

Protein Name	Sequence
CCoV-HuPn-2018_S_2P_avi_his	<p>MGILPSPGMPALLSLSVLLSLLMGCVAETGTDNPFCSKFLNRTIGNHWNLIENFLLNYSIRLPPNSDVVLGDYFPTVQPFWFCIRN NNNSLYVTMENLALYWDYATENITSDHRQRLHVVVKGPYSITVTTTRNFDAEAGAIICICKGSPPTTTGNDLNCNWSGDCRLNKH FPICPSNSQANCGNMLYGLQWFTDEVVAYLHGAIYRISFENKWFQVTLGDMRATTLQTAGALVDLWVFNFPYDVTYRNNKNGT IVSNCTDQCASVVDNVFTTQGGILPDSFNNWFLTNSSVTVSGKLVTRQPLVNVCLWVPSFKEAASFTFCFEGAGFDQCNGAVL NNTVDVIRFNLFNTADVQSGMGATVFSLNTTGGVILEISYNDIVSESSFYSGDIPFGITDGPYCYLYNGTTLKYLGLTLPSPVK EIAISKWGHFYINGYFFSTFPIDICISFNLTGASGAFWTIAYTSYTEALVQVENTAIKKVTCYNSHINNICKSQLTANLQNGFYFV ASSEVGLVNVKSVLLPSPFFAHTTNNITIDLGMKRSYGGQPIASPLSNITLPMQDNNTDVYCIKRSNQFYSIVHSTCKSSLWDNVFNQD CTDVLLEATAVIKTGTCPFSFDKLNHLTFNKFCLSLSPVGANCKFDVAARTRTNEQVRSLYVIEEGDNIVGVPDNSGLHDLVSL HLDSDCTDYNIGRTGVGVIQRTNSTLLSGLYYTSLSGDLLGFKNVSDGVIYSVTPCDVSAQAQAVIDGAIVGAMTSINSELLGLTHWT TTPNFYYSIYNYTNERTRGTAIDSNVDCEPIITYSNIGVCKNGALVINVTHSDGDVQPISTGNVTIPNTFTISVQVEYIQVYTT PVSIDCARYVCNGNPRCNKLLTQYVSACQTEIQALAMGARLENMEVDSMLFVSENALKLASVEAFNSTENLDPIYKEWPNIGGSWLG GLKIDILPSHNSKRKYRSAIEDLLFDKVVTSGLGTVDVDEYKRCCTGGYDIADLVCAQYNGIMVLPVAVANDDKMTMTASLAGGITLGA LGGGAVAIFFAVAVQARLNYVALQTDVNLKNQOILANAFNQAIGNITQAFGKVNDAIHQTSKGLATVAKVLAKVQDVVNTQGGQALSH LTVQLQNNFQAISSSIIDIYNRLDPPSADAQVDRITGRLTALNAFVSQTLTRQAEVRSRQLAKDKVNECVRSQSRFGFCGNGTH LFLSANAAPNGMIFFTVLLPTAYQTVTACSGICASDGDRTFGLVVKDVQLTLFRNLDDKFYLTPTMTYQPRATSSDFVQIEGCDV LFVNATEIDLPSIIPDYIDINQTVQDILENFRPNWTVPELTLDFNATYLNLTGEIDDLFRSEKLNHTTVLAILIDININNTLVNL EWLNRITVYKSGGYIPEAPRDQAVYVRKDEGWLLSTFLVPRGSGSGSGLNDIFEAQKIEWHEGSHHHHHHHH</p>
CCoV-HuPn-2018_S_Full-length	<p>MKLLFVVLVPLSIYDGNPFCSKFLNRTIGNHWNLIENFLLNYSIRLPPNSDVVLGDYFPTVQPFWFCIRNNSLYVTMENLALY WDYATENITSDHRQRLHVVVKGPYSITVTTTRNFDAEAGAIICICKGSPPTTTGNDLNCNWSGDCRLNKHFPICPSNSQANCGNML YGLQWFTDEVVAYLHGAIYRISFENKWFQVTLGDMRATTLQTAGALVDLWVFNFPYDVTYRNNKNGTIVSNCTDQCASVVDNV FTTQGGILPDSFNNWFLTNSSVTVSGKLVTRQPLVNVCLWVPSFKEAASFTFCFEGAGFDQCNGAVLNNTVDVIRFNLFNTADV VQSGMGATVFSLNTTGGVILEISYNDIVSESSFYSGDIPFGITDGPYCYLYNGTTLKYLGLTLPSPVK EIAISKWGHFYINGY FFSTFPIDICISFNLTGASGAFWTIAYTSYTEALVQVENTAIKKVTCYNSHINNICKSQLTANLQNGFYFVASSEVGLVNVKSVLLP SFFAHTTNNITIDLGMKRSYGGQPIASPLSNITLPMQDNNTDVYCIKRSNQFYSIVHSTCKSSLWDNVFNQDCTDVLLEATAVIKTGT PFSFDKLNHLTFNKFCLSLSPVGANCKFDVAARTRTNEQVRSLYVIEEGDNIVGVPDNSGLHDLVSLHLDSDCTDYNIGRTGV GVIRQNTNSTLLSGLYYTSLSGDLLGFKNVSDGVIYSVTPCDVSAQAQAVIDGAIVGAMTSINSELLGLTHWTTPNFYYSIYNYTNE RTRGTAIDSNVDCEPIITYSNIGVCKNGALVINVTHSDGDVQPISTGNVTIPNTFTISVQVEYIQVYTT PVSIDCARYVCNGNPR CNKLLTQYVSACQTEIQALAMGARLENMEVDSMLFVSENALKLASVEAFNSTENLDPIYKEWPNIGGSWLGGLKIDILPSHNSKRKYR SAIEDLLFDKVVTSGLGTVDVDEYKRCCTGGYDIADLVCAQYNGIMVLPVAVANDDKMTMTASLAGGITLGA LGGGAVAIFFAVAVQA RLNYVALQTDVNLKNQOILANAFNQAIGNITQAFGKVNDAIHQTSKGLATVAKVLAKVQDVVNTQGGQALSHLTVQLQNNFQAISSSI SDIYNRLDDELSADAQVDRITGRLTALNAFVSQTLTRQAEVRSRQLAKDKVNECVRSQSRFGFCGNGTHLFLSANAAPNGMIFFT TVLLPTAYQTVTACSGICASDGDRTFGLVVKDVQLTLFRNLDDKFYLTPTMTYQPRATSSDFVQIEGCDVLFVNATEIDLPSIIPD YIDINQTVQDILENFRPNWTVPELTLDFNATYLNLTGEIDDLFRSEKLNHTTVLAILIDININNTLVNL EWLNRITVYKVPWYV WLLIGLVVFCIPLLFCCCSTGCCGICGLGS</p>
