

Hs NM2a	1	MAQQA---DKYLVDKNF	INNPLAQADW	AAKLVVWPS	DKSGEPASL	KEEVGEAAIV	ELVENGKVKV	VNKDDIQMN	PPKFSKVEDM	AELTCLNEAS	96	
Mg SmM	1	MSQK-PLSD EKFLFVYDKNF	VNNPLAQADW	SAKLVVWPS	EYKGFEEAISI	KEEKGDEVTV	ELQENGKVVV	LSKDDIQMN	PPKFSKVEDM	AELTCLNEAS	99	
Hs SmM	1	MAQKQLSD EKFLFVYDKNF	INSVPAQADW	AAKLVVWPS	EKQGFEEAISI	KEEKGDEVTV	ELVENGKVVV	VGKDDIQMN	PPKFSKVEDM	AELTCLNEAS	100	
		Helix A	Helix B		SH3-like fold							
Hs NM2a	97	VLHNLKERYYSGLIYTYSGSGL	FCVVVNPYKN	LPIYSEIVE	MYKGGKRHEM	PPHIYAIADT	AYRSMQDRE	DQSILCTGES	GAGKTENTKK	VIQYLAVVAS	196	
Mg SmM	100	VLHNLKERYYSGLIYTYSGSGL	FCVVVNPYKQ	LPIYSEKIID	MYKGGKRHEM	PPHIYAIADT	AYRSMQDRE	DQSILCTGES	GAGKTENTKK	VIQYLAVVAS	199	
Hs SmM	101	VLHNLKERYYSGLIYTYSGSGL	FCVVVNPYKH	LPIYSEKIVD	MYKGGKRHEM	PPHIYAIADT	AYRSMQDRE	DQSILCTGES	GAGKTENTKK	VIQYLAVVAS	200	
		Helix C	β1	β2	Helix D	Helix E	β4	P-loop	Helix F			
Hs NM2a	197	SHKSKKQD-----GE	LERQLLQANP	IIEAFGNAKT	VKNDNSRRFG	KFIRINFDVN	GYIVGANIEF	YLLEKSRAIR	QAKEERTFHI	FYYLLSGAGE	286	
Mg SmM	200	SHKSKKQDTSI TQGFSSFSYGE	LEKQLLQANP	IIEAFGNAKT	VKNDNSRRFG	KFIRINFDVT	GYIVGANIEF	YLLEKSRAIR	QAKDERTFHI	FYYLLSGAGE	299	
Hs SmM	201	SHKSKKQDTSI T-----GE	LEKQLLQANP	IIEAFGNAKT	VKNDNSRRFG	KFIRINFDVT	GYIVGANIEF	YLLEKSRAIR	QAKDERTFHI	FYYLLSGAGE	293	
		Loop 1	Helix G & H	Switch 1	β6	β7			Helix I			
Hs NM2a	287	HLKTDLLEP	YNYRFLNSG	HVTIPGQDK	DMFOETMEAM	RIMGPEEFG	MGLLRVIVSG	LQLGNIVFKK	ERNTDQASMP	DNTAAQKVSH	LLGINVTDFT	386
Mg SmM	300	QMRNDLLEP	FNNYTFNSG	HVPIPAQDD	EMFOETLEAM	RIMGFTEEG	TSILRVVSSV	LQLGNIVFKK	ERNTDQASMP	DNTAAQKVCH	LLGINVTDFT	399
Hs SmM	294	KMRSDLLEP	FNNYTFNSG	FVPIPAQDD	EMFOETVEAM	AIMGFSSEEQ	LSILKVVSSV	LQLGNIVFKK	ERNTDQASMP	DNTAAQKVCH	LLGINVTDFT	393
		Helix J	Helix K		Helix L	Loop 4	Helix M					
Hs NM2a	387	RGILTPRIKVR	GRDVFQKAAQT	KEQADFAIEA	LAKATYERMF	RWLVLIRINKA	IDTKRQGS	FIGILDIAGF	EIFDLNSFEQ	LCINVTNEKL	QQLFNHTMFI	486
Mg SmM	400	RSILTPRIKVR	GRDVFQKAAQT	KEQADFAIEA	LAKAFERLF	RWILTRVNKA	IDTKRQGS	FLGILDIAGF	EIFEINSFEQ	LCINVTNEKL	QQLFNHTMFI	499
Hs SmM	394	RSILTPRIKVR	GRDVFQKAAQT	KEQADFAIEA	LAKATYERLF	RWILTRVNKA	IDTKRQGS	FLGILDIAGF	EIFEVNSFEQ	LCINVTNEKL	QQLFNHTMFI	493
