

Supplementary Materials:

Table S1. Protein ID and amino acid sequences of interleukins used for bioinformatics analyzes

Name	Protein ID	Sequence
IL-1 α	Q7RU00	MSFVGENSEGVKMGSEDWEKDEPQCCELDPA GSPLEPGPSLPTMNFVHTSRKVKSLNPKKF SIHDQDQHKVLVLD SGNLIAPVDKNYIRPEIFFALASSLSASA EKGSLILGVS KGEFCL YCDKDKGQSHPSLQLKKEKLMKLA AQKESARRPFIFYRAQVGS RNMLESA AHPGWFICT S CNCNEPVGVTDKFENRKHIEFSFQPVVCKAEMSPSEVSN
IL-2	P60568	MYRMQLLSICIALSLALVTNSAPTSSSTKKTQLQLEHLLDLQMILNGINNYKNPKLTRML TFKFYMPKKATELKHLQCLEEELKPLEEVLNLAQSKNFHLRPDLISNINVIVLELKGE TTFMCEYADETATIVEFLNRWITFCQSIISTLT
IL-3	P08700	MSRLPVLLLQLLVRPGLQAPMTQTPLKTSWVNCSNMIDEIITHLKQPPLPLDFNNLN GEDQDILMENNLRPNLEAFNRAVKS LQNASAIESILKNLLPCLPLATAAPTRHPIHIKD GDWNEFRRKLT FYLKTLENAQAQQTTLSLAIF
IL-4	P05112	MGLTSQLLPPLFFLLACAGNFVHGHKCDITLQEIIKTLNSLTEQKTLCTELTVTDIFAAS KNTTEKETFCRAATVLRQFYSHHEKDTRCLGATAQQFHRHKQLIRFLKRLDRNLWGLAGL NSCPVKEANQSTLENFLERLKTIMREKYSKCSS
IL-5	P05113	MRMLLHLSLLALGAAYVYAIPTEIPTSALVKETLALLSTHRTLLIANETLRIPVPVHKNH QLCTEEIFQGIGTLESQTVQGGTVERLFKNLSLIKKYIDGQKKKCGEERRRVNQFLDY LQ EFLGVMNTEWIIES
IL-6	P05231	MNSFSTSAFGPVAFSLGLLLVLPAAFPAPVPPGEDSKDVAAPHRQPLTSSERIDKQIRYI LDGISALRKETCNKSNMCESSKEALAENNLNLPKMAEKDGCFCQSGFNEETCLVKIITGLL EFEVYLEYLQNRFESEEQARAVQMSTKVLIQFLQKKAKNLDAITTPDPTTNASLLTKLQ AQNQWLQDMTTHLILRSFKEFLQSSLRALRQM
IL-7	P13232	MFHVSFRYIFGLPPLILVLLPVASSDCDIEGKDGKQYESVLMVSIDQLLDSMKEIGSNCL NNEFNFFKRHICDANKEGMFLFRAARKLRQFLKMNSTGDFDLHLLKVSEGTTILLNCTGQ VKGRKPAALGEAQPTKSLEENKSLKEQKKLNDLCFLKRLQLQEIKTCWNKILMGTKEH
IL-8	P10145	MTSKLAVALLA AFLISAALCEGAVLPRSAKELRCQCIKTYSKPFHPKFIKELRVIESGPH CANTEIIVKLS D GRELCLDPKENWVQRVVEKFLKRAENS
IL-9	P15248	MLLAMVLT SALLCSVAGQG CPTLAGILDINFLINKMQEDPASKCHCSANVT SCLCLGIP SDNCTRPCF SERLSQMTNTTMTQTRYPLIFSRVKKSVEVLKNNKCPYFSCEQPCNQTTAGN ALTFLKSLLEIFQKEKMRGMRGKI