TGEV_S_Full-length	<p>MKLLFVVLVPMPLIYDGNPFCSKFLNRTIGNHWNLIETFLNYSRLLPPNSDVVLGDYFPTVQPFWFCIRNDSNDLYVTLENLALY WDYATENITWNRQRLHVVVVNGYPYSITVTTTRNFDAEAGAIICICKGSPPTTTTSSSLTCNMGSECRINLKHFPICPSNSEANCGNML LYGLQWFADEVVAYLHGASIRISFENQWSGVTTLGDMRATTLVAGTLVDLWVFNFPYDVTYRNNKNGTIVSNCTDQCASVYAN VFTTQGGIFPDSFNNWFLTNSSVTVSGKLVTRQPLVNVCLWVPSFEEAASFTFCFEGAGFDQCNGAVLNNTVDVIRFNLFNTADV VQSGMGATVFSLNTTGGVILEISYNDIVSESSFYSGDIPFGITDGPYCYLYNGTTLKYLGLTLPSPVK EIAISKWGHFYINGY FFSTFPIDICISFNLTGASDVFWTIAYTSYTEALVQVENTAIKKVTCYNSHINNICKSQLTANLQNGFYFVASSEVGLVNVKSVLLP SFYTHITVNTIDLGMKRSYGGQPIASTLSNITLPMQDNNTDVYCIKRSNQFYSIVHSTCKSSLWDNIFRKNCTDVLATAVIKTGT PFSFDKLNHLTFNKFCLSLSPVGANCKFDVAARTRTNEQVRSLYVIEEGDNIVGVPDNSGLHDLVSLHLDSDCTDYNIGRTGV GIIQRTNSTLLSGLYYTSLSGDLLGFKNVSDGVIYSVTPCDVSAQAQAVIDGAIVGAMTSINSELLGLTHWTTPNFYYSIYNYTND RTRGTAIDSNVDCEPIITYSNIGVCKNGALVINVTHSDGDVQPISTGNVTIPNTFTISVQVEYIQVYTT PVSIDCARYVCNGNPR CNKLLTQYVSACQTEIQALAMGARLENMEVDSMLFVSENALKLASVEAFNSTENLDPIYKEWPNIGGSWLGGLKYILPSHNSKRKYR SAIEDLLFDKVVTSGLGTVDVDEYKRCCTGGYDIADLVCAQYNGIMVLPVAVANDDKMTMTASLAGGITLGA LGGGAVAIFFAVAVQA RLNYVALQTDVNLKNQOILASAFNQAIGNITQAFGKVNDAIHQTSRGLATVAKALAKVQDVVNTQGGQALSHLTVQLQNNFQAISSSI SDIYNRLDDELSADAQVDRITGRLTALNAFVSQTLTRQAEVRSRQLAKDKVNECVRSQSRFGFCGNGTHLFLSANAAPNGMIFFT TVLLPTAYETVTAMAGICASDGDRTFGLVVKDVQLTLFRNLDDKFYLTPTMTYQPRVATSSDFVQIEGCDVLFVNATEIDLPSIIPD YIDINQTVQDILENFRPNWTVPELTLDFNATYLNLTGEIDDLFRSEKLNHTTVLAILIDININNTLVNL EWLNRITVYKVPWYV WLLIGLVVIFCIPLLFCCCSTGCCGICGLSGSGSGSYPYDVPDYA</p>
HCoV-229E_S_Full-length	<p>MFVLLVAYALLHIAGCQTNGLNYSYVNCVCGYSENVFAVESGGYIPSDFAFNWFLTNSSVVDVGVRSFQPLLLNCLWSVSG LRFTTGFVYFNGTGRGCKGFSDDVLDVIRYRNLFEEENLRRTILFKTSYGVVVFYCTNNTLVSGDAHIPFGTVLGNFYCFVNTTI GETTSAFVGLPKTVREFVIRSRGHFYINGRYFTLGNVEAVNFVTTAETDFFTVALASADVLVNVQSITANIICYNSVINR LRCDQLSFYVDPGFYSTPIQSVLEPVSIVSLPVYHKHMFIVLYVDFKPKQSGGKFCNCPAGVNIITLANFNETKGLCVDTSHFTT KYVAVYANVGRWSASINTGNCPSFGKVNNFVKGFSVCFSLKDI PGCCAMP IVANWAYSKYYITIGTLYVSWSDGDGITGVPPQVEGV SFMNVTLDKCKYNIYDVSGVGVIRVSNDFLNGITYTSTSGNLLGFKDVTKGTIYSITPCNPDPQLVYVQAVVGMAMSENFTSY GFSNVVLPKFFYASNGTYNCTDAVLTYSFGVCADGSI IAVQPRNVSYDSVAIVTANLSPISNWTISVQVEYLQITSTP VVDCS TYVNCNVRVCELKQYTSACKTIEDALRNSARLESADVSEMLT FDKKAFTLANVSSFGDYNSLSSVPSLPTSGSRVAGRS AIEDIL FSKIVTSGLGTVDADYKNTKGLSIADLACAQYNGIMVLPVAVADAEARMAMTGS LIGGIALGLLTSAVSIFPSLAIQARLNYVALQ TDVLQENQKILASFNKAMTNIVDAFTGVNDAITQTSQALQTVATLNIQDVVNVQNGNSLNHLTSQRQNFQAISSSIQAIYDRDL TIQADQVDRITGRLAALNVFSHTLTKYTEVRSRQLAQKVNCEVKSQSKRYGFCGNGTHIFSVNAAPEGLVFLVTLVLLPTQY KDVEAWSGLCVDTNGVLRQPNLALYKEGNYRITSRIMFEPRIPTMADVFQIENCNVTFVNI SRSELQITVPEYIDVNTKIQELS YKLPNYTVPDLVVEQYNTILNLTSEISTLENKSAELNYTVQKQLTIDININSTLVLDKWLNRVETYIKWPWWVWLCISVVLIFVVS MLLCCCSTGCCGFFSFCASSIRG</p>

Protein	Sequence
HCoV-229E S_Full-length	MKKLFVVLVVMPLIYGDNFPCSKLNTNRITGNHWNLIETFLNYSRRLPPNSDVVLGDYFPTVQPFWFCIRNDSNDLYVLTLENLKALY WDYATENITWNHRQRLNVVNGYPYSITVTTTRNFNSAEGAIICICKGSPPTTTESSLTCNWGSECRNLNHFPICPNSSEANCGNM LYGLQWFADEVVAYLHGASYSIFSEFNQWSTVTLGDMRATTELVAGTLDLWVFNVPYDVSYSYRVNKNKGTTVVSNCTDQCASVYAN VFTTQPGGFIPSDFSFNWFLTNSSTLVSGKLVTKQPLLVNCLWPVPSFEEAATFCFEGAGFDQCNGAVLNNTVDVIRFNLNFTTN VQSGKGATVFSLNTTGGVTLLEISCYDVTSDSSFFSYGEPFGVTDGPRYCYVLYNGTALKYLGTLPPSVKIEIAISKWGHFYINGYN FFSTFPIDCISFNLTGDSVFWTIAIYTSYTEALVQVENTAITKVTYCNVSHVNNIKCSQLTANLNNGFYVPSSEVGLVKNKSVLLP SFYTHITVNIITIDLGMKRSYGGQPIASTLSNITLPMQDNNTDVYICIRSDQFSVYVHSTCKSSLWDNI FKRNCITDVLDAVIKTGTC PFSFDKLNLYLTFNKFCLSLSPVGANCKFDVAARTRTNEQVVRSLYVIEEGDNIVGVPDSDNGLHDLVSLHLDSDCTDYNIGRTGV GIIRQNRNLTSLGLYTSLSGDLGFKNVSDGVISYVTPCDVSAQAVIDGTIVGAIITSINSELLGLTHWTTTNPFFYYYSIINYNTND