

## *Supplementary Material*

- 1 Supplementary Data.** Multiple sequence alignment of protein sequences of ACE-2 (angiotensin converting enzyme 2) of human, domestic and laboratory animals, and selected wild animal species. Multiple sequence alignment was performed using Clustal Omega tool available at <https://www.ebi.ac.uk/Tools/msa/clustalo/> from the European Bioinformatics Institute (EMBL-EBI) using default parameters. In bold are highlighted conserved amino acid residues of the 22 amino acid positions of the human ACE-2 that have been identified to interact with the receptor binding domain of the SARS-CoV-2 (Severe Acute Respiratory Syndrome Coronavirus 2) (Shang et al., 2020). Accession numbers of protein sequences: NP\_001358344.1 (Human, *Homo sapiens*); NP\_001116542.1 (Pig, *Sus scrofa*); NP\_001019673.2 (Cow, *Bos taurus*); NP\_001158732.1 (Domestic dog; *Canis lupus familiaris*); NP\_001034545.1 (Domestic cat, *Felis catus*); XP\_416822.2 (Chicken; *Gallus gallus*); XP\_011961657.1 (Sheep; *Ovis aries*); XP\_003503283.1 (Chinese hamster; *Cricetulus griseus*); NP\_001123985.1 (Mice, *Mus musculus*); XP\_002719891.1 (Rabbit; *Oryctolagus cuniculus*); XP\_016798468.1 (Chimpanzee, *Pan troglodytes*); NP\_001129168.1 (Rhesus monkey; *Macaca mulatta*); NP\_001297119.1 (European domestic ferret, *Mustela putorius furo*); XP\_005074266.1 (Golden Syrian hamster, *Mesocricetus auratus*); XP\_001490241.1 (Horse, *Equus caballus*); XP\_017505752.1 (Pangolin, *Manis javanica*); XP\_032963186.1 (Greater Horseshoe bat; *Rhinolophus ferrumequinum*). Overall protein identity/similarity against human ACE-2 of Chimpanzee = 99.0%/99.4%; Rhesus monkey = 94.9%/97.5%; Golden Syrian hamster = 84.5%/91.7%; domestic cat = 81.7%/88.3%; cow = 81.0%/90.6%; sheep = 81.7%/90.8%; rabbit = 85.2%/92.8%; Chinese hamster = 84.3%/91.6%; pangolin = 84.8%/91.3%; domestic dog = 83.5%/91.8%; horse = 86.8%/93.4%; pig = 81.4%/90.7%; ferret = 82.6%/91.6%; mice = 82.1%/89.6%; greater horseshoe bat = 81.5%/90.3%; chicken = 65.6%/79.3%. Pairwise protein identities and similarities were calculated using Needleman-Wunsch algorithm from the European Bioinformatics Institute (EMBL-EBI) available at [https://www.ebi.ac.uk/Tools/psa/emboss\\_needle/](https://www.ebi.ac.uk/Tools/psa/emboss_needle/) using default parameters.

Homo sapiens	MSSSSWLLLSLVAVTAAQ <b>ST</b> IEE <b>QAKTFLDKFNHEAEDLFYQSS</b> LASWNYNTNITEENVQ
Macaca mulatta	MSGSSWLLLSLVAVTAAQ <b>ST</b> IEE <b>QAKTFLDKFNHEAEDLFYQSS</b> LASWNYNTNITEENVQ
Pan troglodytes	MSGSSWLLLSLVAVTAAQ <b>ST</b> IEE <b>QAKTFLDKFNHEAEDLFYQSS</b> LASWNYNTNITEENVQ
Rhinolophus sp	MSGSSWLLLSLVAVTAAQ <b>ST</b> TEDLAK <b>FLDDFNSEAENLSHQSS</b> LASWEYNTNISDENVQ
Mustela putorius	MLGSSWLLLSLAALTAQA <b>ST</b> TEDLAK <b>TFLEKFN</b> Y <b>EA</b> EELS <b>YQNS</b> LASWNYNTNITDENIQ
M. auratus	MSSSSWLLLSLVAVTTAAQ <b>S</b> IIIEE <b>QAKTFLDKFN</b> Q <b>EA</b> EDLS <b>YQ</b> SALASWNYNTNITEENAQ
Felis catus	MSGSFWLLLSFAALTAQA <b>ST</b> TTEELAK <b>TFLEKFN</b> HEA <b>EELS</b> Y <b>QSS</b> LASWNYNTNITDENVQ
Manis javanica	MSGSSWLLLSLVAVTAAQ <b>ST</b> SDEEAK <b>TFLEKFN</b> SE <b>EA</b> EELS <b>YQSS</b> LASWNYNTNITDENVQ
Canis lupus	MSGSSWLLLSLAALTAQA <b>ST</b> -EDLVK <b>TFLEKFN</b> Y <b>EA</b> EELS <b>YQSS</b> LASWNYNINITDENVQ
Equus caballus	MSGSSWLLLSLVAVTAAQ <b>ST</b> TEDLAK <b>TFLEKFN</b> SE <b>EA</b> EELSH <b>QSS</b> LASWSYNTNITDENVQ

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Sus scrofa MSGSFWLLLSLIPVTTAAQ**STTEELAKTFLEKFNLEAEDLAYQSSLASWTINTNITDENIQ**

Bos taurus MTGSFWLLLSLVAVTAAQ**STTEEQAKTFLEKFNHEAEDLSYQSSLASWNYNTNITDENVO**

Ovis aries MTGSFWLLLSLVAVTAAQ**STTEEQAKTFLEKFNHEAEDLSYQSSLASWNYNTNITDENVO**

O. cuniculus MSGSSWLLLSLVAVTAAQ**STIEELAKTFLEKFNQEAEDLSYQSALASWDYNTNITEENVO**

Mus musculus MSSSSWLLLSLVAVTTAQ**SLTEENAKTFLNFNQEAEDLSYQSSLASWNYNTNITEENAQ**

Cricetulus griseus MSSSSWLLLSLVAVTTAQ**SIIIEEQAKTFLDKFNQEAEDLSYQSALASWNYNTNITEENAQ**