IL-10	P22301	MHSSALLCCLVLLTGVRASPGQGTQSENSCTHFPGNLPNMLRDLRDAFSRVKTFQMKDQ LDNLLLKESLLEDFKGYLG CQALSEMIQFYLEEVMPPQAENQDPDIKAHVNSLGENLKT LR LRLRRCHRFLPCENKSKAVEQVKNAFNKLQEKGIYKAMSEFDIFINYIEAYMTMKIRN
IL-11	P20809	MNCVCRLVLVLSLWPD TAVAPGPPPGPPRVSPDPRAELDSTVLLTRSLADTRQLAAQL RDKFPADGDHNLDSLPTLAMSAGALGALQLPGLVTRLRADLLSYLRHVQWLR RAGGSSLK TLEPELGT LQARLDRLRLRLQLLMSRLALPQPPDP PAPP LAPPSSAWGGIRAAHAILGG LHLTLDWAVRGLLLKTRL
IL-12 α	P29459	MCPARSLLLVATLVLLDHL SLARNLPVATPDPGMFPC LHHSQNLLRAVSNMLQKARQ TLE FYPCTSEEIDHEDITKDKTSTVEACLPLELTKNESCLNSRETSFITNGSCLASRKTSFMM ALCLSSIYEDLKMYQVEFKTMNAKLLMDPKRQIFLDQNM LAVIDELMQALNFNSETVPQK SSLEEPDFYKTKIKLCILLHA FRIRAVTIDRVMSYLNAS
IL-12 β	P29460	MCHQQLVISWFSVLVFLASPLVAIWELKKDVYVVELDWYPDAPGEMVVLTC DTPPEEDGITW TLDQSSEVLGSGKTLTIQVKEFGDAGQY TCHKGGEVLSHSLLLLHKKEDGIWSTDILKDQ KEPKNKTFLRCEAKNYSGRFTCW WLT TISTDLTFSVKSSRGSSDPQGVTCGAATLSAERV RGDNKEYEYSVEQEDSACPA AEESLPIEVMVDAVHKLKYENYTSSFFIRDIIKPDPPKN LQLKPLKNSRQVEVSW EYPDTWSTPHSYFSLTFCVQVQGKSKREKKDRVFTDKTSATVIC RKNASISVRAQDRYSSSWSEWASVPCS
IL-13	P35225	MHPLLNP LLLALGLMALLTTVIALTCLGGFASPGPVPSTALRELIEELVNITQ NQKAP LCNGSMVWSINLTAGMYCAALES LINVSGCSAIEKTQRMLSGFCPHKVSAGQFSSLHVRD TKIEVAQFVKDLLHLK KLFREGRFN
IL-14/TXLNA	P40222	MKNQDKKNGAAKQSNPKSSPGQPEAGPEGAQERPSQAAPAVEAEGPGSSQAPRKPEGAQA RTAQSGALRDVSEELSRQLEDILSTYCVDDNNQGGPGEDGAQGEPAEPEDA EKSRTYVARN

		GEPEPTPVVNGEKEPSKGDNPNTTEEIRQSDEVGDRDHRRPQEKKKAKGLGKEITLLMQTLN TLSTPEEKLAALCKKYAELLEHRNSQKQMKLLQKKQSQLVQEKDHLRGEHSKAVLARSK LESLCRELQRHNRSLKEEGVQRAREEEEEKRKEVTSHFQVTLNDIQLQMEQHNERNNSKLRQ ENMELAERLKKLIEQYELREEHIDKVFHKHDLQQQLVDAKLQQAQEMLKEAERHQREKD FLLKEAVESQRMCELMKQQETHLKQQLALYTEKFEEFQNTLSKSSEVFTTFKQEMEKMTK KIKKLEKETTMYSRWESSNKALLEMAEEKTVRDKELEGLQVKIQRLEKLCRALQTERND LNKRVQDLSAGGQGS LTDSGPERRPEGPGAQAPSSPRVTEAPCYPGAPSTEASGQTGPQE PTSARA
