

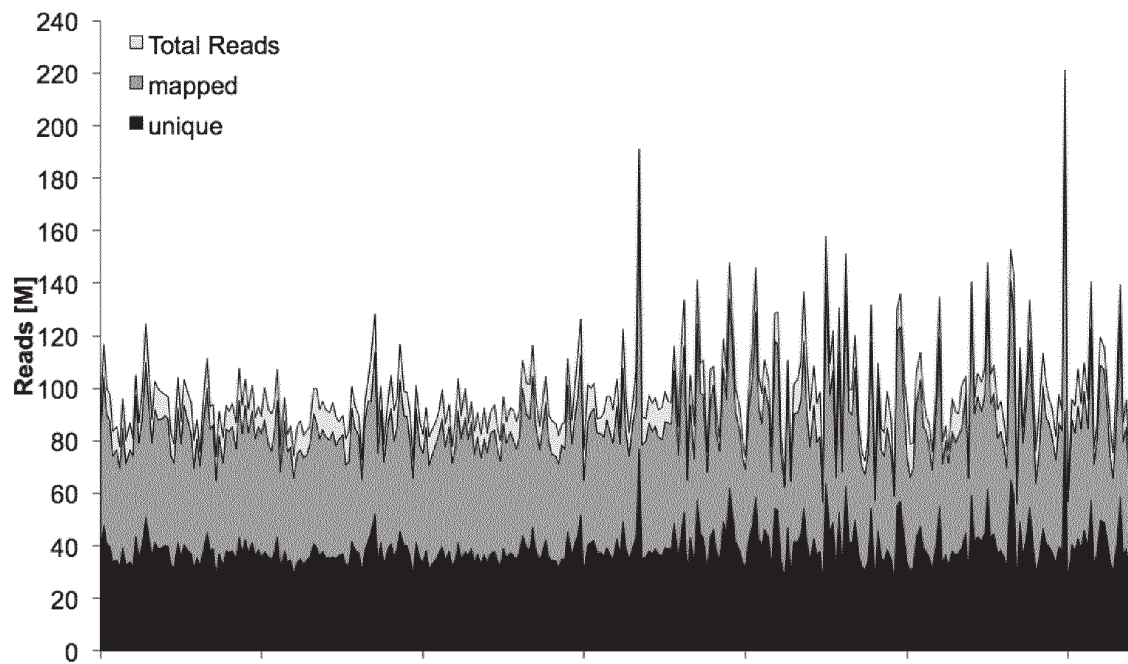


Figure 1

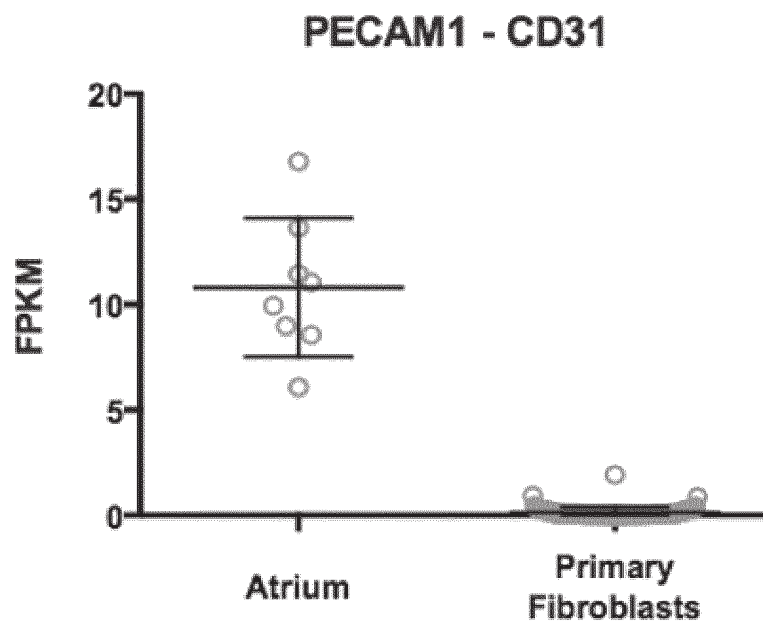


Figure 2A

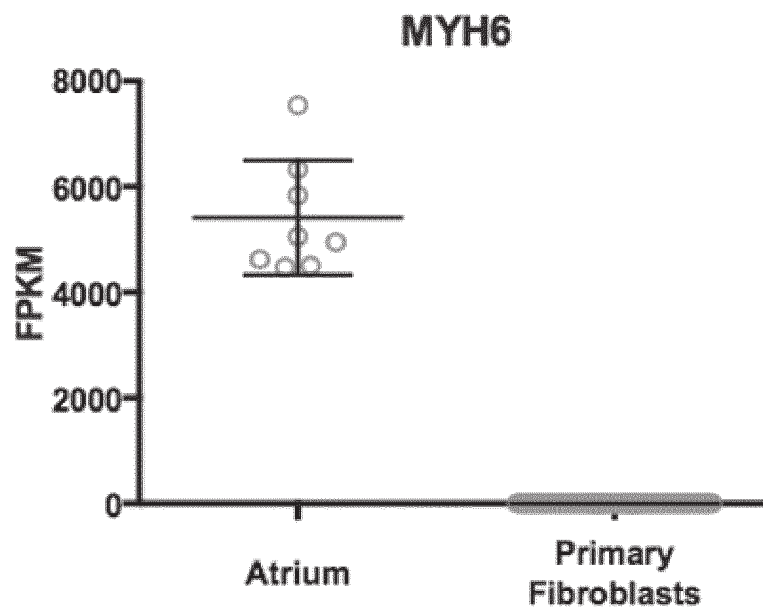


Figure 2B