Gallus gallus MLLHFWLLCGLSAVVTPQDVTQE-AQ**TFLAEFNVRAEDISYENS**LASWNYNTNITEETAR  
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Homo sapiens NMNAGDKWSAFLKEQ**STLAQMY**PLQEIQNLTVKLQALQALQNGSSVLSEDKSKRLNTIL

Macaca mulatta NMNAGEKWSAFLKEQ**STLAQMY**PLQEIQNLTVKLQALQALQNGSSVLSEDKSKRLNTIL

Pan troglodytes NMNAGDKWSAFLKEQ**STLAQMY**PLQEIQNLTVKLQALQALQNGSSVLSEDKSKRLNTIL

Rhinolophus sp KMDEAGAKWSDFYKQ**SKLAKNFS**LLEEIHNDTVKLQALQALQSGSPVLSEDKSKRLNSIL

Mustela putorius KMNIAGAKWSAFYEE**SQHAKTY**PLEEIQDPIIKRQLRALQSGSSVLADKRERLNTIL

M. auratus KMNEAAAKWSAFYEEQ**SKLAKNY**SLQEVQNLTIKRQLQALQSGSSALSADKNKQLNTIL

Felis catus KMNEAGAKWSAFYEEQ**SKLAKTY**PLAEIHNTTVKRQLQALQSGSSVLADKSKRLNTIL

Manis javanica KMNVAGAKWSTFYEEQ**SKIAKNY**QLQNIQNNTIKRQLQALQSGSSALSADKNQRLNTIL

Canis lupus KMNAGAKWSAFYEEQ**SKLAKTY**PLEEIQDSTVKRQLRALQSGSSVLADKNQRLNTIL

Equus caballus KMNEAGARWSAFYEEQ**CKLAKTY**PLEEIQNLTVKRQLQALQSGSSVLADKSKRLNEIL

Sus scrofa KMNDARAKWSAFYEEQ**SRIAKTY**PLDEIQTLLIKRQLQALQSGTSGLSADKSKRLNTIL

Bos taurus KMNEARAKWSAFYEEQ**SRMAKTY**SLEEIQNLTIKRQLKALQSGTSALSADKSKRLNTIL

Ovis aries KMNEARAKWSAFYEEQ**SRMARTY**SLEEIQNLTIKRQLKALQSGTSVLSADKSKRLNTIL

O. cuniculus KMNDAEAKWSAFYEEQ**SKLAKTY**PSQEVQNLTVKRQLQALQSGSSALSADKSKQLNTIL

Mus musculus KMSEAAAKWSAFYEEQ**SKTAQ**SFSLQEIQTPIIKRQLQALQSGSSALSADKNKQLNTIL

Cricetulus griseus KMNEAAAKWSAFYEEQ**SKLAKNY**SLQEVQNLI IKRQLQALQSGSSALSADKNKQLNTIL

Gallus gallus KMSEAGAKWAAFYEE**ASRNASR**FLANIQDAVTRLQIQSLQDRGSSVLSPEKYSRLNSVM  
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Homo sapiens NTMSTIYSTGKVCNPDPQ**EC**LLLEPGLNEIMANSLDYNERLWAWESWRSEVKGQLRPLY