IL-15	P40933	MRISKPHLRISISIQCYLCLLLNSHFLTEAGIHVFILGCFSAGLPKTEANWVNVISDLKKI EDLIQSMHIDATLYTESDVHPSCKVTAMKCFLELQVISLES GDASIHDTVENLIILANN SLSSNGNVTESGCKECEELEEKNIKEFLQSFVHIVQMFINTS
IL-16	Q14005	MESHSRAGKSRSKSAKFRSISRSLMLCNAKTSDDGSSPDEKYPDPFEISLAQGKEGIFHSS VQLADTSEAGPSSVPDLALASEAAQLQAAGNDRGKTCRRIFFMKESSTASSREKPGKLEA QSSNLFPPKACHQRARSNSTSVNPYCTREIDFPMTKKSAAPTDRQPYSLCSNRKLSLQQQL DCPAGKAAGTSRPTSLSTAQLVQPSGGLQASVISNIVLMKGQAKGLGFSIVGGKDSIYG PIGIYVKTIFAGGAAAADGRLQEGDEILELNGESMAGLTHQDALQKFQAKKGLLTLTVR TRLTAPPSLCSHLSPLCRSLSSSTCITKSSSFALESAPISTAKPNYRIMVEVSLQK EAGVGLGIGLCSVPYFQCISGIFVHTLSPGSAHLDGRLRCCGEIVEISDSPVHCLTLNE VYTILSHCDPGVPPIIVSRHPDPQVSEQQKLEAVAQAVENTKFGKERHQWSLEGVKRLES SWHGRPTLEKEREKNSAPPHRRAQKVMIRSSSDSSMSGSPGSGSPGSGSAEKPSSDVIDIS THSPSLPLAREPVVLSIASSRPLQESPPLESRDSHPPLRLKKSFEILVRKPMSSKPKPP PRKYFKSDSDPQKSLEERENSSCSSGHPTTCGQEAARELLPLLLPQEDTAGRSPSASAGC PGPGIGPQTKSSTEGEPGWRRASPVTQTSPIKHPLLKRQARMDDYSFDTTAEDPWVRISDC IKNLFSPIMSENHGHMPLQPNASLNEEEGTQGHDPGTPPKLDTANGTPKVYKSADSSTVK KGPPVAPKPAWFRQSLKGLNRASDPRGLPDPALSTQAPASREHLGSHIRASSSSSIR QRISSFETFGSSQLPDKGAQRLSLQPSGEEAAKPLGKHEEGRFSGLLGRGAAPTLVPQQP EQVLSSGSPAASEARDPGVSESPPPGRQPNQKTLPPGPDPLRLLLSTQAEESQGPVLKMP SQRARSFPLTRSQCETKLLDEKTSKLYSISSQVSSAVMKSLLCLPSSISCAQTPCIPKE GASPTSSNEDSAANGSAETSALDTGFSLNLSELREYTEGLTEAKEDDDGDHSSLQSGQS VISLLSSEELKKLIEEVKVLDEATLKQLDGIHVTLHKEEGAGLGFSLAGGADLENKVIT VHRVFPNGLASQEGTIQKGNEVLSINGKSLKGTTHHDALAILRQAREPRQAVIVTRKLT EAMPDLNSSTDASAASASADVSVESTAEATVCTVTLEKMSAGLGFSLGEGGKSLHGDGP LTINRIFKGAASEQSETVQPGDEILQLGGTAMQGLTRFEAWNIIKALPDGPVTIVIRRS LQSKETTAAGDS
IL-17 α	Q16552	MTPGKTSLSVLLLLSLEAIVKAGITIPRNPGCPNSEDKNFPRTVMVNLNIHNRNTNTNP KRSSDYNNRSTSPWNLHRNEDPERYPVSIWEAKCRHLGCINADGNVDYHMNSVPIQQEIL VLRREPPHCPNSFRLEKILVSVGCTCVTPIVHHVA
