

Supplementary Materials

Erythropoietin and Co.: Intrinsic structure and functional disorder

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Running title: Epo structure and functional disorder

CLUSTAL 2.1 multiple sequence alignment

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tr|H9G6P4|H9G6P4_ANOCA -----PPFTGLL----LLTIFLLHKIKPLRMIPTR--LVCDDRLLIQKYISDSMELENQVNLCEELPLLQOPVLLPQV
tr|K7GG36|K7GG36_PELSI -----FACPGLL----LLTAFLLHKLKLSRMGPAPR--LVCNDRLLTKYI SEAKDMEKRVSQCOELPLPTQYPLPLPMV
tr|A0A093I1H5|A0A093I1H5_STRCA -----PGLL----LLTSEFLHMKAGRASPTR--LVCNDRLLTKYI GEAQDMKRVKVSQCQALSPLQYPMVPLV
tr|V9L2S9|V9L2S9_CALMI -----MSGASGQEKDRAKLGMSRLLLLLV-----AFLVQTKLARMLPSR--PLCDSRVLDRIYREAKGLQNS--VCYGLCQFPDAILLPST
sp|Q2XNF5|EPO_DANRE -----MFHSGGLFA----LLLMVLEWTRPGLSSPLR--PICDLRVLDFHFIKEAWDAEAMRCKDDCSLATNVTVPLT
sp|Q5IGQ0|EPO_EPICO -----MLQKRGRLLV----LLLMLEWTRPGLSSPLR--PICDLRVLNHFIIKEARDAEAMKSCTEGCSLSESVTVPQT
sp|Q6JV22|EPO_TAKRU -----MLQKTGRGLLA----FLLIVLEWTPQSLPSPLR--PICDLRVLNHFIIKEARDAEAMKSCTEGCSLSDSVLPQT
sp|Q4T554|EPO_TETNG -----MTGGLA----FLLIVLEWTRPGLSSPLR--PICDLRVLNHFIIKEARDAEAMKSCREGCTLSSEVVVPQT
tr|D4AFJ9|D4AFJ9_XENLA -----MGVTTGLLTLLS-----MLLVSVKLVTCAPYK--PVCDKTVDMFIIKEARELETAMSCNII CQFPEDIMVPET
tr|G0T3F6|G0T3F6_XENTR -----MGVTTGLLTLLS-----MLFVSVKLVTCAPYK--PVCDKTVDMFIIKEARELETAMSCNII CQFPEDIMVPET
tr|G3W289|G3W289_SARHA -----MEMGVHEVLVL----LQLLLVHLGFPVWGSPOS--PFCESHILERYILEAKEAQNATVACLEDSCSLGENITVDPDT
tr|E6Y367|E6Y367_EOSBA -----MGVPERPTLRL--SVTFLLLSLGLPVLGAPPR--LICDSRVLERYILEAKEAENTTMGCAEGPRFSENITVDPDT
sp|Q6H8S9|EPO_NANGA -----MGVPCDLALPL--LVTFLLSLGLPVLGAPPR--LICDSRVLERYILEAKEAENTTMGCAEGPRFSENITVDPDT
sp|Q0Z956|EPO_MICOE -----MGVPERPTLLL--LLSLLLPGLPVLGAPPR--LICDGRVLERYILEAREAVNTMGCAEGPRSENITVDPDT
sp|P07321|EPO_MOUSE -----MGVPERPTLLL--LLSLLLPGLPVLGAPPR--LICDSRVLERYILEAKEAENTTMGCAEGPRSENITVDPDT
