

## IRX PROTEINS

### *Drosophila melanogaster*

>mirr\_Dromel

MTVHSNETGICLVMNAVSTHLATSSPNTPTPNAPQSPSTLPTLACPAAQPLSAPGIAGPGH  
SGMVTSTVPPGARSTSPCGPSAGLPALSLVGAPPPGPHSSAPGGAPAPGAGNPPNRCCDTGR  
TIYTDVPSGQTCSCQYDMLNYQRLAAAGGVPLGVYPEGMSAYLSGIAADQPPFYANPAGID  
LKENLVAGASWPYPSPMYHPYDAAFAGYPFNSYGM DLNGARRKNATRETTSTLKAWLNEHKK  
NPYPTKGEKIMLAIITKMTLTQVSTWTFANARRRLKKENKMTWEPRNRVDDDDANIDDDDDKN  
TEDNDLLDAKDSGVGSTDDKDRSGRLGDMMDRPGESNNSEWSESRPGSPNGSPDLYDRPGS  
MPPGAHPLFHFAALHHHFRPPAGSPPDIAAYHHHQQLLQQHQQAQQNSLQTAVGGTAKPRI  
WSLADMASKDSKDSSSGAKDNHPELPPAHPGFYGHGPGQQPSPGKILSPLAARI PNYSYVVRP  
DLYRGFYGPAAAHLGAPTQEFLEHQRTFGASLAAHNGPLGMNPLLWKA AVSGAANGHHFAPL  
SLTTSGGSSGGQQVAPPVAVSPASSSSSSSMGCDVVHIPTSSGQSA AQHMMGPISSNSTASS  
SSSHSGKISPGVNVTSLSAKP

>ara\_Dromel

MAAYTQFGYGGFSPASQLLPPSVQTTEDASANVNVNVNEALVMTNAPAMSPTGGQDCQGSQP  
SGGAGGDASSGALSPNALSQNSNAATVVGAGGGSSAGGGGPADLATGGSLDGNVGTTPTAG  
GAGGGGCCENGRPIIMTDPVSGQTVCSQYDSARLALSSYSRLPAASVGVYGTYPSTQNP  
YQSIGVDSSAFYSPLSNPYGLKDTGAGPEMGAWTSAGLQPTTGYYSYDPM SAYGGLLVSNSS  
YGASYDLAARRKNATRESTATLKAWLNEHKKNPYPTKGEKIMLAIITKMTLTQVSTWTFANAR  
RRLKKENKMTWEPKNRTDDDDDALVSDDEKDKEDLEPSKGSQGSVSLAKDETKEEEDAIDED  
QKCLGQANILRAGFGYPSAGSGSGGYPGGGSSSGHPGGYHPYHHQHPAYYQAGQQGGMLPF  
HGENSKLQTDLGD PKNQLGRDCGVP IPATKPKIWSLADTVGCKTPPPAYMGHQSMPLQOQQQQ  
QOQQOQQAQHQYPPSEAGR DQQLFNAAAPYLRPHTTAYGGFLGATTQQLHTTNSIPYSNM  
PPQOQQPQOQQOQLQOQGTIHTTGSSSGPIIPLQFHNRHPQOQQOQLQOQSQSTASQRAMGFL  
EAQPDTPPQTPPNMKVLSGALSLLPTATQVPM TATCRSSNAFGFPASGYPMNFSARLGEYSP  
RDDYSSGNSSSSSSSSPQLQRNEAMFKPLFKFTN

>caup\_Dromel

MAAYAQFGYAGYPTANQLTTANTDSQSGHGGGSPLSGTNEASLSPSGGSTATGLTAGPLSPG  
AVSQSSHAGHKGLSTSPAEDVVG GDVPVGLSSAAQDLPSRGSCCENGRPIITDPVSGQTV C  
SCQYD PARLAIGGYSRMALPSGGVGVGVYGGPYPSNEQNPYPSIGVDNSAFYAPLSNPYGIK  
DTSPSTEMSAWTSASLQSTTGYYSYDPTLAA YGYGPNYDLAARRKNATRESTATLKAWLSEH  
KKNPYPTKGEKIMLAIITKMTLTQVSTWTFANARRRLKKENKMTWEPKNKTEDDDDDGMSDDE  
KEKDAGDGGKLSTEAFDPGNQLIKSELGKAEKEVDSSGDQKLDLDREPHNLVAMRGLAPYAT  
PPGAHPMHAAYSSYAQSHNTHTHPHPQQMQHHQOQQOQQOQQOQQOQLQHHQMDQPYHPGGYGO  
EESGEFAAQKNPLSRDCGIPVPASKPKIWSVADTAACKTPPPTAAYLGQNFYPPSSADQQLP  
HQPLQQHQOQQOQLQOQQOQH HHHHPHHHHPHSMELGSPLSMMSSYAGGSPYSRIPTAYTEA  
MGMHL PSSSSSSSSTGKLPPTHIH PAPQRVGFPEIQPDTPPQTPPTMKLNSSGGSSSSSSGSS  
HSSMHSVTPVTVASMVN ILYSNTDSGYGHGSHGHGHGHGLGHGHGLGHGHGHMGVTSN  
AYLTEGGRSGS

### *Anopheles gambiae*

>irx1\_Anogam

MIETVIGERRSSGF AVAGEEKTMSHF PFRGSPSAQSTTPTVPSAPSSPPTAPVAMAVTTVPP  
SARSASPCSATSGPPTS GPGGAAGSGGSSGGRCCDTGRPIFTDPI SGQTVCSQYDLISYQR  
LASAGIAGPGGVPLSMYSAPYSPETMAAYFPAIGADQAPFYANPAAAGIDLKENLAAGGAPW  
PYPSVYHPYDAAFYGFNSYGM DLNGARRKNATRETTSTLKAWLNEHKKNPYPTKGEKIMLA  
IITKMTLTQVSTWTFANARRRLKKENKMTWEPRNRVEDDDVNLD DDDDDDNKSLKDDKEILDSK  
DSGTGSSSEDGDRPSRLDMLDRPGGSEWNGSRNGSGPNSPDIYDRGVPGHHHPLLHPSNFPF  
HLRPAISTPPDVNHTPSGSTNPSTKPRIWSLADMASKE SKDS DSSSPTAGGYPSPGKMPVTP

LAGRGLNPLHHHPYMRPDFYRNLYGHHLAPGSPEVSLLESYQRTFGATIGAHNGLPVSISPL  
ITKASGSGPPFAPLSLTTANHHLHQQQHPHTAPPPGASPASSTSSNGPENLTPTSVSLPSGT  
GPNEVKLINVLANSKAP

>irx2\_Anogam

MQGGSSLGSSAVLSLLVSGGQTTTASSQSPISATNAPSLSPGGSATGAPSGALSPGAVSQTS  
QNNASLGGGGGGGGGGGGGGGGGGPPTSCCENGRPIMTDPVSGQTVCSQCQYDSARLALSGYSR  
IPTGSVGVTYPYSTEQNPYPSIGVDSSAFYSPLSNPYALKDSGPTSDMTAWTSAGLQPTT  
GYYPYDPTLAAYGYGAGYDLAARRKNATRESTATLKAWLNEHKKNPYPTKGEKIMLAIITKM  
TLTQVSTWFANARRRLKKNKMTWEPKNKTDDDDDDAMVSDDEKDKDDLDPDKGGRDHKGRKRT  
EDSSRNVMFLFLASLHCAHRARDGRIGRACIVLLAAVGVSGQFLRHNGQPNGKTAEQHRNDT  
RTQCQSCPHSCLHGKSVSSGDMHDKNQTGSDCGVP I PASKPKIWSLADTAACKTPPP HLLP  
LHLQH HHHQHHPHQQQQQQLQHPHQHHPQQQQQSHPVQGLHGSWMTGTSVDYHPNQSQQAAH  
HLQQQHLQQQSSQQTQHLLQQQQQQHHVQHQGNNSGANSMMMI GDAGSPMSMSMGNTTTNNS  
SSSNTPPNSQGMGSMGNGMMS SFGSTPYSRYGGFLAGA QHYNTT LSSSSNSSNSNTSNHS  
STTGPVLNHPPTPTLQQQQQHQQNNLQQQQQQQSSQSMNSTPSQQQQQSMGFPEVQTDTPPQ  
TPPNMKLP SMAANLLTPTTGTCTYSSTNGSTPNTASNGSSSNNNNNNNNNPSTANNNAGGSS  
SGYASSPDSMSQQGTGGYYRMQQQQQE QPDGFKPFFKK

### ***Aedes aegypti***

>irx1\_Aedaeg

MIETVTNSERRSSIIPGGEKTMSHFPPFRGSPTTQSTTPSAPSAPSSPPAAPVAMAVTTTTVPPG  
ARSTSPCSATSGPPTSGSGRCCDTGRPIFTDPIISGQTVCSQCQYDLINYQRLASAGIAGPGGV  
PLSMYSAPYSPETMAAYFPAIGADQAPFYANPAAAGIDLKENLAAGGAPWPYPSVYHPYDAA  
FGYPFNSYGMDLNGARRKNATRETTSTLKAWLNEHKKNPYPTKGEKIMLAIITKMTLTQVST  
WFANARRRLKKNKMTWEPNRNVEDDDVNLDDDDDDNKS LKDDKEILDSKDSGTGSSEEDGDR  
PSRLDMLDRPGNSEWNGSRNGSGPNSPDIYDRPIHGHPLLHPSNFPPhLRSTIGTPPEVNHT  
PSGSTNSKPRIWSLADMASKENKDS DSSSPTAGGYPSPGKIIAPLAGRGINPLHHHPYMRP  
EFYRNLYGPHLTPGSPEVSLLESYQRTFGATLAHNGIPVGMNPLISKASGSGPPFAPLSLTT  
SSNPTTAPQPGASPASSTSSGPENLTPSSPANEKLISVTNASKP

>irx2\_Aedaeg

MEISLTSLGIESIIVPATRYTNVKMATLAKKLSVNNCRSAEKNTKLRSLCPTKLIITFLAT  
LLWSIVVYASCRCREVRVAISECECSPTVNRTEAVFILGIRLCDFPSSPDGCRARRLSSSC  
VASTCAQNDVKEESCRSEHFLKEFVLI SDWSYREAYEYGDSNDWDRGSNNTARRKNATREST  
ATLKAWLNEHKKNPYPTKGEKIMLAIITKMTLTQVSTWFANARRRLKKNKMTWEPKNKTDD  
DDAMVSDDEKDKDDMDPKSRDHKVQGH PENHCIFKCGKERGRGSLFFRVVSVTASALFWS  
YFVASSMCEQVNVSRRLFFRIPIYFRLPNFRGEKKGSTTLRDS SLPVASSHVSFRLVGRIAYP  
LCELLIQFEYYEIQEDNLRSSSHISSWILMFDRQWLVASAFMARKGTMDHGRLAGIFN

### ***Nasonia vitripennis***

>irx1\_Nasvit

MSQFSFRGSPSLQCPVTVSSSLTSSSASPVSGLLSSASATPGSTTSGGTTTAHHQAPQQPHH  
PLGVRMAVTSAVVRPPGGSPTAVASVSPASQTSGGPPTAPQPASSGPTPGRCCDTGRPIFTD  
PITGQTVCSQCQYELLGGYQRLGALPTAALS MY SAPYAAAAAAAASEGMAAYFPGLGAEQAPF  
YTPTAAGLDLKENLGAGAAAAPYPSVYHPYDAAFASYPFNGYGM DLNGARRKNATRETTST  
LKAWLNEHKKNPYPTKGEKIMLAIITKMTLTQVSTWFANARRRLKKNKMTWEPNRNVEDD  
NNNDDDDSGRKS VDEKDR LSKDSGTGSSEEDGDRGTSDRHRLDLLHGGGVGGPGGAGRAESE  
WESRADSGPDSPECLYDQREPPSRHHHPTLQLQHHPAFMAAAAAASPHHHARLMQRHPSPE  
NTSPGAHHLHHPGVI PSSTSTSA TTA SATTKPRIWSLADMASKDGDQPS PNSNILGSPYNSN  
SGGNGGGKIVSPLASRLPPHHPHPAMHPGSQFVRPHPDFYRNFYGGPHLGS GDM S LLETYQ  
RTLGG LGGVMPPTSAPGILASSASSTSANL KSHFSINGSGAGAGPGG P SVLLTTASSGVSP  
SASSTASSNGSDQSPGGGLAPSELKSPGRV

