

Online Supporting Information S3. The sequences of 14 independent proteins whose experimental SNO sites are known but none of them occurs in \mathbb{S}_L used to train iSNO-AAPair. The SNO site is marked with red, while non-SNO site with blue.

>sp|P61982|1433G_MOUSE 14-3-3 protein gamma OS=Mus musculus GN=Ywhag PE=1 SV=2
MVDREQLVQKARLAEQAERYDDMAAAMKNVTELNEPLSNEERNLLSVAYKNNVGARRSSWRV
ISSIEQKTSADGNEKKIEMVRAYREKIEKELEAV**C**QDVLSSLNYLIKNCSETQYESKVFYL
KMKGDYRYLAEVATGEKRATVVESSEKAYSEAHEISKEHMQPTHPIRLGLALNYSVYFYEI
QNAPEQ**A**CHLAKTAFDDAIELDTLNEDSYKDSTLIMQLLRDNLTWTSDQQDDDGEGNN
>sp|P23528|COF1_HUMAN Cofilin-1 OS=Homo sapiens GN=CFL1 PE=1 SV=3
MASGVAVSDGVIVKFVNMDKVRKSSTPEEVKKRKAVLF**C**LSEDKKNIILEEGKEILVGDV
GQTVDPPYATFVKMLPDKD**C**RYALYDATYETKESKKEDLVFIFWAPESAPLKS**K**MIYASS
KDAIKKKLTGIKHELQAN**C**YEEVKDR**C**TLaEKLGGSAVISLEGKPL
>sp|P13804|ETFA_HUMAN Electron transfer flavoprotein subunit alpha, mitochondrial
OS=Homo sapiens GN=ETFA PE=1 SV=1
MFRAAAPGQLRRAASLLRFQSTLVIAEHANDSLAPILTNTITAATRLGGEVS**C**LVAGTKC
DKVAQDL**C**KVAGIAKVLVAQHDVYKGLLPEELTPLILATQKQFNYTHIC**C**AGASAFGKNLL
PRVAAKLEVAPISDIIAIKSPDTFVRTIYAGNAL**CTV**K**C**DEKVVKVFSVRGTSFDAATSG
GSASSEKASSTSPEISEWLQKLTKSRPELTGAKVVVSGGRGLKSGENFKLLYDLADQ
LHAAVGASRAAVDAGFVPNDMQVGQTGKIVAPELYIAVGISGAIQHLAGMKDSKTIVAIN
KDPEAPIFQVADYGIVADLFKVVPEMTEILKKK
>sp|O35295|PURB_MOUSE Transcriptional activator protein Pur-beta OS=Mus musculus
GN=Purb PE=1 SV=3
MADGDGSSERGGGGGGGGPGGFQPAPRGGGGGGGPGGEQETQELASKRLDIQNKRFYLDVKQ
AKGRFLKIAEVGAGGSKSRLTLSMAVAAEFRDLSGDFIEHYAQLGPSSPEQLAAGAEEGGPRRA
LKSEFLVRENRKYYLDLKENQRGRFLRIQTVNRGGGFGGPGPGLQSGOTIALPAQGLIEFR
DALAKLIDDYGGDEDELAGGGPGGGAGGGPGGGLYGELPEGTSITVDSKRFFDVGC**C**NKYGVFLRV
EVKPSYRNAITVPFKAWGKFGGA**F**CRYADEMKEI**Q**ERQRDKLYERRGGGSGGGDESEGEVDED
>sp|Q9DC70|NDUS7_MOUSE NADH dehydrogenase [ubiquinone] iron-sulfur protein 7,
mitochondrial OS=Mus musculus GN=Ndufs7 PE=1 SV=1
MAALAAPGLLSVRILGLRTAQVQLRRVHQSVATEGPSPSPSLSSTQSAVSKAGAGAVV
PKLSHLP*R*SRAEYVVTKLDL**I**NWARRSSLWPMTFGL**A**CCAVEMMHMAAPRYDMRFGVVFRASP
RQADVMIVAGTLTNKMAPALRKVYDQMPEPRYVSMGSCANGGYYHYSYSVVRG**C**DRIVPVDIY
VPG**C**PPTAEALLYGILQLQRKIKREQKLKIWYRR
>sp|P19338|NUCL_HUMAN Nucleolin OS=Homo sapiens GN=NCL PE=1 SV=3
MVKLAKAGKNQGDPKKMAPPKEVEEDSEDEEMSEDEEDSSGEEVVIPQKKGKKAATSAKV
VSPTKKAVATPAKKAATPGKKAATPAKTVTPAKAVTPGKGATPGKALVATPGKKGAAIP
AKGAKNGKNAKKEDSDEEEDDSEEDDEDEDEDEDE**E**PAAMAAAAAPASEDEDDEDD