Macaca mulatta NTMSTIYSTGKVCNPN**PQ**ECLLLDPLNEIMEKSLDYNERLWAWEGWRSEVKGQLRPLY

Pan troglodytes	NTMSAIYSTGKVCNPNNPQECLLLEPGLNEIMANSLDYNERLWAWESWRSEVKGQLRPLY
Rhinolophus sp	NAMSTIYSTGKVCNPNNPQECLLLEPGLDNIMETSKDYNERLWAWEGWRAEVKGQLRPLY
Mustela putorius	NAMSTIYSTGKACNPNNPQECLLLEPGLDDIMENSKDYNERLWAWEGWRSEVKGQLRPLY
M. auratus	NTMSTIYSTGKVCNPKNPQECLLLEPGLDDIMATSTDYNERLWAWEGWRAEVKGQLRPLY
Felis catus	NAMSTIYSTGKACNPNNPQECLLLEPGLDDIMENSKDYNERLWAWEGWRAEVKGQLRPLY
Manis javanica	NTMSTIYSTGKVCNPGNPQECSLLEPGLDNIMESSKDYNERLWAWEGWRSEVKGQLRPLY
Canis lupus	NSMSTVYSTGKACNPSNPQECLLLEPGLDDIMENSKDYNERLWAWEGWRSEVKGQLRPLY
Equus caballus	NTMSTIYSTGKVCNPSNPQECLLLEPGLDAIMENSKDYNQRLWAWEGWRSEVKGQLRPLY
Sus scrofa	NTMSTIYSSGKVLDPNPNPQECLVLEPGLDEIMENSKDYSRRLWAWESWRAEVKGQLRPLY
Bos taurus	NKMSTIYSTGKVLDP-NTQECLALEPGLDDIMENSRDYNRRLWAWEGWRAEVKGQLRPLY
Ovis aries	NKMSTIYSTGKVLDP-NTQECLALEPGLDDIMENSRDYNRRLWAWEGWRAEVKGQLRPLY
O. cuniculus	STMSTIYSTGKVCNQSNPQECLFLEPGLDEIMAKSTDYNERLWAWEGWRSVVGKQLRPLY
Mus musculus	NTMSTIYSTGKVCNPKNPQECLLLEPGLDEIMATSTDYNSRLWAWEGWRAEVKGQLRPLY
Cricetulus griseus	NTMSTIYSTGKVCNPKNPQECLLLEPGLDDIMATSTDYNERLWAWEGWRAEVKGQLRPLY
Gallus gallus	NSMSTIYSTGVVCKATEPFDCLVLEPGLDDIMANSIDYHERLWAWEGWRADVGRMMRPLY
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Homo sapiens	EEYVVLKNEMARANHYEDYGDYWRGDYEVNGVDGYDYSRQLIEDVEHTFEEIKPLYEHL
Macaca mulatta	EEYVVLKNEMAGANHYKDYGDYWRGDYEVNGVDGYDNNRDQLIEDVERTFEEIKPLYEHL
Pan troglodytes	EEYVVLKNEMARANHYEDYGDYWRGDYEVNGVDGYDYSRQLIEDVEHTFEEIKPLYEHL
Rhinolophus sp	EEYVVLKNEMARGYHYEDYGDYWRDYETEGSPDLEYSRDQLIKDVERIFAEIKPLYEQL
Mustela putorius	EEYVALKNEMARANNYEDYGDYWRGDYEEEWADGYSYSRNQLIEDVEHTFTQIKPLYEHL
M. auratus	EEYVVLKNEMARANNYEDYGDYWRGDYEAEGADGYNNGNQLIEDVERTFKEIKPLYEQL
Felis catus	EEYVALKNEMARANNYEDYGDYWRGDYEEEWTDGYNYSRSQLIKDVEHTFTQIKPLYQHL
Manis javanica	EEYVVLKNEMARANHYEDYGDYWRGDYEAEGANGYNYSRDHLIEDVEHIFTQIKPLYEHL
Canis lupus	EEYVALKNEMARANNYEDYGDYWRGDYEEEWENGYNYSRNQLIDDVELTFTQIMPLYQHL
Equus caballus	EEYVVLKNEMARANNYEDYGDYWRGDYEAEGPSGYDYSRDQLIEDVERTFAEIKPLYEHL
Sus scrofa	EEYVVLKNEMARANNYEDYGDYWRGDYEVGTGDYDYSRNQLMEDVERTFAEIKPLYEHL
Bos taurus	EEYVVLKNEMARANNYEDYGDYWRGDYEVGTGAGDYDYSRDQLMKDVERTFAEIKPLYEQL
Ovis aries	EEYVVLKNEMARANNYEDYGDYWRGDYEVGTGAGDYDYSRDQLMKDVERTFEEIKPLYEQL

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O. cuniculus	EEYVVLKNEMARANNYEDYGDYWRADYEAEGADGYDYSRSQLIDDVERTFSEIKPLYEQL
Mus musculus	EEYVVLKNEMARANNYNDYGDYWRGDYEAEGADGYNYNRNQLIEDVERTFAEIKPLYEHL
Cricetulus griseus	EEYVVLKNEMARANNYKDYGDYWRGDYEAEGADGYNYNGNQLIEDVERTFKEIKPLYEQL
Gallus gallus	EEYVELKNEAARLNNYSYGDYWRANYETDYPEEYKYSRDQLVQDVEKTFEIQIKPLYQHL
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Homo sapiens	HAYVRAKLMNAYPS-YISPIGCLPAHLLGDMWGRFWTNLYSLTVPFQKPNIDVTDAMVD
Macaca mulatta	HAYVRAKLMNAYPS-YISPTGCLPAHLLGDMWGRFWTNLYSLTVPFQKPNIDVTDAMVN
Pan troglodytes	HAYVRAKLMNAYPS-YISPIGCLPAHLLGDMWGRFWTNLYSLTVPFQKPNIDVTDAMVD
Rhinolophus sp	HAYVRTKLMPTYPS-HISPTGCLPAHLLGDMWGRFWTNLYPLTVPFQKPNIDVTDAMLN
Mustela putorius	HAYVRAKLMDAYPS-RISPTGCLPAHLLGDMWGRFWTNLYPLMVPFRQKPNIDVTDAMVN
M. auratus	HAYVRTKLMNTYPS-YISPTGCLPAHLLGDMWGRFWTNLYPLTVPFQKPNIDVTDAMVN
Felis catus	HAYVRAKLMPTYPS-RISPTGCLPAHLLGDMWGRFWTNLYPLTVPFQKPNIDVTDAMVN
Manis javanica	HAYVRAKLMNYPS-HISPTGCLPAHLLGDMWGRFWTNLYPLTVPFRQKPNIDVTDAMVN
Canis lupus	HAYVRTKLMPTYPS-YISPTGCLPAHLLGDMWGRFWTNLYPLTVPFQKPNIDVTNAMVN
Equus caballus	HAYVRAKLMPTYPS-HINPTGCLPAHLLGDMWGRFWTNLYSLTVPFQKPNIDVTDAMVD
Sus scrofa	HAYVRAKLMDAYPS-RISPTGCLPAHLLGDMWGRFWTNLYPLTVPFGEKPSIDVTEAMVN
Bos taurus	HAYVRAKLMHTYPS-YISPTGCLPAHLLGDMWGRFWTNLYSLTVPFQKPSIDVTEKMN
Ovis aries	HAYVRAKLMPTYPS-YISPTGCLPAHLLGDMWGRFWTNLYSLTVPFQKPSIDVTEKMN
O. cuniculus	HAFVRTKLMDAYPS-RISPTGCLPAHLLGDMWGRFWTNLYSLTVPFQKPNIDVTDAMVN
Mus musculus	HAYVRRKLMPTYPS-YISPTGCLPAHLLGDMWGRFWTNLYPLTVPFAQKPNIDVTDAMMN
Cricetulus griseus	HAYVRTKLMPTYPS-YISPTGCLPAHLLGDMWGRFWTNLYPLTVPFQKPNIDVTDAMVN
Gallus gallus	HAYVRHRLEQVYGSELINPTGCLPAHLLGDMWGRFWTNLYNLTVPYPEKPNIDVTSAMAQ
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Homo sapiens	QAWDAQRIFKEAEKFFVSVGLPNMTQGFWENSMLTDPGNVQKAVCHPTAWDLK <b>KGDFRIL</b>
Macaca mulatta	QAWNAQRIFKEAEKFFVSVGLPNMTQGFWENSMLTDPGNVQKVCHPTAWDLK <b>KGDFRII</b>
Pan troglodytes	QAWDAQRIFKEAEKFFVSVGLPNMTQGFWENSMLTDPGNVQKAVCHPTAWDLK <b>KGDFRIL</b>
Rhinolophus sp	QNWDAKRIFKEAEKFFVSIPLNMTEGFWNSMLTDPGDGRKVVCHPTAWDLK <b>KGDFRIK</b>
Mustela putorius	QSWDARRIFEEAETFFVSVGLPNMTEGFWQNSMLTEPGDNRRKVVCHPTAWDLK <b>KRDFRIK</b>