RTRGTAIDSDNDVCEPVIITYSNIGVCKNGAFVFINVTHSDGDVQPISTGNVTIPTNFTISVQVEYIQVYTPVSDCSRYVCNNGNPR CNKLLTQVVSACQTEIQAALAMGARLENMEVDSMLFVSENALKLASVEAFNSSETLDPYKWEPNIGGSWLGGLKYILPSSHNSKRKYR SAIEDLLFDKVVTSGLGTVDVDEYKRCCTGGYDIADLVCAQYYNGIMVLPVGVANADKMTMYTASLAGGITLALGGGGAVAI PFAVAVQA RLNYVALQTDVNLKNQQILASAFNQAIGNITQSPGKVNDAIHQTSRGLATVAKALAKVQDVVNTQGGQALSHLTVLQNNFQAISSSI SDIYNRLDELSADAQVDRILITGRALTALNAFVQTLTRQAEVRSRQLAKDKVNECVRSQSQRFGFCGNGTHLFLSANAAPNGMIFPH TVLLPTAYETVTAWAGICASDGDRTFLVVKDQVTLFRNLDDKQFVLTPTMYQPRVATSSDFVQIEGCDVLFVNATVSDLPSTIPD YIDINQTVQDILENFRPNWTVPELTFDIFNATYLNLTGEIDDLFRSEKLNHTTVELAILDINNTLVNLEWLNRIETYVVKWPWVY WLLIGLVVIFCIPLLFFCCSTGCCGICGLSGSGSGSYYPDVPDYA
CCoV-HuPn-2018_RBD domain	MGILPSPGMPALLSLVSLVLLMGCVAETGTSFFAHTTNIITIDLGMKRSYGGQPIASPLSNITLPMQDNNTDVYICIRSNQFSIYV HSTCKSSLWDNVFNQDCTDLEATAVIKTGTCFSDKLNHLTFNKFCLSLSPVGANCKFDVAARTRTNEQVVRSLYVIEEGDNI VGVPSDNGSSGGSLNDIFEAQKIEWHEGGSHHHHHHHH
HCoV-229E RBD domain	MGILPSPGMPALLSLVSLVLLMGCVAETGTLVPYHKHMFIVLYVDFKPSGGGKCFNCYPAGVNIITLANFNETKGPLCVDTSHT TKYVAVYANVGRWSASINTGNCFFSFGKVNNEVFKGVSVCFLKDI PGGCAMP IVANWAYSKEYTIGTLVSVSDGDGITVGPQVVEG GSSGGSLNDIFEAQKIEWHEGGSHHHHHHHH
TGEV RBD domain	MGILPSPGMPALLSLVSLVLLMGCVAETGTPSYFHTIIVNIITIDLGMKRSYGGQPIASTLSNITLPMQDNNTDVYICIRSDQFSVY VHSTCKSSLWDNI FKRNCITDVLDAVIKTGTCFSDKLNHLTFNKFCLSLSPVGANCKFDVAARTRTNEQVVRSLYVIEEGDNI IVLVPRGSSGGSLNDIFEAQKIEWHEGGSHHHHHHHH
human APN_full-length	MAKGFYISKSLGILGILGVAAVCTIIALSVMVYSQEKKNANSSPVASTTSPASATTPASATTLDQSKAWNRYRLPNTLKPDSYRV TLRPYLTPNDRGLYVFKGSSVTRFTCKEATDVII IHSKKNLNTLSQGHVRLVLRGSGSQPPDDDKTELVEPEYLVVHLKGSVVKDS QYEMDSEFEGELADLAGFYRSEYMEGNVRKVVATTQMQAADARKSFPFCDFEPAMKAEFNITLIHPKDLTALSNNMLPKGPSTPLPED PNWNVTEFHHTPKMSTYLLAFIVSEFDYVEKQASNGVLIRIWARPSAIAAGHGDIYALNVTGPIINFFAGHYDTPYPLPKSDQIGLDP FNAGAMENWGLVTYRENSLLFDPLSSSSSNKERVVTVIAHELAHQWFNGLVTEIWWNDLWLNNEGFASVYVEYLGADYAEPTWNLKDL VLNDVYRMAVDALASSHPLSTPASEINTPAQISELFDPAISYSKSGASVLRMLSSFLSEDFVFKGLASVYHLYTFAQNTIYLNLDHDLQ EAVNNRSIQLPPTTVRDIIMNRWTLQMGFPVITVDTSTGTLSEHFLDPPDSNVTRPSEFNVWVVPITSIIRDGRQQDYWLLDVRAQN DLFSTSGNEWVLLNLTGYRVNYDEENWRKIQTQLQRDHSAPVINRAQIINDAFNLASAHKVPVTLALNNTLFLIEERQYMPWE AALSSLSYFKLMFDRSEVYGPKNYLKQVTPLFIFRNNTNNWREIPENLMDQYSEVNAISTACSNVPECEEMVSGLFKQWMMENP NNNPIHPNLRSTVYCNAIAQGEEEDFAWEQFRNATLVNEADKLRALACSKELWILNRYLSYTLNPDILIRKQDATSTIISI TNNV IGQGLVWDFVQSNWKKLFNDYGGGSFSPSNLIQAVTRRFSTEYELQQLQEQFKKDNEETGFGSGTRALEQALEKTKANIKWVKENKEV VLQWFTENSK
human APN_full-length_R741G	MAKGFYISKSLGILGILGVAAVCTIIALSVMVYSQEKKNANSSPVASTTSPASATTPASATTLDQSKAWNRYRLPNTLKPDSYRV TLRPYLTPNDRGLYVFKGSSVTRFTCKEATDVII IHSKKNLNTLSQGHVRLVLRGSGSQPPDDDKTELVEPEYLVVHLKGSVVKDS QYEMDSEFEGELADLAGFYRSEYMEGNVRKVVATTQMQAADARKSFPFCDFEPAMKAEFNITLIHPKDLTALSNNMLPKGPSTPLPED PNWNVTEFHHTPKMSTYLLAFIVSEFDYVEKQASNGVLIRIWARPSAIAAGHGDIYALNVTGPIINFFAGHYDTPYPLPKSDQIGLDP FNAGAMENWGLVTYRENSLLFDPLSSSSSNKERVVTVIAHELAHQWFNGLVTEIWWNDLWLNNEGFASVYVEYLGADYAEPTWNLKDL VLNDVYRMAVDALASSHPLSTPASEINTPAQISELFDPAISYSKSGASVLRMLSSFLSEDFVFKGLASVYHLYTFAQNTIYLNLDHDLQ EAVNNRSIQLPPTTVRDIIMNRWTLQMGFPVITVDTSTGTLSEHFLDPPDSNVTRPSEFNVWVVPITSIIRDGRQQDYWLLDVRAQN DLFSTSGNEWVLLNLTGYRVNYDEENWRKIQTQLQRDHSAPVINRAQIINDAFNLASAHKVPVTLALNNTLFLIEERQYMPWE AALSSLSYFKLMFDRSEVYGPKNYLKQVTPLFIFRNNTNNWREIPENLMDQYSEVNAISTACSNVPECEEMVSGLFKQWMMENP NNNPIHPNLRSTVYCNAIAQGEEEDFAWEQFRNATLVNEADKLRALACSKELWILNRYLSYTLNPDILIRKQDATSTIISI TNNV IGQGLVWDFVQSNWKKLFNDYGGGSFSPSNLIQAVTRRFSTEYELQQLQEQFKKDNEETGFGSGTRALEQALEKTKANIKWVKENKEV VLQWFTENSK
