

**S1 Table. Alignment of the FgMyoI (1-736) sequence with sequences of myosins with solved motor domain structures.**

*Dictyostelium discoideum* class 1 myosin: PDB 1LKX; *Rattus norvegicus* class 1 myosin: PDB 5V7X; *Argopecten irradians* class 2 myosin: PDB 1DFL; *Placopecten magellanicus* class 2 myosin: PDB 2EC6; *Doryteuthis pealeii* class 2 myosin: PDB 3I5G; *Bos Taurus* class 2 myosin: PDB 5N6A; *Dictyostelium discoideum* class 2 myosin: PDB 2Y8I; *Gallus gallus* class 5 myosin: PDB 1OE9; *Mus musculus* class 5 myosin: PDB 4ZLK; *Homo sapiens* class 10 myosin: PDB 5KG8; *Sus scrofa* class 6 myosin: PDB 4ANJ.

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FgMyoI_1-736
1LKX_Myo1_D.discoideum ..... MGIS
5V7X_Myo1_R.norvegicus .....
1DFL_Myo2_A.irradians .....
2EC6_Myo2_P.magellanicus ..... MNIDFNDFQYLAVD RKKMMKEQTAPFDGKKN
3I5G_Myo2_D.pealeii ..... MTMDFSDPDMFLC LTRQKLM EATSIPFDGKKN
5N6A_Myo2_B.taurus ..... MVDAEMAAFGEA APYLRKSEKERLEA QTRPFDLKKD
2Y8I_Myo2_D.discoideum ..... NPIHDRTSDYHKYLKVKQGDSDLFKLTVSDKRYI
1OE9_Myo5_G.gallus ..... MAASELYTKYAR
4ZLK_Myo5_M.musculus MSYYHHHHHHYKDDDDKN IPTTENLYFQGAMGIRNSKAYVDEL TSPAMAASELYTKFAR
5KG8_Myo10_H.sapiens ..... NFFTETGR
4ANJ_Myo6_S.scrofa ..... MEDGKP
    
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FgMyoI_1-736
1LKX_Myo1_D.discoideum RLPK NKGAGAAADGASGGAKPKKATFETTK ..... KEIGV S
5V7X_Myo1_R.norvegicus ..... MIPKT ..... KAEGV P
1DFL_Myo2_A.irradians ..... MAKKEVKSSLLD ..... NMIGV G
2EC6_Myo2_P.magellanicus CWVP DKEK.GFASAEIQSSKGEI TVKIVADSS TRTVKKDDIQS ..... MNPPK FFKLE
3I5G_Myo2_D.pealeii CWVP DPDF.GFVGA EIQSTKGDEV TVKTDKTQ ETRVVKKDDIGQ ..... RNPPK FEMNM
5N6A_Myo2_B.taurus VFPDD KE.EFVKATILSREGGK VTAETE HG.KTVTVKEDQVLQ ..... QNPPK FDKIE
2Y8I_Myo2_D.discoideum WYNP DPKERDSYECGEI VSETSDS FTFTVDGQDRQVKKDDANQ ..... RNPIK FGV E
1OE9_Myo5_G.gallus VWIP DPEEVWKS AELLKDYKPGDKV LQLRLEE GKDLEYCLDPK TKELP LRPNDILVGEN
4ZLK_Myo5_M.musculus VWIP DPEEVWKS AELLKDYKPGDKV LLLHLEE GKDLEYR LDPKTGELP HLRNPDILVGEN
5KG8_Myo10_H.sapiens VVLR ENGQ... HFPSTVNSCAE GIVVFR TDYGVQVFTYKQST ITHQKVTAMHPNTEE GVD
4ANJ_Myo6_S.scrofa VVAP HPTDGFQVGNIVDIGPDSL TIEPLNQKGTFFLALINQVFP ..... AEEDSKKDV E
    