sp|P29676|EPO_RAT -----MGVPERPTLLL--LLSLLLPGLPVLGAPPR--LICDSRVLERYILEAKEAENTTMGCAEGPRSENITVDPDT
sp|Q9GKA2|EPO_RABIT -----MGVRGRLLALPLALLCLLVLALGGLPVLGAPPR--LICDSRVLERYILEAKEAENTTMGCAEGPRSENITVDPDT
sp|P07865|EPO_MACFA -----MGVHECPAWLWL--LLSLVSLPLGLPVLGAPPR--LICDSRVLERYILEAKEAENTTMGCAEGPRSENITVDPDT
tr|G1RMP4|G1RMP4_NOMLE -----MGVHECPAWLWL--LLSLLSLPLGLPVLGAPPR--LICDSRVLERYILEAKEAENTTMGCAEGPRSENITVDPDT
tr|G3RS27|G3RS27_GORGO -----MGVHECPAWLWL--LLSLLSLPLGLPVLGAPPR--LICDSRVLERYILEAKEAENTTMGCAEGPRSENITVDPDT
sp|P01588|EPO_HUMAN -----MGVHECPAWLWL--LLSLLSLPLGLPVLGAPPR--LICDSRVLERYILEAKEAENTTMGCAEGPRSENITVDPDT
tr|G3UDT5|G3UDT5_LOXAF -----MGVHECPALL--LLLFLLLPLGLPVLGSPSR--LICDNRVLERYILEAKEAENTTMGCAEDCSLSENITVDPDT
tr|H0Y1U0|H0Y1U0_OTOGA -----MEGRECPARL-L-LLSLLLSLGLPVLGALPRLSLICDGRVLQRYILEAKEAENTTMGCAEVCSLSENITVDPDT
sp|P33709|EPO_SHEEP -----MGARDCTPLLL--LLSLLLPGLPVLGAPPR--LICDSRVLERYILEAREAVNTMGCAEGCSLSENITVDPDT
sp|P48617|EPO_BOVIN -----MGARDCTPLLM--LSFLLPPLGFPVLGAPAR--LICDSRVLERYILEAREAVNTMGCAEGCSLSENITVDPDT
tr|I3MLF9|I3MLF9 ICTTR -----LALPECPALP-L-LLSLLLPGLPVLGTPAR--LICDSRVLERYILEAKEAENTTMGCAEGCSLSENITVDPDT
sp|P49157|EPO_PIG -----MGARECPARL-L-LLSLLLPGLPVLGAPPR--LICDSRVLERYILEAREAVNTMGCAEGCSLSENITVDPDT
tr|L5K6F9|L5K6F9_PTEAL -----MKAKETEPELLEECALL-L-LLSLLLPGLPVLGAPPR--LICDSRVLERYILEAKEAENTTMGCAEGCSLSENITVDPDT
tr|S7Q4A6|S7Q4A6_MYOBR -----MKAQEAESERSEDQGWEDQPRRAGACVNRPLQTHTSPPRPSSHQAWLSFLGCPASL-L-LLSLLLPGLPVLGAPPR--LICDSRVLERYILEAREAVNTMGCAEGCSLSENITVDPDT
sp|Q867B1|EPO_HORSE -----MGVRECPALL-L-LLSLLLPGLPVLGAPPR--LICDSRVLERYILEAREAVNTMGCAEGCSLSENITVDPDT
sp|P33708|EPO_FELCA -----MGSCPCALL-L-LLSLLLPGLPVLGAPPR--LICDSRVLERYILEAREAVNTMGCAEGCSLSENITVDPDT
tr|D2HX05|D2HX05_AILME -----ECPALL-L-LLSLLLPGLPVLGAPPR--LICDSRVLERYILEAREAVNTMGCAEGCSLSENITVDPDT
sp|P33707|EPO_CANLF -----MCEPAPPKPTQSAWHSFPCEPALL-L-LLSLLLPGLPVLGAPPR--LICDSRVLERYILEAREAVNTMGCAEGCSLSENITVDPDT