>irx2\_Nasvit

MSEDCWAEHVGLLQDVPGATDQQQHHPQPPPPVPDFLMLPHSHHHELLVSGGQPTTATSPSM  
SSAGALSPGALSPSSTATATTATTGGGSSTTTGGASTPVGAAGGGTTTAAASATSSGPGCCEN  
GRPMMTDPVTGQTVCSQCQYDSAARLALGAYPRLGPGATSYSSYPTPTPSGSDQGPYPSIGMD  
SSAFYSPLGNPYGLKDATGMGMTADMGAAWGTAALQPAATGYYPYDPTLAAYGYGAGYDLAA  
RRKNATRESTATLKAWLNEHKKNPYPTKGEKIMLAIITKMTLTQVSTWFANARRRLKKENKM  
TWEPKNKTDDEDDAVLTDSEDNKDKDDMGSDNRQDRVGDARRGLDDNEPMRHVKAHEMQHD  
KDLDEDDLDLEDDPRRVGEHPYHHSMMMMHHHHHHHQQYGPDDHLKDESLSKSDCNAAGVPIP  
ATKPKIWSLADTAACKTTPPPPSHPHHHQYQLHHQHQQQHS PGWEVVGVEPTWAPPVAVGGL  
SGFALPSSASMSPSAATAPYSSTGARYGGFLSSSSGGQLHYNPNSSSSSSASSSAAAGFPE  
VGTDTTPPQTTPNMKVTTATPNGVIQGPAGYCPGNSNTPSNGPVGSANTGHYVAAATAPSH  
AAATVGGYMQQSQANGGVGAGAGGFSTRLQNSPHKDFAPASAQNSILHQHQT TASLPPTTEAT  
TAFKPFYKGTQSMGSGFVSPV

***Tribolium castaneum***

>irx1\_Tricas

MSQFGFRASPNTQSAVSSGPSQPSPPPSSMAVTSSAPTSGSPPAPSQRCCDTGRPLFTDPLT  
GQSVCSQCQYELLGYQRLAGGVPGLPALSMYSAPYPEGMAAYFPALGADQAPFYTSTAAGLEL  
KENLAAGAATWPYPSVYHPYDTAFAGYPFNGYGM DLNGARRKNATRETTSTLKAWLNEHKKN  
PYPTKGEKIMLAIITKMTLTQVSTWFANARRRLKKENKMTWEPRNRVEDEDNNDDDDHKST  
DGKDILDSKDSGTASSEDDGRPPHSRLAPDTASEWSESRPDSGPDSP ECYERPPHPAFLPPR  
SSGSPPQISASVSSKPRIWSLADMASKE SDGPPPSTASSLYSTAASRLRLPPPGLHTAPYAR  
PHDFYRSLYGPGMAGSGSPDASLLETYSRTLQSVLTKANLATATSIASNGPLGLTTSRRL  
SPSSTSSLSSGSETPLKPVALNKA

>irx2\_Tricas

MEDGWESHV SPLVMGVGMGDMQGMGEMQTAASC SGHGQEMPPEMNMPPHHQELVASHPELNPG  
IHQEI EQELGREMGRNDRMTHQDAMGGHDDYFAHQLLVSGQPTTNSGSSPASGGGSLSPGGS  
AGVPGT LSPGGTSSTGPTQCCESGRPLVTD PVTGQSVCSQCQYD PARLAALQYPRSVGVY GAP  
YPSTDQNPYP SIGVESSAFYSP LSNPYALKDAGGTAADMSAWTSAGLQPTTGYYPYD PALAA  
YGYGAGYDLAARRKNATRESTATLKAWLNEHKKNPYPTKGEKIMLAIITKMTLTQVSTWFAN  
ARRRLKKENKMTWEPKNKTDDEDDALVSDSD DKEKDEEDKRDDTDMHGRIKSERNGKDLDD  
DMNDDDRKDDLGNMHHILGNTFGLKPEMKTSDCGVPLP PPSKPKIWSLADTAACKTTPPPPP  
PQQQQLWLSNGFALPSSRYAGSGFLPSHCQQGFPEVQTDTPPQT PPSMKLPSVAGNLP CIGT  
AAATAANS GYSQSGFLGGFGR LQSPHRPPPPQAQMTAPT TDSAAFKPFYKRWMVAGGPPSPE  
PMGKVQQIQIVWSKGASSGGHFLPTTGGRHGNSSKNATVVVQFTSKTWNTVFTDQMGNGLGE  
TGGRSLVLFNPPPARPPEGKNAPQEGTEKEDSSETPTAAPSHCPTPLHPLGRLAKIRPKEAQ  
ADRNYHLVHRRY GSGATGFFATRTRGAS

***Apis mellifera***

>irx1\_Apimel

MAKTQFEPGSWC PFPVTNI PRCTAWGVAMIHR SRCTAFMPDRMSVGRIDIVQGDKVCRSSVC  
NVDRDKDSVRLCSGCVPHSKGFNESVVDNEITHGTTCPVTVSSSLTSSSASPVS GAILSAG  
GSSLVSVASTATNHPLGVAAGLSNARMAVTS AVVRPPGSPTTSVSPSQGHPPPTTGGPTPTG  
RCCDTGRPIFTDPLTGQTVCSQCQYELIGGYQRLGALPTAALSMYSAPYAAAAAAAASEGMAA  
YFPSLGAEQAPFYTPTAAGLDLKAENLGAGAAA WPYPSVYHPYDAAFASYPFNGYGM DLNG  
ARRKNATRETTSTLKAWLNDHKKNPYPTKGEKIMLAIITKMTLTQVSTWFANARRRLKKENK  
MTWEPRNRVEDEDNNDDEDDSGRKSVD EKDRLDSKDSGTGSSE DGERPAHRMDLLGTSGGST  
GVQGRTESEWSESRADSGPDSP ECLYDQREPPRHPLQLQHPAYLASSHGRLLRHPSP ESTPP  
SSHHVPPSTTTASSTGSVTTKPRIWSLADMASKDGEQQSPIPTTMTGLSSPYGGSGGAGGG  
VAGGGGGGGKLMSP LASRLPPHHPLAMHSGAQFVRHHPDFYRNLYGASHLGS GDMSLLETYS  
RTLGLSGVMPPSTAPSILTSSASAVSASGK PFSINGGSTAPGGAVLLTTATSGLSPSSSST

ASSGGSDQSPHPSLSSTQELKSPGRV

>irx2\_Apimel

MDISEDWEHVGLLQEVSAAEPPPPPPAPDFLIQQQELLVSGGQPTTATSPAMSSGGALSPG  
ALSPSSTATTTGAAAAAASGGASTPVAGATGPGCCENGRPMMTDPVTGQSVCSQYDSAARL  
ALGAYPRLAPTATSYSSYPTPTPSTTDQGPYPSIGMDSSAFYPPLGNPYGLKDTTGMGMTAD  
MGAAWGTAALQPAATGYYPYDPTLAAAYGYGAGYDLAARRKNATRESTATLKAWLNEHKKNPY  
PTKGEKIMLAIITKMTLTQVSTWTFANARRRLKKNKMTWEPKNKTDDDDDAVLTDSEDNKEK  
DDLADGNQGDRVGEEARRGLEENEPMRHVKAEHLQHDKDLDEEDDLLEEDPRRGEHPFHHA  
MQHHHHHHQAYPGEDHLKDEGIVKTDCSAAGVPIPATKPKIWSLADTAACKTPPPPTHPHHQ  
QYHHLHHHQHYGQQQQQQQQHQQHHMPSQGHHSQQPWLGGAGGGNLSSFALPSSASM  
SPSAAATAPYSSAATRYGGFLSSSSGGQLHYNPNSSSSGSSSSASSSAAAGFPEVGTDTPPQT  
PPNMKVATPNGVIQAPTAGYCTGNGNGNAASNGNPNPYGQSHPAAGYLSTSSGSASSGSSF  
SSRLQASPHKDYSPAGQNSILHQHTTASLPTEATTAFKPFYKGSQSMGSGFVSPV

***Bombyx mori***

>irx1\_Bommor

MDLNGARRKNATRETTSTLKAWLNEHKKNPYPTKGEKIMLAIITKMTLTQVSTWTFANARRRL  
KKNKMTWEPRNQDGKDSGTGSSSEDGDRPQQRLDLLGQRTSEWSESRADSGPESPEPYERP  
IHPAYQHLPSRAPPGSTPASAKPRIWSLADMASKDGESPAPPSSASAFYQSAAAAAARLA  
HPYGRPELYRGLYPPTHADVALLEYSRSLALANPAPAPPAPSPSSSSTSSVAEPPPPRA

>irx2\_Bommor

MAQFLHQLPMLPAFGLLNGARDAGVSGLLDNVRPPAWQSSSTSLCFHSNPYALKESGGEMS  
AWTSAGLQPSGGYYPYDPTLAAAYGYGAGYDLAARRKNATRESTATLKAWLNEHKKNPYPTK  
EKIMLAIITKMTLTQVSTWTFANARRRLKKNKMTWEPKNKADDDDDTMLSDEEKDKDDQDDK  
LKSHKVKWAAPRPKFHITRLPFVGRGTGCHAEVAFGLSDELPHYFMFLPKDLSSSWIVSFMRI  
RRKVNRFDSISRNYVECNHKIQTRIRHARTRCEHNINPKRVNGKRVERTTAAIDVPIRSDL  
TKTFAPIKFPFILFIAPPAIGAELIHITWNRCIHRQCVSKDLFCHVPSGFGMNSPPLCFPS  
AMTCPSNEACGEYFMEGSLALPLALLTSMSDGDHLPSSGGPYARLPTKAIKNVRHETLDFN  
KGSTTKIHKREKRIHQRTSCYFHDSSRLRYVFFVTSINRRFAYSIGIPDEERKGDMLQGMH  
HQLLSYGIKEESKRTSDCGVPIPASKPKIWSLADTAACKTPPPAAQPWPQHSYGPPERAAPI  
DGSSNGFALPATAAASPASGSYGRYGGFPQSQYSGQHPCVHPAAFPDVQTDTPPQTTPNMKV  
PSVANPLGSGGGSGYCFPRHQQSPQRDPYHNPHHAPTNNHQPNNQPHHNEGSAAFKPFYKR

***Pediculus humanus corporis***

>irx1\_Pedhumcor

MDLNGARRKNATRETTSTLKAWLNEHKKNPYPTKGEKIMLAIITKMTLTQVSTWTFANARRRL  
KKNKMTWEPRNRVEEEDNNNEESGRKSADNGKDPDSKDSGTGSSSENGERPNNRMELLDRPC  
GPVDTASEWSESRADSGPDSPECLFERQQQLHPAYQHLQHPASRLHVPSSSSPSGPPKPRI  
WSLADMASKENDIHSSPSTTSAFYATAAGKLISPLSRGAMPPLSVPPGSYPRPPPHEFYRSL  
YGPAAHLGSAASESVSLLLETYSRTFGGGLEGGGPPAAGPGGQLSIVLSKVAAAAAATSGNP  
TFNLNGTRPTQSVATGASSASSSTSSSASDHQQPLLPNKQIPDHLKTPAGKP

>irx2\_Pedhumcor

XYSAGYDLAARRKNATRESTATLKAWLNEHKKNPYPTKGEKIMLAIITKMTLTQVSTWFANA  
RRRLKKNKMTWEPKNKTDDDDDAIVSDTDDKDKDLSYDSEKVKDRLREVDKDSMHVHVKME  
NRIIDKDLDDDETDDEDRKPDGLTLTHHHIHHHHNHMHHSIMGGMKEEMKIQDCGIPIPAT  
KPKIWSLADTAACKTPPPSQQQSWLMPNNGSGSGPMMGLNSFALPSATSSSAAAAAASYSRY  
SGFLGHYNGNNHSTMGNYNTPSGFPEVQTDTPPQTTPNMKLPVANNIINSNSCFGSSNNNT  
TSHHHNQHQHQHQHQQQQQQQPQSTSYHHNVFVNNFNRMQSNQQQQQQQQQLSPQKDRHNDY  
QHQQQQQTMRTTGNPQHQPVPNPNEGTTAFKPFYK