M. auratus	QGWNAERIFKEAEKFFVSVGLPYMT <b>QGFWEN</b> SMLTDPGDDRKVVCHPTAWDLG <b>KGDFRIK</b>
Felis catus	QSWDARRIFKEAEKFFVSVGLPNMT <b>QGFWEN</b> SMLTEPGDSRKVVCHPTAWDLG <b>KGDFRIK</b>
Manis javanica	QTDANRIFKEAEKFFVSVGLPKMT <b>QTFWEN</b> SMLTEPGDGRKVVCHPTAWDLG <b>KHDFRIK</b>
Canis lupus	QSWDARKIFKEAEKFFVSVGLPNMT <b>QEFWGN</b> SMLTEPDSRKVVCHPTAWDLG <b>KGDFRIK</b>
Equus caballus	QSWDAKRIFEEAEKFFVSVGLPNMT <b>QGFWEN</b> SMLTEPGDGRKVVCHPTAWDLG <b>KGDFRIK</b>
Sus scrofa	QSWDAIRIFEEAEKFFVSVGLPNMT <b>QGFWNN</b> SMLTEPGDGRKVVCHPTAWDLG <b>KGDFRIK</b>
Bos taurus	QSWDAERIFKEAEKFFVSVGLPNMT <b>QGFWDN</b> SMLTEPGDGRKVVCHPTAWDLG <b>KGDFRIK</b>
Ovis aries	QSWDAERIFKEAEKFFVSVGLPNMT <b>QGFWDN</b> SMLTEPGDGRKVVCHPTAWDLG <b>KGDFRIK</b>
O. cuniculus	QGWDAERIFKEAEKFFVSVGLPSMT <b>QGFWEN</b> SMLTEPGDGRKVVCHPTAWDLG <b>KGDFRIK</b>
Mus musculus	QGWDAERIFQEAEEKFFVSVGLPHMT <b>QGFWAN</b> SMLTEPADGRKVVCHPTAWDLGH <b>GDFRIK</b>
Cricetulus griseus	QGWDAERIFKEAEKFFVSVGLPHMT <b>QGFWGN</b> SMLTDPGDDRKVVCHPTAWDLG <b>KGDFRIK</b>
Gallus gallus	KNWDAMKIFKTAEAFFASIGLYNMT <b>EGFWTNS</b> MLTEPTDNRKVVCHPTAWDMG <b>KNDYRIK</b>
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Homo sapiens	MCTKVTMDDFLTAHHEMGHIQYDMAYAAQPFLLRNGANEGFHEAVGEIMSLSAATPKHLK
Macaca mulatta	MCTKVTMDDFLTAHHEMGHIQYDMAYAAQPFLLRNGANEGFHEAVGEIMSLSAATPKHLK
Pan troglodytes	MCTKVTMDDFLTAHHEMGHIQYDMAYAAQPFLLRNGANEGFHEAVGEIMSLSAATPKHLK
Rhinolophus sp	MCTKVTMEDFLTAHHEMGHIQYDMAYASQPYLLRNGANEGFHEAVGEVMSLSVATPKHLK
Mustela putorius	MCTKVTMDDFLTAHHEMGHIQYDMAYAEQPFLLRNGANEGFHEAVGEIMSLSAATPNHLK
M. auratus	MCTKVTMDNFLTAHHEMGHIQYDMAYATQPFLLRNGANEGFHEAVGEIMSLSAATPEHLK
Felis catus	MCTKVTMDDFLTAHHEMGHIQYDMAYAVQPFLLRNGANEGFHEAVGEIMSLSAATPNHLK
Manis javanica	MCTKVTMDDFLTAHHEMGHIQYDMAYAMQPYLLRNGANEGFHEAVGEIMSLSAATPKHLK
Canis lupus	MCTKVTMDDFLTAHHEMGHIQYDMAYAAQPFLLRNGANEGFHEAVGEIMSLSAATPNHLK
Equus caballus	MCTKVTMDDFLTAHHEMGHIQYDMAYAVQPYLLRNGANEGFHEAVGEIMSLSAATPNHLK
Sus scrofa	MCTKVTMDDFLTAHHEMGHIQYDMAYAIQPYLLRNGANEGFHEAVGEIMSLSAATPHYLK
Bos taurus	MCTKVTMDDFLTAHHEMGHIQYDMAYAAQPYLLRNGANEGFHEAVGEIMSLSAATPHYLK
Ovis aries	MCTKVTMDDFLTAHHEMGHIQYDMAYATQPYLLRNGANEGFHEAVGEIMSLSAATPHYLK
O. cuniculus	MCTKVTMDNFLTAHHEMGHIQYDMAYATQPFLLRNGANEGFHEAVGEIMSLSAATPEHLK
Mus musculus	MCTKVTMDNFLTAHHEMGHIQYDMAYARQPFLLRNGANEGFHEAVGEIMSLSAATPKHLK
Cricetulus griseus	MCTKVTMDNFLTAHHEMGHIQYDMAYATQPFLLRNGANEGFHEAVGEIMSLSAATPKHLK