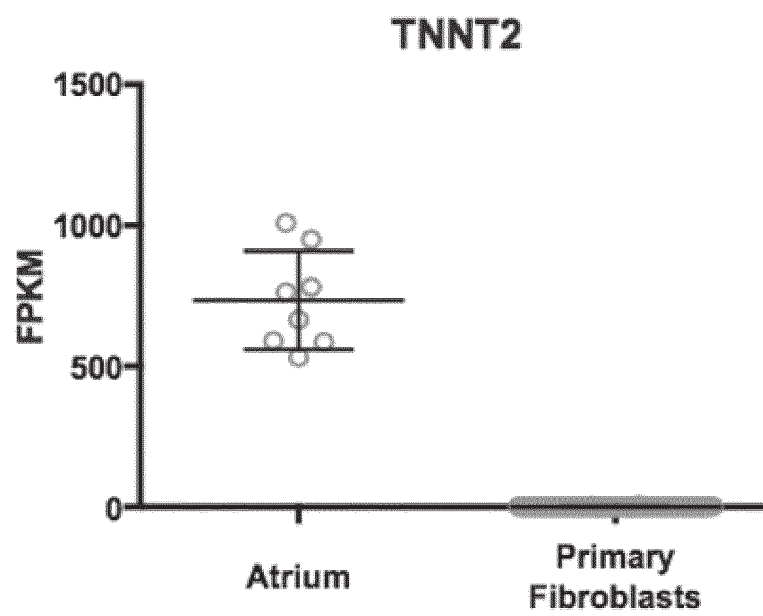


Figure 2C

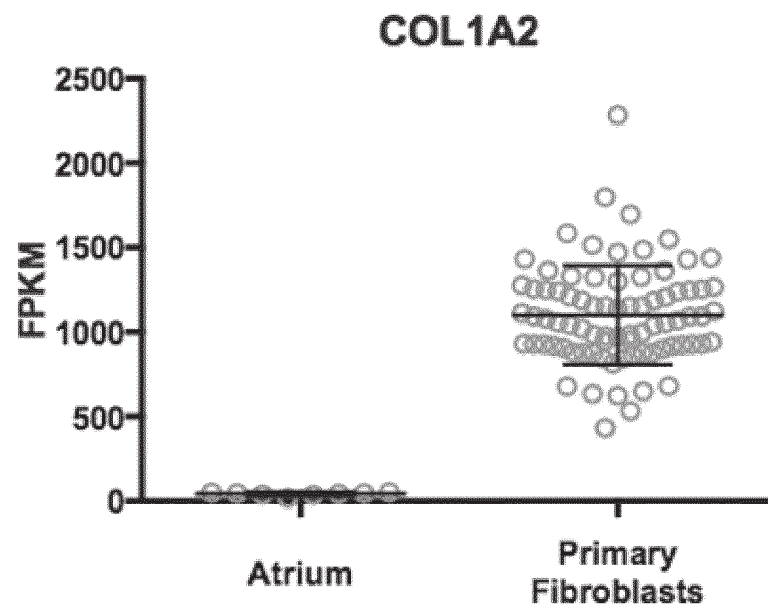


Figure 2D

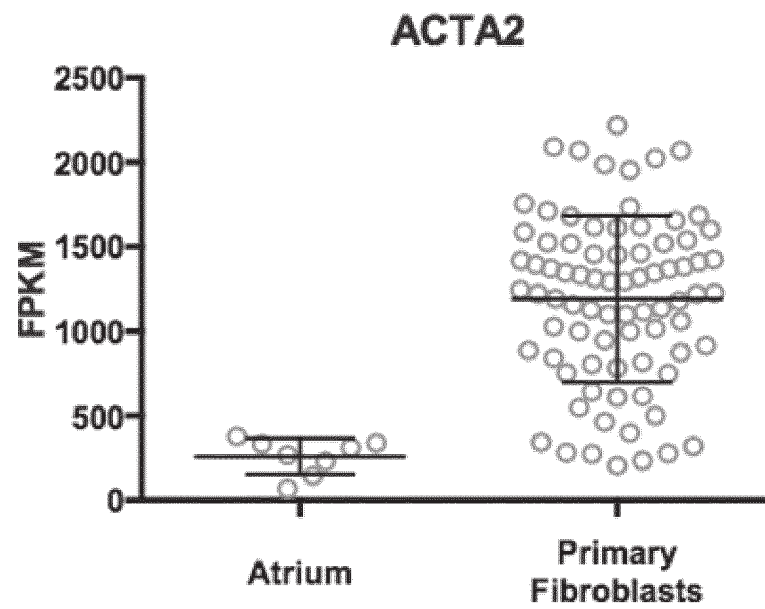


Figure 2E

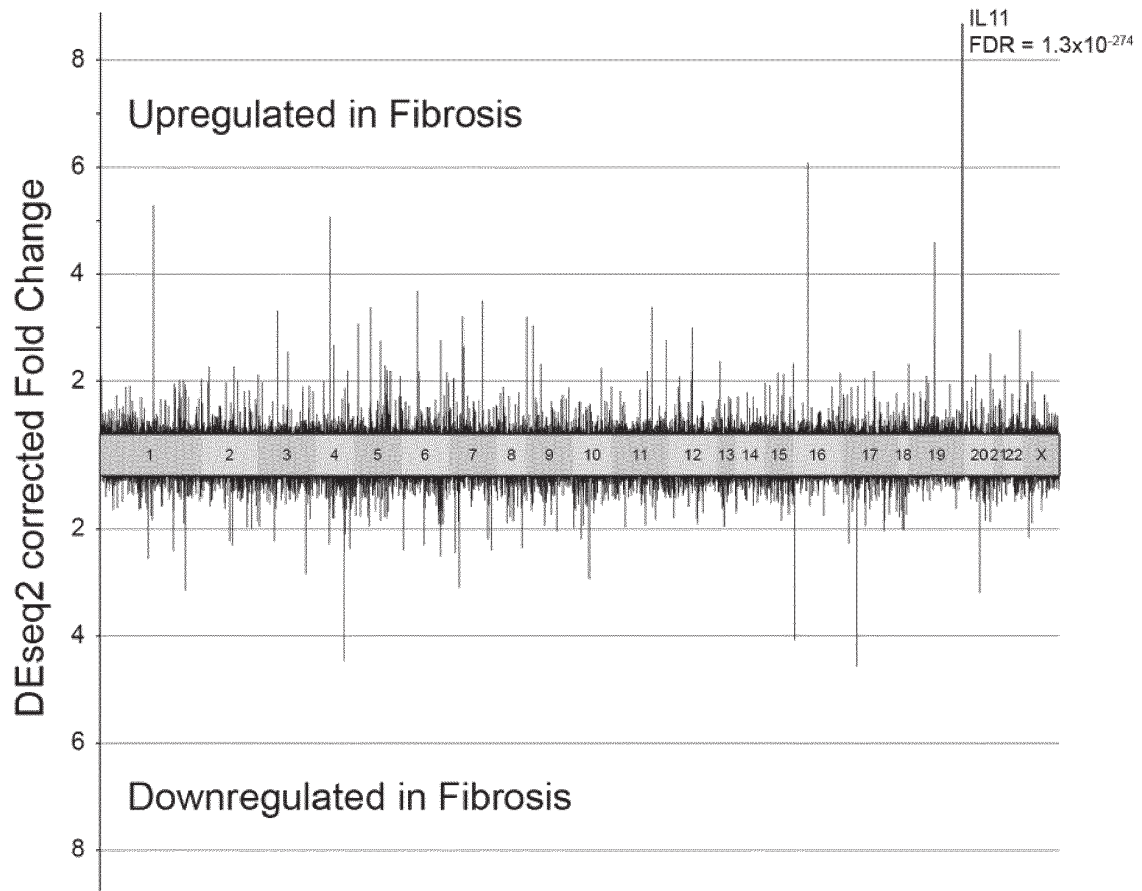