		Helix N	HCM Loop	Helix O	Loop 5	Switch 2	Relay Helix					
Hs NM2a	487	LEQEEYQRE	IEWNFIDFGL	DLPCIDLIE	KPAGPPGILA	LLDEEWFPK	ATDKSFVEVK	MQEQSTHPFK	QKPKQLKDKA	DFCIHYAGK	VYKADKELML	586
Mg SmM	500	LEQEEYQRE	IEWNFIDFGL	DLPCIELEIE	RPNPPGULA	LLDEEWFPK	ATDTSFVEKL	IQEQGNHPFK	QKSKQLKDKT	EFCILHYAGK	VSYNASAMLT	599
Hs SmM	494	LEQEEYQRE	IEWNFIDFGL	DLPCIELEIE	RPNPPGULA	LLDEEWFPK	ATDKSFVEVK	CTEQSSHPFK	QKPKQLKDKT	EFSIHYAGK	VDYNASAMLT	593
		Helix Q	Helix R	Helix S	Loop 3							
Hs NM2a	587	KNDPLNDNI	ATLLHQSSDK	FVSELWKL	VDRIIGLDQVAG	MSETALPGAF	KTRKGMFRTV	GQLYKEQLAK	LMATLRNTNP	NVVRITIPNH	EKKAGKLDPF	686
Mg SmM	600	KNDPLNDNV	TSLLNQSSDK	FVADLWKL	VDRIIGLDQMAK	MTESSLSPSS	KTKKGMFRTV	GQLYKEQLTK	LMTTRNTNP	NVVRITIPNH	EKRAGKLDAP	699
Hs SmM	594	KNDPLNDNV	TSLLNQSSDK	FVADLWKL	VDRIIGLDQMAK	MTESSLSPSS	KTKKGMFRTV	GQLYKEQLGK	LMTTRNTNP	NVVRITIPNH	EKRSGKLDAP	693
		Helix T	Helix U	Helix V	Loop 2	Helix W				β3		
Hs NM2a	687	LVLDQLRNC	VLEGRICRQ	GFPNRVVFQE	FRQRYEILTP	NSIPKGFMDG	KQACVLMKA	LELDPNLYRI	GQSKVFFRAG	VLAHLEED	LKITDVIIGF	786
Mg SmM	700	LVLEQLRNC	VLEGRICRQ	GFPNRVVFQE	FRQRYEILAA	NAIPKGFMDG	KQACILMKA	LELDPNLYRI	GQSKIFFRAG	VLAHLEED	LKITDVIIGF	799
Hs SmM	694	LVLEQLRNC	VLEGRICRQ	GFPNRVVFQE	FRQRYEILAA	NAIPKGFMDG	KQACILMKA	LELDPNLYRI	GQSKIFFRAG	VLAHLEED	LKITDVIIGF	793
		Helix X	SH1 Helix	Helix Z	Helix A'	Converter	Helix B'	Pliant				
Hs NM2a	787	QACCRGYLAR	KAFARQOQL	TAMKVIQRNC	AAYLKLRNWO	WRRLFTRVRF	LLQVSRQEE	MMAEELVK	VREKQLAAEN	RLTEMETLOS	QLMAEKLQQL	886
Mg SmM	800	QACCRGYLAR	KAFARQOQL	TAMKVIQRNC	AAYLKLRNWO	WRRLFTRVRF	LLQVSRQEE	MQAKDEELQR	TKERQQAEB	ELKELEQKHT	QLCEKNLLQ	899
Hs SmM	794	QACCRGYLAR	KAFARQOQL	TAMKVIQRNC	AAYLKLRNWO	WRRLFTRVRF	LLQVSRQEE	MQAKDEELQK	TKERQQAEN	ELKELEQKHS	QLTEKNLLQ	893
		Light chain binding region		Ring1	Ring2	Ring3					Start of heptad repeats	
Hs NM2a	887	EQLQAEETELC	AEAEELRVR	TAKQLEEEI	CHDLARVEE	EEEQQLQEA	EKKMQQNIQ	ELEEQLLEEE	SARQKLQLEK	VTEAKLKL	EEEQIILEDQ	986
Mg SmM	900	EKLQAEETELY	AEAEEMRVR	AAKQLEEEI	LHEMEARIEE	EEERSQQLQA	EKKMQQMLQ	DLEEQLLEEE	AARQKLQLEK	VTADGKIKK	EDDILIMEDQ	999
