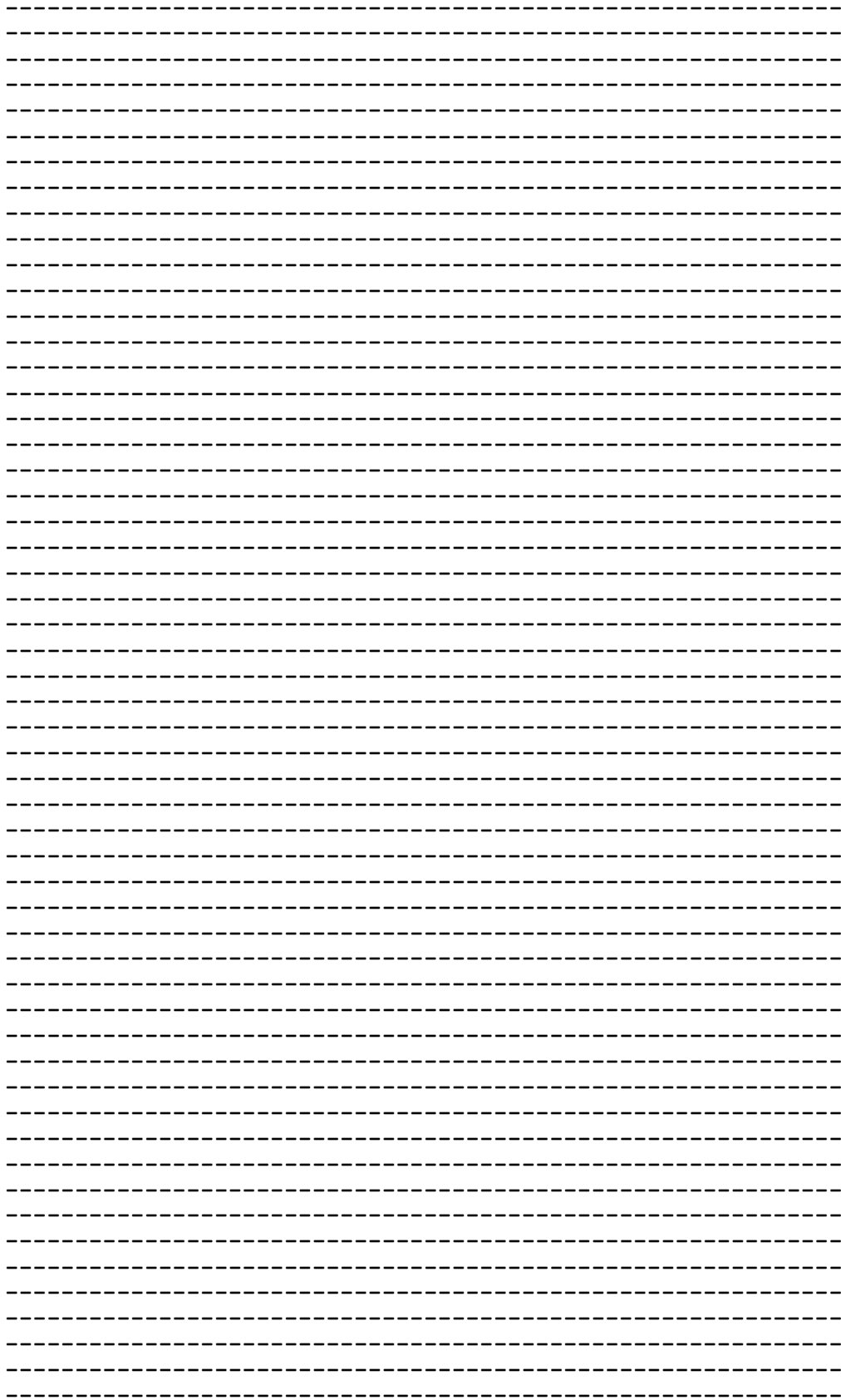
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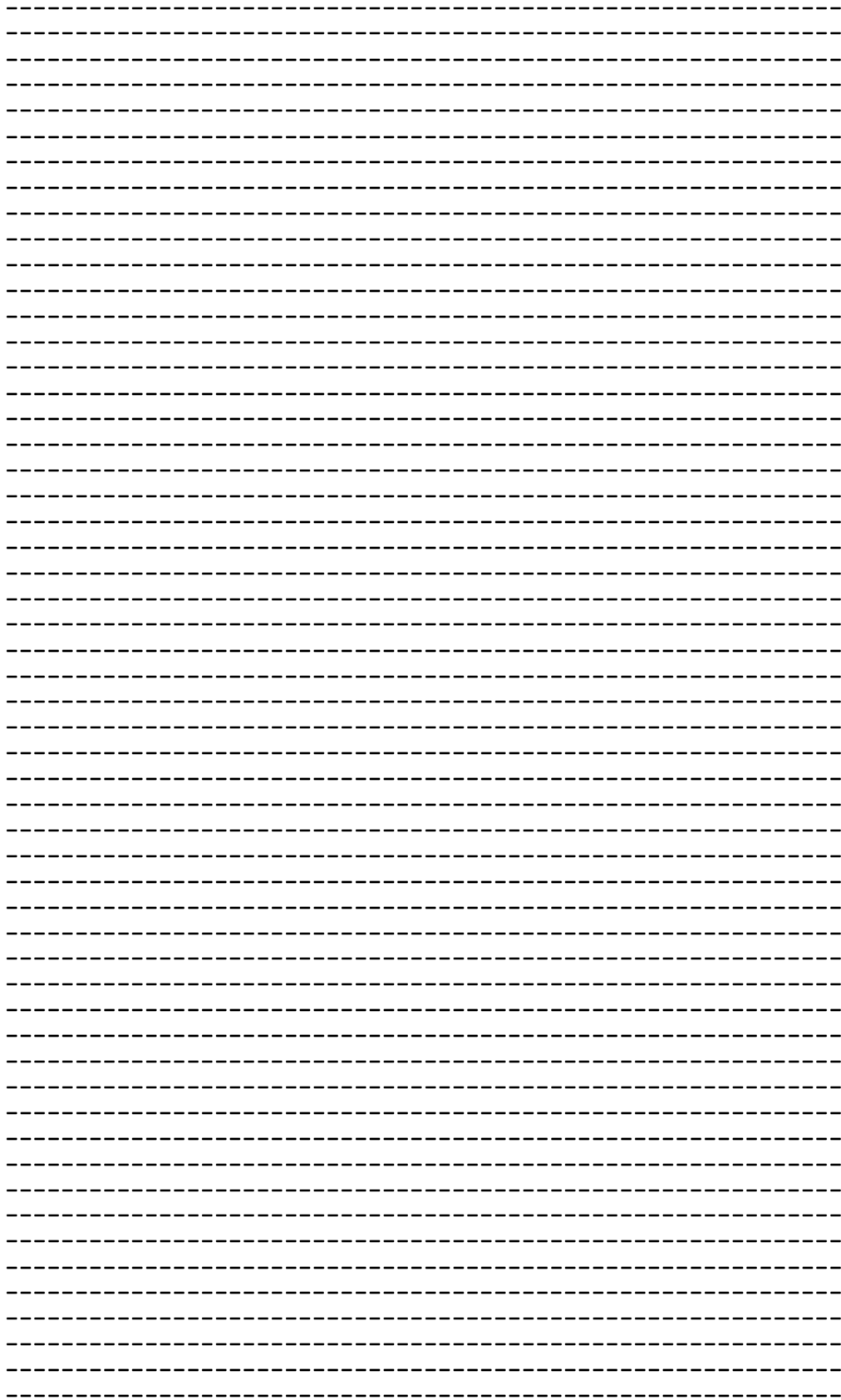














## Supplemental Dataset 12

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GATACCATGAGACACGTATGCATGTACTTTGTCCGAAGTCAAGATAACATCGCTGATCGG  
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TTCTTTAA

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-----TTCCCCTCTGCTAATAGAAGTGCTGTTTTATATTTTATTTACT  
AGTGAACTTTGCTACTAAGAAGATCAGAAGTTAGTTATCTCAGCCAGTTTTTAATAATAC  
TGATAGCGATAGAACAGGAAGGGAAGGGAGATCTAAGAGGAGAGACTGAGTAAATAATTT  
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GGGTATTGACATAATAAAGAGAGATAACACCGGGGAAATTTATGTTTTAAAAGGCT

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TTCTTGGAACCACTCAGTTCCTCCCTGATAATAGAGGAGCGGTTTTATGTTCTTCTTACT  
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