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FgMyoI_1-736
1LKX_Myo1_D.discoideum DLT LSKVSN EAIN E NLKRF EGE. RE IYTYI GHVLS VSNPFRD LG. IY TDDV LQSYMGKN
5V7X_Myo1_R.norvegicus DFVL LNQITENAF IE NLTMR HKKS. DN IYTYI GDVVI STNPK NKLN. IY KESD IKA YNGR Y
1DFL_Myo2_A.irradians DTVL LEPLNEE TFI DNLKRF DH. NE IYTYI GSVVI SVNPR SLP. IY SPEKVEDYRNRN
2EC6_Myo2_P.magellanicus DMAN MTYLNEASV LYNLRGRY TS. GL IYTYI SGLFC IAVNP YRRLP. IY TDSVI IAKYR GKR
3I5G_Myo2_D.pealeii DMAN MTYLNEASV LYNLRGRY TA. GL IYTYI SGLFC IAVNP YRRLP. IY TDSVI IAKYR GKR
5N6A_Myo2_B.taurus DMAM LTFLEH EAVLY NLKERY AS. WM IYTYI SGLFC VTI NP YKWL P. VY NAEV VAA YR GKR
2Y8I_Myo2_D.discoideum DMSEL SYLNEP AVFH NLKRVY NQ. DI IYTYI SGLFL VAVNP FKRIP. IY TQEMVD IFRGKR
1OE9_Myo5_G.gallus DLTAL SLYLHEP AVLH NLKRVRF IDSKL IYTYI CGIVL VAINP YEQLP. IY GEDI INAYSGQN
4ZLK_Myo5_M.musculus DLTAL SLYLHEP AVLH NLKRVRF IDSKL IYTYI CGIVL VAINP YEQLP. IY GEDI INAYSGQN
5KG8_Myo10_H.sapiens DMAS LTELHGGS IMY NLFQRY KR. NQ IYTYI GSI LSVNP YQF IAGLY EPATMEQY SRRH
4ANJ_Myo6_S.scrofa DNC SLMY LNEAT LLHN I KVR YSK. DR IYTYV ANIL IAVNP YFD LPK IY SSET IKS YOGKS
    
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FgMyoI_1-736
1LKX_Myo1_D.discoideum RLEMP PHVFA IAEASY NMYKAYS DNQC V IISGESGAGKTEAAKR IMQY IASV SGGESGDI
5V7X_Myo1_R.norvegicus KYEMP PHMYA LANDAYR SMRQSQENOC V IISGESGAGKTEASKK IMQFLT FVSSNOSPNG
1DFL_Myo2_A.irradians FYEL S PHIFALS DEAYRS LRQDKDQC ILITGESGAGKTEASKL VM SVAAVCG. KGAEV
2EC6_Myo2_P.magellanicus KTEI PPHLFSVADNAY QNMTDRENO SCLITGESGAGKTENTK KVI MYLAKVACAVK...
3I5G_Myo2_D.pealeii RAEMP PHLFSIADNAY QYMLQDRENO SMLITGESGAGKTENTK KVI QYFALV AASLAGKK
5N6A_Myo2_B.taurus RSEAP PHIFSI DNAY QYMLTDRENO SILITGESGAGKT VNTK RVI QYFAV IAAIGD...
2Y8I_Myo2_D.discoideum RNEVAP PHIFAI SDVAYR SM LDDRONQ SLLITGESGAGKTENTK KVI QYLASV VAGRNQ...
1OE9_Myo5_G.gallus MGDMD PHIFAVAE EAYKQ MARDERNQ S IIVSGESGAGKT VSAKY AMRYFATV SSGSAS...
4ZLK_Myo5_M.musculus MGDMD PHIFAVAE EAYKQ MARDERNQ S IIVSGESGAGKT VSAKY AMRYFATV SSGSAS...
5KG8_Myo10_H.sapiens LGELP PHIFAI ANECKRCL WKRHRDNQC ILISGESGAGKTESTK LILKFLSV ISQSSL...
4ANJ_Myo6_S.scrofa LGTMP PHVFA IADKAF RDMK VRLKLSG S IIVSGESGAGKTENTK FLVRYL TE SYGTGQ...
    
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FgMyoI_1-736
1LKX_Myo1_D.discoideum ..... KQIKDKM VLIATN P LLESFGNAKT LRNN NSSRFGKYLQ IY FNTQGEFV G
5V7X_Myo1_R.norvegicus ..... ERISKM LLDSPN LLEAFGNAKT LRND NSSRFGKYM EQFN AVGSPIG
1DFL_Myo2_A.irradians ..... NQVKEQL LQSTV LLEAFGNAKT VRND NSSRFGKYM D IEFDFKGD P LG
2EC6_Myo2_P.magellanicus KKD. EEASDKKEGS LEDQ I IQANP VLEAYGNAKT TRNN NSSRFGKFI RIRHF GPTGKTAG
3I5G_Myo2_D.pealeii DKKEEKKKDEKKG TLEDQ I VQCN P VLEAYGNAKT TRNN NSSRFGKFI RIRHF GTQKTAG
5N6A_Myo2_B.taurus ... RSKKEQATGKGT LEDQ I IQANP ALEAFGNAKT VRND NSSRFGKFI RIRHF GATGKLAS
2Y8I_Myo2_D.discoideum ..... ANGSV LEQQ I LQANP ILEAFGNAKT TRNN NSSRFGKFI RIRHF NSAGPISG
1OE9_Myo5_G.gallus ..... EANVEEKV LANS P IMESI GNAKT TRND NSSRFGKFI RIRHF DFKRYR IIG
4ZLK_Myo5_M.musculus ..... EANVEEKV LANS P IMESI GNAKT TRND NSSRFGKFI RIRHF DFKRYR IIG
5KG8_Myo10_H.sapiens ..... ELSLKEKT SVERA I LESSP I MEAFGNAKT VYNN NSSRFGKFI RIRHF CQKGNIQG
4ANJ_Myo6_S.scrofa ..... IDDR IVEANP LLEAFGNAKT VRNN NSSRFGKFI RIRHF NEKSVV G
    