canine APN_full-length	MAKGFYISKSLGILGILGVAAVCTIIALSVMVYSQEKKNANSSPVASTTSPASATTPASATTLDQSKAWNRYRLPNTLKPDSYRV TLRPYLTPNDRGLYVFKGSSVTRFTCKEATDVII IHSKKNLNTLSQGHVRLVLRGSGSQPPDDDKTELVEPEYLVVHLKGSVVKDS QYEMDSEFEGELADLAGFYRSEYMEGNVRKVVATTQMQAADARKSFPFCDFEPAMKAEFNITLIHPKDLTALSNNMLPKGPSTPLPED PNWNVTEFHHTPKMSTYLLAFIVSEFDYVEKQASNGVLIRIWARPSAIAAGHGDIYALNVTGPIINFFAGHYDTPYPLPKSDQIGLDP FNAGAMENWGLVTYRENSLLFDPLSSSSSNKERVVTVIAHELAHQWFNGLVTEIWWNDLWLNNEGFASVYVEYLGADYAEPTWNLKDL VLNDVYRMAVDALASSHPLSTPASEINTPAQISELFDPAISYSKSGASVLRMLSSFLSEDFVFKGLASVYHLYTFAQNTIYLNLDHDLQ EAVNNRSIQLPPTTVRDIIMNRWTLQMGFPVITVDTSTGTLSEHFLDPPDSNVTRPSEFNVWVVPITSIIRDGRQQDYWLLDVRAQN DLFSTSGNEWVLLNLTGYRVNYDEENWRKIQTQLQRDHSAPVINRAQIINDAFNLASAHKVPVTLALNNTLFLIEERQYMPWE AALSSLSYFKLMFDRSEVYGPKNYLKQVTPLFIFRNNTNNWREIPENLMDQYSEVNAISTACSNVPECEEMVSGLFKQWMMENP NNNPIHPNLRSTVYCNAIAQGEEEDFAWEQFRNATLVNEADKLRALACSKELWILNRYLSYTLNPDILIRKQDATSTIISI TNNV IGQGLVWDFVQSNWKKLFNDYGGGSFSPSNLIQAVTRRFSTEYELQQLQEQFKKDNEETGFGSGTRALEQALEKTKANIKWVKENKEV VLQWFTENSK

Protein	Sequence
canine APN_full-length_T749R	<p>MAKGFYISKALGILAIVLGIAAVSTIIALSVVYAQEKKNKNAESSPVSSPVSSPVSPVPTNPSTTAATTLAQSKPWNHYRLPKTLIPDSYNTLRP PSSYNTLRPYLTPNSNGLYTFRGSSVTRFTCKESTSMIIHSSKLNVTNIQQQRVALRGVGGSQAPADRTELVELTEYLVVHLKGLSQGHMYEME PLQVNSQYEMDSKFEGLADLAGFYRSEYTEMENGVKVLATTQMQAADARKSFPCFDEPAMKATFNITLIHFNPNLVALSNMLPRGSPVPGEDP VPFTEEPNWNVTEFETTPIMSTYLLAYIVSEFKNVQENTPSNVLIRIWARPSAMDQGHGNYALRVGTGPIIDFFSRHYDTPYPLNKSQ QIALPDFNAGAMENWGLVTVRESALLYDPOSSSSIGNKERVVTVIAHELAHQWFGNLVLEWNNDLWLNNEGFASYVEYLADYAEPTW NLKDLVLNEVYRVMADVALASSHPLSPASEVNTPAQISEVFDISIYSGKASVLRMLSNFLTEDLFKMGIASYLYHTYKQNTIYLNWHLQ LWNHLQWALGNQTAINTLPTVNAIMDRWLLQMGFPVITVDQTGTISQKHFLLDPSQSNVTRPSKFNLYLWIPIISSVKSGLQAHYWM PDNAKVQNDLFKTTGDEWVLLNLTGYLVNYDQNNWKKIHTQLQTDLSVIPVINRAQVIHDFDLASAQIVPVTLALNLTFLNLQ ETEYMPWEAALSSLSYFKLMFDRSEVYGPKNYLKQVTPLFNFHFEKITQNRWDHPQTLTEQYNEINAVSTACTYGVFKCKDLVSTL FAEWRKNPQNNPIYPNLRSTVYCNAAIQGGESEWVVEQFRNTSLVNEADKLRSAALACSTQVNI LNRYLSYTLNPEFIRKQVIST LSSIASNVIGQSLAWDFIQSNWKKLFEDYGTGSFNSLIQAVTRRFSTEFELQQLQEQFKANNMGTGFGSGTRALEQALEKTKANIK WVKENKEAVLQWFRENSQ</p>
feline APN_full-length	<p>MAKGFYISKVPGILAILLGVAAVCTIIALSVVYSQEKNRSTESSTAASTAAPTGTPTTAVATLTDQSKPWNVYRLPKTLIPDSYNTLRP RPLYTPNNKGLYVFTGTNIVRFTCKESTNIVIIHSSKLNVTSHQGHMVALSGVGGFHPQVPIVIRTELVELTEYLVVHLKGLSQGHMYEME YEMNSEFQGEADLAGFYRSEYTEMENGVKVLATTTHMQATEARKSFPCFDEPAMKATFNITLIHFNPNLVALSNMLPRGSPVPGEDP TWKVTTEFETTPIMSTYLLAYIVSEFYSVETRAPSGVLRIRIWARPSAINQGHGDIYALVKTGPIIDFFSQHYDTPYPLNKSQDQIALPDF NAGAMENWGLVTVRESALLYDRQSSSSGNQERVVTVIAHELAHQWFGNLVLEWNNDLWLNNEGFASYVEYLADYAEPTWNLKDLV LNDVYRVMADVALASSHPLSTPASEINTPAQISEVFDISIYSGKASVLRMLSNFLTEDLFKMGIASYLYHTYKQNTIYLNWHLQ VVDKQPTIKLPDVTVAIMDRWLLQMGFPVITVDQTGTISQKHFLLDPSQSNVTRPSQFNLYLWVPIISSVKSGLQAHYWM NDLFKTTANDWVLLNLTGYLVNYDQNNWKKIHTQLQTDLSVIPVINRAQVIHDFDLASAQIVPVTLALNLTFLNIQETEYMPW QAALSSLSYFKLMFDRSEVYGPKNYLKQVTPLFNFHFEKITQNRWDHPQTLMDQYSEINAVSTACTYGVPECEKLAATLFAQWKKN PQNNPIHFNLRSTVYCNAAIQGGESEWVVEQFRNTSLVNEADKLRGALACSNQVWILNRFLSYTLNPNLIRKQVISTLSSISSN VVGQTLVWDFVQSNWKKLFQDYGTGSFNSLIQAVTRRFSTEFELQQLQEQFKANNMGTGFGSATRALEQALEKTKANIKWVKENK VLRWFTENS</p>