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Gallus gallus	MCTKVTMDDFLTAHHEMGHIEYDMAYSVQPFLLRNGANEGFHEAVGEIMSLSAATPQHLK *****:*****:*****: **.******:****.*** :**
Homo sapiens	SIGLLSPDFQEDNETEINFLLLKQALTIVGTLPFITYMLEKWRWMVFKGEIPKDQWMKKWWE
Macaca mulatta	SIGLLSPDFQEDNETEINFLLLKQALTIVGTLPFITYMLEKWRWMVFKGEIPKDQWMKKWWE
Pan troglodytes	SIGLLSPDFQEDNETEINFLLLKQALTIVGTLPFITYMLEKWRWMVFKGEIPEDQWMKKWWE
Rhinolophus sp	TMGLSSDFLEDNETEINFLFKQALNIVGTLPFITYMLEKWRWMVFKGEIPKEEWMKKWWE
Mustela putorius	NIGLLPPDFSEDSETDINFLLLKQALTIVGTLPFITYMLEKWRWMVFKGEIPKEQWMQKWWE
M. auratus	SIGLLSPDFQEDNETEINFLLLKQALTIVGTLPFITYMLEKWRWMVFKGDIPKEQWMEKWWE
Felis catus	TIGLLSPGFSEDSETEINFLLLKQALTIVGTLPFITYMLEKWRWMVFKGEIPKEQWMQKWWE
Manis javanica	NIGLLPPDFYEDNETEINFLLLKQALTIVGTLPFITYMLEKWRWMVFSGQIPKEQWMKKWWE
Canis lupus	NIGLLPPSFFEDSETEINFLLLKQALTIVGTLPFITYMLEKWRWMVFKGEIPKDQWMKTWWE
Equus caballus	AIGLLPPDFYEDSETEINFLLLKQALTIVGTLPFITYMLEKWRWMVFKGEIPKEEWMKKWWE
Sus scrofa	ALGLLPPDFYEDSETEINFLLLKQALTIVGTLPFITYMLEKWRWMVFKGEIPKEQWMQKWWE
Bos taurus	ALGLLAPDFHEDNETEINFLLLKQALTIVGTLPFITYMLEKWRWMVFKGEIPKQQWMEKWWE
Ovis aries	ALGLLAPDFYEDNETEINFLLLKQALTIVGTLPFITYMLEKWRWMVFKGEIPKQQWMEKWWE
O. cuniculus	SIGLLPYDFHEDNETEINFLLLKQALTIVGTLPFITYMLEKWRWMVFKGEIPKEQWMQKWWE
Mus musculus	SIGLLSPDFQEDSETEINFLLLKQALTIVGTLPFITYMLEKWRWMVFRGEIPKEQWMKKWWE
Cricetulus griseus	SIGLLPSNFHEDNETEINFLLLKQALTIVGTLPFITYMLEKWRWMVFKGDIPKEKWMEKWWE
Gallus gallus	SLDLLEPTFQEDEETEINFLLLKQALTIVGTMPIFYMLEKWRWMVFNGEITKQEWTKRWWK :.* * **.*:****:****.****:***** *:*.:*: * :
Homo sapiens	MKREIVGVVEPVPHEDETYCDPASLFHVSNDYSFIRYYTRTLYQFQFQEALCQAAKHEGPL
Macaca mulatta	MKREIVGVVEPVPHEDETYCDPASLFHVSNDYSFIRYYTRTLYQFQFQEALCQAAKHEGPL
Pan troglodytes	MKREIVGVVEPVPHEDETYCDPASLFHVSNDYSFIRYYTRTLYQFQFQEALCQAAKHEGPL
Rhinolophus sp	MKRKIVGVVEPVPHEDETYCDPASLFHVANDYSFIRYYTRTIFEFQFHEALCRIAKHDGPL
Mustela putorius	MKRDIVGVVEPLPHDETYCDPAALFHVANDYSFIRYYTRTIYQFQFQEALCQIAKHEGPL
M. auratus	MKREIVGVVEPLPHDETYCDPAALFHVANDYSFIRYYTRTIYQFQFQEALCQAAKHDGPL
Felis catus	MKREIVGVVEPVPHEDETYCDPASLFHVANDYSFIRYYTRTIYQFQFQEALCRIAKHEGPL
Manis javanica	MKREIVGVVEPVPHEDETYCDPASLFHVANDYSFIRYYTRTIYQFQFQEALCQTAKHEGPL

Canis lupus MKRNIVGVVEPVPHEDETYCDPASLFHVANDYSFIRYYTRTIYQFQFQEALCQIAKHEGPL  
 Equus caballus MKREIVGVVEPVPHEDETYCDPAALFHVANDYSFIRYYTRTIYQFQFQEALCQTAKHEGPL  
 Sus scrofa MKREIVGVVEPLPHDETYCDPACLFHVAEDYSFIRYYTRTIYQFQFHEALCRTAKHEGPL  
 Bos taurus MKREIVGVVEPLPHDETYCDPACLFHVAEDYSFIRYYTRTIYQFQFHEALCKTAKHEGAL  
 Ovis aries MKREIVGVVEPLPHDETYCDPACLFHVAEDYSFIRYYTRTIYQFQFHEALCKTAKHEGAL  
 O. cuniculus MKREIVGVVEPMPHDETYCDPAALFHVANDYSFIRYYTRTIYQFQFQEALCQAAQHEGPL  
 Mus musculus MKREIVGVVEPLPHDETYCDPASLFHVSNDYSFIRYYTRTIYQFQFQEALCQAAKYNGSL  
 Cricetulus griseus MKREIVGVVEPLPHDETYCDPAALFHVSNDSYFIRYYTRTIYQFQFQEALCQAAKHGDL  
 Gallus gallus MKREIVGVVEPVPHEDETYCDPAALFHVANDYSFIRYYTRTIYQFQFQEALCKAANHTGPL  
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Homo sapiens HKCDISNSTEAGQKLFNMLRLGKSEPWTALLENVVGAKNMNVRPLLNYFEPLFTWLKDQN Macaca  
 mulatta HKCDISNSTEAGQKLLNMLKLGSEPWTLALENVVGAKNMNVRPLLNYFEPLFTWLKDQN