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↑  
R189

	210	220	230	240	250
FgMyoI_1-736	ADITNYLLEKSRVVGQITNERNFHFYQFAKGLASQQYRETFCVQK.....				
1LKX_Myo1_D.discoideum	GKITNYLLEKSRVVGRIQTGERSFHFYQMLKGLSQSKLDELGLTPN.....				
5V7X_Myo1_R.norvegicus	GVITSNYLLKSRVVKQPRGERNFHFYQQLSGASEELLHKLKLKERD.....				
1DFL_Myo2_A.irradians	ADITETYLLEKSRVTYQPSAERNYHFYQICSNATPELNDVMLVTP.....				
2EC6_Myo2_P.magellanicus	ADITETYLLEKSRVTYQPSAERNYHFYQICSNATPELNEVMLITP.....				
3I5G_Myo2_D.pealeii	ADITETYLLEKSRVTYQPSAERNYHFYQQLLSPAFPENIEKLLAVP.....				
5N6A_Myo2_B.taurus	ADITETYLLEKSRVIFQLKARDYHFYQILSNKKPELLDMLLITN.....				
2Y8I_Myo2_D.discoideum	ASITQSYLLEKSRVVFQSETERNYHFYQQLLAGATAEKKALLHLAG.....				
1OE9_Myo5_G.gallus	ANMRTYLLEKSRVVFQAEERNYHFYQQLCASAALPEFKTLRLIGN.....				
4ZLK_Myo5_M.musculus	ANMRTYLLEKSRVVFQAEERNYHFYQQLCASAALPEFKTLRLIGN.....				
5KG8_Myo10_H.sapiens	GRIIVDYLLEKNRVVRQNPGERNYHFYQALLAGLEHEEREFFYLST.....				
4ANJ_Myo6_S.scrofa	GFVSHYLLEKSRICVQGRERNYHFYQRLCAGASEDIRERHLSSPDNFRYLNRGCTRYF				

L213-----S217

	260	270	280	290	300
FgMyoI_1-736	.....PETYVTSRSKCLDVGIDDLAEFEDTLNAMKVIQLSQPEQDQIFRMLLS				
1LKX_Myo1_D.discoideum	.....APAYEYLKKS GCFPVSTIDDSGEFKIIVKAMETLGLKESDQNSIWRILLA				
5V7X_Myo1_R.norvegicus	.....FSRYNYLS.LDSAKVNGVDDAANFRTVNRAMQIVGFSDPEAESVLEVVVA				
1DFL_Myo2_A.irradians	.....DSGLYSFINQGCLTVDNIDDEVEFKLCEAFDILGFTKEEKQSMFKCTA				
2EC6_Myo2_P.magellanicus	.....DSGLYSFINQGCLTVDNIDDEVEFKLCEAFDILGFTKEEKQSMFKCTA				
3I5G_Myo2_D.pealeii	.....DPGLYGFINGTLLTVDGDIDDEEEMGLTDAPDFVLGFTDEEKLKSMYKLTG				
5N6A_Myo2_B.taurus	.....NPYDYAFISQGETTVASIDDAEELMATDNAPDFVLGFTTEEKNSMYKLTG				
2Y8I_Myo2_D.discoideum	.....PESFNYLNQSGCVDIKGVSDEEFKITRQAMDIVGFSDPEQMSIFKRIIA				
1OE9_Myo5_G.gallus	.....ANYFHYTKQG GSPVIDGIDDAKEMVNTRQACTLLGISDSYQMGIFRILIA				
4ZLK_Myo5_M.musculus	.....ADSFHYTKQG GSPVIDGIDDAKEMVNTRQACTLLGISDSYQMGIFRILIA				
5KG8_Myo10_H.sapiens	.....PENYHYLNQSGCVDKTIISDQESFREVITAMDVMQFSKEEVREVSRIILA				
4ANJ_Myo6_S.scrofa	ANKETDKQIILQNRKSPYLLKASGLKDFLLDDHGDFFIRMCAMKKGIGLDDEEKLDLFRVVA				