porcine APN_full-length	<p>MAKGFYISKALGILGILGVAAVATIALSVVYAQEKKNKNAEHVQAPTSPTITTTAAITLTDQSKPWNRYRLPTLTPDSYNTLRP YLPNADGLYIFKGSIVRPIQCEPTDVIHSSKLNVTQGHMVLRVGVDSQVPEIDRTELVELTEYLVVHLKGLSQGHMYEME SEFQGEADLAGFYRSEYTEMENGVKVLATTQMQSTARKSFPCFDEPAMKATFNITLIHFNPNLVALSNMLPRGSPVPGEDP TEFETTPVMSTYLLAYIVSEFQSVNETAQNGVLRIRIWARPNAIAEGHGMALNVGTGPIIDFFANHYNTYPLPKSDQIALPDFNAGA MENWGLVTVRENALLDFDQSSSSISNKRERVVTVIAHELAHQWFGNLVLEWNNDLWLNNEGFASYVEYLADYAEPTWNLKDLVLPVGDV YRVMADVALASSHPLTTPAEVNTPAQISEMFDISIYSGKASVIRMLSNFLTGDLFKEGLASYLHAFAYLWVPIISSVKSGLQAHYWM QTSIRLPDVTVAIMDRWLLQMGFPVITVDTKGTISQKHFLLDSESNVTRSSAFDYLWVPIISSIKNGVMQDHYWLRDVSQAQNDLF KTASDDWVLLNVTGYFQVNYDEDNWRMIHQHLQTLNLSVIPVINRAQVIYDSFNLATAHMVPVTLALDNTLFLNGEYKEMPQAAAL SSLSYFKLMFDRSEVYGPKNYLKQVTEPLFQHFETLTKNWTERRPENLMDQYSEINAVSTACTYGVPECEKLAATLFAQWKKN PQNNPIHFNLRSTVYCNAAIQGGQDQWDFAWGQLQQAQLVNEADKLRSAALACSNVWLLNRYLYGTYLNPDLIRKQDATSTINSIASNVIGQ PLAWDFVQSNWKKLFQDYGTGSFNSLIQAVTRRFSTEFELQQLQEQFKANNMGTGFGSATRALEQALEKTKANIKWVKENKEVVLN WFIHS</p>
human APN_ectodomain_Fc	<p>MGILPSPGMPALLSLVLSVLLMGCVAETGTDQSKAWNRYRLPNTLKPDSYRVTLRPLYLTPNDRGLYVFKGSSVTRFTCKEATDVI IIHSSKLNVTLSQGHRRVLRVGGVSPDIDKTELVEPTEYLVVHLKGLSVKDSQYEMDSEFEGELADLAGFYRSEYTEMENGVKVV ATTQMQAADARKSFPCFDEPAMKAEFNITLIHFKDLTALSNMLPKGPTPLPEDPNWVTEFHHTPKMSTYLLAFIVSEFDYVEKQA SNGVLRIRIWARPSAIAAGHDYALNVGTGPIILNFFAGHYDTPYPLPKSDQIGLPDFNAGAMENWGLVTVRENSLLDFDPLSSSSNKR VVTVIAHELAHQWFGNLVTEIWWNDLWLNNEGFASYVEYLADYAEPTWNLKDLVNDVYRVMADVALASSHPLSTPASEINTPAQI SELFDAISYSGKASVLRMLSSFLSEDFVFKQGLASYLHTFYAQNTIYLNLDWHLQEAVERNRSIQLPPTVTRDINMNRWTLQMGFPVITVD TSTGTLSEHFLDPSNVTRPSEFNWVWVPIITSIRDGRQQDYWLDVRAQNDLFTSGNEWVLLNLTGYRVNYDEENWRKI QTQLQRDHSIIPVINRAQIINDAFNLASAHKVPVTLALNLTFLIEERQYMPWEAALSSLSYFKLMFDRSEVYGPKNYLKQVTP FIHFRNNTNWRTEIPENLMDQYSEVNAI STACSNVPECEEMVSGLFKQWMPNPNPIHFNLRSTVYCNAAIQGGESEWDFAWEQ RNATLVNEADKLRALACSKELWILNRYLSYTLNPDLLRQDATSTIISITNNVIGQLVWDFVQSNWKKLFNDYGGGGSFNSLIQ AVTRRFSTEYELQQLQEQFKDNEETGFGSGTRALEQALEKTKANIKWVKENKEVVLQWFTENSKGGLVPRGSGSGSDPEPKSCDQ THTCCPCPAPELLGGPSVFLFPKPKDTLMI SRTEPVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREQYNTSYRVVSVLTVL HQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSRDELTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTPP VLDSDGSEFFLYSKLTVDKSRWQQGNVFCSCVMHEALHNHYTQKSLSLSPGK</p>
human APN_ectodomain_R741T	<p>MGILPSPGMPALLSLVLSVLLMGCVAETGTDQSKAWNRYRLPNTLKPDSYRVTLRPLYLTPNDRGLYVFKGSSVTRFTCKEATDVI IIHSSKLNVTLSQGHRRVLRVGGVSPDIDKTELVEPTEYLVVHLKGLSVKDSQYEMDSEFEGELADLAGFYRSEYTEMENGVKVV ATTQMQAADARKSFPCFDEPAMKAEFNITLIHFKDLTALSNMLPKGPTPLPEDPNWVTEFHHTPKMSTYLLAFIVSEFDYVEKQA SNGVLRIRIWARPSAIAAGHDYALNVGTGPIILNFFAGHYDTPYPLPKSDQIGLPDFNAGAMENWGLVTVRENSLLDFDPLSSSSNKR VVTVIAHELAHQWFGNLVTEIWWNDLWLNNEGFASYVEYLADYAEPTWNLKDLVNDVYRVMADVALASSHPLSTPASEINTPAQI SELFDAISYSGKASVLRMLSSFLSEDFVFKQGLASYLHTFYAQNTIYLNLDWHLQEAVERNRSIQLPPTVTRDINMNRWTLQMGFPVITVD TSTGTLSEHFLDPSNVTRPSEFNWVWVPIITSIRDGRQQDYWLDVRAQNDLFTSGNEWVLLNLTGYRVNYDEENWRKI QTQLQRDHSIIPVINRAQIINDAFNLASAHKVPVTLALNLTFLIEERQYMPWEAALSSLSYFKLMFDRSEVYGPKNYLKQVTP FIHFRNNTNWRTEIPENLMDQYSEVNAI STACSNVPECEEMVSGLFKQWMPNPNPIHFNLRSTVYCNAAIQGGESEWDFAWEQ RNATLVNEADKLRALACSKELWILNRYLSYTLNPDLLRQDATSTIISITNNVIGQLVWDFVQSNWKKLFNDYGGGGSFNSLIQ AVTRRFSTEYELQQLQEQFKDNEETGFGSGTRALEQALEKTKANIKWVKENKEVVLQWFTENSKGGLVPRGSGSGSDPEPKSCDQ THTCCPCPAPELLGGPSVFLFPKPKDTLMI SRTEPVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREQYNTSYRVVSVLTVL HQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSRDELTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTPP VLDSDGSEFFLYSKLTVDKSRWQQGNVFCSCVMHEALHNHYTQKSLSLSPG</p>