EDDDDDDEEDDSEEAMETTPAKGKKAAKVVPVKAKNAEDED**E**EDDEDDDEDDDEDD
DEEEEEEEEEE**P**VEAPGKRKEMAKQKAAPAKKQKVEGTEPTTAFNLVFGNLFNKSAPELKT
GISDVFAKNDLAVDVIRGMTRKFGYVDFESAEDLEKALELTGLKVGNEIKLEPKPKGDKSKER
DARTLLAKNLPYKVTDQDELKEVFEDAAEIRLVSKDGKSKGIAYIEFKTEADA**E**KTFEEKQGT**E**
GRSISLYYTGEKGQNQDYRGKGNSTWSGESKTLVLSNLSYSATEETLQEVFEKATFIKV**P**QNQNG
KSKGYAFIEFASFEDAKEALNS**C**NKREIEGRAIRLELQGPRGSPNARSQPSKTLFVKGL**E**DTTE
ETLKESFDGSVRARI**T**DETGS*S*KGFFGVDFNSEEDAKAAKEAMED**E**GEIDGNKV**T**LDWAKPKGE
GGFGRGGGRGGFFGRGGGRGGFFGRGRGGFRRGGGGDHKPQGKKT**F**E
>sp|Q9NPA8|ENY2_HUMAN Enhancer of yellow 2 transcription factor homolog OS=Homo
sapiens GN=ENY2 PE=1 SV=1
MVVSKMNKDAQMRAAINQKLIETGERERLKELLRAKLI**C**GWKDQLKA**H**CKEVIKEKGLEHVTVD
DLVAEITPKGRALVPSVKELLQRIRTFLAQHASL
>sp|Q9ROP5|DEST_MOUSE Destrin OS=Mus musculus GN=Dstn PE=1 SV=3
MASGVQVADEV**C**RIFYDMKVRK**C**STPEEIKKRKKAVIF**C**LSADKK**C**IVVEEGKEILVGDV
GATITDPFKHFVGM**L**PEKD**C**RYALYDASFETKESRKEELMFLWAPEQAPLKS**K**MIYASS
KDAIKKKFPGIKHEYQANGPEDLNRT**C**IAEKLGGSLIVAFEGSPV
>sp|P48444|COPD_HUMAN Coatomer subunit delta OS=Homo sapiens GN=ARCN1 PE=1
SV=1
MVLAAA**V**CTKAGKAIVSROFVEMTRTRIEGLLAAPKLMNTGKOHTFVETESVRYVYQPM**E**KLY

MVLITTKNSNILEDLETLRLFSRVIPEY**C**RALEENEISEH**C**FDLIFAFDEIVALG
 YRENVNLAQI~~R~~TTFTEMDSHEEKVFRAVRETQEREAKAEMRRKAKELQQARRDAERQGKKAPGF~~G~~
 FGSSAVSGGSTAAMITETI~~I~~ETDKPKVAPAPARPSGPSKALKLGAKGKEVDNFVDKLKSEGETIM
 SSSMGKRTSEATKMHAPPINMESVHMKIEEKITLT**C**GRDGGLQNMELHGMIMLRISDDKYGRIRL
 HVENEDKKGVQLQTHPNVDKKLFTAESLIGLNPEKSFPVNSDVGVLKWRLQTTEESFIPLT**I****C**
 WPSESGNG**C**DVNIEYELQEDNLELNDVVITIPLPSGVGAP
 VIGEIDGEYRHDSRRNTLEW**C**LPVIDAKNKGSL~~E~~FSIAGQPNDFFPVQVSFVSKNY**CN**
 IQVTKVTVQVDGNSPVRFSTETFLVDKYEIL
 >sp|Q8VDG5|PPCS_MOUSE Phosphopantothenate--cysteine ligase OS=Mus musculus GN=Ppcs
 PE=2 SV=1
 MAE~~M~~DLVAELPRPAGAARWAEV~~M~~ARFAARLGEQGRRVVLITSGGTV~~P~~LEARAVRFLDNFSSGRR
 GAASAEVFLAAGYGVLFLYRARSAFPYAHRFPPQAWLSALRPSGPAQSGKLSLEA
 EENALPGFAAALQS~~Y~~QEAAAAGTFLAVEFTTLADYLHLLQAAALALSPLGSSAMFYLA~~A~~AVSDFY
 I~~P~~VSEMPEH~~K~~IHS~~S~~GGPLQITMKMVPKMLSP~~L~~VKD~~W~~APKA~~F~~VVSFKLETDP~~II~~
 SRARNALEVQHQVVANILESIKFVII~~T~~KDSETELLSEE~~E~~VAKGLVIEEKIVDDL~~R~~
 SRHTAFI**C**DKN
 >sp|O09110|MP2K3_MOUSE Dual specificity mitogen-activated protein kinase kinase 3
 OS=Mus musculus GN=Map2k3 PE=1 SV=2
 MESPAASPPASLPQT~~K~~GSKRK~~K~~DLR~~I~~**R**ISCVSKPPVSNPTPPRNLD~~S~~RTF~~I~~ITGDRNFEVE