Pan troglodytes HKCDISNSTEAGQKLFNMLRLGKSEPWTALLENVVGAKNMNVRPLLNYFEPLFTWLKDQN  
 Rhinolophus sp HKCDISNSTDAGEKLHQMLSVGKSQPWTSVLKDFVGSKNMDVGPLLRYFEPLYTWLTEQN  
 Mustela putorius YKCDISNSSEAGQKLHEMLSLGRSKPWTFALERVVGAKTMDVRPLLNYFEPLFTWLKEQN  
 M. auratus HKCDISNSTEAGQKLLNMLRLGKSEPWTALLENVVGARNMDVRPLLNYFEPLSVWLKEQN  
 Felis catus HKCDISNSSEAGKLLQMLTLGKSKPWTLALEHVVGKKNMNTPLLKYFEPLFTWLKEQN  
 Manis javanica HKCDISNSAEAGQKLLQMLSLGKSKPWTLALERVVGTKNMDVRPLLNYFEPLFTWLKEQN  
 Canis lupus HKCDISNSSEAGQKLEMLKLGKSKPWTYALEIVVGAKNMDVRPLLNYFEPLFTWLKEQN  
 Equus caballus HKCDISNSTEAGQKLLQMLSLGKSEPWTALALERIVGVKNMDVRPLLNYFEPLFTWLKDQN  
 Sus scrofa YKCDISNSTEAGQKLLQMLSLGKSEPWTALLENIVGVKTMVDPKLLSYFEPLFTWLKAQN  
 Bos taurus FKCDISNSTEAGQRLQMLRLGKSEPWTALLENIVGIKTMVDPKLLNYFEPLFTWLKEQN  
 Ovis aries FKCDISNSTEAGQRLQMLRLGKSEPWTALLENIVGIKTMVDPKLLNYFEPLFTWLKEQN  
 O. cuniculus HKCDISNSTEAGQKLLNMLRLGRSEPWTALLENVVGAKNMDVRPLLNYFEPLFTWLKEQN  
 Mus musculus HKCDISNSTEAGQKLLKMLSLGNSEPWTALLENVVGARNMDVDPKLLNYFQPLFDWLKEQN  
 Cricetulus griseus HKCDISNSTEAGQKLLNMLRLGKSEPWTALLENVVGARNMDVRPLLNYFEPLSVWLKEQN  
 Gallus gallus HKCDITNSTAAGGNLRQLELGLKSKPWTLALESATGEKYMNTPLLHYFEPLFNWLQKNN  
 .\*\*\*\*:\*\*\*: \*\* .\* ::\* .\* \*:\*\*\* .\*: .\* . \*:. \*\*\* \*\*:\*\* \*\* :\*

Homo sapiens KNSFVGWSTDWSPYADQSIKVRISLKSALGDKAYEWNENEMYLFRSSVAYAMRQYFLKVK

Supplementary Material

Macaca mulatta	KNSFVGWSTDWSPYADQSIKVRISLKSALGDKAYEWNENEMYLFRSSVAYAMRTYFLEIK
Pan troglodytes	KNSFVGWSTDWSPYADQSIKVRISLKSALGDKAYEWNENEMYLFRSSVAYAMRQYFLKVK
Rhinolophus sp	RKSFVGWNTDWSFYADQSIKVRISLKSALGDKAYEWNENEMYLFRSSVAYAMREYFLKTK
Mustela putorius	RNSFVGWNTDWSFYADQSIKVRISLKSALGDKAYEWNENEMYFFQSSIAYAMREYFSKVK
M. auratus	KNSFVGWNTDWSFYADQSIKVRISLKSALGENAYEWDNENEMYLFRASVAYAMRVYFAKNK
Felis catus	RNSFVGWNTDWRPYADQSIKVRISLKSALGDEAYEWNENEMYLFRSSVAYAMREYFSKVK
Manis javanica	KNSFVGWNTDWSFYAAQSIKVRISLKSALGDKAYEWNENEMYLFRSSVAYAMREYFSKVK
Canis lupus	RNSFVGWNTDWSFYADQSIKVRISLKSALGDKAYEWNENEMYLFRSSVAYAMRQYFSEVK
Equus caballus	KNSFVGWSTNWSFYADQSIKVRISLKSALGDKSEYEWNDENEMYLFQSSVAYAMRVYFLKAK
Sus scrofa	GNSSVWNTDWTPTYADQSIKVRISLKSALGDAYEWNENEMYLFRSSVAYAMRNYFSSAK
Bos taurus	RNSFVGWSTEWTPYSDQSIKVRISLKSALGENAYEWNENEMYLFQSSVAYAMRKYFSEAR
Ovis aries	RNSFVGWSTEWTPYSDQSIKVRISLKSALGENAYEWNENEMYLFRSSVAYAMRKYFLKER
O. cuniculus	RNSFVGWSTEWTPYADQSIKVRISLKTALGDQAYEWNENEMYLFRSSVAYAMRKYFSEVK
Mus musculus	RNSFVGWNTWSPYADQSIKVRISLKSALGANAYEWTNNEMFLFRSSVAYAMRKYFSIIK
Cricetulus griseus	KNSFVGWNTDWSFYADQSIKVRISLKSALGENAYEWNENEMYLFRATVAYAMRVYFAKNK
Gallus gallus	SGRSIGWNTDWTPTYSDNAIKVRISLKAALGDDAYVWDASELFLFKSSIAYAMRKYFAKEK
	<pre>       :*.:*:* ** : :*****:*** .* * .*::*.:*:***** ** .     </pre>
Homo sapiens	NQMILFGEEDVRVANLKPRISFNFFVTAPKNVSDIIPRTEVEKAIKSRSRINDAFRLND
Macaca mulatta	HQTILFGEEDVRVADLKPRISFNFFVTAPKNVSDIIPRTEVEEAIRISRSRINDAFRLND
Pan troglodytes	NQMILFGEEDVRVANLKPRISFNFFVTAPKNVSDIIPRTEVEKAIKSRSRINDAFRLND
Rhinolophus sp	NQTILFGEEDVWVSNLKPRISFNFFVTSPRNLSDIIPRPEVEGAIRMSRSRINDAFRLDD
Mustela putorius	NQTIPFVGKDVRSVLDKPRISFNFFVTSPENMSDIIPRADVEEAIRKSRGRINDAFRLDD
M. auratus	TQTVPFVGVEDIRVSDLKPRVSNFFVTSPQNVSDIIPRNEVEEAIRLSRGRINDVFLGDD
Felis catus	NQTIPFVEDNVWVSNLKPRISFNFFVTASKNVSDIIPRSEVEEAIRMSRSRINDAFRLDD
Manis javanica	KQTIPFEDECVRVSDLKPRVSIFFVTLPKNVSAVIPRAEVEEAIRISRSRINDAFRLDD
Canis lupus	NQTIPFVEDNVWVSDLKPRISFNFSVTSPGNVSDIIPRTEVEEAIRMYRSRINDVFLRDD
Equus caballus	NQTILFGEEDVWVSDLKPRISFNFFVTSPKNASDIIPRTDVEEAIRMSRSRINDAFRLDD
Sus scrofa	NETIPFGAVDVWVSDLKPRISFNFFVTSPANMSDIIPRSDVEKAISMSRSRINDAFRLDD
Bos taurus	NETVLFGEDNVWVSDKPRISFKFFVTSPNNVSDIIPRTEVENAIRLSRDRFNDVFLQDD