	310	320	330	340	350
FgMyoI_1-736	AILWIGNIQFQEDQGG.....YAEVTRDSVDFAAAYLMEVTPDQLIKGTTIRILTP...				
1LKX_Myo1_D.discoideum	AILHIGNITFAEAAAEQRTGTTTVKVSDTKSLAAAASCLKTDQQSLIALCYRSISTGVG.				
5V7X_Myo1_R.norvegicus	AVLKLGNIEFKPESRMN.GLDES KIKDKNE LKEICE LTIIDQVVLERAFSFRIVAEK...				
1DFL_Myo2_A.irradians	SILHMGEMKFK...QRPREEQAESDGTAEAEKVAF LCGINAGDLLKALLKPKVKVG...				
2EC6_Myo2_P.magellanicus	SILHMGEMKFK...QRPREEQAESDGTAEAEKVAF LCGINAGDLLKALLKPKVKVG...				
3I5G_Myo2_D.pealeii	CILHLGEMKWK...QRG...EQAEADGTAEAEKVAF LLLVNGDLLKALLKPKVKVG...				
5N6A_Myo2_B.taurus	AIMHFGNMKFK...LQREEQAEADGTAEAEKVAF LMG LNSADLLKGLCHPRVKVG...				
2Y8I_Myo2_D.discoideum	GILHLGNIEKFE...KGADEGAVLKDKTALNAASTVFG.VNPSVLEKALLMEPRILAG...				
1OE9_Myo5_G.gallus	GILHLGNVEFA...SRDSDSCAIPPKHDP LTIIFCDLMGV DYEEMAHWLCRRKLATA...				
4ZLK_Myo5_M.musculus	GILHLGNVEFA...SRDSDSCAIPPKHDP LTIIFCDLMGV DYEEMAHWLCRRKLATA...				
5KG8_Myo10_H.sapiens	GILHLGNIEFTI...TAGSQTVPKHEP LTIIFCDLMGV DYEEMAHWLCRRKLATA...				
4ANJ_Myo6_S.scrofa	GVLHLGNIDPEEAG.STSGGCNLLKNKSTQALLEYCAE LLLGLDQDDLRVSLTTRVMLTTAGG				

	360	370	380	390	400	410
FgMyoI_1-736	RNGEVIESPANPAQAQATRDALAMATYSNLFDWIVE RINKSLKARQPT.TNTIGILDIYG					
1LKX_Myo1_D.discoideum	KKCSVISVPMDCNQAAYSRDALAKALYERLFWNLVSKINTIINCTTEK.GPVIIGILDIYG					
5V7X_Myo1_R.norvegicus	..QEKVSTLNLVAQAAYARDALAKNLYSRLFSWLVNRINESITKAQTKVRKVMGVLDIYG					
1DFL_Myo2_A.irradians	..TEMVTKGQNMNVNSVVGALAKSLYDRMFNLVLRVNRKTLDTKAKRNYIIG.VLDIYG					
2EC6_Myo2_P.magellanicus	..TEMVTKGQNLQVINSVVGALAKSLYDRMFNLVLRVNRKTLDTKAKRNYIIG.VLDIYG					
3I5G_Myo2_D.pealeii	..TEYVTQGRNKDQVNTSIAALAKSLYDRMFNLVLRVNRKTLDTKAKRQFFIIG.VLDIYG					
5N6A_Myo2_B.taurus	..NEYVTGQNVQVYVYAKALAKAVYERMFNMMVTRINATLETQKQPROYFIIG.VLDIYG					
2Y8I_Myo2_D.discoideum	..RDLVQAHLNVEKSSSRDALVAKALYGRFLWLVKKINNVLCQE.RKAYFIIG.VLDIYG					
1OE9_Myo5_G.gallus	..TETYIKPISKLHAINARDALAKHLYANLFWIWDHVNKALHSTVKQHSFIIG.VLDIYG					
4ZLK_Myo5_M.musculus	..TETYIKPISKLQATNARDALAKHLYAKLFWIWDHVNQALHSAVKQHSFIIG.VLDIYG					
5KG8_Myo10_H.sapiens	..GEEILTLPLNVQAVDSRDSLAMALYACCFEYVVIKINSRIRKGN.EDPKSIIG.VLDIYG					
4ANJ_Myo6_S.scrofa	AKGTVLKVP LKVEQANNARDALAKTVYSHLFDHVVNRVNRVQCPEPFETSS..YFIIGVLDIYG					