Hs SmM	894	EQLQAEETELY	AEAEEMRVR	AAKQLEEEI	LHEMEARLEE	EEEDRQQLQA	ERKKMQQMLQ	DLEEQLLEEE	AARQKLQLEK	VTAAEAKIKL	EDDILVMDQ	993
Hs NM2a	987	NCKLAKKELK	LEDRIAEFTT	NLTEEBEESK	SLAKLKNKHE	AMITDLLEER	RREKQRQEL	EKTRRKLQEG	STDLSQIAE	LAQAIAELM	QLAKKEEELQ	1086
Mg SmM	1000	NNKLTKERKL	LEERVSDLT	NLAEBEAK	NLTKLKNKHE	SMISELEVR	KKEEKTROEL	EKTRRKLQEG	SSDLHEQIAE	LAQAIAELM	QLAKKEEELQ	1099
Hs SmM	994	NNKLSKERKL	LEERISDLT	NLAEBEAK	NLTKLKNKHE	SMISELEVR	KKEEKSQEL	EKTRRKLQEG	ASDFHQIAE	LAQAIAELM	QLAKKEEELQ	1093
Hs NM2a	1087	AALARVEEFA	AQKNMALKKI	RELESQISEL	QEDLESERAS	RNKAQKQRD	LGELEALKT	ELEDLDSIA	AQOELSKRE	QEVNILKKT	EBEAKTHEAQ	1186
Mg SmM	1100	AALARLEDET	SQKNMALKKI	RELESHISDL	QEDLESERAA	RNKAQKQRD	LGELEALKT	ELEDLDTTA	TQOELRAKRE	QEVTVLKRAL	EBEATRTHEAQ	1199
Hs SmM	1094	AALARLDEET	AQKNMALKKI	RELEGHISDL	QEDLDSERAA	RNKAQKQRD	LGELEALKT	ELEDLDSIA	TQOELRAKRE	QEVTVLKRAL	DEETRSHEAQ	1193
								Bend 1		Skip 1		
Hs NM2a	1187	IQEMRQKHTQ	AVEELAEQLE	QTKRVKANLE	KAKQTLENER	GLLANEVKVL	LQKGDSEHK	RKKVAQLOL	LQVFNQGER	VRETELADKVT	KIQELDNT	1286
Mg SmM	1200	VQEMRQKHTQ	AVEELTEQLE	QFKRAKANLD	KTKQTLKEDN	ADLANEVRSL	SOAKQDVEHK	KKKLEVLQLD	LQSKYTDGER	VRETELNEKVN	KLQIENVST	1299
Hs SmM	1194	VQEMRQKHTQ	AVEELTEQLE	QFKRAKANLD	KNKQTLKEDN	ADLAGELRVL	GQAKQDVEHK	KKKLEAVQVE	LQSKSDGER	ARAEINDKVH	KLQIENVST	1293
Hs NM2a	1287	GLLSQSDSKS	SKLTKDVSAL	ESQLQDTQEL	LQEBNRQKLS	LSTKLQVED	EKNSFREQLE	EBEAKHNLE	KQIATLHAQV	ADMKKMDS	VGCLETALEV	1386
Mg SmM	1300	SLLNEAESKN	IKLTKDVAFL	GSQLDQTEL	LQEBTRQKLN	VTTKLRQVED	DKNSLQQLD	EEVEAKQNL	RHISTLTQQL	SDSKKQLQEF	TATETMEEG	1399
Hs SmM	1294	GMLNEAEGKA	IKLAKDVASL	SSQLQDTQEL	LQEBTRQKLN	VSTKLRQVEE	ERNSLQQLD	EBEAKQNL	RHISTLNIQL	SDSKKQLQEF	ASTVEALEEG	1393
											Missing skip	
Hs NM2a	1387	KRKLQKDLQEG	LSQRHEEKVA	AYDKLEKTKT	RLQQLDLDL	VLDLHORQSA	CNLEKKQKPK	DQLLEKTKT	SAKYAEEDR	AEAEAREKPT	KALSARALE	1486
Mg SmM	1400	KKKQREIES	LTQQFEKAA	SYDKLEKTKN	RLQQLDLDLV	VLDLNRQQLV	SNLEKKQKPK	DQLLAEEKNI	SSKYADERDR	AEAEAREKET	KALSARALE	1499
Hs SmM	1394	KKRFRQEIEN	LTQQYEEKAA	AYDKLEKTKN	RLQQLDLDLV	VLDLNRQQLV	SNLEKKQKPK	DQLLAEEKNI	SSKYADERDR	AEAEAREKET	KALSARALE	1493
											Interacts with SH3 and converter of blocked head	