Ovis aries NETIPFGEENVVSDKKPRISFKFFVTSPNNVSDIIPRTEVENAIRLCRDRINDAFQLDD  
O. cuniculus NQTILFGEEDVRVSDLKPRISFNFFVTAPNNVNDIIPRNEVEEAISMSRSRINDIFRLDD  
Mus musculus NQTVPFLEEDVRVSDLKPRVSFYFFVTSPQNVSDVIPRSEVEDAIRMSRGRINDVFLGND  
Cricetulus griseus TQTVLFGVEDIRVSDLKPRVSFNFFVTSPQNVSDIIPRNEVEEAIVRFSRGRINDVFLGDD  
Gallus gallus EQNVDFQVTDIHVGEETQRVSFYLTVMSPGNVSDIVPRADVEKAIRMSRGRISEAFRLDD  
: : \* :.\*.: . \*:\*\* : \*: . \* . ::\*\* :\*\* \*: \*.\*.: : \* \*\*

Homo sapiens NSLEFLGIQPTLGPNNQPPVSIWLIVFGVVMGIVVVGIVILIFTGIRDRKKKNKARSGE-  
Macaca mulatta NSLEFLGIQPTLAPPYQSPVTTWLIVFGVVMGIVVAGIVVLIIFTGIRDRKKKNQARSEE-  
Pan troglodytes NSLEFLGIQPTLGPNNQPPVSIWLIVFGVVMGIVVVGIVILIFTGIRDRKKKNKARSEE-  
Rhinolophus sp NSLEFLGIQPTLGPYQPPVTIWLIVFGVVMGVVVVGIVVLIITGIRDRRKKDQARSEE-  
Mustela putorius NSLEFLGIQPTLEPPYQPPVTIWLIVFGVVMGVVVVGIFLLIFSGIRNRKNNQARSEE-  
M. auratus NSLEFLGINPTLSPPYQPPVTIWLIIFGVVMGIVVVGIIILIFTGIKGRKKKNETKREE-  
Felis catus NSLEFLGIQPTLSPPYQPPVTIWLIVFGVVMGVVVVGIVLLIVSGIRNRKNNQARSEE-  
Manis javanica NSLEFLGIQPTLQPPYQPPVTIWLIVFGVVMGVVVVGIVVLIIFTGIRDRKKDQARSEQ-  
Canis lupus NSLEFLGIQPTPGPPYEPVVTIWLIVFGVVMGVVVVGIVLLIFSGIRNRKNDQARGEE-  
Equus caballus NTLEFLGIQPTLGPYQPPVTVWLIAFGVVMGLVVVGIVVLIATGIRGRKKKNQARSEE-  
Sus scrofa NTLEFLGIQPTLGPDEPPVTVWLIIFGVVMGLVVVGIVVLIIFTGIRDRRKKKQASSEE-  
Bos taurus NSLEFLGIQPTLGPYEPVVTIWLIIFGVVMGVVVIGIVVLIIFTGIRNRKKNQASSEE-  
Ovis aries NSLEFLGIQPTLRPPYEPVVTIWLIIFGVVMGVVVIGIVVLIIFTGIRDQRKKNQASSEE-  
O. cuniculus NSLEFVGIQPTLEPPYESPVIWLVVFGVVMGMIVIGIVVLIIFTGIKDRRQKQAKREE-  
Mus musculus NSLEFLGIHPTLEPPYQPPVTIWLIIFGVVMALVVVGIIILIVTGIKGRKKKNETKREE-  
Cricetulus griseus NSLEFLGINPTLAPPYQPPVTIWLIIFGVVMGIVVVGIVILIVTGIRARKKNNEAKREE-  
Gallus gallus NTLEFDGIVPTLATPYKPPVTIWLILFGVVMGLVIVIGIVVLIITGQRDKRKKARGRANEA  
\*:\*\* \*\* .\* .\* :.\*. \*\*: \*\*\*\*\*:.\* \*:.:\*\* :\* . .\*: :