M375

Y409

	420	430	440	450	460
FgMyoI_1-736	FEIFEKNSFEQLCINYNVEKLOQIFITQLTLKAEQEEYAREQITQWTPIKY.FDNKVVCDLI				
1LKX_Myo1_D.discoideum	FEVVFQNNSEQLNINFCNEKLOQLFIELTLKSEQEEYVREGEIWKNIEX.FNNKPIIBLI				
5V7X_Myo1_R.norvegicus	FEIFEDNSFEQFIINYNCKLQQLFIELTLKSEQEEYIREDIEWETHIDY.FNNAIICDLI				
1DFL_Myo2_A.irradians	FEIFDFNSFEQLCINYNTERLQQFNFNHMFVLEQEEYKKEGIAWEFIDFGMDLQMCIDL				
2EC6_Myo2_P.magellanicus	FEIFDFNSFEQLCINYNTERLQQFNFNHMFVLEQEEYKKEGIAWEFIDFGMDLQMCIDL				
3I5G_Myo2_D.pealeii	FEIFDFNSFEQLCINYNTERLQQFNFNHMFVLEQEEYKKEGIAWEFIDFGMDLQACIDL				
5N6A_Myo2_B.taurus	FEIFDFNSFEQLCINYNTERLQQFNFNHMFVLEQEEYKKEGIAWEFIDFGMDLQACIDL				
2Y8I_Myo2_D.discoideum	FEIFKVNSEQLCINYNTEKLOQFNFNHMFVLEQEEYKKEGIAWEFIDFGMDLQACIDL				
1OE9_Myo5_G.gallus	FETFEINSFEQFCINYNANEKLOQFNFNHMFVLEQEEYKKEGIAWEFIDFGMDLQACIDL				
4ZLK_Myo5_M.musculus	FETFEINSFEQFCINYNANEKLOQFNFNHMFVLEQEEYKKEGIAWEFIDFGMDLQACIDL				
5KG8_Myo10_H.sapiens	FENFEVNHFEQFCINYNANEKLOEYFNKHFISLEQLEYSRREGLVWEDIDWIDNGE.CLDLI				
4ANJ_Myo6_S.scrofa	FEEFEHNSFEQFCINYNCKLQQLFENRILKEQELYQKEGLGVNEVHY.VDNQDCIDL				

F419 E420 C423 I424

	470	480	490	500	510																																																						
FgMyoI_1-736	E	Q	I	R	P	V	G	I	F	S	A	M	K	D	A	K	T	F	A	H	A	D	P	A	A	C	D	R	T	F	M	Q	S	I	N	G	M	S	H	A	H	L	T	F	R	Q	G	N	.....										
1LKX_Myo1_D.discoideum	E	K	K	.	P	I	G	L	I	S	L	L	D	E	A	C	L	I	A	K	S	T	D	Q	T	F	L	D	S	I	C	K	F	E	K	N	P	H	L	Q	S	Y	V	S	K	D	R	S	I	.....									
5V7X_Myo1_R.norvegicus	E	N	N	T	N	G	I	L	A	M	L	D	E	E	C	L	R	P	G	T	V	D	E	T	F	L	E	K	L	N	Q	V	C	A	T	H	Q	H	F	E	S	R	M	S	K	C	S	R	F	L	N	D	T	T	L	P	H	S	C
1DFL_Myo2_A.irradians	E	K	.	.	P	M	G	I	L	S	I	L	E	E	C	M	F	P	K	A	D	D	K	S	F	Q	D	K	L	Y	Q	N	H	M	G	K	N	R	M	F	T	K	P	G	K	P	T	R	.....										
2EC6_Myo2_P.magellanicus	E	K	.	.	P	M	G	I	L	S	I	L	E	E	C	M	F	P	K	A	D	D	K	S	F	Q	D	Y	S	Y	Q	N	H	I	G	K	N	R	M	F	T	K	P	G	K	P	T	R	.....										
3I5G_Myo2_D.pealeii	E	K	.	.	P	M	G	I	L	S	I	L	E	E	C	M	F	P	K	A	D	D	K	S	F	Q	D	Y	S	Y	Q	N	H	I	G	K	N	R	M	F	T	K	P	G	K	P	T	R	.....										
5N6A_Myo2_B.taurus	E	K	.	.	P	M	G	I	M	S	I	L	E	E	C	M	F	P	K	A	T	D	M	T	F	K	A	K	L	F	D	N	H	L	G	K	S	N	F	Q	K	P	.....																
2Y8I_Myo2_D.discoideum	D	G	R	Q	P	P	G	I	L	A	L	L	D	E	Q	S	V	F	P	N	A	T	D	N	T	L	I	T	K	L	H	S	H	F	S	K	K	N	A	K	Y	E	E	P	.....														
1OE9_Myo5_G.gallus	E	A	.	.	K	M	G	V	L	D	L	L	D	E	E	C	K	M	F	K	G	S	D	T	W	A	Q	K	L	Y	N	T	H	L	N	K	C	A	L	F	E	K	P	.....															
4ZLK_Myo5_M.musculus	E	S	.	.	K	L	G	L	L	D	L	L	D	E	E	C	K	M	F	K	G	T	D	T	W	A	Q	K	L	Y	N	T	H	L	N	K	C	A	L	F	E	K	P	.....															
5KG8_Myo10_H.sapiens	E	K	.	.	K	L	G	L	L	A	L	I	N	E	S	H	E	F	P	Q	A	T	D	S	T	L	L	E	K	L	H	S	O	H	A	N	.	N	H	F	Y	V	K	P	.....														
4ANJ_Myo6_S.scrofa	E	A	R	.	L	V	G	I	L	D	L	L	D	E	N	R	L	E	Q	P	S	D	Q	H	E	T	S	A	V	H	Q	K	H	K	D	H	F	R	L	S	I	P	R	K	S	K	L	A	I	H	R	N	.						