 ADDLV~~T~~ISELGRGAYGV~~V~~VEKVRHAQSGT~~I~~MAVKRIRATVNT**Q**EOKRLLMDLD~~I~~NMRTV**D****C**FYT~~V~~
 FYGALFREGDV**W****I****C**ME~~L~~MDTS~~L~~DKFYRKV~~L~~EKNMKI~~P~~EDILGEIAVSIVRALEHL
 HSKL~~S~~VIHRDV~~K~~PSNV~~L~~INKEGHV**K****M****C**DFG~~I~~SGYLVD~~S~~VAKTMDAG**C**KPYMAPERINPEL
 NQKGYNV~~K~~SDVWSL~~G~~ITMIEMAILRF~~P~~YESW~~G~~TPFQQLQVVEEP~~S~~QLPADQFSPEFVD
 FTSQ**C**LRKNPAERMSYLELM~~E~~H~~P~~FTL~~H~~KT~~K~~TDIAAFV~~K~~EILGEDS
 >sp|O75390|CISY_HUMAN Citrate synthase, mitochondrial OS=Homo sapiens GN=CS PE=1
 SV=2
 MALLTAAARLLG~~T~~KNAS**C**L~~V~~LAARHASASSTNLKDILADLIPKEQARIKTFRQOHGKT~~V~~
 GQITVDM~~M~~YGGM~~R~~GM~~K~~GLVYETSV~~L~~D~~P~~DEGIRFRGFS~~I~~P**C**QKLLPKAKGGE~~E~~PLPEG~~L~~
 WLLVTGHI~~P~~TEEQ~~V~~SWLSKEWAKRALPSH~~V~~VTM~~L~~DNFPTNL~~H~~PM~~S~~QLSAAVTALNSESNFARAY
 AOGISRTK~~Y~~WE~~L~~YED~~S~~MDLIAKLP**C**VA~~A~~KIYRNLYREGSGIGAIDS~~N~~LDWSHNFTNMLGYTDHQ
 FTELTRLYLT~~I~~HS~~D~~HEGGNVSAHTSHLVGS~~A~~LD~~P~~YLS~~F~~AAAMNGLAGPLHGLANQEV~~V~~WL~~T~~Q~~L~~
 QKEVGKDVSDEKL~~R~~DYIWNTLNSGRV~~V~~PGYGHAVLRKT~~D~~PRYT**C**QREFALKHLPNDPMFKLV~~A~~QL
 YKIVPNV~~L~~LEQGKAKNP~~W~~PNVDAHSGV~~L~~QYYGMTEMNY~~Y~~T~~V~~LF~~G~~VS~~R~~ALG~~V~~LAQ~~L~~W~~S~~RALGFP
 LERPKSMSTEGLMFVDSKSG
 >sp|P56965|DDAH1_BOVIN N(G),N(G)-dimethylarginine dimethylaminohydrolase 1 OS=Bos
 taurus GN=DDAH1 PE=1 SV=3
 MASLGH~~P~~AT~~F~~GRATHVV~~V~~RALPESLAQQALRRTKGDEVDFARAERQHOLYVGVLGS~~K~~LG~~Q~~V~~V~~QL
 PADES~~L~~PD**C**V~~F~~VED~~V~~AVV**C**EETAL~~I~~TRPGAPS~~R~~KEADMM~~K~~EA~~L~~K~~Q~~LN~~I~~VE~~M~~KDENATLDGGD
 VLFTGREFFVGLSKRTNQ~~R~~GA~~E~~I~~L~~ADTFKD~~Y~~AV~~S~~TPV~~V~~DA~~L~~HLKSF**C**SMAGPNLIAIGSSES~~A~~
 KALKIMQQMSD~~H~~RYDKLT~~V~~P~~D~~TA~~A~~NC**I**YLNIPSKGHV~~L~~HRTPEE~~Y~~PESAKV~~Y~~EKLKD~~H~~ML~~I~~PV
 S~~N~~SELEKVD~~G~~LL**C**SSV~~L~~INKKV~~D~~S
 >sp|Q9QZX7|SRR_MOUSE Serine racemase OS=Mus musculus GN=Srr PE=1 SV=1
 MCAQY**C**ISFADVEKAHINIQDSIHL~~T~~VL~~T~~SS~~I~~LNQTAGRN~~L~~FF**C**ELFQKTGSFKIRGA
 LNAIRGLIPDTPEEKPKAVV~~T~~HSSGNHGQALTYAAKLEGIPAYIVV~~P~~QTAPN**C**KKLAIQ~~A~~
 YGASIVY**C**DPSDESREKV~~T~~Q~~R~~IMQETEG~~I~~LVHPNQEP~~A~~VIAGQGTIALEVLNQVPLVD~~A~~
 VVPVG~~GGG~~MVAGIAITIKALKPSVKVYAAEPSNADD**C**YQSKLKGELTPNL~~H~~PP~~E~~TIADGV
 KSSIGLNTW~~P~~I~~R~~DLVDD~~V~~FTVTEDEIKYATQLVWGRMKLLIEPTAGVALAAVLSQHFQ~~T~~
 VSPEVKNV**C**IVL~~S~~GGNV~~D~~L~~T~~SLNWVGQAERP~~A~~P~~P~~YQ~~T~~V~~S~~