***Acyrtosiphon pisum***

>irx1\_Acypis

TTSLVQPLPQPPHTSSSSSSSSPPLQLSLTAARRHTSVSPQPPSSSTAAGHNSSPPPPHQRS  
TVGGSTTASAALPPSSTAPSSVGGSPPTAVATVSTSTAAAAAAPPRCCDTGRPIFTDPITG  
QTVCSQYDLLSYQRLAASGVPALSMYTAPYPEGMAAYFPALGSDQPPFYSAAGLIDLKEN  
LAAGATWPHYHSVYHPYDAAFYGFNGYGM DLNGARRKNATRETTSTLKAWLNEHKKNPYPTK  
GEKIMLAIITKMTLTQVSTWTFANARRRLKKENKMTWEPRNRVEDEDNNEDDRKSPDPKLD  
CKDSGTGSSSEDGDRPGANHTGSEWSESRADSGPDSPELFDPPPHFLHHPYHHGHYPGA  
PHPPPSHLGHHHHHHHPSAAPPHHRFASVSPPTTGGVGGGLLP SQSSAPKPRIWSLADMAS  
KDTTTTTTAAAVETSTPSTPPPPSPHQHQRSPPHQQLSPPSVGGASSAGHRRPPAVPVPS  
LPAGYARHEQLYRSFYEDPAAAAYHARAFGGGGIVFQPSAAHQHLLHHHHQQQLHSAAAA  
VAEPSPASSSSDAESVVAVQHAERA

>irx2\_Acypis

SAMTAESVSPPLAAGGGGGGLSPDVMGAAGCGTCCTAATVGGVTGDRNGGSESAVAVCSCHL  
AAAASLPPHYASHRSTPATTAVYAPYSTDQNPYSIDTSSFYPHLSNPYGLKDISTGSSDMW  
SSASLQ PSTGYYHYDSTLAAYGYSAGYDLAARRKNATRESTATLKS WLNEHKKNPYPTKGEK  
IMLAIITKMTLTQVSTWTFANARRRLKKENKMTWEPKNKTD DDDDDDDAGSSDCEDKDKDDMLM  
GDEKHCNKDVRKDSHGDHMMGQGVMSDGD DDDRK PMLQHLYPDQMHHMKVHHHHVMQDDHHQ  
DCGIPLPPTKPKIWSLADTAASKT PPPGHQWP NVISPLASPGFTMPNTSSLSPSGSSYSRY  
GANGFYGSGYNGGNSNSSSSSAQQMAGYPDVQTDTPPQTPPNMKLPLSASSGQQQQQFGGH  
QGTYNGYHHQQQQHQQQQHNSYHHRQHVPPIQQQQQHDVVRSAQEVQQQQQQQQQQYHQQ  
HVALSQHNNNNNNSNTNNNNHQMAVVANDASTAFKPFYKTPSQQPHQQPHQQQHQQQHRQM  
NGYVSPV\*

***Culex pipiens quinquefasciatus***

>irx1\_Culpipqui

MENLERSRLSYCSPMSSNGSTLEKTTFNDFSYIIHLASPF EAMLAPSVGYPTVVLLERRKLR  
KLLRLLEYIR TGNKLVTP EGNMLLFRLVVSAPSLSPTRLLSEPYHDQNRMAPKALHQAPQLT  
PPRSYGMDLNGARRKNATRETTSTLKAWLNEHKKNPYPTKGEKIMLAIITKMTLTQVSTWFA  
NARRRLKKENKMTWEPRNRVEDDDVNLDDDDDDNKSLKDDKEILD SKDSGTGSSSEDGDRPSR  
LDMLDRPGHSDWNGSRNGSGPNSPDIYDRPMPGHPLLHPSHFVHLRSTIGAHPDVSHTPSG  
STNPSKPRIWSLADMASKENKDS DSSHSTGYSPGKIIAPLAGRGLNPLHHHPYMRPEFYRN  
LYGPHLTPGSPEVSLLESYQRTFGATLAHNGIPVGINPLISKASGSGPPFAPLSLTTSGNPH  
VAPQPGASPASSTSSGPENLTPSSPAAEKLISVANSSKP

>irx2\_Culpipqui

MQSSLSRMRETT SQFVQVVDHTHTPCHGGCLDGGNSSTTPYRQTTTPATKSETARRKNATR  
ESTATLKAWLNEHKKNPYPTKGEKIMLAIITKMTLTQVSTWTFANARRRLKKENKMTWEPKNK  
TDDDDDDAMVSDDEKDKDDMDPDKSRDHKDMHHHVKA EHDKEDDDDDLTD DERK PENLMGHP  
GHLGQHHPYHHSMLGGHHHAGLKSELDHPKNQ TGS DCGVPI PASKPKIWSLADTAACKTP  
PPHSALHSSWMTGGYHPGQHHQNQQGQVNQQQQQH QHPHLLQHPASGMMGGESSPMSMNM  
ANTAHSQGMGTMGSGMMN NFVNTPYSRHGGFLTGAQHYN TTHNNNTNSNTSTGQVTDATTP  
LQQQQQPPQQQQHPLQGMHQHQQQQLQQSQQPMNSNNSQSMGFPEVQTDTPPQTPPNMKL  
PSVAGNLLTVSTTPTTGTCFNNGQNSAGSINNNNNLTPNNNNLNQANGYASSPESMGQSSQ  
QGQNNYRMQSNSPQKSQQDYSQQMLHQPDGFKPFYKK

***Daphnia pulex***

>irx1\_Dappul

DDRSLRLMAASASAAAVSTTTPIVLSSPRTPTTTLTASSGCCCDGSRPLVPDPLTGQSICAC  
QLESGSATSTAAMLLGLPRLSGSLAGSTTTTTTSASPGATSALGLGLSLYHPYHQHQQQQQ  
QQQQHDLVHQHQQAIAAAHQQQQQQPF LTPDQSSFYAAANAGHDLKDSALAFNGAAAAAAA  
AGWPYPSMYYPYDPAMAAYPFGGYGMDLNGSRRKNATRETTATLKAWLSEHKKNPYPTKGEK  
IMLAIITKMTLTQVSTWTFANARRRLKKENKMTWEPKNRNDGDDDDGDSSDAEPSKDHHKR

SSSDGRDGVLSADSNAHHQRAWNGIGSAGSGHHLVMDDHHHQQLHRLHQHRRHHRDSEDN  
IDVMLDSDEEELDLLSSGGDSACLSPADHHLPGSHHLGNHLGNHHHLGLGVASTGVPHS  
SSSSTTTTSTNSSKPKIWSLADMAGSQPSHQPPASGSPHTTAAAALIQQQQQQQQQQQQQ  
QAAAAA AVAAAVFPLPFGPLSQAFGLRSPHSSFLPPNNNNNTTPGGGKIFSSFS PRLPPTS  
PYLDAVGGSPYGRPTAAAAAGVYRYP PPPPAGNPASSTSPFGGAMRSSAGAAAAAAGSAG  
EATSMALAYNQLMSSMAAHFQQQQHLQQQHHHGLVAGSNASAAAAAAGKMSGSTSSATSP  
GVLENLEKLAALAAGASSSSSSSATNRNDMKSSVAGN

>irx2\_Dappul

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DDESSSPVHGKQQHQSGTHNKKMKH SKIDKDDGDDKSDCDDDSRGSVSPHSIGSNLNLHLH  
PHHHHHHHHLVHPSHHQHQHGGSGDVS VSVSVSNLMNNTYHHHAQQMAGYAAAHQHGMMD  
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KLNANSLGQHQYHPYVSPQQQQQQQQQQQRLSSMPLPPTMSGLSASAVDPSEMPSPGSAS  
ARSSQQQHSNL PMAAPSTTPSASSTSSAMM TSV AQPQQQHGSPGSGGESSSTAFRPVYRTS  
VEWTRGQQQSGAFPTDDDTLDTHQINSVPLMK

***Calliphora vicina***

>irx\_Calvic

MAAYTQFGYGSYPSANQLLGGNVSQTSAAALLSSH NAPSPLSGTHENSLSPSGNSSASSSS  
VSSSGGTTNGPLSPGAMSQTSTNHAGSVLTSNTTNATLAHALVNGPEGTTAAATASSVLA  
AAVAAAAGGSSANHSPSGGGGVGSGSGGCCENGRPIIMTDPVSGQTVCSQYDSARLALTN  
YSRMPTGGVGVYGTAYPSTEQNPYPSIGVDSSAFYTPLSNPYSLKESTTGSDMSAWSTAGLQ  
PTTGYYSYDPTFAYGYGASYDLA **SRRK NATRESTATLKAWLNEHKKNPYPTKGEKIMLAIIT**  
**KMTLTQVSTW FANARRRLKKN**KMTWEPKNRTEDDDDAMLS DDEKELEKTDKAGAGGNMYG  
QQMLKEHDQLKNNHHNVKHDLDKDEEDRKPENLTASRQLENYNTASLYGTTTGHTNAYHPY  
QSQQQSQSQSQSQQQLQQHHSQSLYYQQQQQQQQQGYLANPASTIRDECG **IPI PATKPKI**  
**WSVADTAANK**TPPPNQAYMSNSQQQQLAAQSYANNLQINNHLANTSPLSMSSYVNAAAS  
SPYSRLNTAYPAASN YAATAGQMNNNSNTSANMMHLTQQYSAQKGHSQGFPEIQPDT PPNMK  
HANSAM

***Spodoptera frugiperda***

>irx\_Spofru

VDSSAFYSPLSNPYALKEGGGEMSAWTSAGLQPSGGYYPYDPTLAA YGYGAGYDLA **ARRKNA**  
**TRESTATLKAWLNEHKKNPYPTKGEKIMLAIITKMTLTQVSTW FANARRRLKKN**KMTWEPK  
NKTDDDDTMLSDEEKDKDEQEEKIKTHKDEERKGD EMLQGMHHQMLGYGIKEESKRGSSDC  
**GVPI PASKPKIWSLADTAACK**TPXXAAQPWPQHAYGPPERAAPSDGGSQWVALPATA

***Heliconius erato***

>irx1\_Helera

HEGPTYQDPITGQTVCSQYDFLNYQRLASGVPLSMYSAPYPDAATAAGMAAYFPALAADQP  
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**TLKAWLNEHKKNPYPTKGEKIMLAIITKMTLTQVSTW FANARRRLKKN**KMTWEPNRNVD  
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>irx2\_Helera

HEETACSCQYD GARLALTSY PRLSSAAVGVY GAPPST DQNPYPSIGVDSSAFYSPLSNPYA

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KEQDDKIKPSKDDERKGDELLQGMHSQLLGYGIKEESKRGTSDCGVPIPASKPKIWSLADTA  
ACK

### ***Capitella Sp I***

>irx1\_Capsp1

MSFPTLGYSCSPPGSSSSSLGSPQLLLPGALPSSAASSCEASAEPSSLSRSSADQEALTPSPA  
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DNSEAWRSLASSTPGWPYDPSNMTGYPYGASYGGLDVRKKNATRESTSTLKAWLYEHIKNPY  
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GDSNNNDDAKRLTEEDEDVVVDGVFTLYECIFDANDFSSTQSLACPLAAIATVEQRDLWEL  
DIRGKAQLSMRNRGGRNCCNITSNDDSLSTPPRADLMNGSSLLHPHQRCFDLTGLHKDVS  
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RNCPALIVTTIGSPLIKATFPCVRKEVRKKYGRDQVEKHSSSITQLTCLQRMIDTFTRELQ  
ISGQHTITTFEQRNFTDRGLSKTAADTPRRQGDKPALPVFNEPRTWEISPRKTRYHGCQWQ  
RRRYNGG

>irx2\_Capsp1

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RLRGDTPNPTAPSPRLSVVPITPPSPPTTGQDRLSAPSKPHTIDHLPDRNQPAEPQKKPSI  
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>irx3\_Capsp1

MAFPQFGYPNIGASLPGNQNSLLLAASAVNAPSSGASSRHTEAPNRDAPASSTPSSTAAQC  
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FDVDIENDDDAEDSPLPRSSNKAEMSPLPSSPPPVAYSTHSAFTPINHLRSPPKQPLRVSTA  
TPNKDSASSSPSSRSTKIWSLAEVASSKEHKTEETNTPAFVTRGPTQOTFAPNQKAPHAAGFS  
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KLAGVR