Protein	Sequence
canine APN_ectodomain_Fc	<p>MGILPSPGMPALLSLVLSVLLMGCVAETGTQAQSKPWNHYRLPKTLIPSSYNVTLRPLYLTPNSNGLYTFKGSSTVRFCTCKESTSMI IIHKKLNVTNIQGRVALRGVGGSSQAPAI DRTELVEVTEYLVVHLREPLQVNSQYEMDSKFEGELADDLAGFYRSEYTEENGVKVLA ATTQMQAADARKSFPFCFDEPAMKATFNITLIHPSNLVALSNMLPRGSPVPTTEEPNWNVTEFETTPIMSTYLLAYIVSEFKNVQENT PSNVLIRIWARPSAMDQGHGNYALRVTPILDFFSRHYDTPYPLNKSDQIALPDFNAGAMENWGLVTVYRESALLYDPQSSSIGNKER VVTVIAHELAHQWFGNLTLEWVNDLWLNNEGFASYVEYLADYAEPTWNLKDLIVLNEVYRVMADALASSHPLSSPASEVNTPAQI SEVFDSSISYKSGASVLRMLSSFLTEDLFKKGAVASYLHTFAYQNTIYLDLWNLHQLWALGNQTAINLPYTVNAIMDRWLLQMGFPVVTV DTTGTLSQKHFLLDPQSNVTRPSKFNWLIPISSVKSQTQAQHYWMPDNKAVQNDLFRKTTGDEWVLLNLTGYYLVNYDQNNWK KIHTQLQTDLSVIPVINAQVIHDTFLASAQIVPVTALNNTLFLNQETEYMPWEAALSLSYFKLMFDRSEVYGPMMKNYLRKQVT PLFNHFKEITQNWTDHPQTLTEQYNEINAVSTACTYGVPKCKDLVSTLFAEWRKNPQNNPIYPNLRSTVYCNIAIQGGEEWNVFWE QFRNTSLVNEADKLRSLACSTQVWILNRYLSYTLNPEFIRKQDVI STLSSIASNVIGQSLAWDFIQSNWKKLFEDYGTGFSFNSL IQAVTRRFSTEFELQQLQEQFKANNMDFGSGSTRALEQALEKTKANIKWVKENKEAVLQWFRENSQGGSLVPRGSGSGSDPEPKSC DKTHTCPPCPAPELLGGPSVFLFPPPKPDTLMI SRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYNSTYRVVSVLT VLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSRDELTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTT PPVLDSDGSEFFLYSKLTVDKSRWQQGVNFSCVMHEALHNNHYTQKLSLSLSPGK</p>
canine APN_ectodomain_T749R_Fc	<p>MGILPSPGMPALLSLVLSVLLMGCVAETGTQAQSKPWNHYRLPKTLIPSSYNVTLRPLYLTPNSNGLYTFKGSSTVRFCTCKESTSMI IIHKKLNVTNIQGRVALRGVGGSSQAPAI DRTELVEVTEYLVVHLREPLQVNSQYEMDSKFEGELADDLAGFYRSEYTEENGVKVLA ATTQMQAADARKSFPFCFDEPAMKATFNITLIHPSNLVALSNMLPRGSPVPTTEEPNWNVTEFETTPIMSTYLLAYIVSEFKNVQENT PSNVLIRIWARPSAMDQGHGNYALRVTPILDFFSRHYDTPYPLNKSDQIALPDFNAGAMENWGLVTVYRESALLYDPQSSSIGNKER VVTVIAHELAHQWFGNLTLEWVNDLWLNNEGFASYVEYLADYAEPTWNLKDLIVLNEVYRVMADALASSHPLSSPASEVNTPAQI SEVFDSSISYKSGASVLRMLSSFLTEDLFKKGAVASYLHTFAYQNTIYLDLWNLHQLWALGNQTAINLPYTVNAIMDRWLLQMGFPVVTV DTTGTLSQKHFLLDPQSNVTRPSKFNWLIPISSVKSQTQAQHYWMPDNKAVQNDLFRKTTGDEWVLLNLTGYYLVNYDQNNWK KIHTQLQTDLSVIPVINAQVIHDTFLASAQIVPVTALNNTLFLNQETEYMPWEAALSLSYFKLMFDRSEVYGPMMKNYLRKQVT PLFNHFKEITQNWTDHPQTLTEQYNEINAVSTACTYGVPKCKDLVSTLFAEWRKNPQNNPIYPNLRSTVYCNIAIQGGEEWNVFWE QFRNTSLVNEADKLRSLACSTQVWILNRYLSYTLNPEFIRKQDVI STLSSIASNVIGQSLAWDFIQSNWKKLFEDYGTGFSFNSL IQAVTRRFSTEFELQQLQEQFKANNMDFGSGSTRALEQALEKTKANIKWVKENKEAVLQWFRENSQGGSLVPRGSGSGSDPEPKSC DKTHTCPPCPAPELLGGPSVFLFPPPKPDTLMI SRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYNSTYRVVSVLT VLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSRDELTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTT PPVLDSDGSEFFLYSKLTVDKSRWQQGVNFSCVMHEALHNNHYTQKLSLSLSPGK</p>