Figure 3A

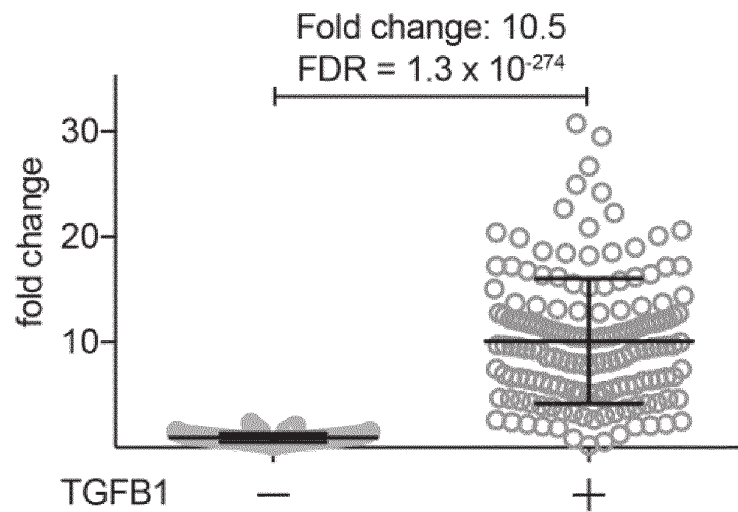


Figure 3B

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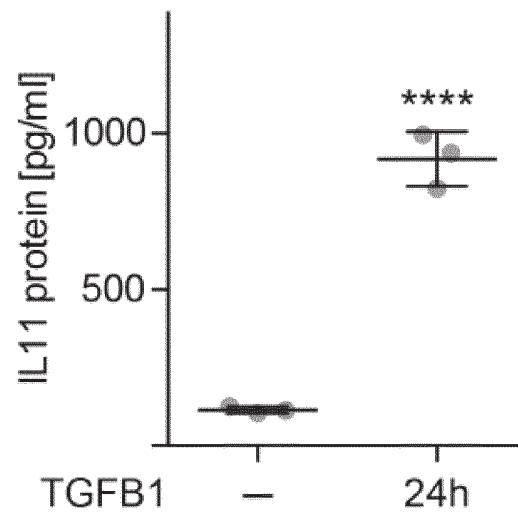