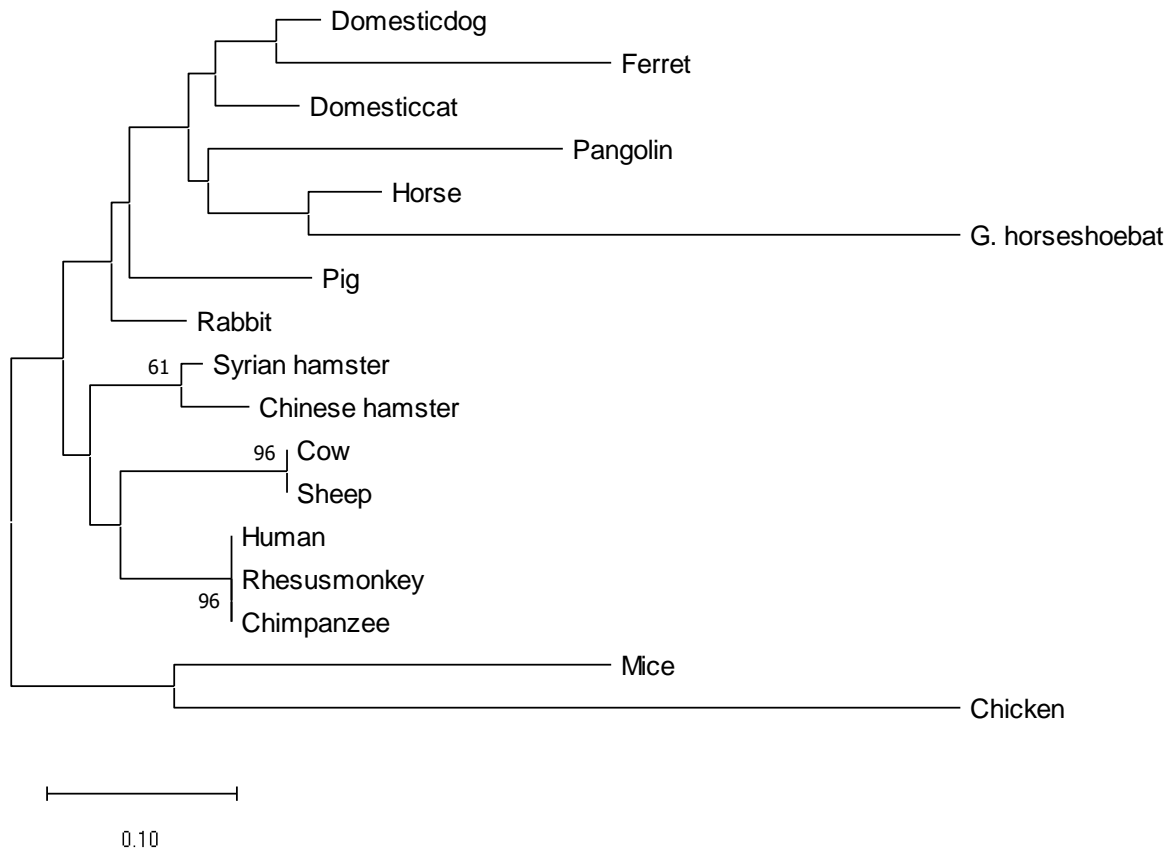
Homo sapiens -----NPYASIDISKGENNPGFQNTDDVQTSF  
Macaca mulatta -----NPYASIDINKGENNPGFQNTDDVQTSF  
Pan troglodytes -----NPYASVDTSKGENNPGFQNTDDVQTSF  
Rhinolophus sp -----NPYSSVDLSKGENNPGFQNGDDVQTSF

## Supplementary Material

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Mustela putorius  -----NPYASVDLSKGENNPGFQNVDDVQTSF
M. auratus       -----NPYDSVDIGKGESNAGFLSNDDAQTSE
Felis catus      -----NPYASVDLSKGENNPGFQHADDVQTSF
Manis javanica   -----NPYASVDLSKGENNPGFQNVDDVQTSF
Canis lupus      -----NPYASVDLSKGENNPGFQSGDDVQTSF
Equus caballus   -----NPYASVDLSKGENNPGFQNGDDVQTSF
Sus scrofa       -----NPYGSMDLSKGESNSGFQNGDDIQTSE
Bos taurus       -----NPYGSVDLNKGENNSGFQNIDDVQTSL
Ovis aries       -----NPYGSVDLNKGENNSGFQNTDDVQTSL
O. cuniculus     -----NPYGFVDMKGENNSGFQNSDDIQTSE
Mus musculus     -----NPYDSMDIGKGESNAGFQNSDDAQTSE
Cricetulus griseus -----NPYDSVDIGKGESNAGFQSNDDVQTSF
Gallus gallus    GSNCEVNPYD----EDGRSNKGFEQSEETQTSF

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## 1.1 Supplementary Figure 1



**Supplementary Figure 1.** Phylogenetic tree of the angiotensin-converting enzyme - 2 (ACE-2) protein sequence for aa positions shown in Table 1 of different animals and humans inferred using the Neighbor-Joining method. The optimal tree with the sum of branch length = 2.16064957 is shown. The percentage of replicate trees in which the associated taxa clustered together in the bootstrap test (1000 replicates) are shown next to the branches. The tree is drawn to scale, with branch lengths in the same units as those of the evolutionary distances used to infer the phylogenetic tree. The evolutionary distances were computed using the Poisson correction method and are in the units of the number of amino acid substitutions per site. This analysis involved 17 amino acid sequences. All ambiguous positions were removed for each sequence pair (pairwise deletion option). There were a total of 22 positions in the final dataset. Evolutionary analyses were conducted in MEGA X from protein sequence alignment depicted in Supplementary Data.