### ***Helobdella robusta***

>irx1\_Helrob

MKCGSRYGSLDVRKKNATRESTSTLKAWLYEHIKNPYPTKGEKIMLAIITKMTLTQVSTWFA  
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MTRESDNFTDDDIRCADEEDEDIVVDAGIDDLVPDVPVVTNKTISNNNCCNQNNNSKVSS  
SPSYHHNQSEYSRRSRSVVVSPMNVDNELQQIQQHHKQHFNQLQHQQSLHHHLSQRSSQHDP  
GNTSNTNNNRNNNDSDNNHKTNRENSPKFTQICHNFHPHFNRPSPFHMNNIHHHPSFHPSIT  
FPQYPQPSFHHHHSSPSFYPMFLTNKRKFGDKMEDEGHTLNKNPNNINNDHNKNNNNNS  
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TATKAAATTSNFPSPISRVPKQDNITSECKKPKPKIWSIADVATSDDNKQRNNNKNTENV  
DGDKEAPDGLNSPVQQPHQHLNAPYNMHLYSTLSQLYHPYFSQQHRQRMQVRFQQQLPNN  
YHQQFQQQQQ

>irx2\_Helrob

MESSCLFSKSKFTSYLDNANISNTDINNTIYNDINTNNNINNYNNINNDNVNVNKFDPNILT  
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KPDYNLSYNYFYANNFSAPNNINGNINYVDIKLLTADINSRIFSKLTPSSNDSSSKDNINTC  
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DGTKNINNNITNTDDINSYDVNLSYGANNNNINYSINNTDYNKNKNI FLQSVSTT **FDNLKP**  
**KIWSLAQVAENE**QQEHFLGNEFATRELLSLPYHQLNYQQPNYLQQQPQQHQQQQQQPQILNN  
HFYYNENRYSANNEHNSPIEIDNKNLNSTAEVENNINNIDNNISNNGNKINNIRDIFLNNNF  
IQTLANNNTSIGQADINNNNNISKNNINEDDDDDDDDDDKIIDENANEDNDNDGEYDNDINS  
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>irx3\_Helrob

MDNKSIIINNNDGHNNNNNNNNGNDIIDNDNNNNNSCDVIVNNLQPYFYPIKPNFLPSLPH  
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QNNNYNYISD **PTKRKTVDRESSATLKTWLASHGKNPYPSKHEKIALAIATKMSLTQISTWFA**  
**NARRRLKKETNN**NNNNNNNNNNNSNNCSSSSSSNSGRIIDNCENKSGDDEDSNNNNNNNSNDINY  
NNNNNNNNNNNYTICYDDVNETVTSTKEDHVITVASSSFSSSFSSPSSLPTLSPSSPAAAV  
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**IKIWSISQLLSND**

>irx4\_Helrob

LNQYIQKKNRDENNLTQLNE **NELNYKKKTSLQAWLYEHIKNPYPTKGEKIMLAIITKMTTQ**  
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NICSNNTSSSSMSNIGNIKDYRINSSGSSSKINIGSSSSNNNNNNNNNNNNNNNNNNNNNTNN  
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LL **DGGLKPRIWSLADVATSAG**GDQVEATSVSGYSIDENIYSSNNNDDNNTDNSNRNDVID  
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>irx5\_Helrob

RSYDV **RRKNATRESTTTLKAWLYKHIKNPYPTKGEKIMLAIITKMTLTQVSTWFANARRRLK**  
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NMFPDYLQQQRHHHQQQQHQQQHQQHNNIQTDDKLKPLTTTLSTEKPTMTSESENGS  
SLPEAK **KDKNKFRIWSLVDLATT**KS DSNDDVSDDDGAKTHKPKNINNNNDDDDDDNNS  
INNNKTSTDTNNSNTTTTNNENFNMSPTSNMDIHPWMHRGIPASWVFQPKIAMAIYRQMMN  
FHIQQQQHHHQQQQHNNNNNNNNKQQQPKH

>irx6\_Helrob

CILQNLFYHYITNIIIIFFVIIIIIIIPVIIIIISYGVIVD **RRKNATRESTTTLKSWLY**  
**EHMKNPYPTKGEKIMLAIITKMTLTQVSTWFANARRRLK**VSREKINEMKMVWSPSKRTNN  
GDDDDNDDDDDDDDDDADVSIGQNI DDDVNI DVHNNNNNNNNINFNNSSSSNNTNYND  
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DDVYNVLKVKRRRFLKEFS DTRYFKRGYI INNNNNHNNNNNSNNIPDENSRI DNNIQNI  
KNNFNYINNDYHHEFNRRNNNDNSNNDLEINNNNNNNNNNNNNNNNNNNKRICDENDDDVEM  
NCDDNNNI INKNNNNNNKKSISSDKNSSNNYNNNNNNDDSWTLCKDKSTKCS PDYDCIY  
FLQHQQKHQHQHQHQHQHQHLQQQQQQKQONVYHKSNSNNSLGYNKNE DANDDVGS DY  
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SSSSLSRSSSLTSSASHSLFHNHQHYHHYQHRHSIHYYHHNQMLKQPQNQHRFVDENNNN  
NNN**KRLRIWSIDDVIGNRF**

***Lottia gigantea***

>irx1\_Lotgig

XVPALGDSVYPTSAYASQGYMPLGADPSAFYPPPLNGHYDIKDAGESWRGINQPAPCYPYDTP  
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**QVSTWTFANARRRLKKNKMT**WSPRNRSGDDNDDDDDDGDKSKGSDDDDEKDEVNLKEECK  
SPVGTSPFSVTHNDHSSLFHEDTNKPINGGISCSGNLSLASSSLVGTAMGAAQSGIRTQNLG  
ATPMDTKRPDSLCSNSNDSGLSDVNCNYSDVHNL**ENGMRPKIWSLAHVATSK**AGFLPPPMGR  
GLVSNQNDHMKELSNQLWGDGMVSNRQNTYSSMSSCSLNSGMMRQEPSAFTPNINPLS  
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>irx2\_Lotgig

MSYNLTFPPNNTQIPAAQVTSPTPTTPRACCENGRPVMTDPTTGQTICSCQYGSALLNYPR  
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GLYPYGPYGGDLN**NARRKNATRESTTTLKAWLNEHIKNPYPTKGEKIMLAIITKMTLTQVS**  
**TWTFANARRRLKKNRMT**WSPRNRGEDDDSDDEKENEDDEKSKLGDKKEKKINGDGSEIRDEE  
IDVESENLDKNKKVNDNLFGLDCVSPVPSVGEDSRRLSPPVSRDSDSSFSESLNPSDCDD  
**QQPKIWSVSDFLQTT**PQKLGKPESELLSDSNGVPKIGSGMTSSFTPVASAGLNGLFSSYPS  
SLAYSSHSYPYPISTSGVGKLMRSRSPATRFNPNPAGRQPVANGFNAPRDFNVVREGE

>irx3\_Lotgig

MTTAPSAPPSGRACCENGRPILTDPHGTGQTICSCQYGAALLNYPRVPGLAESVYSASAAAYAA  
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**SRRKNATRENTTTLKAWLYEHRKNPYPTKGEKIMLAIITKMTLTQVSTWTFANARRRLKKNK**  
**MT**WSPRNRSEDGSDGLDNIIDVDSEGGKDDKDRSTPGLGDLGSRSTPAGVDDLDLTDGKDA  
FINVDEEDSDDHGYHADRLDSDEEVLRRMKGKSDSEKLCDSASVTDNHSPNKTENRDSNVQS  
GGNSTGTSSQQNTE**EQSPRKIWSISEFLHKTSTTTGTTSSRPAAISTHARPPHTSGLFYIPG**  
APNGWNGARYHGHPYSMSLSHSTISYPYSITSHANKSPLPSTATLRTIDSLKEGEKLMRP  
NVLFSPARDLDGIRPNX

>irx4\_Lotgig

MFRAPFGLGGFPAGITADGVSVLTQNCGLSGIRADRPESWKALPSTMSPHPYDPSLAFHPYN  
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**NARRRLKKNKLC**WDSADDKDDDEDDIKNIDDESRRGFDSREIDVEGLEKRLSGDESDN  
QLDLSDISDTENEPTDNKNFKLQSRLLPSSQLRIPDNILVNKPVNTSNN**NGVSKPKIWSISQ**  
**IIDKDT**PKVPVQQPVFTHYNGLHHTGSRFPSPFVDPYGARLQMHIPGYNQEKLPSPRTLDTTP  
DTPPFSISTKEIISPIKLNAAATPEHEEALNLKTERPETQOTSX

***Schmidtea mediterranea***

>irx1\_Schmed

MSSGKEGRPTWNSALLLEEFRLFSTMTNTVQISLSGGIPDQINPIFNYSSLQTQQNNDPSSL  
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NIPFYSSPQFTFNNHLCCDFGSAWRSAAHMAADHNPYATYDNSAWANPYGYIGNPTLDLN  
**SARRKNATRESTTLKAWLQEHIKNPYPTKGEKIMLAIITKMTLTQVSTWTFANARRRLKKN**  
**KMT**WSPKNRSDDATNSDQETDTKCKETDSDDGLKTDQDLTSLSDQDDLAMKSSFPSK**LNDVK**  
**PKIWSLAHTATAGL**FSMPLQSYPGHCTDGS AEDPQNNNSINQYPANIGMPLISSHPLYQQGF  
FHHIDLPNQLNGCQDNKQYSHLYHQQNPNNFFNHSQKRSEML

>irx2\_Schmed

MSKTIITSHSTSTSCSGTIRKLSDDTAMSKLASIVEPIFHSPTMNRHLLTQTSWPPGMHSNIHPS  
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WETWRQIHQATINNNLSPHFLALCQSSGITFNNNENDNVSNLIYKNIYVSFSIRYPPDF**PNA**  
**PRRKNATRETTISILKAWLNQHKKNPYPTKGEKIMLALITKMTLTQVSTWTFANARRRLKKNK**

MTWTARTRHEDDI DETGDDDEDDDDDEEDNENDDDISKSDSRFESELRKNDESFLSKSEKSDT  
SADETSKSNKIWSIAE IADDN YSGSNSRQHSNFSVLPTPMNLFRLPTGLNQYSDHLKLLQSM  
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>irx3\_Schmed

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>irx4\_Schmed

MCLPFRLLDVCVQTQATGYKYNVLFVKQNGNLMNCLKNHEEELRDRNLFSTYYNCSRYGGIPP  
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QVKKNATRENSSTLKAWLQEHKDNPYPSKGEKILLAILTQMSTLTQVSTWTFANARRRLKKNK  
IGWIANGKSDNPDSTSDSELSELF TREYEKPNNSNQKITKKNHIWSIIDMISEPSCSHEDPA  
T

### ***Mytilus californianus***

>irx\_Mytcal

MAFAHQYTHAGTASMPGSQVMLSTKSHSPTAPSTMEQARALLHESGLPLLHFLPRMNGLPES  
LYGQGPLTSNGLGVEPSAFYPMGSPPGH LTGSPEWKGI PGQSPVVYPLDPMLACHPYASFYG  
GLDLNNAARRKNATRETT SALKAWLYEHRKNPYPTKGEKIMLAIITKMTLTQVSTWTFANARR  
RLKKNMTGWNGKDRDLDDSDFETDGDERTNENEGQYLLPIG

### ***Mus musculus***

>IRX1\_Musmus

MSFPQLGYPQYLSAAGPGAYGGERPGVLA AAAAAAAAAAASSGRPGTAELGAGAGAAAVTSVLG  
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YGD PGRPKNATRESTSTLKAWLNEHRKNPYPTKGEKIMLAIITKMTLTQVSTWTFANARRRLK  
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HSPKPKIWSLAETATSPDGAPKASPPPPSSHASAHGPPSGSPLQHPAFLPSHGLYTCHIGKFS  
NWTNGAFLAQGSLNMR SFLGVSAPHAAPHGPHLTAPPPPQPPVQVATGVLHGEKASARSSP  
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>IRX2\_Musmus