Figure 3C

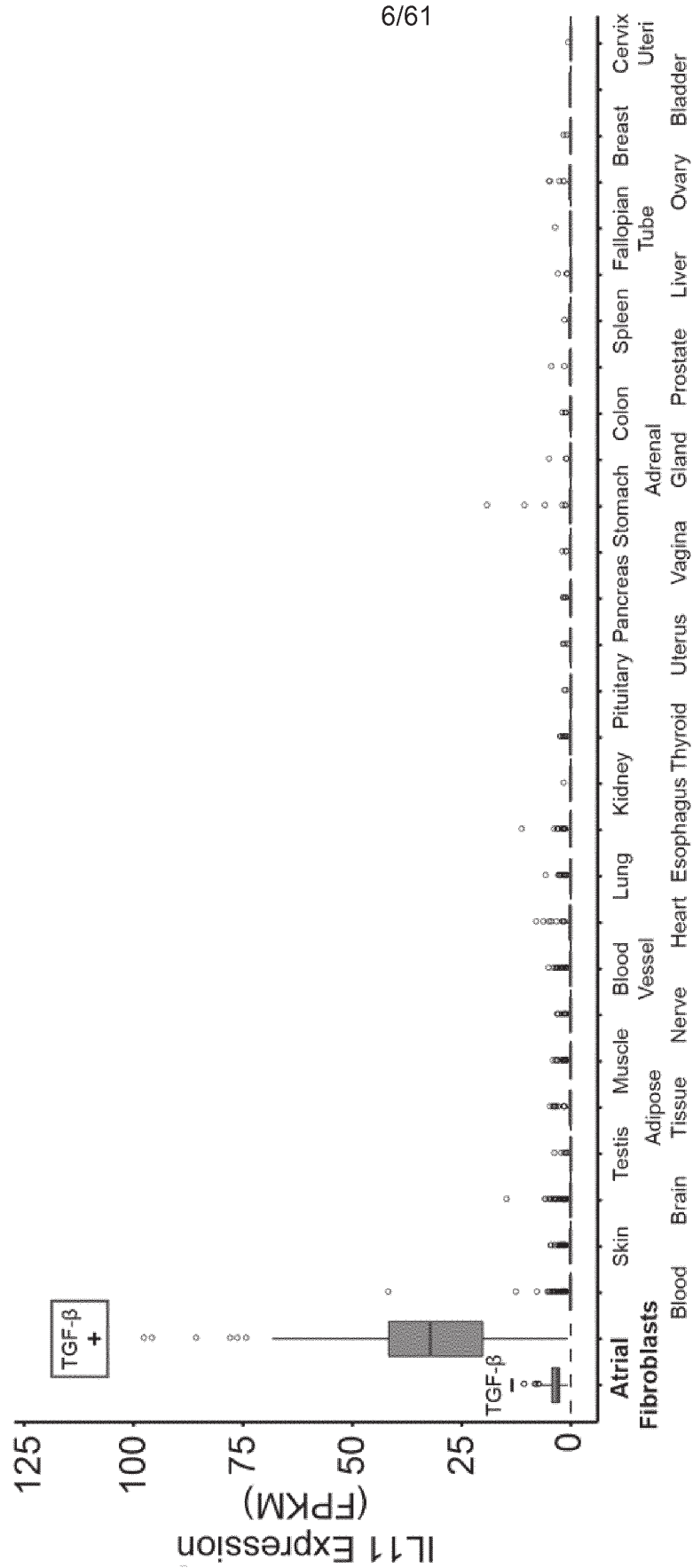


Figure 3D

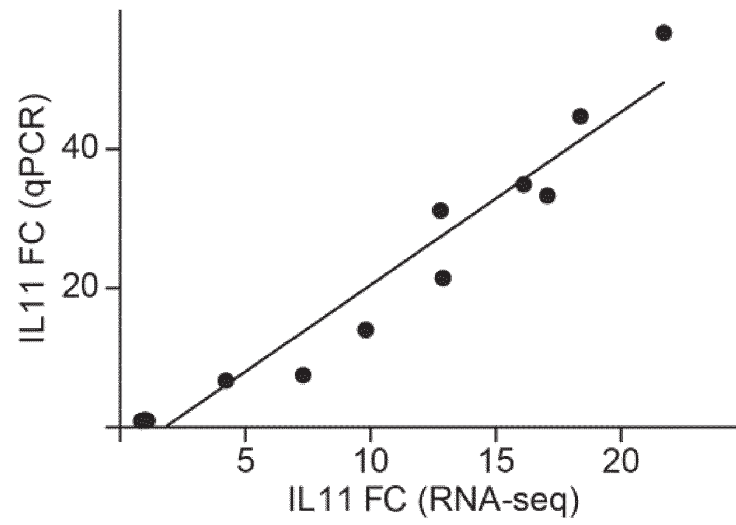


Figure 3E

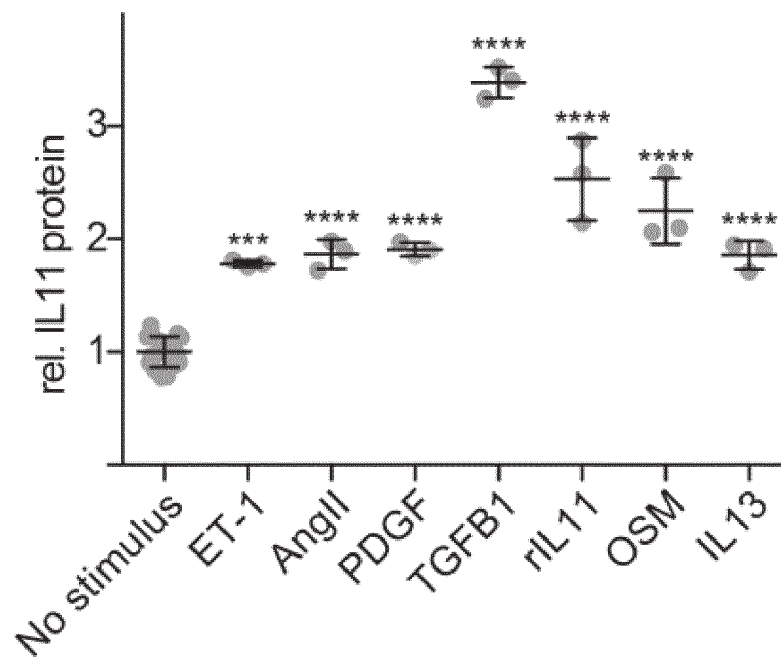