feline APN_ectodomain_FC	<p>MGILPSPGMPALLSLVLSVLLMGCVAETGTQDQSKPWNHYRLPKTLIPDSYNVTLRPLYLTPNNKGLYVFTGTNIVRFCTCKESTNIV IIHKKLNVTSHQGHMVALSGVGGFHPQVIVRTELVELTEYLVVHLQEPVAGRQYEMNSEFQGLADDLAGFYRSEYMEENGVKVLA LATHMQATEARKSFPFCFDEPAMKATFNITLIHPSNLVALSNMLPRGSPVPTTEEPNWNVTEFETTPIMSTYLLAYIVSEFYSVETR APSGVLRIRIWARPSAINQGHGDAYLKVTPGILDFFSQHYDTPYPLNKSDQIALPDFNAGAMENWGLVTVYRESALLYDRQSSSSGNQE RVVTVIAHELAHQWFGNLTLEWVNDLWLNNEGFASYVEYLADYAEPTWNLKDLMLNDVYRVMADALASSHPLSSPASEVNTPAQI SEVFDSSISYKSGASVLRMLSSFLTEDLFKKGAVASYLHTYKYGNTIYLNLEWHLQVVDVQYTIKLPDLVYSAIMDRWLLQMGFPVVT VDTQTGTSIQHFLDLPQSNVTRPSQFNWLIWVPISSVRSQSAQHYWLPVGEKAQNDLFRKTTANWVLLNLTGYYLVNYDQNNWK KKIQTQLQTDLSVIPVINAQVIHDAFNLSAQKVPVTALNNTLFLIQETEYMPWQAALSLSYFKLMFDRSEVYGPMMKNYLRKQVT PLFNHFERVTKNWDHPQTLMDQYSEINAVSTACTYGVPECEKLAATLFAQWKKNPQNNPIHFNLRSTVYCNIAIQGGEEWNVFWE EQFLKAEVLNEADKLRGALACSNQVWILNRYLSYTLNPEFIRKQDVI STLSSIASNVVGTQVWVQVNSNKKLFDYGTGFSFNSL LIQAVTRRFSTEFELQQLQEQFKANNMDFGSGSTRALEQALEKTKANIKWVKENKEAVLQWFRENSQGGSLVPRGSGSGSDPEPKSC DKTHTCPPCPAPELLGGPSVFLFPPPKPDTLMI SRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYNSTYRVVSVLT VLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSRDELTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTT PPVLDSDGSEFFLYSKLTVDKSRWQQGVNFSCVMHEALHNNHYTQKLSLSLSPGK</p>
porcine APN_ectodomain_Fc	<p>MGILPSPGMPALLSLVLSVLLMGCVAETGTQDQSKPWNHYRLPPTLLPDSYNVTLRPLYLTPNADGLYIFKGSIVRFICQEPDVI IIHKKLNVTYTGQHMVLRGVGDSQVPEIDRTELVELTEYLVVHLKGLQPGHMYEMESEFQGLADDLAGFYRSEYMEENGVKVLA TTQMSTADARKSFPFCFDEPAMKATFNITLIHPSNLVALSNMLPRGSPVPTTEEPNWNVTEFETTPVMSTYLLAYIVSEFQSVNETAQ NGVLRIRIWARPNIAEAGHMYALNVTGPIILNFFANHYNTPYPLPKSDQIALPDFNAGAMENWGLVTVYRENALLFPDQSSSISNKERV VTVIAHELAHQWFGNLTLEWVNDLWLNNEGFASYVEYLADYAEPTWNLKDLIVPQDVIYRVMADALASSHPLSSPASEVNTPAQI EMFDSISYKSGASVLRMLSSFLTEDLFKKGAVASYLHTFAYQNTIYLDLWHLQKAVDAQTSIRLPDPTVRAIMDRWLLQMGFPVITVD TKTGNISQKHFLLDSESNVTRSSAFDYLWVPISSIKNGVMQDHYWLRDVSQAQNDLFRKTTASDDWVLLNVTGTFQVNYDEDNWRM IQHQLQTNLSVIPVINAQVIYDSFNLA TAHMVPVTLALDNTLFLNKEKEYPWQAALSLSYFSLMFDRESEVYGPMMKNYLRKQVEP LFQHFETLTKNWTTERPENLMDQYSEINAI STACSNGLPQCENLAKTLFDQWMSDPENNPIHFNLRSTIYCNIAIQGGQDQWFAWQ LQQAQLVNEADKLRSLACSNVWLLNRYLYGTYLNPDLIRKQDATSTINSIASNVIGQPLAWDFVQSNWKKLFDYGTGFSFNSL QGVTRRFSEFELQQLQEQFKANNMDFGSGSTRALEQALEKTKANIKWVKENKEAVLQWFRENSQGGSLVPRGSGSGSDPEPKSCDK THTCPPCPAPELLGGPSVFLFPPPKPDTLMI SRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYNSTYRVVSVLT VLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSRDELTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTT PPVLDSDGSEFFLYSKLTVDKSRWQQGVNFSCVMHEALHNNHYTQKLSLSLSPGK</p>
CCoV-HuP_0_domain_I53-50A	<p>MGILPSPGMPALLSLVLSVLLMGCVAETGTDFNPKSKFLNRTIGNHWNLIENFLNYSIRLPPNSDVVLGDYFPTVQPFWCINR NNNSLYVTMENKALYWDYATENITSDHRQRHLVVVKGKPYSTVTTTRNFDAEAGAIICICKGSPTTTTGNLDCNWSGDCRLNKH FPICPSNSQANCGNMLYGLQWFTDEVVAYLHGAIYRISFENKWFQVTLTGMRAATLQTAGALVDLWVFNVYDVTYRNNKNGT IVSNCTDQCASVVDGSGSGSGSGSGSGSSEKAAKAEAAARKMEELFKKHKIVAVLRANSVEAIEKAVAVFAGGVHLIEITFTVPD ADTVIKALSVLKEGAIIGAGTSTVVEQARKAVESGAEIFVSPHLDEEISQFAKEKGVFYFMPGMVMTPELVKAMKLGHTLKLFPGE VVGQPVKAMKPEFPNVKVFVPTGGVNDLVAEWFKAGVLA VGVGSAVVKGTDFEVRKAKAFVEKIRGTEGGSHHHHHHHH</p>

Protein	Sequence
CCoV-HuP_B_domain_I53-50A	MGILPSPGMPALLSLVSLVLLMGCVAETGTGTSFFAHTTVNITIDLGMKRSYGGQPIASPLSNITLPMQDNNTDVYICIRSNQFSIYV HSTCKSSLWDNVFNQDCTDVLEATAVIKTGTCPFSFDKLNHLTFNKFCLSLSPVGANCKFDVAARTRTNEQVRSYLYIYEEGDNI VGVPSDNGSGSGSGSGSGSGSEKAAKAEAAARKMEELFKKHKIVAVLRANSVEEAIEKAVAVFAGGVHLIEITFTVPDADTVIKA LSVLKEKGAIIAGTIVTSVEQARKAVESGAEIFVSPHLDEEISQFAKEKGVFMPGVMTPTLTKKAMKLGHTILKLPFGEVVGQFV KAMKGFPPNVKFPVPTGVNLDNVAENFKAGVLAAGVGSALVKGTPDEVREKAKAFVEKIRGATEGGSHHHHHHHH