MSYPQGYLYQAPGSLALYSCPAYGASALAAPRSEELARSASGSASFSPYPGSAAFTAQAATGF  
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SEDEDEDEGDASRSKEESSDKAQDGTETS AEDEGISLHVDSLTDHSCSAESDGEKLP CRAGD  
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GKTPLGSRTPGAPP PASKPKLWLSLAEIATSDLKQPSLGP GCGPPGLPAAAAPASTGAPPGG  
SPYSASPLLGRHLYYTS PFYGN YTNYG NLAALQGQGLLRNTAASSPGETLHAMPKAASDT  
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>IRX3\_Musmus

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RLKKNKMTWAPRSTRTEEGNAYGSEEEEEDEE EDEEESKRELEMEEEEELAGRGGGHGGRGA  
GRRRRDEEIDLENLDSAAAGSELTLAGAAHRNGDFGLGPI SDCKTSDSDDSSEGLEDRPLSV  
LSLAPPPPPVARAPASPPSPSSLDPCAPAPAPS SALQKPKIWSLAETATSPDNRRSPPGA  
GGSPPGA AVAPPTLQLSPAAAAAAAAAHR LVSAPLGKFP AW TNRFPPGPPAGPRPHPLSM LG  
SAPQHLLGLPGAAGHPAAAAAAYARPAEPESGTDRC SALEVEKLLKTA FQPVPRRPQNRLD

AALVLSALSSS

>IRX4\_Musmus

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PYEPALSQYPYDRYGTVD~~SGTRRKNATRETTSTLKAWLQ~~HRKNPYPTKGEKIMLAIITKMT  
LTQVSTWTFANARRRLKKENKMTWPPRNKCADEKRPYGE GEEEEAGEEESREEPLKSAKSEGH  
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VDGVFHDPILRHSTLNQAWATAK GALLDPGPLGRNLGAGTNVLTTP LACSFPPTVPQDVPPA  
GASRELLATPKAGGKPFCT

>IRX5\_Musmus

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~~ATLKAWLNEHRKNPYPTKGEKIMLAIITKMTLTQVSTWTFANARRRLKKEN~~KMTWT  
PRNRSEDEEEENIDLEKNDEDEPQKPEDKGDLEGPESGGAEQKATAGCERLQGPLSPAGKETE  
GSLSDSDFKESSEGRHDELPRPPRAGESSPAGPATARLAEDAGPHY PASVPAPGPHPSAGEL  
PPGSGGSSVIHSPPPPPPPPAVLAKPKLWLSLAEIATSSDKVKDGGGGSEGSPPCPGPMGGQTL  
GSRASPAPAPARSPSAQCPFPGGTVLSRPLYYTAPFYPGYTNYGSFGHLHGHPGPGPSPTA  
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>IRX6\_Musmus

MAFSPFGHPYGSTSQFLVSASSSATCCETAPRPVSDVASASTSASTLCCTPYDSRLLGSARP  
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GAEAG

**Homo sapiens**

>IRX5\_Homsap

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>IRX6\_Homsap

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>IRX3\_Homsap

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ALSSS

>IRX4\_Homsap

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GGGAALDEDLERARSLRSAAAGPEPLPGAEGGPQVCEAKLGFVPAGASAGLEAKPRIWSLA  
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>IRX2\_Homsap

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LCESGSECKDKYDDLEDDDDDEEGERGLAPPKPVTS SPLTGLEAPLLSPPPEAAPRGGRKT  
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>IRX1\_Homsap

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YGD PGRPKNATRESTSTLKAWLNEHRKNPYPTKGEKIMLAIITKMTLTQVSTWTFANARRRLK  
KENKVTWGARSKDQEDGALFGSDTEGDPEKAEDDEEIDLESIDIDKIDHDGDQSNEDDEDK  
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HGKPKIWSLAETATSPDGAPKASPPPAGHPGAGHPSAGAPLQHPAFLPSHGLYTCHIGKFS  
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### ***Gallus gallus***

>IRX1\_Galgal

MSFPQLGYPQYLSASQAVYGSERPGVLAAAAAAAASGRPAGAE LSGSAAVTSVLGM  
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VTWGSRSKDQEDANLFGSDNEGDPEKTEDDEEIDLESIDIDKIDENDGEQSNEEEEEKPELL  
RQSSEERLEKDKELSLSGSEGLKPKDALAMVKEASDNSTRIISP GGQSNLQMP SHSKPKIW  
SLAETATSPDGALKSSPPPPPAQVTH TLPQIQHPAFLPSHGLYTCQIGKFHNWTNGAFLTQ  
SLLNVR SFLGVNHHHATHHNNHLQAQQQPSVLTATLGALSSEKPSERTSPKHIENVPR TDS  
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>IRX2\_Galgal

MSYPQGYLYQPPGSLALYSCPAYGASALAAPRSEELARSSSGSAFSPYPGSAFTAQAATG  
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EDDDDG DGARSKEES PDKI PESNETSAE DEGI SLQVDSLTDHSCSAESDGEKLP CRAGDPLC  
ESGSECKDKYEDIEEEEEDEDDDEEDIEEDDGGGGERDPPAKPATSSPLAAVEAPLLGHPHA  
DAARSASKAALGGRASGPPPTPASKPKLWLSLAEIATS DLKSQNLGQGCPPAALASATPASAP  
HSAAYS PSSLGRHIYYTSPFYSNYTNYGNFALQSQGILRYNSAAVASNEGLSQTVLNASS  
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>IRX3\_Galgal (incomplète)

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PSSASSSSASSPTDAASAGTVPKPKIWSLAETATS PDNPRKSPGSPAAAPQPLPLPPPPPH  
RLVSSCPLGKFPNWTNRAFPAASPHHHAAPHPLALLNTPHLLGLGAAPAAAAAFPRPAEQAP  
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>IRX4\_Galgal

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RARGCLKPAAEECEAALLGARPRGCEAKLCFPQGP LLEAKPRIWLSLAHTATSLNQAEYPSC  
MLKRS GGSAAA AVSAPVSVMDRHQDSPVTNLRNWVDGVFHDPLFRHSTLNQALSNTTVSWAT  
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>IRX6\_Galgal

MSFSQFGYPYSTTSQVRLKQIARSSHSERRLENRCFLPPLPFHRS LG RATNTHARFVPS CRA  
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DANGSRGAGRGKPRGSFAILES DRCLRVPAPLRASPLPAPGAPPPPPAPAAPGLPRGRSAR  
PVSPQFLVPGSPGASCCEPAPRSGPDASSAPAAASLCCAPYESRLLAPGRAELNAALGMYG  
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DGEYGAGSDGRGKSILNIEYTS LCLPKVPKAAEGTPGGADVGPAAEGQRGRAQAGWERGAL  
RSRGGPERRGSSALCRSDPQLRVLARLARSSCATGGDGC RPEERSTTRLHPDSCGGALRGR  
NARS RPREAKPRSPPGSAPSGGGGSAGPGSFGMVLRQARRSSERDADY PVRPPRTPPQSVTG  
KI PRIDGEQIPGAEHGEGERDPRAPERTVPVPLRPATTARSEERMLPASPGRSQCRRPGPA  
VAAHTPLRPLKGRAALANELFSETIKGSAGRGPMKGR LCAVETARLGPA PPGFLRPRGDPCC  
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>IRX5\_Galgal

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### ***Xenopus tropicalis***

>IRX2\_Xentro

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LKAWLQEHKKNPYPTKGEKIMLAIITKMTLTQVSTWTFANARRRLKKNKMTWAPRNKSEDED  
DDEGDGERVKEEQSEKAQDCNETSAE DEGI SLHVDSLTDHSCSADS DGEKLP CRATDHLCES  
GSESKEKYDDDEEEEGDEEDRVLPVKPATSSPLTGVEAPILNHQQDGS PRNSNKTS LDNGM  
SPSSQTPASKPKLWLSLAEIATS DHKHSNLG SVLSSATSSAAHNPSY PSSSLLGRHIYYTSPF  
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>IRX1\_Xentro

MSFPQLGYPQYLSAGQAAVYGGERPGLVLAAGSRAAAAGSGRPTGADLGSSSTAASVTSV  
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GD**PGRPKNATRESTSTLKAWLNEHRKNPYPTKGEKIMLAIITKMTLTQVSTWFANARRRLK**  
**ENKVT**WGARSKEDDNI FGSDTEGDHEKNEDDEEIDLESIDIDKIDDNDGEQSNEEEDKLEH  
LRQGEKESFKKESEVMIPSSDGLKSKDSLGLKESDTSNTRIVSPGGQNIQV**PPHNKPKI**  
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LINMRSLLGVNPHHVAHHNHHHLQAHQQAPLLATNLSSLSDDKTPERTSPKHSRENLP RTE  
SPPQLKPSFQAVRENTLSQQEGTSRILTALPSA

>IRX3\_Xentro

MSFPQLGYQYIRPLYPSDRQNVGGTRSGTELS PAGTLSNVLSSVYGTPTYAAAAAQAYGAFL  
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**AWLNEHRKNPYPTKGEKIMLAIITKMTLTQVSTWFANARRRLK****KENKMT**WAPRSRTDEEGNA  
YGS DHEEDKHEDDEEIDLENIDTEDIESKEDLDDPDTDIHS DSKTDARS DSEASDGFEDLNA  
PEDRLLSVVGQRQVLNEEPQDKCALSSDAKASQPACEQIKLDRI PSSPLENNI **PAAHKPK**  
**IWSLAETATTP**DNRRSPNTGGSVNTQNLIAQHRLIASPGSRFQGTGRAFSAQQSLLSNSA  
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>IRX5\_Xentro

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**KAWLNEHRKNPYPTKGEKIMLAIITKMTLTQVSTWFANARRRLK****KENKMT**WTPRNRSEDEED  
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LVHRNALVQHGPVTNNATSVIHSPP**ASTSKPKLWSLAEIATSS**DKVKESSDAAVAGTTPAQ  
SMVVSASSPSRSPSAQCHFPSNTVLSRPLYYSNPFYPGYTNYGTFSHLHSHHGPTTSP TVN  
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>IRX4\_Xentro

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EHTLSQYQYDRYGTMD**GSTRKNATRETTSTLKAWLQEHHRKNPYPTKGEKIMLAIITKMTLT**  
**QVSTWFANARRRLK****KENKMT**WPPRNKCSDEKRPYDEEEEEEEEDSQKATIKNEKKIVDEEV  
AREDKALDLS DLEDFDAIESESSECELKQPFHHQPQDGHQLRQDCVNDHCKDVIKMPITP  
AANQELDRTKICHKPGVDQCEQEVLRGRQRGGESKACFQQQQ**ILDSKPRIWSLAHTATSLNQ**  
TEYPS CMLKHQGLSSPSSSSSSSAVSTPVCVIDRRQDSPVTS LRNWVDGVFHDPLFRHSTLN  
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>IRX6\_Xentro

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HSLGQYQYDRFGAVDIS**CSSRRKNATRENTSTLKTWLYEHRKNPYPTKGEKIMLAIITKMTL**  
**TQVSTWFANARRRLK****KENKMT**WSPKNKAMDEKKDEKQEDYNSGCEQENS DHLV TY**GTTGKP**  
**RIWSLAHTAASS**IAVEIENDKKSLSPKCVFVKKIHS GSGYSICKEMKALQHIKPIQTDND  
EVPPTTRMFRSSS

***Brachydanio rerio***

>IRX1a\_BRARER

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**STSTLKAWLNEHRKNPYPTKGEKIMLAIITKMTLTQVSTWFANARRRLK****KENKVT**WGARSKD  
DENIFGSDNEGDAEKNEDEEEIDLESIDIDKIDDNDGDQSNEEDEDKRAELES LQEKRHASK  
EPSDGNNNTTRVLS PGRQGGFQV**PVSNKPKIWSLAETATSP**DSAQKPTSPSPVPSHPAFLPS

HGLYTCQIGKFHNWTNGAFLGQNSLLNVRNFLGVNQHNPAAQQQQQQTGPASLQVLSAGNTD  
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>IRX1b\_BRARER

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**TRETTSTLKAWLQEHKKNPYPTKGEKIMLAIITKMTLTQVSTWFANARRRLKKNKVT**WGRS  
AEDRDGRIFDSDNEDDADKNDDEEEDLETDMDKAEPRVDQNKAAANNPHAIENIETPRI  
LSSPALKNTDSPMSSGNREQNVVKSVEVSPGGAVCQR **PGNSKPKIWSLAETATS**PDNTQKL  
SIPSTPAGLRASPSTHPAFLSTNGIYTCQIGKLNWASAAFLSANSMLGVRSLLSQNSNFPN  
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ETSQRALKTIS