Figure 4A

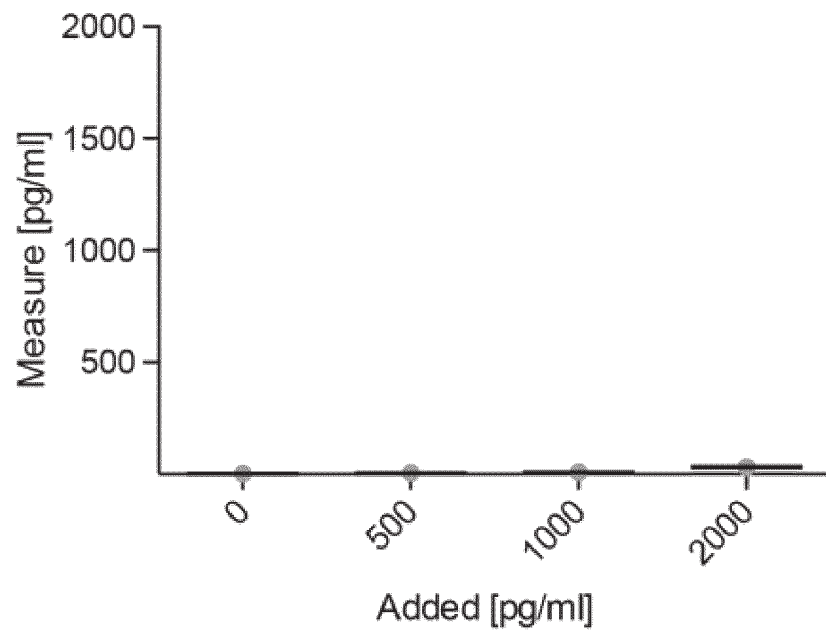


Figure 4B

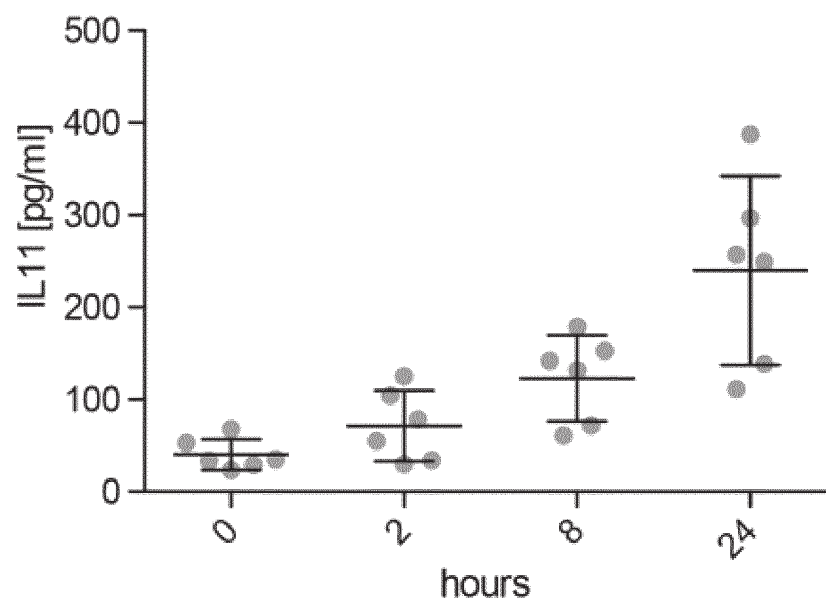


Figure 4C

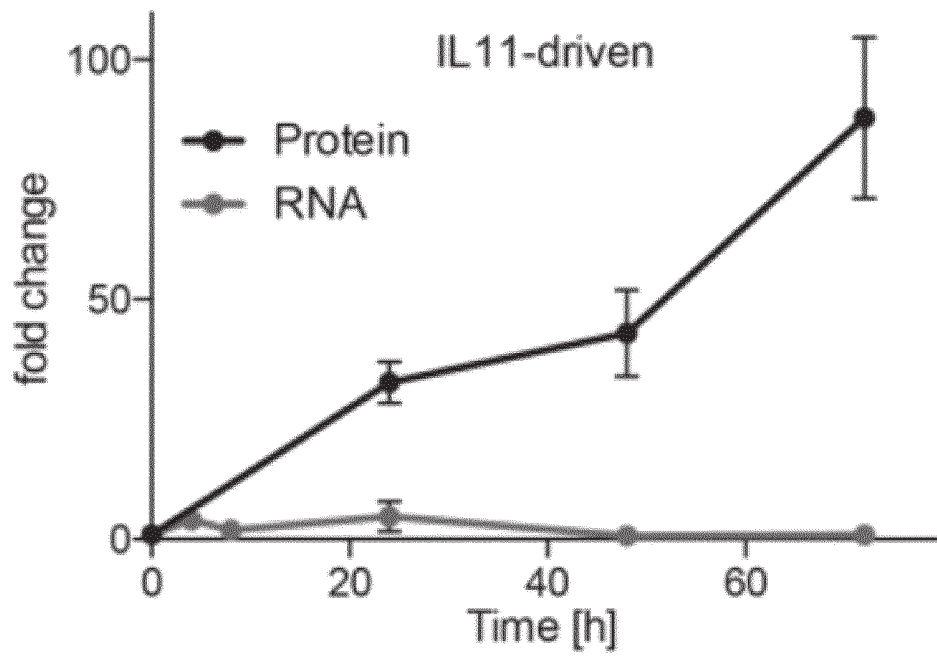