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tr|H9G6P4|H9G6P4_ANOCA -----GFSLREWMAKTT---QVKGQEVLRDLLTLVDGIAATQ----QELKQPCPSVLLQQLYKKAASFVLLHLSRYSQGEFEAT----SQPEAAPELTPERNPKFIQTYRQLLQVKGIHFFFD
tr|K7GG36|K7GG36_PELSI -----DFSLLWKLKTN---ETKRQEIIVCHLALLVDVATAAQ----DQVKQECASALLGQLYKKAASFLLLLQTFWSQVSA----WQPDCAASWTPQSHRPSVIFLVYRQLVQVKLREFFHD
tr|A0A093I1H5|A0A093I1H5_STRCA -----DFSILKQWTKTN---ETKRQEIIVCHLALLVDVATAAQ----DQVKQECASALLGQLYKKAASFLLLLQTFWSQVSA----WQPDCAASWTPQSHRPSVIFLVYRQLVQVKLREFFHD
tr|V9L2S9|V9L2S9_CALMI -----GLNLRARWSKSR---SIKAAEIK EGLIMLSNAIQ TAKLLTMNNS----TVALLDKIYRNIRTFIHLQLLNVDPDTSHQ-----LYERARPI TGRSVDLFRFTYTRLLQGVVMFYRE
sp|Q2XNF5|EPO_DANRE -----RVDFFVWEAMNI---EEQAQEVQSGLHMLNEAIGSLQ----ISNQTEVTLQSHIDASIRNIIASIRQVLRSLSIPEYVPP-----TSSGEDKETQKISSISELFQVHVNFRLGKARLLLAN
sp|Q5IGQ0|EPO_EPICO -----RVDFDVWEKKNG---LEQAQEVQSGLWLLQALNLLR----TSVTNTALHSHIDNSVRNLLSINAVLRSLNIQEYTPP-----ASTVALEGTWRVSSATDQLQVHNFRLGKARLLLLD
sp|Q6JV22|EPO_TAKRU -----TVEFDVWEKKSA---LAKAQEVQSGLWLLQAFNFLR----TSVTNTALHSHIDNSVRNLLSINAVLRSLNIQEYTPP-----ASAAEIEGTWRVSTATELLQVHINFRLGKARLLLLD
sp|Q4T554|EPO_TETNG -----TVDFDVWEKKNA---SAKAEVQSGLWLLQAFNFLR----TSVTNAAALHSHIDNAVRNLLSINAVLRSLNIQEYTPP-----ANGAEIEGTWRASSAAELQVYVNFRLGKARLLLLD
tr|D4AFJ9|D4AFJ9_XENLA -----KLVNGEWNKLTQ---SQQAEEVWVGLVLTFTKAVPRI TDFISDAS----LKFQVEKIHDGVRSAVHLFKSINLQDEAQT-----SQTEGKTLPVRTFKFLFSVYTNFRLGKARLLLV
tr|G0T3F6|G0T3F6_XENTR -----KLVNGEWNKLVHCISIPQAEEVWVWGLVLTFTKAVPRIADFI SDAS----LKFQVEKIHDGVRSAVHLFKSINLQDEAQT-----SQTEGKTLPVRTFKFLFSVYTNFRLGKARLLLV
tr|G3W289|G3W289_SARHA -----RVNFHTWKKMEV---GQKAGEVWQGLLSEAVLRGQALLANS SQTPVALKLFVDKAVSLSRSLRFLRGLGTQEAEI FVPNAP--TAVPLRTFTVDTFCKLFRIYSNFRLGKLLKLYTG
tr|E6Y367|E6Y367_EOSBA -----KVNIFYAWKTMV---EEQAQEVWQGLSLLFEAILRQAQALLANS SQPSEMLQLHVDKAI SGLRSLTSLLRVLGAQKEAISPPDST--PPAPLRTFTVDTFCKLFRIYSNFRLGKLLKLYTG
sp|Q6H8S9|EPO_NANGA -----KVNIFYAWKTMV---EEQAQEVWQGLSLLFEAILRQAQALLANS SQPSEMLQLHVDKAI SGLRSLTSLLRVLGAQKEAISPPDST--PPAPLRTFTVDTFCKLFRIYSNFRLGKLLKLYTG
sp|Q0Z956|EPO_MICOE -----KVNFNAWKRMEV---QEQAQEVWQGLSLLSEAILRQAQALLANS SQPSGMLQLHVDKAI SGLRSLTSLLRVLGAQKESISPPDAT--PPAPLRTLMVENFCKLFRIYSNFRLGKLLKLYTG