IL-18	Q14116	MAAEPVEDNCINFVAMKFIDNTLYFIAEDDENLESDFGKLESKLSVIRNLNDQVLFIDQ GNRPLFEDMTDSDCRDNAPRTIFIISMYKDSQPRGMAVTISVKCEKISTLSCENKIISFK EMNPPDNIKDTKSDIIFQRSVPGHDNKMQFESSYEGYFLACEKERDLFKLILKKEDDEL GDRSIMFTVQNEDE
IL-19	Q9UHD0	MKLQCVSLWLLGTILILCSVDNHGLRRCLISTDMHHIEESFQEIKRAIQAKDTFPNVTL STLETQIIKPLDVCCVTKNLLAFYVDRVFKDHQEPNPKILRKISSIANSFLYMQKTLRQ CQEQRQCHCRQEATNATRVIHNDYDQLEVHAAAIKSLGELDVFLAWINKNHEVMFSA
IL-20	Q9NYY1	MKASSLAFSLLSAAFYLLWTPSTGLKTLNLGSCVIATNLQEIRNGFSEIRGSVQAKDGN DIRILRRTESLQDTKPANRCCLLRHLLRLYLDRVFKNYQTPDHYTLRKISSLANSFLTIK KDLRLCHAHMTCHCGEEAMKKYSQILSHFEKLEPQAAVVKALGELDILLQWMEETE
IL-21	Q9HBE4	MRSSPGNMERIVICLMVIFLGTLVHKSSSQQDRHMIRMRLIDIVDQLKNYVNDLVPEF LPAPEDVETNCEWSAFSCFQKAQLKSANTGNNERIINVSIIKKLRKPPSTNAGRRQKHRL TCPSCDSYEKKPPKEFLERFKSLQKMIHQHLSRTHGSEDS
IL-22	Q9GZX6	MAALQKSVSSFLMGTLATSCLLLLALLVQGGAAPISSHCRDLKSNFQQPYITNRTFMLA KEASLADNNTDVRILIGEKLFGHGVSMERCYLMKQVLNFTLEEVLFPQSDRFQPYMQEVVP FLARLSNRLSTCHIEGDDLHIQRNVQKLKDTVKKLGESGEIKAIGELDLLFMSLRNACI
IL-23 α	Q9NPF7	MLGSRAVMLLLLLPWTAQGRAVPGGSPAWTQCQQLSQKLCTLAWSAHLPLVGHMDLREEG DEETTNDVPHIQCGDGDGPQGLRDNSQFCLQRIHQGLIFYEKLIGSDIFTGEPSSLPDSP VGQLHASLLGLSLLQPEGHHWETQQIPSLSPSQPWQRLLLRFKILRSLQAFVAVAAARVF AHGAATLSP

IL-24	Q13007	MNFQQRLQSLWTLARPCPPLLATASQMQMVVLPCLGFTLLLWSQVSGAQGQEFHFGPCQ VKGVPVQKLWEAFWAVKDTMQAQDNITSARLLQQEVLQNVSDAESCYLVHTLLEFYLKTV FKNYHNRTVEVRTLKSFSTLANNFVLIVSQLQPSQENEMFSIRDSAHRRFLLFRRAFKQL DVEAALTKALGEVDILLTWMQKFYKL
IL-25	Q9H293	MRERPRLGEDSSLISLFLQVVAFLAMVMGTHTYSHWPSCCPSKQDQTSEELLRWSTVPVP PLEPARPNRHPESCRASEDGPLNSRAISPWRYELDRDLNRLPDLYHARCLCPHCVSLOT GSHMDPRGNSELLYHNQTVFYRRPCHGEKGTHKGCYCLERRLYRVSLACVCVRPRVMG
IL-26	Q9NHP9	MLVNFILRCGLLLVTLSLAIAKHKQSSFTKSCYPRGTLQAQVDALYKAAWLKATIPEDR IKNIRLLKKKTKKQFMKNCQFQEQLLSFFMEDVFGQLQLQGCKKIRFVEDFHSLRQKLSH CISCASSAREMKISITRMKRIFYRIGNKGIYKAISELDILLSWIKKLESSQ