Figure 4D

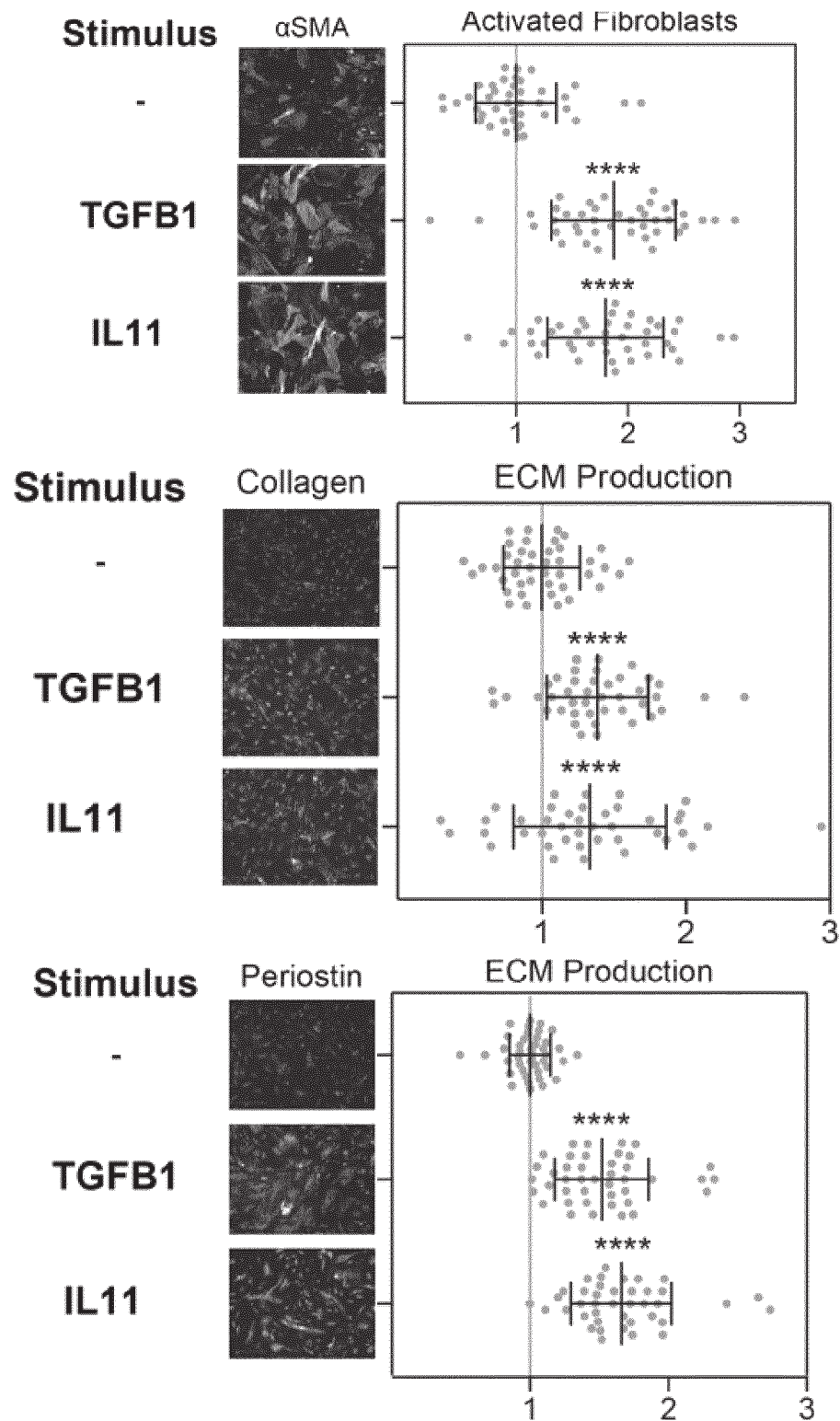


Figure 5A

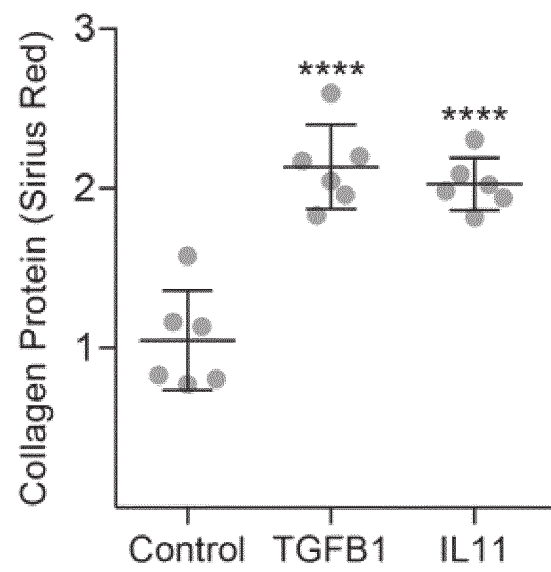


Figure 5B