sp|P07321|EPO_MOUSE -----KVNIFYAWKRMEV---EEQAQEVWQGLSLLSEAILRQAQALLANS SQPETLQLHVDKAI SGLRSLTSLLRVLGAQKELMSPPDST--PPAPLRTFTVDTFCKLFRIYSNFRLGKLLKLYTG
sp|P29676|EPO_RAT -----KVNIFYAWKRMEV---EEQAQEVWQGLSLLSEAILRQAQALLANS SQPETLQLHVDKAI SGLRSLTSLLRVLGAQKELMSPPDST--PPAPLRTFTVDTFCKLFRIYSNFRLGKLLKLYTG
sp|Q9GKA2|EPO_RABIT -----KVNFFHWKSEA---GRHAVEVWQGLLSEAILRQAQALLANS SQPETLQLHVDKAI SGLRSLTSLLRVLGAQKEAVSPPDAA--SAAPLRTVADTTLCKLFRIYSNFRLGKLLKLYTG
sp|P07865|EPO_MACFA -----KVNIFYAWKRMEV---GQQAQEVWQGLLSEAVLRGQALLANS SQPPEPLQLHVDKAI SGLRSLTSLLRVLGAQKEAISPPDAA--SAAPLRTITADTTLCKLFRIYSNFRLGKLLKLYTG
tr|G1RMP4|G1RMP4_NOMLE -----KVNIFYAWKRMEV---GQQAQEVWQGLLSEAVLRGQALLANS SQPPEPLQLHVDKAI SGLRSLTSLLRVLGAQKEAISPPDAA--SAAPLRTITADTTLCKLFRIYSNFRLGKLLKLYTG
tr|G3RS27|G3RS27_GORGO -----KVNIFYAWKRMEV---GQQAQEVWQGLLSEAVLRGQALLANS SQPPEPLQLHVDKAI SGLRSLTSLLRVLGAQKEAISPPDAA--SAAPLRTITADTTLCKLFRIYSNFRLGKLLKLYTG
sp|P01588|EPO_HUMAN -----KVNIFYAWKRMEV---GQQAQEVWQGLLSEAVLRGQALLANS SQPPEPLQLHVDKAI SGLRSLTSLLRVLGAQKEAISPPDAA--SAAPLRTITADTTLCKLFRIYSNFRLGKLLKLYTG
tr|G3UDT5|G3UDT5_LOXAF -----KVNIFYAWKRMEV---SQQAQEVWQGLLSEAVLRGQALLANS SQPSGTLRHLVDKAI SGLRSLTSLLRVLGAQKEAISPPDAA--SAAPLRTITADTTLCKLFRIYSNFRLGKLLKLYTG
tr|H0Y1U0|H0Y1U0_OTOGA -----KVNIFYAWKRMEV---SQQAQEVWQGLLSEAVLRGQALLANS SQPSGTLRHLVDKAI SGLRSLTSLLRVLGAQKEAISPPDAA--SAAPLRTITADTTLCKLFRIYSNFRLGKLLKLYTG
sp|P33709|EPO_SHEEP -----KVNIFYAWKRMEV---QQQAQEVWQGLLSEAILRQAQALLANS SQPCEALRLHVDKAI SGLRSLTSLLRVLGAQKEAISPPDAA--SAAPLRTITADTTLCKLFRIYSNFRLGKLLKLYTG
sp|P48617|EPO_BOVIN -----KVNIFYAWKRMEV---QQQAQEVWQGLLSEAILRQAQALLANS SQPCEALRLHVDKAI SGLRSLTSLLRVLGAQKEAISPPDAA--SAAPLRTITADTTLCKLFRIYSNFRLGKLLKLYTG
tr|I3MLF9|I3MLF9 ICTTR -----KVNIFYAWKRMEV---GQQAQEVWQGLLSEAILRQAQALLANS SQPCEALRLHVDKAI SGLRSLTSLLRVLGAQKEAISPPDAA--SAAPLRTITADTTLCKLFRIYSNFRLGKLLKLYTG
sp|P49157|EPO_PIG -----KVNIFYAWKRMEV---QQQAQEVWQGLLSEAILRQAQALLANS SQPCEALRLHVDKAI SGLRSLTSLLRVLGAQKEAISPPDAA--SAAPLRTITADTTLCKLFRIYSNFRLGKLLKLYTG

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