	520	530	540	550	560																																																								
FgMyoI_1-736	F	I	K	H	Y	A	G	D	V	T	Y	T	V	E	G	I	T	D	K	N	K	D	Q	L	K	G	L	L	A	L	F	Q	H	S	G	.	N	D	F	V	H	T	L	F	P	R	P	V	.....												
1LKX_Myo1_D.discoideum	F	R	L	K	H	Y	A	G	D	V	T	Y	D	V	R	G	L	D	K	N	K	D	T	L	F	G	D	L	I	S	S	M	Q	S	S	.	D	P	L	V	Q	G	L	F	P	P	T	R	.....												
5V7X_Myo1_R.norvegicus	F	R	I	Q	H	Y	A	G	K	V	I	Y	Q	V	E	G	F	V	D	K	N	N	D	L	Y	R	D	L	S	Q	A	M	W	K	A	G	.	H	A	L	L	K	S	L	F	P	E	G	N	.....											
1DFL_Myo2_A.irradians	F	L	F	L	H	Y	A	G	N	V	P	Y	S	I	T	G	W	L	E	K	N	K	D	P	I	N	E	N	V	V	A	L	L	G	A	S	K	.	E	P	L	V	A	E	L	F	K	A	P	E	.										
2EC6_Myo2_P.magellanicus	F	L	F	L	H	Y	A	G	N	V	P	Y	S	I	A	G	W	L	E	K	N	K	D	P	I	N	E	N	V	V	L	L	A	V	S	K	.	E	P	L	V	A	E	L	F	R	A	P	D	.											
3I5G_Myo2_D.pealeii	F	L	F	L	H	Y	A	G	N	V	P	Y	S	I	A	G	W	L	E	K	N	K	D	P	I	N	E	N	V	V	L	L	Q	N	S	K	.	E	P	L	V	K	M	L	F	T	P	P	R	.											
5N6A_Myo2_B.taurus	F	S	L	I	H	Y	A	G	T	V	Y	N	I	I	G	W	L	Q	K	N	K	D	P	L	N	E	T	V	D	L	Y	K	S	S	.	L	K	M	L	S	L	F	A	N	Y	A	G	F	D	T	P	I	E	K	G	K					
2Y8I_Myo2_D.discoideum	F	G	V	T	H	Y	A	G	O	V	M	Y	E	I	Q	D	W	L	E	K	N	K	D	P	L	Q	Q	D	L	E	L	C	F	K	D	S	.	D	N	V	T	K	L	F	N	D	P	N	.....												
1OE9_Myo5_G.gallus	F	I	I	K	H	F	A	D	K	V	E	Y	Q	C	E	G	F	L	E	K	N	K	D	T	V	F	E	E	Q	I	K	V	L	K	S	S	.	K	K	F	K	L	L	P	E	L	F	Q	D	E	E	K	A	I	S	P	T	S	A	T	P
4ZLK_Myo5_M.musculus	F	I	I	K	H	F	A	D	K	V	E	Y	Q	C	E	G	F	L	E	K	N	K	D	T	V	F	E	E	Q	I	K	V	L	K	S	S	.	F	K	M	L	P	E	L	F	Q	D	E	K	A	I	S	P	T	S	A	T	P			
5KG8_Myo10_H.sapiens	F	G	V	K	H	Y	A	G	E	V	Y	D	V	R	G	L	E	K	N	R	D	T	F	R	D	L	L	N	L	L	R	E	S	R	.	F	D	F	I	Y	D	L	F	E	H	V	S	R	N	N	Q	D	A	A	A	A	A	A			
4ANJ_Myo6_S.scrofa	F	I	I	R	H	F	A	G	A	V	C	Y	E	T	T	Q	F	V	E	K	N	N	D	A	L	H	M	S	L	E	S	L	I	C	E	S	R	.	D	K	F	I	R	E	L	F	E	S	S	T	N	N	K	D	T	K	Q	K	A		