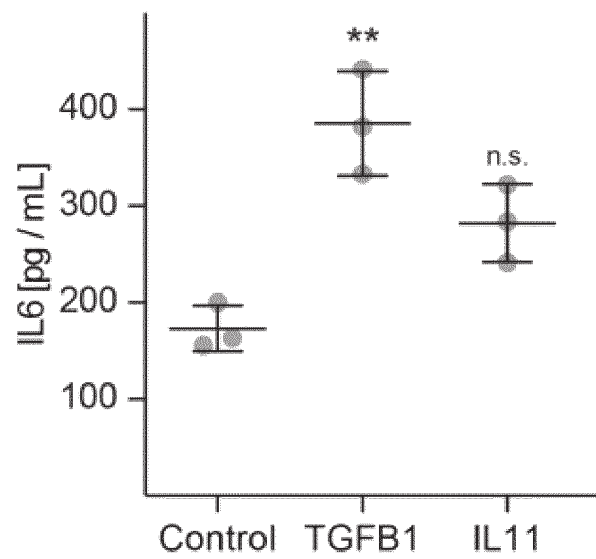


Figure 5C

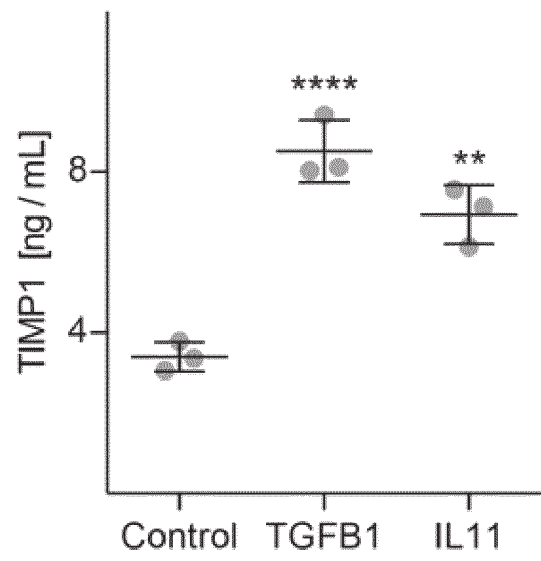


Figure 5D

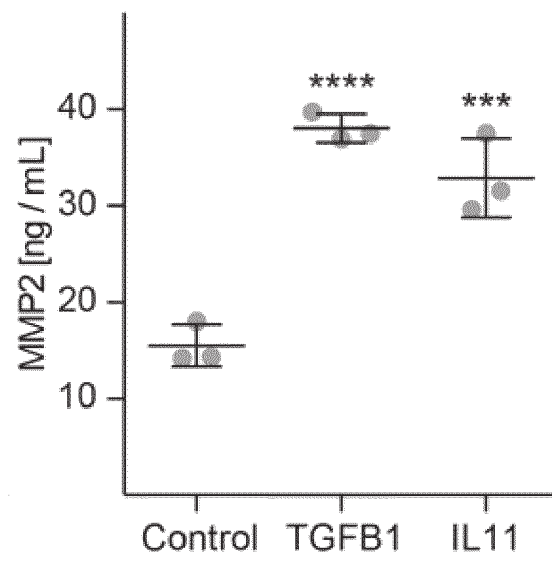


Figure 5E