HKU1_S_I53-50A	MGILPSPGMPALLSLVSLVLLMGCVAETGTGTVIGDFNCTNSPINDYNKTI PRISEDDVVDVSLGLGTYVYVLRVYVNTLLFTGYFP KSGANFRDLALGKSIYLLSTLWYKPPFLSDFNNGIFSKVKNTKLYVNNNTLYSEFSTIVIGSVFVNTSYTIVVQPHNGILEITACQYTM CEYPHTVCKSKGIRNESWHIDSEPLCLFKKNFTYNVADWLYPHFYQERGVFYAYYADVGMPTTFLFSLYLGITLILSHYVVMPLTC NAISSNTDNETLEYVWTPLSRRQYLLNFDEHGVITNAVDCSSFLSEIQCKTQSFAPNTGVYDLSGFTVKPVATVYRRIINLPDCCI DNWLNNSVPSPLNWERRIFSNCFNLSLTLRLVHVDSFCNNLDKSKIFGSCFNSITVDFKFAIPNRRRDLQLGSSGFLQSSNYKI DISSSSCQLYISLPLNVNNTINNFPNPSNRRYGFSGFNLSSYDVVYSDHCFVSNDFPCADPSVNSCAKSKPPSAICPAGTKYRH CDLDTTLYVKNWCRCSCLPDPFISTYSPNTPCQKQKVVVIGIEHCPGLGINEEKCQTQNLNHSFCFSPDAFLGWSFDSCISNNRCNIFS NFIFNGINSGTCSNDLLYNTIEISTGVCVNYDLYGITGGGIFKEVSAAYNNWQNLLYDSNGNIGFKDFLTNKTYYTILPCYSGRV SAAFYQNSSPALYRNKCSYVLNNSIFISQPFYFDSYLGCVLNAVNLTSYVSSCDLRMGSGFCIDYALPSSGGSGSGISSPYRF VTFEPFNVSFVNDVETVGLFEIQTIPNTFTAGHEEFIQTSSEPKVTIDCSAFVCSNYAACHDLLSEYGTFCNDINSILNEVDNLDL ITQLQVANALMQGVTLSSNLTNLHSDVDNIDFKSLLGCLGSGCQSSRSLELLEDFLNKVKLSDVGFVEAYNNTGGSEIRDLCCVQ SFNGIKVLPPIISETQISGYTTAATAAMFPWSAAAGVPPFSLNVQYRINGLGVTMDVLNKNQKLIANAFNKALLSIQNGFTATNSA LAKIQSVNANAQALNSLLQLEFNKFGAIISSSQEILSRDPPPEAQVQIDRLINGRLTALNAVYSQQLSDITLIKAGASRAIEKVN CVKSQSPRINFCGNHLLSLVQNAFYGLLFIHFSYKFTSFKTVLVSPLGLCSGDRGIAPKQGYFVQSDMSWMTFGSSYYYPEPISD KNVVFMSCSVNFTKAPFIYLNNSIPNLSDFEAELSLWFKNHTSIAPNLTFNHSHINATFLDLYEMNVIQESIKSLNGSGYIPEAPR DGQAYVRKDGWVLLSTFLGSGSGSGSGSEKAAKAEAAARKMEELFKKHKIVAVLRANSVEEAIEKAVAVFAGGVHLIEITFTVP DADTVIKALSVLKEKGAIIAGTIVTSVEQARKAVESGAEIFVSPHLDEEISQFAKEKGVFMPGVMTPTLTKKAMKLGHTILKLPFG EVVGPQFVKAMKGFPPNVKFPVPTGVNLDNVAEWFKAGVLAAGVGSALVKGTPDEVREKAKAFVEKIRGATEGGSHHHHHHHH
TMPRSS2	MALNSGSPPAIGPYENHGYQENPYPAQPTVVPTVYEVHPAQYYPSPVPQYAPRVLTAQSNPVVCTQPKSPSGTVCTSKTKKALCI TLTLGTFVLGAALAGLLWKFMGSKCSNSGIECDSSGTCINPNSWCDGVSHCPGGEDENRCVRLYGNFIIQVYSSQRKSWHPVCQD DWNENYGRAACRDMGYKNNFYSSQGI VDDSGSTSFMKLNLSAGNVDIYKLYHSDACSSKAVVSLRCIACGVNLSRQRSRIVGGES ALPGANFWQVSLHVQNVHVCGGSIITPENIVTAAHCVEKPLNPNWHHTAFAGILRQSFMYGAGYQVEKVISHPNYSKTKNNDIAL MKLQKPLTFNDLVKPVCLPNPMMQLQPEQLCWIISGWGATEEKGKTESEVLNAAKVLIIETQRCNSRYVDNLIPTAMICAGFLQGNVD SCQDSSGGPLVTSKNNIWWLIGDTSWGSACAKAYRPGVYGNVMVFTDWIYRQMRADG
HA-ferritin	MKAKLLVLLCTFTATYADTICIGYHANNSTDTVDTVLEKNVTVTHSVNLLDHSNGKLCCLLKGIAPLQLGNCVAGWILGNPECELL ISKESWSYIVETPNPENGTCYPGYFADYEELREQLSSVSSFERFEIFPKESSWPNHTVTVGSASCSSHNGKSSFYRNLWLTGKNGLY PNLSKSYVNNKEKVLVWLVGWHHPNIGNQRALYHTENAYVSVVSHYSRRFTPEIAKRPKVRDQEGRINYWTLLPEPGDTIIFEAN GNLIAFWYAFALSRGFGSGIIITSNAPMDECDKACQTPQGAINSLSLFPQNVHPVTIGECPKYVRSAKLRMVTGLRNIPORETRGLFGA IAGFIEGGWTGMVDGWYGHQNEQGSYAADQKSTQNAINGITNKVNSVIEKMMTQFTAVGREFNKLERMENLNKKVDDGFLDIW TYNAELLVLENERLDFHDSNVKNLYEKVKSQKLNNAKEIIGNCFEFYHCKNNECMESVKNGTYDYPKYSESKLNREKISGGDII KLLNEQVKNEMQSSNLYMSMSWCYTHSLDAGLFLFDHAAEYEHAKKLIIFLNENNVPVQLTISISAPEHKFEGLTQIFQKAYEHE QHTSESINNIVDHAIKSKDHATFNFLQWYVAEQHEEEVLPFKDILDKIELIGNENHGLYLDQVVKIAKRSKS
NC99-NA	VTLAGNSSLCSISGWAIYTKDNSIRIGSKGDVVFVIREPFI SCSHLECRTFFLTQGALLNDKHSNGTKVDRSPYRALMSCLPEAPSP YNSKFESVAWSASACHDGMWLTIGISGPDNGAVAVLYNGIITETIKSWKKRILRTQSESECVCVNGSCFTIMTDGPSNGAASYKIF KIEKGVTKSIELNAPNFHYECCSYPDTGTVMCVCRDNWHGSRNPWVSFNQNLDYQIGLYICSGVFGDNPRPKDGEKSCNRPVTVDGA DGVKGFYKYGNVWIGRTRKSNRLKGFEMIWDPNGWTDSDSFSVKQDVVAITDWSGYSGSVQHPQLTGLDCIRPCFWVWELVRLG PRENTTIWTSGSSISFCGVNSDTANWSWPDGAELPFTIDK