>IRX2a\_BRARER

MSYPQGYLYQPPGSLALYSCPLAAPREDLARSSSGSAFSPYPGSAFTASANGFSSPLPYS  
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**EHRKNPYPTKGEKIMLAIITKMTLTQVSTWFANARRRLKKNKMT**WAPRNKSEDEDEDDGDG  
ERKDERTDKNMDNSEASAEDEGISLHVDALTDHSCSVESDGEKVT CRTGDLVCDSGAEIQDK  
CEATDLGEERQRGASPKPVTSSPLTGVEAPLLTHHHRENSTNKTCLDGQ **NQTVKPKLWSLAE**  
**IATSDPKQQNCPPGVLLTSSAPGASPAGAVYPATSI LGRPLYTSPFYSNYTNYGNFSPLO**  
GQGILRYNSAAEGLLHKQTGEPLIKTNPNQTEAHFRASNAESKKDPSEVFTVRSQSYLSS

>IRX3a\_BRARER

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**SEHRKNPYPTKGEKIMLAIITKMTLTQVSTWFANARRRLKKNKMT**WTTPRSRTDEEGNVYNS  
DHEGDDGDKREDEEEDLENIDTENIENKDDLDEQDELHSDLKLDGRSDSEISDGYEDLQGP  
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>IRX3b\_BRARER

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**KNPYPTKGEKIMLAIITKMTLTQVSTWFANARRRLKKNKMT**WVPKTRTDEDGNVYTS DNE  
AEKRDEDEEEDLENIDTEDIEDKQDCDYQDDDKSTPKGSDSEEYDDARAEKRIIEDEEQIKK  
SPAEEQEPSNNI **SPALKPKIWSLAETATTP**DSPKKTWIQRNCDAQTVRNPLHVQNWTKMALS  
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>IRX4b\_BRARER

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GQYSYDRYGYGSVD **VGTRRKNATRETTSTLKAWLQEHKKNPYPTKGEKIMLAIITKMTLTQV**  
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QLHSDLDLDFDLVESDGSECEKPSFVHVHSETSDHPETHFKDAFHESVTELTRGVHKFSED  
RLRAPAEDHQMAKFYLQGGQK **TIETKPKIWSLAQTATSLN**QVDYSSCMHKRTACPSSNCDS  
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TSSHA

>IRX4a\_BRARER

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GQYQYDRYGSME **GGTRRKNATRETTSTLKAWLQEHKKNPYPTKGEKIMLAIITKMTLTQVST**  
**WFANARRRLKKNKMT**WPPRNKGSDEKKYDDDEDGSPPEEQIKSETNDESKDREDKDLQLSD  
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CFQQQQQSHP **ILDSKPRIWSLAQTATSLN**PAEFPSMCLRPCASPS PAGGPDRQQDSPVTTL

RNWVDGVFHDPLFRHSSLNQTNTTVSWTNKGSILETGALGRSVADSGKQEAGKDTMTFPKGV  
NKIFCS

>IRX5a\_BRARER

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PRNRSEDE  
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>IRX5b\_BRARER

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>IRX6a\_BRARER

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>IRX7\_BRARER

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***Tetraodon nigroviridis***

>CAF96727\_Tetnig = IRX4a

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>CAG05430\_Tetnig = irx5a

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>CAF99496\_Tetnig  
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***Petromyzon marinus***

>Irx-a\_Petmar  
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>Irx-b\_Petmar

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>Irx-c\_Petmar

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>Irx-d\_Petmar

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***Ciona savignyi***

>irx-a\_Ciosav

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>irx-b\_Ciosav

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>Irx-c\_Ciosav

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>Irx-d\_Ciosav

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### ***Ciona intestinalis***

>Irx\_c\_Cioint

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>Irx-a\_Cioint

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>Irx-b\_Cioint

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***Oikopleura dioica***

>Irx-a\_Oikdio

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>Irx-b\_Oikdio

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>Irx-d\_Oikdio

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>Irx-c\_Oikdio

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>Irx-e\_Oikdio

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***Branchiostoma floridae***

>Irx-a\_Braflo

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>Irx-b\_Braflo

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SENKPKIWSLADTATSSSPGLRSEPPRSLPTGAIPTIPGQFPGHRPFDVANLRHWVNGFSQ  
PIRTHAMSSSQGAATSVFSSGQLPTGVSLAGLPVRTL SATAPTGVHAFVLRHAFPGVART  
HSPATNEVSNPTNARYREGPYSEGHPTAFKPVQKSHNQGVKCVQTTGKRRLPGRAGRNNPSQ  
CGVHLRSTVTFTPGRPRSPPFSSRLTDRPVVSVHNILSSTCLDLPPP GGAC

>Irx-c\_Braflo

MIVTVIRTL SFLHKKHAFIYRSHVILRLTLPHGRTRHNKNLYSQAKKTTPLCPRATPGRRSQ  
NPDNPTVIFSPSTRHPTFVAQTFIIFIIDAVAKEPAPGVGQLLARRADKATSLRRQICEASL  
LMPARASHAPRETNSPQMAVGRPPLARHQKGLLINEEPHI IATLELSKAGELLDRIQETNGL  
ARTLSGMSYAQFGYPYSSSPLLMSHAASCCEAGRPIMSDPHTGQAVCSCQYEGRVAGLV  
PRVGEMSLSSVYGSPYAGQGYIASFGADPSAFYSPLANPYDPSAGLQQPTAYYPYDPATLAA  
GAQYPYGSYGAMDGTRRKNATRDTATSTLKAWLNEHRKNPYPTKGEKIMLAIITKMTLTQVST  
WFANARRLKKENKMTWSPRNRSGDERREDGSDNEDDDDDEDKDRKREGNSDDDNHGGLEGDR  
DNQELDVGNPCEENRQEDNASGSVSDYRPPQSSSPADSLGSI SAAPRPASPEPSAANSVP  
VPPII SENKPKIWSLADTATCSSPAPRPDI IKTTLQGPVHMQFSHHRPFD SAVTNLRQWVDG  
VFHRPIGSLPAGPMGPLPVASQASASATVSGMHPSSNPHTT PPGFVSSQERTPALPIALRTH  
ASPAKDAPVVESAFQGGFMIMIEWLRMTTSPGIDRQNHNERANVSX

***Leucoraja erinacea***

>irx\_Leueri

MSFPQLGYQYIAAARPLYPDRQSLSSSRTAGELTASGAASTVLTMYGSPYAAQGYGAFLPYA  
ADLPMFPQLGAQYELKESPNVQHPGFPHHHAAYYPYQGYQFGDPSRPNATRESTSTLKAWL  
NEHRKNPYPTKGEKIMLAIITKMTLTQVSTWFANARRLKKEKQMTWT PRNRTDEEGNSYGS  
E

***Hydra magnipapilata***

>irx\_Hydmag

XLSSSYNKYNNESCSILDYALLASARRKNATKETT SVLKS WLNEHRKNPYPSKSEKVM LAIM  
TKMTLTQVSTWFANARRLKKENKMTWSPRKKSNKSNLKEGSSCSSEPIPEEMDIDIKEQI  
FSAQDCNINTNEENSGKNCIETPFVSAQDTKIQRPSVICVLESPTFDQIKNRF SRDPS PVDH  
LQKWVDGCSQEKPDLDLVCIKDLTPPLTPIDNRVTTFTSQKLF EAFDAAKINKNNDTQ

***Nematostella vectensis***

>irx-Nemvec

MTSYCEIDGYPFKRLRLVKIDVDFELCLMLHGAGNSCCDSVRQVHDGMPGHSVCPCQFDRVL  
QHRVASVPVSVLPRPAFGEAGFSLGSGTGLSAFYSPLARACDMKDSTQPWRDSWYLSQASRA  
PFELHGFDPHTHPACTRFAERFSPIDLAAAGARRKNATRETTSTLKAWLFEHRKNPYPTKGE  
KIMLAAILTKMTLTQVSTWFANARRRLKKNKMTWSPRNRGCEKKDGDVSDIDDDGDLITSL  
DDEEKPSENHDEKVHIQENETENNEKISVIDEAEDKKESDSTRDRESPPREDAKRPNIITSL  
VDTTNQTHSLPKSIPSAILISTAQNHVLDSPVKSLRKWVDGCFYTAPVASYMESSGVAGKPL  
PSTPKQRTSTEIPVITSAPSSQSAEKPERRTSSESKETRPRSPVEKVKEEEPAKASFRPPEP  
SDYGHILSRRGKGEGIKNVLKGADSVNLKVKPTFYIGLVKENGVPQQRNLSEVYPPKQNLII  
ANLFLAERLTDPIEFITHVNSKRPCACARKTARHSELSPCEHPAIANTLLLRSPCYCDHPAI  
ANTLLLRTPCYCEHPAIAITLLLRTPCYCEHPAIANTLLLRSTCYCEHPAIANSLLRFSCY  
CDHPAIAITLLLRSPCYCEHPAIAITLLLRSPYHCEHPAIAITLLLRTPCHCEHPAIANILL  
LRSPCYCDHPAIANTLLLRSPCYCEHLDIANTLLLRTPCYCEHPAIANTLPLRSPCHCDHPA  
IAITLLLRSPRYYGHKYNARGRK

***Suberites domuncula***

>irx-a\_Subdom

MASSPNYNRSENGGLNHLPAASLPLEENLVARGSPSHIENGIPGEHTGRAVVNGQSPSPQRS  
TCSGPRKPRNPAVLVLWIEEHSANPYPTKAEKNFLAHYAGMTTRQLNDWFANARRNIKKIGY  
ETWKEKHSAYSACFSMLRPPTADGSRFTRLAQFPMEIAGGLNGVGPCCSDGLKLASINYGRK  
DAPLPQQAAPTLSVPPNTCGNINSRPFYLLSPQSSLMNVGGTHSQTANTLRQVAMNPAAY  
YEVQHPASAGASIRPVQPASGISLPPSGISFRPMGGANVSLFSSTGRPGSMPPQFTSPISIA  
TPWTDNAAVSDASVVKQERGSVINKPHSPPVQLHVSPLLSTHVQRPPSPKSDTTSNNSPH  
PATDLRPNFASPTTAESTWAATLPLASSSQHLFEDSISGGVGTQLGN

***Amphimedon queenslandica***

>Irxa\_Ampque

MSDQHS~~L~~LAGHSHHHLGSSSLKLSSSSSPSSSSLATGGSGSSGSLSGYSAAGSI~~TRRMRNTAV~~  
~~LVKWI~~EDHQSNPYPTKAEKQYLAYYSGMNMTQLSTWFANARRRIKKIGMKTWLEGRSTFSLD  
YFPTPRASSIGSLDSFTAGSYHGLSSSPYASAAAATYGALTNGLHSSYPSQQNTLLSGGSM  
TSHLTNGLGGTSYDSSTLQPTSSTTPPLSGFYGTRSM~~SLGMPALPVGQWPSTPILSSPPVSF~~  
HSR~~PSSGNTAPLHSP~~LTAVYSADTSLRTHSAQSIDVGDSSYSSLQQHSPDQMLPECASTEP  
MLSDHKSGVTLQN

>Irxb\_Ampque

MRTKCSFENKIRERSTMFFTILMDDLAE~~EEEE~~EKERSMEGLEGSVQLASSR~~RRRR~~DATHLIEW  
LDLHQGNPYPTRVEKEQLVVISGMNFKQLNDWFANARRNIRKVG~~FDRWRK~~NKVTVGGIGGYG  
VHQKHSYVLPEDNGGGGKRRRKEKRSKGGGEDGGKGDIDFNLSPPNVISTRGMQPY~~YYSRSP~~  
HSLVSPHQIQLPAPRPPPPPPSPRARLDCKTAGCGQLPGLSSCPVLHHHPFSHQVQQHVPHP  
IDIGYPLGMAQSTSLSWSSLGLPPYAVGDSWLPHPVQSTTSSLQQQQQQCGYSWKECLKDED  
KDSLS

>Irxc\_Ampque

MILKGPGRVGASMIGEERGSIQRVTTLFIMSIRINQRETT~~HHH~~QQGSKLRNGISLNMSETKS  
SSQGS~~HSVADGSKASQEK~~SSSPG~~SWRNTDVLALWITEHLQLPY~~PGKVEKQYLCFY~~SNMSMK~~  
QVSTYFANARRTIQKKQKNIKRRLSKGSSLFNLFEIITNPKKINKNNPGSEM