D536---N538 D540

	570	580	590	600																																																						
FgMyoI_1-736	N	.	R	K	Q	P	P	.....	S	A	G	D	R	I	R	A	S	A	N	A	L	V	D	T	L	M	K	C	Q	P	S	Y	I	R	T	I	K	F	N	E	N																	
1LKX_Myo1_D.discoideum	S	.	K	K	R	P	E	.....	T	A	G	S	Q	F	R	N	A	M	N	A	L	T	T	L	L	A	C	S	P	H	Y	V	R	C	I	K	S	N	D	N																		
5V7X_Myo1_R.norvegicus	V	N	L	K	R	P	P	.....	T	A	G	S	Q	F	K	A	S	V	A	T	L	M	K	N	L	Q	T	K	N	P	N	Y	I	R	C	I	K	B	N	D	K																	
1DFL_Myo2_A.irradians	K	K	K	G	K	S	S	.....	A	F	Q	T	I	S	A	V	H	R	E	S	L	N	K	L	M	K	N	L	Y	S	T	H	P	F	V	R	C	I	I	P	N	E	L															
2EC6_Myo2_P.magellanicus	K	K	K	K	K	S	S	.....	A	F	Q	T	I	S	A	V	H	R	E	S	L	N	K	L	M	K	N	L	Y	S	T	H	P	F	V	R	C	I	I	P	N	E	L															
3I5G_Myo2_D.pealeii	K	K	K	G	K	S	A	.....	A	F	Q	T	I	S	S	V	H	R	E	S	L	N	K	L	M	K	N	L	Y	S	T	H	P	F	V	R	C	I	I	P	N	E	L															
5N6A_Myo2_B.taurus	G	K	A	K	K	G	S	.....	S	F	Q	T	V	S	A	L	H	R	E	N	L	N	K	L	M	T	N	L	R	S	T	H	P	F	V	R	C	I	I	P	N	E	T															
2Y8I_Myo2_D.discoideum	S	R	A	K	K	G	A	.....	N	F	I	T	V	A	A	Q	Y	K	E	Q	L	A	S	L	M	A	T	L	E	T	T	N	P	H	F	V	R	C	I	I	P	N	N	K														
1OE9_Myo5_G.gallus	S	G	R	V	P	L	S	R	T	P	V	K	P	A	K	A	R	P	Q	T	S	K	E	H	K	K	T	V	G	H	Q	F	R	N	S	L	H	L	M	E	T	L	N	A	T	T	P	H	F	V	R	C	I	K	B	N	D	F
4ZLK_Myo5_M.musculus	S	G	R	T	P	L	T	R	V	P	V	K	P	T	K	G	R	P	Q	T	A	K	E	H	K	K	T	V	G	H	Q	F	R	N	S	L	H	L	M	E	T	L	N	A	T	T	P	H	F	V	R	C	I	K	B	N	D	F
5KG8_Myo10_H.sapiens	A	A	A	A	A	R	R	P	.....	T	V	S	S	Q	F	K	D	S	L	H	S	L	M	A	T	L	S	S	N	P	F	F	V	R	C	I	K	B	N	M	Q																	
4ANJ_Myo6_S.scrofa	G	K	L	S	F	I	S	.....	V	G	N	K	F	K	T	Q	L	N	L	L	D	K	L	R	S	T	G	A	S	E	I	R	C	I	K	B	N	L	K																			

A577

	610	620	630	640	650	660																																																		
FgMyoI_1-736	K	S	P	T	E	Y	N	G	P	N	V	L	H	O	I	K	Y	L	G	L	Q	E	N	V	R	I	R	A	G	F	A	Y	R	Q	D	F	K	F	V	D	R	F	L	S	P	A	T	S	Y	A	G	E	F	T	W	E
1LKX_Myo1_D.discoideum	K	Q	A	G	V	I	D	E	D	R	V	R	H	O	V	R	L	G	L	L	E	N	V	R	V	R	A	G	F	A	G	R	I	E	Y	T	R	F	Y	N	R	Y	K	M	L	C	K	T	W	P	S	.....				
5V7X_Myo1_R.norvegicus	K	A	A	H	I	F	S	E	S	L	V	C	H	O	I	R	Y	L	G	L	L	E	N	V	R	V	R	A	G	F	A	R	Q	A	Y	E	P	C	L	E	R	Y	K	M	L	C	K	Q	T	W	P	.....				
1DFL_Myo2_A.irradians	K	Q	F	G	L	V	D	A	E	L	V	L	H	Q	L	Q	C	N	G	V	L	E	G	I	R	I	C	R	K	G	F	P	S	R	L	I	Y	S	E	F	K	Q	R	Y	S	I	L	A	P	N	A	I	P	Q	.....	
2EC6_Myo2_P.magellanicus	K	Q	F	G	L	V	D	A	E	L	V	L	H	Q	L	Q	C	N	G	V	L	E	G	I	R	I	C	R	K	G	F	P	S	R	L	I	Y	S	E	F	K	Q	R	Y	S	I	L	A	P	N	A	I	P	Q	.....	
3I5G_Myo2_D.pealeii	K	T	P	G	L	I	D	A	A	L	V	L	H	Q	L	R	C	N	G	V	L	E	G	I	R	I	C	R	K	G	F	P	N	R	I	Y	S	E	F	K	Q	R	Y	S	I	L	A	P	N	A	V	P	S	.....		
5N6A_Myo2_B.taurus	K	S	P	G	V	I	D	N	P	L	V	M	H	O	L	R	C	N	G	V	L	E	G	I	R	I	C	R	K	G	F	P	N	R	I	L	Y	G	D	F	R	Q	R	Y	S	I	L	N	P	A	A	I	P	E	Q	.....
2Y8I_Myo2_D.discoideum	Q																																																							

