

## Supplementary Data

### Supplemental Figure 1

#### 1A

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1                               50
SV2_Human_BAA34456 (1) SAPSPIMEEGFRDRAAFIRGAKDIAKEVKKHAAKKVVKGLDRVQDEYSRR
SV2_AAEL005849 (1) -----MVESETDS

51                               100
SV2_Human_BAA34456 (51) SYSRFEEDDDDDFPAPSDGYRGEQTQDEEEGGASSDATEGHDEDEDEITY
SV2_AAEL005849 (9) KHSKYTNVKDDRANGVGSNEYPTVSSEK-----ASKADHIH

101                              150
SV2_Human_BAA34456 (101) EGEYQIGIPRAESGGKGERMADGAPLAGVRGGLSDGEGPPGGRGEAQRKE
SV2_AAEL005849 (47) QTGLQIVASKQ-----DKASLDAERGYTSKAD-----

151                              200
SV2_Human_BAA34456 (151) REELAQQYFAILRECCHGRFQWTLYFVLGLALMADGVEVFFVGFVLPSPAE
SV2_AAEL005849 (74) -----FEQAIELTGYGKFHYILLAICGLVSTSEEMDVISMSFILPSAQ

201                              250
SV2_Human_BAA34456 (201) KDMCLSDSNKGMGLIVYLGMMVGAFLWGGLADRLGRRQCLLISLSVNSV
SV2_AAEL005849 (117) CDLDLNTQTKGWLNSTIIFI GMMVGAYAWGVSADSLGRKKVLIIVISIMNAI

251                              300
SV2_Human_BAA34456 (251) FAFFSSFVQGYGTFLLFCRLLSGVGIGGSIPIVFSYFSEFLAQEKRGEHLS
SV2_AAEL005849 (167) CIVASSFSQSYEVFMVFRFLNGAALGGSGPVIWSYFAEQPKAKRGSMLS

301                              350
SV2_Human_BAA34456 (301) WLCMFWMIGGVYAAAMAWAIIIPHYGWSFQMGSAYQFHSWRVFVLVCAFPS
SV2_AAEL005849 (217) FMAAFWTIGNLLVAGLAWLIIP TNIGFYTP--AFTFNSWRIFLMVCSIPS

351                              400
SV2_Human_BAA34456 (351) VFAIGALTTQPESPRFFLENGKHXDEAWMV LKQVHDTNMRKAGHPERVFSV
SV2_AAEL005849 (265) FVVAGLLLYLPESPKFLLSQGKFEEALAI FRGIYVTNTGKS-----ADL

401                              450
SV2_Human_BAA34456 (401) THIKTIHQEDELIEIQSDTGTWYQRWGVRALSLGGQVWGNFLSCFGPEYR
SV2_AAEL005849 (309) YPVKELLIDEQLRNELADVKKPIKNKYKRMLHN---IMDN SKQLFMSPIL
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		451		500
SV2_Human_BAA34456	(451)	RITLMMMGVWFTMSFSYYGLTVWFPDMIRHLQAVDYASRTKVFPGERVEH		
SV2_AAEL005849	(356)	KFTLLISITINFTHIGYYGLMMWFPELFNRFDEFIRAHDPDIEEAG-----		
		501		550
SV2_Human_BAA34456	(501)	VTFNFTLENQIHRGGQYFNDKFIGLRLKSVSFEDSLFEECYFEDVTSNT		
SV2_AAEL005849	(401)	-----		
		551		600
SV2_Human_BAA34456	(551)	FFRNCTFINTVFYNTDLFEYKQVNSRLINSTFLHNKEGCPLDVTGTGEGA		
SV2_AAEL005849	(401)	---VCQVTDYVVGHGSHGESGVCSATIPSTVFLES-----		
		601		650
SV2_Human_BAA34456	(601)	YMVYFVSFLGTLAVLPGNIIVSALLMDKIIGRLRMLAGSSVMSCVSCFFLSF		
SV2_AAEL005849	(433)	-----LITVAAALPANVIAVLGMDKLGKFFLVFSTMSAGFCSASMYF		
		651		700
SV2_Human_BAA34456	(651)	GNSESAMIALLCLEFGVSIASWNALDVLTVELYPSDKRTTAFGFLNALCK		
SV2_AAEL005849	(476)	VTNKNQNLAVSAIFSGVISMGNASLDCLITEVFPTN-----		
		701		748
SV2_Human_BAA34456	(701)	LAAVLGISIFTSFVGITKAAPILFASAALALGSSLALKLPETRGQVLQ		
SV2_AAEL005849	(512)	-----		