>Irxd\_Ampque

EKGSSSPG~~SWRNTDVFALWITEHQ~~QFPYPSKVEKQYLCY~~SNMSMKQVSTYFANSR~~RNIKRR  
L

>Irx~~e~~\_Ampque

RNTYVLEKWMQEHMTRLYPTAEKQCLAHFSRMNTKQNI~~AWFS~~HIGSHISH

***Saccoglossus kowalevskii***

>irx\_Sackov

MSYPLGYPYPTSSQIILMSSVSHSGTSCCESGRPIMTDPHTGQTVCSQCQYDASRAAIMHSRVA  
GLPLMYGSSYTAEQGYVPTFGTDPFAFYSPLNTTYDLKGS AEGGWSATPYQPTACYPYDPAY  
QYYGDRYGGVDINGAARRKNATRETTSTLKAWLYEHRKNPYPTKGEKIMLAIITKMTLTQVS  
TWFANARRRLKKENKMTWSPRNRCGDDRKYDSGDEDDGNENDDDKIDIKDDDEILSDRFDGL  
DTDKEXDDKDNSDDDEDQDHLGGKAETRHSANEDSLSLSPSPLLSQNIIGNSSLLTPATSTT  
SQQQQPPQPPTIKPKIWSLASLAGTSSSPTSPEMSRRSPLLCHQPSASTFHQPHLNTEPNVS  
SLQHWVDGVFHHHHHHHHQOSHLYSSTSR TSAATSVLSYTAQNSLLGNEHSALRSPPGSSN  
MNGDHLPPGGPCRD LAMIAHNSAEAAKYSVAALHPSRDDDLREKSVVHPNDS

***Caenorhabditis elegans***

>irx\_Caele

MIPIANQVKMEEPTTPQTTTPAPPTSAPDALRGILPPNLLGQFHFHPAMAQVLAQAQAAAA  
AQQATLAGFPGVPMFPHGIPADLKPEMLLGGGPGPMPMFFSDAHRLYHPYGLDG IKKRNATR  
EATAPLKDWLHSHRKNPYPSKADKVMLAVGTGMTLTQVSTWFANARRRLKKENKMTWSPQNR  
RGDGCDDDEDDDDDDMNRPSSSTSINSERKGESLFGKPHLASPTPSGGSGGSDELTPPKEL  
VSPINDDSESPKRKPKMWSIADVTSDDSSKKDSPSSDENLLTGSLFQNAMKKQMEVMAR  
LDPTLFRHTMHPFMFQLLAQQAAGQQLALLAPQTPPNEAGEVSR

***Caenorhabditis briggsae***

>irx\_CaeBri

LKVEEPSTPSTTTPAPPSADALRGIIPSNILSQFPLHPAAMAQFLSAQAAAAQPNLVFPGV  
PMFPPGIPADFKPELLMAAGGPGPMPMFGDAHRLYHPYGLDGMKRNATREATAPLKDWLH  
AHRKNPYPSKNDKMLAVGTGMTLTQVSTWFANARRRLKKENKMTWSPQNRGDCDDDEDE  
DDDDMNRPSSSTSINSERKGESLFGKPHLASPTPSGGSGGSDDLQTPKKEQNSIPDDSESPK  
RKPKMWSIADVTTSDDDSSKKDSPSSDENMTSNLLIQSAMKKQMEMFSRIDPNI FRMNPF  
MFQLIAQQAQSQQISLLPSQTPPNEAGE

***Pristionchus pacificus***

>irx\_Pripac

FHPYGMDGVRKNATRETTAPLKGWLSDHRKNPYPTKA EKVM LAFVTKMTLTQVSTWFANAR  
RRLKKNKMTWSPRNRPGE DDDDLADLERPGSSKSDLSDDHNE SNNNENNQSPNGVEDSPRK  
PKSLWSIAD

***Brugia malayi***

>irx\_Brumal

MKPEMIGAVRAVSGYFFDPMYPHYASGLDGTTRKNATRETTAPLKSWLNEHRKNPYPTKAE  
KIMLALLTKMTLTQ

***Trichinella spiralis***

>irx\_Trispi

FSSIIFRANPLDLNAARRKNATRETTAALKSWLYEHRKNPYPTKGEKIMLAIITKMTLTQVS  
TWFANARRRLKKENKMT

***Meloidogyne incognita***

>irx\_Melinc

MSHPPPPFSPLPPPHPSAFPFLDPTTLAAFQPFMVQVQTEHRRKNATREVTAPLKHWLNM  
HRKNPYPTKA EK TLLAVVSTWFANARRRLKKENKMEWSPRERPEDDCDEGDGEEVDVDTEEN  
HHSQNHQQQQGMSDFLMLMSGRHQQQQNLLAQQQWAMFNDQNKNGGIS

***Strongylocentrotus purpuratus***

>irx\_Strpur

MTSYYPQFGFPYPASSQLLMSAAAPATTCCESGRPVASDPHPGQAVCCPPLDSRAALLHSARV  
SGLPTALYSSPYAAAAAEQGYVHFAADPSAFYSPLSSAYADLKGTPEGYAAALAAQQAACYP  
YDPATYQYYGDRYGMDLNGARRKNATRETTSTLKAWLYEHRKNPYPTKGEKIMLAIITKMTL  
TQVSTWFANARRRLKKENKMTWSPRNRCDGTSEDKDDCDSVGDGDDDDARDIDVDVDGDDL  
SKLDGESRLLGKDMDDDDHHRDHRDDEDIRMRLHESARLGLVMRDSVDMADRMDSGPKDSEHG  
ALRDDYRRRSGELLAEHRLSGLNGLDPLRLNTRSRSNPRDNPSDSLQLSRPSSPVRVCGSA  
SPSHDRATPIHDDVNDQDKSSNSVPQNKPKIWSLANTATSSTPAERSRTLFPGLNGRHPAI  
AFASPYDSPMSSLRHVNGQFHGIPLPPGFPLHHSQALALAAGMAHHQFSPHOGTQGAPTSV  
SSAQAPLLATTPHHARYTMSKELASHQSGITASILASIQHQRESESRQHSPSHSSEEMPMRT  
AFKPVQKRPILVSERPSEAAGSPESHREPHREPIRRPIGLSIERLTC

***Trichoplax adhaerens***

>irx\_Triadh

MSYSQFACSFPPQVLMHGHTHSPNHFCSSVPQMTGSTNVCQCQLEKLYMQQKLSPTPYQSM  
HSHQCTANGFPSAISNSNDKPMIYPSMNSPVQGMKCGNSSIDACYQWYMSQAGKYPVGHVD  
GISRFNPIDLNNARRKNATRETTSTLKAWLYEHRKNPYPTKGEKIMLAIMTKMTLTQVSTWF  
ANARRRLKKENKMTWSPRNRTEGRKNSEDDSDQEDLNDDDDDDHTRSDGLSTCADSPASSV  
MDDKSDCGRHSPKLAQEIARRQEKPAIWSPTACSKPSVPCTTTTTLPSNNTNMDSPVKS  
LRKYVDGVFHLKENEVEINVETKVEPASPEPPEKVSVSVEMKSEKEEAVQEKSESQYREFD  
AALALTTLSSSRQS\*

**MKX PROTEINS**

***Drosophila melanogaster***

>MKX\_dromel

MDKSTRPKRNRHRSRRAWPPPEELHPASRATKRLFTPDIKRMLKDWLIRRRRENYPNREEKKQ  
QLAAETGLTYTQICNWFANWRKLNKNSEREKAKKSWGHLIKNYNHNARGNVEQFSISSDSI  
WEEEMHSCPAEDDEGDDNEEFSSHSTGSDGNANNEPSSPYKPIILFVGSAGLTERISAQTGGK  
TKYKHQMMKEYMRDSSSTAKTTSQQGTQLNKWLESAAKFTPDRNNYHIEWNMTRQASSNSSC  
GQAIFTTVDVSGAGRGGRWMLHKKDELEAAEALANLAFNCRQRWHHI

***Culex pipiens quinquefasciatus***

>MKX\_Culpipqui

MEKPSRPVNRNRKRSRKAWPPGDTHRPIKRLFTPEIKRMLKDWLVRRRRENYPNREEKKQ  
LACETGLTYTQICNWFANWRKLNKNSGHDPVKKTWGNLIKNYNDNAKGNVEQFSICSSDSI  
WGEYITSTTTECTPVDFNANTSSIEASFNPAYRAENGTYYLTPSTTVSPAVNYRSTNKYKSS  
IMEKYLPOGSPGLSCELRGPPSLSKWLESTAKFTPSKNNYIDWDQPG

***Aedes aegypti***

>MKX\_Aedaeg

MEKSSRPVNRNRKRSRKVWPPGDIHRPIKRLFTPEIKRMLKDWLVRRRRENYPNREEKKQ  
LAYETGLTYTQICNWFANWRKLNKNSGHDPKKTWGNLIKNYNTNAKGNVEQFSICSEDSI  
WGENGEDSQGSRSPPSGNFSKRSYPTYINGNHSSNNNNNSKAFVNYMKYMERRSSDTSEDDT  
PGTYPGNMFIDHCYTPNNYNAVFGLPVQPQCFQVIID

***Anopheles gambiae***

>MKX\_Anogam



MDKPSRPVRNRKRSRKAWPPGDSHRPVKRLFTPEIKRMLKDWLVRRENYPYPNREEKLLAV  
ETGLTYTQICNWFANWRRKLNKNSGNDPIRKWTGNLIKNYNTNARGNVEQFSICSNDSIWGEN  
GEESQDSRTSSSGEHPYTNRRHHHHHRYHLGHQRQGGQKYESNDNPGNPLPYHVYAEAGDCA  
GDNNNSASCRNNLDCRPFAYMRVPEYGRIEECPSNEGLRDSYPPT

***Bombyx mori***

>MKX\_Bommor

SFEPMTLIQRSCDTKVDAMDRLTNKENNEKPARPVRRRYASFKCFRHSFVAGHRPQKRLFT  
PEIKRYLKDWLVRRRDNPYPNREEKKYLSRETGLTYIQICNWFANWRRKLNANGDRHHLTW  
GHLIRTYNDRAQGNVEQFSICSDDSIWSEPELCSPDQNSLENEVILTDSPPSSGLYEKETEAA  
LKDRCDNLNNSYSFDHDSPOKPNKAVTSPVLLSKWLESAARFQPSEINYSWWADEKRRRPE  
AKAQRVALNNMIRHDRDEVEAA

***Tribolium castaneum***

>MKX\_Tricas

MVKYPQDRPDASTLLKSITHNSDADYVRELECKLAERDEEILRLKELLKSAEKMDTRIAEVN  
RERSRPVRNKRYTRRGYGELDKRPPKRLFTPEIKRFLKDWLVRRENYPYPNRDEKKNLALQ  
TGLTYIQVCNWFANWRRKLNAGKEPQRKTWGDLIKSYNSQVQGNVEHFSICSDDSIWEEP  
SDESPPDHSYTTFEHDNNRYFANS PERE IENPFSQAKYKNHIMEKYLRDCQKPDVVKPSM  
ITKWLES AVNFTPSENNYVHWTFSKNQKKKKEVASQVCHGREELDAAEALTRLANARAFKA

***Pediculus humanus corporis***

>MKX\_Pedhumcor

FFFFFFWIFKMAHNIESDKGDLNKINKFNIGRILRNRQYKRPLLDPRPTKRLFTPEIKRHLKSW  
LVRRENYPYPNREEKIELAAQTGLTYIQICNWFANWRRKLNKNSGKNINKFTWSNLIKSYNDQ  
AMGNVEHLSISSNDSIWDETDIDKSDKNQIKRYLPDNDYPDDCPTFFRVGVKNNINNCNLSC  
FSKPEQTNKSDYLPQCFQISSTSDFLKPPKINDNSNKKTNLKKSRQLNKKFNDTTKKHFN  
KPVRDKNWNYKMMINDVNTGTDQKNILRTNNKCRLGNNSLLTKWKKSAALFQPNKKKYST  
VEFIQKKSNGFLIKFDHFGREELDAAEALFSLRASSNNL