IL-27 α	Q8NEV9	MGQTAGDLGWRLSLLLLPLLLVQAGVWGFP RPGRPQLSLQELRREFTVSLHLARKLLSE VRGQAHRAESHLPVGNLYLLPLGEQLPDVSLTFQAWRRLSDPERLCFISTTLQPFHALL GGLGTQGRWTNMERMQWAMRLDLRDLQRHLRFQVLAAGFNLPEEEEEEEEEEEEEERKGL LPGALGSALQGPAQVSWPQLLSTYRLLHSELVLSRAVRELLLLSKAGHSVWPLGFPTLS PQP
IL-27 β	Q14213	MTPQLLLALVLWASCPPCSGRKGPPAALTLPVQCRASRYPIAVDCSWTLPPAPNSTSPV SFIATYRLGMAARGHSWPCLQQTPTSTCTITDVQLFSMAPYVLNVTAVHPWGSSSSFPV FITEHIKPDPPPEGVRLSPLAERQLQVQWEPGSGWPFPEIFSLKYWIRYKRQGAARFHRV GPIEATSFILRAVRPRARYYVQVAAQDLTDYGELSDWSLPATATMSLGK
IL-28	Q8IU57	MAGPERWGPLLLCLLQAAPGRPRLAPPQNVTLTLLSQNFVSVLTWLPGLGNPQDVITYFVAYQ SSPTRRRRWREVEECAGTKELLCMMCLKKQDLYNKFKGRVRTVSPSSKSPWVESEYLDYL FEVEPAPPVLVLTQTEEILSANATYQLPPCMPPLDLKYEVAFWKEGAGNKTLFPVTPHGG PVQITLQPAASEHHCLSAITYTFSVPKYSKFSKPTCFLLEVPEANWAFVLVPSLLILL VIAAGGVIWKTLMGNPWFWQRAKMPRALDFSGHTHPVATFQPSRPESVNDLFLCPQKELTR GVRPTPRVRAPATQQTRWKKDLAEDDEEEDEEDTEDGVSFQPYIEPPSFLGQEHQAPGHS EAGGVDSGRPRAPLVPSEGSSAWDSSDRSWASTVDSSWDRAGSSGYLAEKGPQGPGGDG HQESLPPPEFSKDSGFLEELPEDNLSSWATWGTLPPPEPNLVPGGPPVSLQTLTFCWESSP EEEEARESEIEDSDAGSWGAESTQRTEDRGRTLGHYMAR
IL-29/IFNL1	Q8IU54	MAAAWTVVLVTLVLGLAVAGVPVPTSPTTTGKGCHIGRFKSLSPQELASFKKARDALEES LKLKNWSCSSPVFPGNWDRLQLQVRERPVAAELALTLKVLEAAAGPALEDVLDQPLHT LHHILSQLQACIQPQPTAGPRPRGRLLHHWLHRLQEAPKKEAGCLEASVTFNLFRLTRD LKYVADGNLCLRTSTHPEST
IL-30	Q8NEV9	MGQTAGDLGWRLSLLLLPLLLVQAGVWGFP RPGRPQLSLQELRREFTVSLHLARKLLSE VRGQAHRAESHLPVGNLYLLPLGEQLPDVSLTFQAWRRLSDPERLCFISTTLQPFHALL GGLGTQGRWTNMERMQWAMRLDLRDLQRHLRFQVLAAGFNLPEEEEEEEEEEEEEERKGL LPGALGSALQGPAQVSWPQLLSTYRLLHSELVLSRAVRELLLLSKAGHSVWPLGFPTLS PQP
IL-31	Q6EBC2	MASHSGPSTSVLFLFCCLGWLASHTLPVRLLRPSDDVQKIVEELQSLSKMLLKDVVEEK GVLVSQNYTLPCLSQPAQPPNNIHSPAIRAYLKTIRQLDNKSVIDEIIEHLDKLIFQDAP ETNISVPTDTHECKRFILISQQFSECMDLALKSLTSGAQQATT