FgMyoI\_1-736  
 1LKX\_Myo1\_D.discoideum YLAYRAES.....  
 5V7X\_Myo1\_R.norvegicus WKCRTHFLLMKGLNDIFEAQKAI EWHEDYKDDDDK.....  
 1DFL\_Myo2\_A.irradians YLIRKAYKKLQDQRIGLSVIQRNIRKWLVLRRNQWKKLYSKVKP.....  
 2EC6\_Myo2\_P.magellanicus YLIRKAYKKLQDQRIGLSVIQRNIRKWLVLRRNQWKKLYAKVKP.....  
 3I5G\_Myo2\_D.pealeii YLMRKAYKKLQDQRIGLTLIQRNVKWLVLRRNWEWRLFNKVKPLL.....  
 5N6A\_Myo2\_B.taurus VLSRMEFKKLLERRDSSLTIQWNIRAFMGVKNWP.....  
 2Y8I\_Myo2\_D.discoideum .....  
 1OE9\_Myo5\_G.gallus WLMRKKYMRMRGDA.....  
 4ZLK\_Myo5\_M.musculus WLLRKKRYLCMQR.....  
 5KG8\_Myo10\_H.sapiens .....  
 4ANJ\_Myo6\_S.scrofa ICSRWKKVQWC SLSVIKLNKNIKYRAEAVSKGEEFLTGVVPILEVELDGDVNGHKFSVSGE

FgMyoI\_1-736  
 1LKX\_Myo1\_D.discoideum .....  
 5V7X\_Myo1\_R.norvegicus .....  
 1DFL\_Myo2\_A.irradians .....  
 2EC6\_Myo2\_P.magellanicus .....  
 3I5G\_Myo2\_D.pealeii .....  
 5N6A\_Myo2\_B.taurus .....  
 2Y8I\_Myo2\_D.discoideum .....  
 1OE9\_Myo5\_G.gallus .....  
 4ZLK\_Myo5\_M.musculus .....  
 5KG8\_Myo10\_H.sapiens .....  
 4ANJ\_Myo6\_S.scrofa GEGDATYGKLT LKFICTTGKLPVWP TLVTTFGYGVQCFARYPDHMRQHDFFKSAMPEGY

FgMyoI\_1-736  
 1LKX\_Myo1\_D.discoideum .....  
 5V7X\_Myo1\_R.norvegicus .....  
 1DFL\_Myo2\_A.irradians .....  
 2EC6\_Myo2\_P.magellanicus .....  
 3I5G\_Myo2\_D.pealeii .....  
 5N6A\_Myo2\_B.taurus .....  
 2Y8I\_Myo2\_D.discoideum .....  
 1OE9\_Myo5\_G.gallus .....  
 4ZLK\_Myo5\_M.musculus .....  
 5KG8\_Myo10\_H.sapiens .....  
 4ANJ\_Myo6\_S.scrofa VQERTIFFKDDGN YKTRAEVKKFEGDTLVNRIELKGIDFKEDGNILGHKLEYNYNSHNVI

FgMyoI\_1-736  
 1LKX\_Myo1\_D.discoideum .....  
 5V7X\_Myo1\_R.norvegicus .....  
 1DFL\_Myo2\_A.irradians .....  
 2EC6\_Myo2\_P.magellanicus .....  
 3I5G\_Myo2\_D.pealeii .....  
 5N6A\_Myo2\_B.taurus .....  
 2Y8I\_Myo2\_D.discoideum .....  
 1OE9\_Myo5\_G.gallus .....  
 4ZLK\_Myo5\_M.musculus .....  
 5KG8\_Myo10\_H.sapiens .....  
 4ANJ\_Myo6\_S.scrofa MADKQKNGIKVNFKIRHNI EDGSVQLADHYQQNTPIGDGPVLLPDNHLYLSYQSALS KDPN

FgMyoI\_1-736  
 1LKX\_Myo1\_D.discoideum .....  
 5V7X\_Myo1\_R.norvegicus .....  
 1DFL\_Myo2\_A.irradians .....  
 2EC6\_Myo2\_P.magellanicus .....  
 3I5G\_Myo2\_D.pealeii .....  
 5N6A\_Myo2\_B.taurus .....  
 2Y8I\_Myo2\_D.discoideum .....  
 1OE9\_Myo5\_G.gallus .....  
 4ZLK\_Myo5\_M.musculus .....  
 5KG8\_Myo10\_H.sapiens .....  
 4ANJ\_Myo6\_S.scrofa EKRDHMLLEFVTAAGITHGMDELYK