## 1B

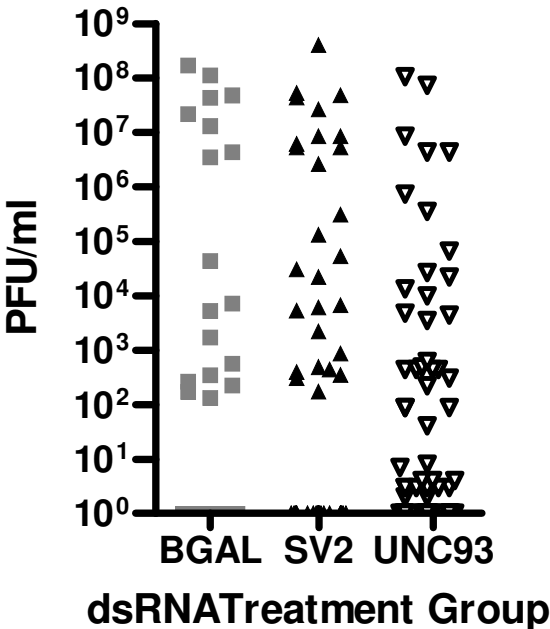
		1		50
Unc93A.AAEL004048	(1)	MHGGFDPKNDKSVSLRDKVTLDRSEKWRILKNITTVSFAFMVQFTAFQGT		
Unc93A.human.CAD48541	(1)	-----MDRS-----LRNVLVVSFGFLLFTAYGGL		
Unc93AENSMUSG00000056133	(1)	-----MERS-----LKNVLVVSFCGFLFTAYGGL		
		51		100
Unc93A.AAEL004048	(51)	ANLQSSINAKDGLGTVSLSAIYAALVVSCIFLPTLVIRKLTAKWTLQVSM		
Unc93A.human.CAD48541	(26)	QSLQSSLYSEEGLGVTALSTLYGGMLLSSMFLPPLLIERLGCKGTIILSM		
Unc93AENSMUSG00000056133	(26)	QNLQSSLYSEQGLGVATLSTLYASVLLSSMFLPPILIKKCGCKWTIVGSM		
		101		150
Unc93A.AAEL004048	(101)	LCYAPYIAAQFYPTFYTLVPAGILVGLGAAPMWASKATYLTQLGQVYAKL		
Unc93A.human.CAD48541	(76)	CGYVAFVSVGNFFASWYTLIPTSILLGLGAAPLWSAQCTYLTITGNTHAEK		
Unc93AENSMUSG00000056133	(76)	CCYVVFSLGNFHANWYTLIPTSILLGLGAAPLWSAQCTYLTITMGNLQAEK		
		151		200
Unc93A.AAEL004048	(151)	TEQSVEAIIIVRFQGFFLAWQTAELWGNLISSLVLSGAGGGSVHSDNE		
Unc93A.human.CAD48541	(126)	AGKRGKDMVNQYFGIFFLIFQSSGVWGNLISSLVFGQTPS-----Q		
Unc93AENSMUSG00000056133	(126)	VGKLGKDVVNQYFGIFFLVFQSSGVWGNLISSLVFGKMSM-----Q		
		201		250

Unc93A.AAEL004048	(201)	TSMGDLALAKCGANFCVVETDDNANLQRPDPNEIFEISAIYLSCTIAAVV
Unc93A.human.CAD48541	(167)	ETLPEEQLTSCGASDCLMATTTTNSTQRPSQQLVYTLLGIYTGSGVLAVL
Unc93AENSMUSG00000056133	(167)	EAIPEEQLMSCGAKDCLMGPAATNSTHHPSQQLIYTLLGIYTGCGVLAIL
		251 300
Unc93A.AAEL004048	(251)	IITALFMDPLSRYGKRRGSISAIEVSGVQLLSATFKQLKKVNQQLLILIT
Unc93A.human.CAD48541	(217)	MIAAFLQPIRDVQR--ESEGEKKSVPFWSTLLSTFKLYRDKRLCLLILLP
Unc93AENSMUSG00000056133	(217)	LVAVFLESLEDKLEN-EGERRPRPPPLWSTLLSTFMLFRDKRLCLLMFLP
		301 350
Unc93A.AAEL004048	(301)	VFIGMEQAFIGAEFTQAYVSCALGIHQIGYVMICFGVVNAICSIIFGSIM
Unc93A.human.CAD48541	(265)	LYSGLQOGFLSSEYTRSIVTCTLGIQFVGYVMICFSATDALCSVLYGKVS
Unc93AENSMUSG00000056133	(266)	LYSGFQQEFLSGEYTKSYVTCALGIHFVGYVMICFSAMTALCSLLYGKIS
		351 400
Unc93A.AAEL004048	(351)	KYIGRIPITLLGALVHGGVITTYCLFWKPHPDHALVFFAISGLWGVGDAVW
Unc93A.human.CAD48541	(315)	QYTGRAVLVYLGAVTHVSCMIALLWRPRADHLAVFFVFSGLWGVADAVW
Unc93AENSMUSG00000056133	(316)	KYTGRAALYALGAAIHFSVVFLLWHPNTNQLPVFFVLSGLWGMSDAVW
		401 450
Unc93A.AAEL004048	(401)	QTQINGIYGALFRRNKEAAFSNYRLWESAGFVIAYAYSTQLCARMKLYIL
Unc93A.human.CAD48541	(365)	QTQNNALYGVLFEKSKEAAFANYRLWEALGFVIAFGYSMFLCVHVKLYIL
Unc93AENSMUSG00000056133	(366)	QTQNNALFGVLFEENKEPAFANYRLGEAIGFVIAFGYSSFLCVSTKLYIL
		451 500
Unc93A.AAEL004048	(451)	FAVLALGMVGYAIVEIRHLNKERRLKKLEDTPKQQQTEAERKEIEEDDEK
Unc93A.human.CAD48541	(415)	LGVLSTMTMVAAYGLVECVESK-----NPIRPHAPGQVNQAEDEEIQ
Unc93AENSMUSG00000056133	(416)	LGVLSLAMVGYGTVEYLEVK-----AASKVLGAEKKNQAEDEEEMK
		501 512
Unc93A.AAEL004048	(501)	DELEEDIVVTHL
Unc93A.human.CAD48541	(455)	TKM-----
Unc93AENSMUSG00000056133	(456)	TKM-----

## Supplemental Figure 2

CRE .xls File

Supplemental Figure 3



Supplemental Figure 4.

.avi video confocal images