***Strongylocentrotus purpuratus***

>MKX\_Strpur

MAEKVRHQRQTMKSMARPLKQWLYHHKDYPYPNRKEKLLLSMESTMTLVQVSNWFANARRRL  
KNTVHDPAMSWEKRIHKYNKHVGTGNAERLSSISSVSSGGDDFDDEEFNGFESDDSSVTNYA  
QDVTSTNELQGANHNHNATHPGICSPHPLSSVPPIASHSDHQQSLPTHKYKHSIMQRYL  
NDTYNHAQQRQAEASTVAASMDSSHTLLPEENSLNLPNYTDRTAGRLTGQEWKFRASGSVN  
SHEYERMSTSPETTMSSSIGSYRQRHCSEDYSLSSSSNDWTSFLKDTKSTDFKNEEDEETYW  
QEIVAAVALTNMAR

***Xenopus tropicalis***

>MKX\_Xentro

MNAIVFNKLSGQVLFEEESPNDREGRVRYLGMESPNADVGLQDGISIKDNASLRHRRPGSS  
RGASGKVRHQRQALQDMARPLKQWLYKHRDNPYPTKTEKILLALGSQMTLVQVSNWFANARR  
RLKNTVRQPDLSWALRIKLYNKYVQNAERLSVSSSEDSCSEDGENAPRSHHNEEAYDKPIHH  
TVITKESSVIKSGVRAESSASEDYVSPPKYKSSLLHRYLNDLSLRHVMASNAAMREKTRQRNH  
SGSFSSNEFEEELVSPSSSETEGNFVYRTAQMCFFHFKKSSAVNKEGASKDETYWREINAAM  
ALTNLAQGGKDKLQGTTCIIQKSSHISEVKTVKVALLHKY

***Tetraodon nigroviridis***

>MKX\_Tetnig

MNAIVFNELSGQVLFEEKANEVEMSSRNYLDVIDGQHPDLLSSKQTMRESQAMRHRRSGGRP

SGGKVRHHRQALQDMARPLKQWLYKHRDNPYPYTKTEKILLALGSQMTLVQVSNWFANARRRL  
KNTVRQPDLSWALRIKLYNKYVQGNAERLSSISSDDSCSEDGDNPQMAQSSSEELNKPMYQSV  
IKKEGSAMVAMGAGLRSAAEATALGEDYVSPPKYKSSLLHRYLNDSL RHVMVANAVMEARKR  
NHSGSFSSNEYDDELLSPSSSEAEANFVYRAEQHPSIKNSPACCPALFAPFLLSLAPSPRWD  
VKVVQKEKMKGRDETYWREINAAMALTNLAQSKDSTSGTTSCIIQKSSHIAEIKTVKVPLMQ  
KY

***Mus musculus***

>MKX\_Musmus

MNTIVFNKLGGAFLFEDRGTDPDRERGSRTFSGFLDNPHGTGPEVGI PDGPPKLDNLSLRHRRT  
GARQNGGKVRHHRQALQDMARPLKQWLYKHRDNPYPYTKTEKILLALGSQMTLVQVSNWFANA  
RRRLKNTVRQPDLSWALRIKLYNKYVQGNAERLSVSSDDGSCSEDGENPPRNHMNEEGYSTP  
AHHTVIKGESSAIKAGRPESRAAEDYVSPPKYKSSLLNRYLNDSL RHVMATSTAMMGKTRR  
RNHSGSFSSNEFEEELVSPSSSETEGTFVYRTDTPDIGSTKGDSAANRRGPKDDTYWKEIN  
AAMALTNLAQGKDEVQGT TTTSCIIQKSSHIAEVKTVKLVQRF

***Homo sapiens***

>MKX\_Homsap

MNTIVFNKLS SAVLFEDGGASERERGRPYSGVLDSPHARPEVGI PDGPPKLDNGLRHRRT  
GARQNGGKVRHHRQALQDMARPLKQWLYKHRDNPYPYTKTEKILLALGSQMTLVQVSNWFANA  
RRRLKNTVRQPDLSWALRIKLYNKYVQGNAERLSVSSDDGSCSEDGENPPRTHMNEGGYNTPV  
HHPVIKSENSVIKAGVRPESRASEDYVAPPKYKSSLLNRYLNDSL RHVMATNTTMMGKTRQR  
NHSGSFSSNEFEEELVSPSSSETEGNFVYRTDTLENGSNKGESAAANRKGPSKDDTYWKEINA  
AMALTNLAQGKDKLQGT TTTSCIIQKSSHIAEVKTVKLVQRF

***Gallus gallus***

>MKX\_Galgal

MNTIVFSKLSGQVLFEEEDAKERERGRPYVGVVEGPHHAEVLLPDSPSIKESLSLRNRRTGA  
RQSGGKVRHHRQALQDMARPLKQWLYKHRDNPYPYTKTEKILLALGSQMTLVQVSNWFANARR  
RLKNTVRQPDLSWALRIKLYNKYVQGNAERLSVSSDDGSCSEDGENPPRNHMNEGGYNKPVHH  
TVIKTESSVIKTGVRPETSANEDYVSPPKYKNSLLNRYLNDSL RHVMATNAAMMEKTRQRNH  
SGSFSSNEFEEELVSPSSSETEGNFVYRTETLENGPNKCESAAANRKGTSKDETYWKEINAAM  
ALTNLAQGKDKLQGT TTTSCIIQKSSHISEVKTVKLVQRF

***Brachydanio rerio***

>MKX2\_Brarer

MNTAVFSKFDQLRFEESGQNVERSRSYLELIDGQRSDLLTSHKVMGNDALKHRRNGGGKV  
RHRQALQDMARPLKQWLYKHRDNPYPYTKTEKILLALGSHMTLVQVSNWFANARRRLKNTVR  
QPDLSWALRIKLYNKYVQGNAERLSSISSDDTTSDDGENNLQMQASESDYNRAVHKSVIQDSR  
VKVGRNADPSVCDYVSPPKYKNSLLNRYLNDSL RHVMASDKVMSRKRNHSGSFSSNEYED  
DFLSPSSSEAEANFTYHTVTLDCGTRQSESGARKGGNNETYWKELHAAMALTNLAQVKESSAA  
GTTSCIIQKSSHIAEIKTVKVPPIQPRH

***Brachydanio rerio***

>MKX1\_Brarer

MNTIVFNKLS SQVLFEEKANEVERSSRNYLEVIDGQHPDLLSSSPVLKDS SAIRHRRSGSRQ  
NPGKVRHHRQALQDMARPLKQWLYKHRDNPYPYTKTEKILLALGSQMTLVQVSNWFANARRRL  
KNTVRQPDLSWALRIKLYNKYVQGNAERLSVSSDDSCSDDADPATRAQVGEFSKPMYQSVIK  
KEGGMGAGLRAASDASLADDYVSPPKYKSSLLHRYLNDSL RHVMGANGVMDARKRNHSGSF  
SSNEYDEDLLSPSSSEAEANFIYRTETVEHGSNKCDLQKEKGQRKDETYWREINAAMALTN  
LAQPKGTATAGTT TTTSCIIQKSSHIAEIKTVKVP LLHKY

***Lottia gigantea***

>MKX\_Lotgi

MRRLFPEKIHHKRQTLQDMARPLKRWLYENRDNYPYPTKEQKHS LAVNSHMSLVQISNWFANA  
RRRLKKNVVKPELSWSERVELYNQYVEGDAELFSISSEDEDFDEDEDVQNDDETFQNTLV  
ISHTDLNSDSLVP SRTTTPTFDQRSTVFASTTSLKHKQTI LQRYFNDNAYIDAMGFHP PSEG  
DPQRVINVAELVWNRDRHQSGSLGSQDY EEMSTSSASSRIQHRI LDDFP EEQELPT YRITQ  
HHSFHDDSDMRQKEMDAVFALTSLANSHRSK LQENVT PERSNFRM

***Capitella Sp I***

>MKX\_CapspI

MSDLDKLQALMSEYLRNGVDAQQLYQYYSQHVMYHHLQQAREK GELKEEVFPQPPI TELMLP  
KVPSEAKEFESVGADFDNKSSVDRAEDIEVLDSAF AEWSVNLSDSVCGKCSERKDDES YMKR  
RRRPVVS LDRVRHKRQTLQDMARPLKHWLYKHRDNYPYPTKSEKMTLANVSHMTLTQVSNWFA  
NARRRLKNTVRDPELWESRIKMYNSCVEGNQELLSIDSD DDEEEMKAPPQPT EAEAVASEE  
EAATPLDLS DHTVPGEAIPSPAPSPMHTDEAPHPKYKQCILQRYLTDSYQHAAQMONEFP  
RQRNASGSLSSH DYEEI STSFAGSPLREHQFDEQQEMAEELPAKVENASRKLSPAESRYSAF  
DKELLGAYLSVRHFQPI IERRVCTLM TDHRPLALAWNKQSDPWSARQQRHLSAIAHVCHRSG  
ASNTGADCLSRALTPQVSLTSLNPEAVLDVQRSSDDI IAVAEGRSHNPLDNVSRSRHRLCSP  
RRQPRLLP HRQRLQSLPLPDDAIPX

***Helobdella robusta***

>MKX\_Helrob

MEDKRNNFIQQYQQSQQQPQTYSRDQPM SNKQQQQQQQFDSKLYIRHNYNRKRHASKRRSS  
SSSASTASETGERDSLKRRRFTKQNSTGQSQQPENGKQ ESENCRDTRLRLTDRWSNDESVPCC  
LKNKLEMTNNGNDGDKDENEINETNSKRRKENC DTAKQTPNQKEIKNGRPTAPTENIANIK  
EEPLDDYSNSEESQRYQSSPGRQIKPQPQHSLPTFKADFS PDYRVPVRPIIPTAPMFPFNP NL  
PFHLNYSFFSDY PFPASHPYFLQIMRPSTTLPN FSLPSSSSPPSASATSPASSSAKCTPLF  
SSSTSLTSFSEQQQQKPTT LSSSLSTPSSSSSSSSTLVNPPVTPNNTAKLRWLTDHMDHPYP  
TKGDKIMLAVLCKMTLTQVSTW FANARRMKGKGGDGSDDLEEERKDSSSLT LSPSTFSSSS  
LSPLTSSFSISFSSTSTPSTSASTVSSYPDSISHASAF LFPQIPSSNCFPRSFDQFSRPCYFS  
NIYNPYFTRLPGFNPNLHANHFIDYK PQTQQVPSQNSTNNSVRPPWPAKKRNKVWSIKDILG  
SS

***Petromyzon marinus***

>MKX\_Petmar

MGEEEKRMLAAPSSLEGLPTAKRVALWLSSAGSLWAE EQSAAEQPRLSHARARRAHQTPGH  
GVVGIKHHGKAENTVSAVTGAHTNVCDRLG SERIRASLPLSPRPGPAMNVVDVFRHGPKEV  
RLEGRQLSSAHQ GALAAHGQLLQLYPAGQSAQRCSGAATSASHLISSPSRMTPGDIPPGPFL  
LLAVPTRQCI FKRGGVLNLEAHQLVKHQTDGIVACDRHYGRRRSGALRVRHKRQALQDMARP  
LKHWLYKHRHNPYPTKTEKILLALGSHMTLVQ

***Branchiostoma floridae***

>MKX\_Braflo

MVSSAPDGGK KWSRQEMCGTSGGIDHGGDRVYVNELRVSRKSPASVYLWVLQQTRGLRICGS  
RPRGSVVRPETERCAGICVLPVVG ERERVSA GWKVNKLENMVDCTTENELTIVSDSSSEF  
SEDDLEYGGGGADGVLKVSSMTSKDLEERDRSLRRRSRRRNSDRVRHKRQVMQDMARPLKQ  
WLIKHRDNYPYPTKTEKILLALTSQMTLVQVSNWFANARRRLKNTVRDPDL SWGMRIKLYNKH  
VQGNAELLSISSGDDSEDDFDGSDYGDHDGSGKGNLIIPHFKGDRDENSNNSSLPPSP TED  
LDHRYAIPRYPDSGEEPSSPTKYKHSILQRYLND SFHSTARRNDKSGSLSSQDYEDLSE SAR  
SFRSSFGSDG SVRLSPTSEGEPRSSPVFEDEELHWKEIDAAMALTS LARSRGCP\*