Hs NM2a	1487	EAMEQKAELE	RLNKQFRTEM	EDLMSSKDDV	GKSVVELEKS	KRALAQVEE	MKTQLEELED	ELQATEDAKL	KLEVNLAQMK	AQFEDLQK	DEQSEKQKQ	1586
Mg SmM	1500	EALAEKAELE	RTNKMKAEM	EDLVSSKDDV	GKNVHELEKS	KRTLEQVEE	MKTQLEELED	ELQAEADAKL	RLEVNMQAMK	SQFERDLQAR	DEQNEEKRRQ	1599
Hs SmM	1494	EALAEKAELE	RTNKMKAEM	EDLVSSKDDV	GKNVHELEKS	KRALAQVEE	MKTQLEELED	ELQATEDAKL	RLEVNMQAMK	GQFERDLQAR	DEQNEEKRRQ	1593
								Bend 2		Skip 2		
Hs NM2a	1587	LVRQVREMEA	ELEDERKQRS	MAVAARKKLE	MDLKDLEAH	DSANKNRDEA	IKQLRKLQAK	MKQVRELDD	TRASREEIFA	QAKENEKKLK	SPEAEMIQLQ	1686
Mg SmM	1600	LLKQLHEHET	ELEDERKQRA	LAAAARKKLE	VVDKLESQV	DSVNAKAREEA	IKQLRKLQAK	MKDQRLDLD	ARAAREEIFA	TARENEKKA	NLEAELIQLQ	1699
Hs SmM	1594	LQRQLHEHET	ELEDERKQRA	LAAAARKKLE	GDLDLELQA	DSALKGREEA	IKQLRKLQAK	MKDFQRELED	ARASDEEIFA	TAKENEKKA	SLEADLMQLQ	1693
Hs NM2a	1687	EELAAERAK	RQAQQRDEL	ADEIANSSGK	GALALEKRR	LEAIAQLEE	ELEEEQNGTE	LINDRLKCAN	LQIDQINTDL	NLERSHAQKN	ENARQQLERQ	1786
Mg SmM	1700	EDLAAERAR	KQADLEKEEM	AEELASATSG	RTSLQDDKRR	LEARIAQLEE	ELDEHSNIE	AMSDRMKAV	QQAELNNEL	ATERATAQKN	ENARQQLERQ	1799
Hs SmM	1694	EDLAAERAR	KQADLEKEEL	AEELASSLSG	RNALQDEKRR	LEARIAQLEE	ELEEEQNGTE	AMSDVRKAT	QQAELSNEL	ATERSTAQKN	SARQQLERQ	1793
Hs NM2a	1787	NKELVKVQLE	MEGTVKSKYK	ASITALEAKI	AQLEEQLDNE	TKERQAACKQ	VRRTRKCLKD	VLLQVDDERR	NAEQYKQAD	KASTRLKQLK	QLEEAEBEEA	1886
Mg SmM	1800	NKELRSKLQE	MEGAVKSKFK	STIAALEAKI	ASLEEQLEQE	AREKQAANKA	LROKDKKLDK	ALLQVEDEKK	QAEQYKQAE	KGNLRLKQLK	QLEEAEBEES	1899
Hs SmM	1794	NKELRSKLHE	MEGAVKSKFK	STIAALEAKI	AQLEEQVQEQ	AREKQAATKS	LKQDKKLEK	ILLQVEDERK	MAEQYKQAE	KGNARVQQLK	QLEEAEBEES	1893
								Skip 3				
Hs NM2a	1887	QRANASRRKL	QRELEDTET	ADAMNREVSV	LKNKLRSD	-LFPVVRKARK	ARK---GAG	DGSDPEVQK	ADGAEA-KPAE		1960	
Mg SmM	1900	QRINANRRKL	QRELEDTATES	NEAMGREVNA	LKSKLRRGNE	-TSFVPSRRS	GRRVVIENA-	DGSEETDTR	DADFNGTKASE		1979	
Hs SmM	1894	QRINANRRKL	QRELEDTATES	NDALGREVAA	LKSKLRRGNE	PVSFAPRRS	GRRVVIENAT	DGGEQIDGR	DGDLNG-KASE		1972	
											Positions of Mutations	
											▼ Disease causing	
											▼ Disease causing?	
											▼ Variant of Unknown Significance	
											d position in heptad	
											Non-helical tailpiece	