IL-32	P24001	MCFPKVLSDDMKKLKARMVMLLPTSAQQLGAWVSACDTEDTVGHGLGPWRDKDPALWCQLC LSSQHQAIERFYDKMQNAESGRGQVMSSLAEELEDDFKEGYLETVAAYYEEQHPELTPLLE KERDGLRCRGNRSPVPDVEDPATEEPGESFCDKVMRWFOAMLQRLQTWWHGVLAHVKEKV VALVHAVQALWKQFQSFCCSLSELFMSFSQSYGAPRGDKEELTPQKCSEPPSSK
IL-33	O95760	MKPKMKYSTNKISTAKWKNTASKALCFKLGSQQKAKEVCPMYFMKLRSGLMIKKEACYF RRETTKRPSLKTGRKHKRHLVLAACQQQSTVECFAGISGVQKYTRALHDSSITGISPIT EYLASLSTYNDQSITFALEDESYEIVEDLKKDEKKDKVLLSYYESQHPSNESGDGVDGK MLMVTLSPTKDFWLHANNKEHSVELHKCEKLPDQAFFVLHNMHSNCVSFECKTDPGVFI GVKDNHLALIKVDSSSENLCATENILFKLSET
IL-36 α	Q9UHA7	MPRGFTWLRYLGLFGLVALGNEPLEMWPLTQNEECTVTGFLRDKLQYRSRLQYMKHYFPI NYKISVPYEGVFRIANVTRLQRAQVSERELRYLVVLVLSATESVQDVLLLEGHPSWKYLQ EVETLLLNQVQGLTDVEVSPKVESVLSLLNAPGPNLKLVRPKALLDNCFRVMELLYCSCC KQSSVLNWQDCEVPSPQSCSPEPSLQYAATQLYPPPPWSPSSPHSTGSRPVRAQGEGL LP
IL-36 β	Q9NZH7	MNPQREAAPKSYAIRDSRQMVWVLSGNSLIAAPLSRSIKPVTLHLIACRDTEFSDKEKGN MVYLGIGKGDLCFCAEIQ GKPTLQLKLQGSQDNIGKDTCKWLVGIHTCINLDVRESCFM GTLDQWGIGVGRKKWKSSFQHHHLRKKDKDFSSMRTNIGMPGRM

IL-36 γ	Q9NZH8	MRGTPGDADGGGRAVYQSMCKPITGTINDLNQQVWTLQGQNLVAVPRSDSVTPVTVAVIT CKYPEALEQGRGDPYILGIQNPEMCLYCEKVGEQPTLQLKEQKIMDLYGQPEPVKPFIFY RAKTGRSTLESVAFPDWFIASSKRDQPIILTSELGKSYNTAFELNIND
IL-37	Q9NZH6	MSFVGENSGVKMGSEDWEKDEPQCCELPAGSPLEPGPSLPTMNFVHTSPKVKNLNPKKF SIHDQDHKVLVLDSGNLIAVPDKNYIRPEIFFALASSLSSASAEKGSPIILGVSKGEFCL YCDKDKGQSHPSLQLKKEKLMKLAAQKESARRPFIFYRAQVGSWNMLESAHPGWFICT CNCNEPVGVTDKFENRKHIEFSFQPVCKAEMSPSEVSD
IL-38	Q8WWZ1	MCSLPMARYYIIKYADQKALYTRDGQLLVGDPVADNCCAEEKICILPNRGLARTKVPIFLG IQGGSRLACVETEEGPSLQLEDVNIEELYKGGEEATRFTFFQSSSGSAFRLEAAAWPGW FLCGPAEPQQPVQLTKESEPSARTKFYFEQSW
IL-40	Q6UX52	MGLPGLFCLAVLAASSFSKAREEEITPVVSIAYKVLEVFPKGRWVLITCCAPQPPPPITY SLCGTKNIKVAKKVVKTHEPASFNLNVTLKSSPDLLTYFCWASSTSGAHVDSARLQMHWE LWSKPVSELNANFTLQDRGAGPRVEMICQASSGSPITNSLIGKDGQVHLQQRPCHRQPA NFSFLPSQTSDFWCQAANNANVQHSALTVPVPGGDQKMEDWQGPLESPIALPLYRSTR RLSEEEFGGFRIGNGEVRGRKAAAM