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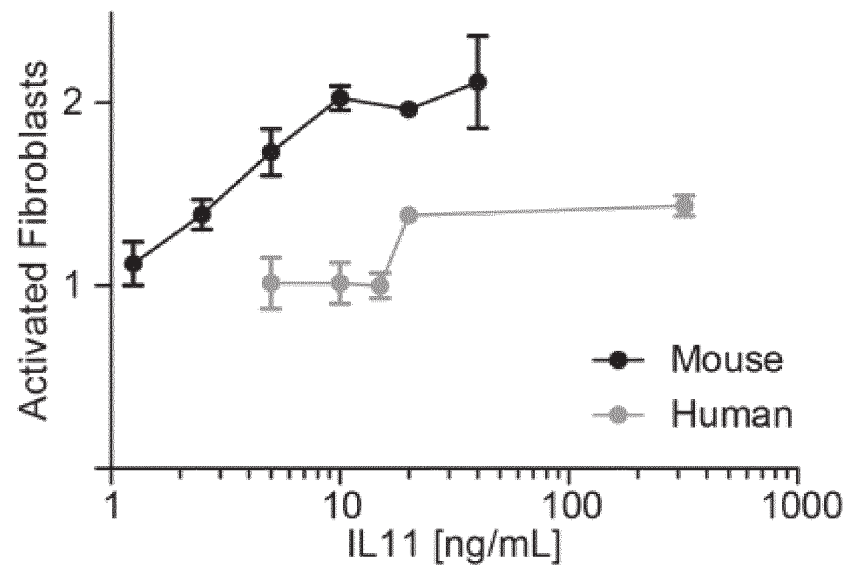


Figure 5F

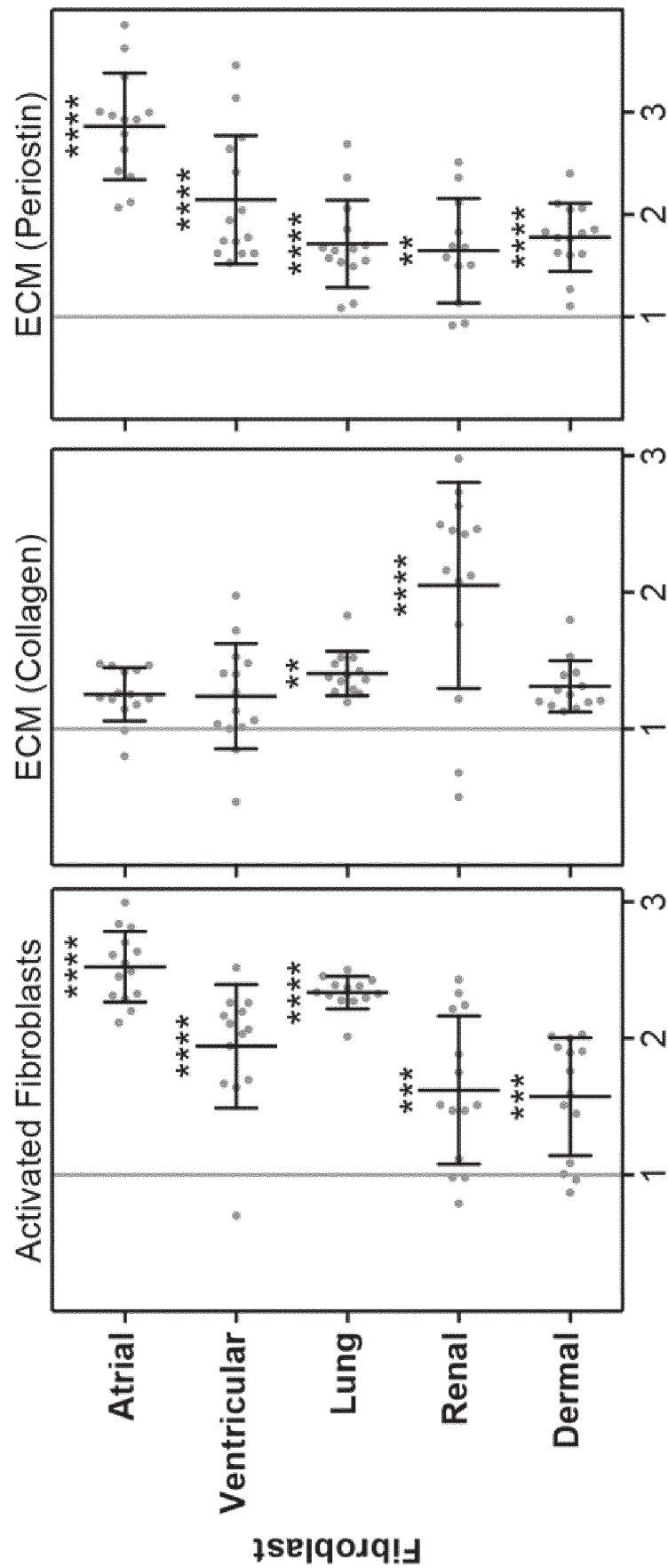


Figure 6A

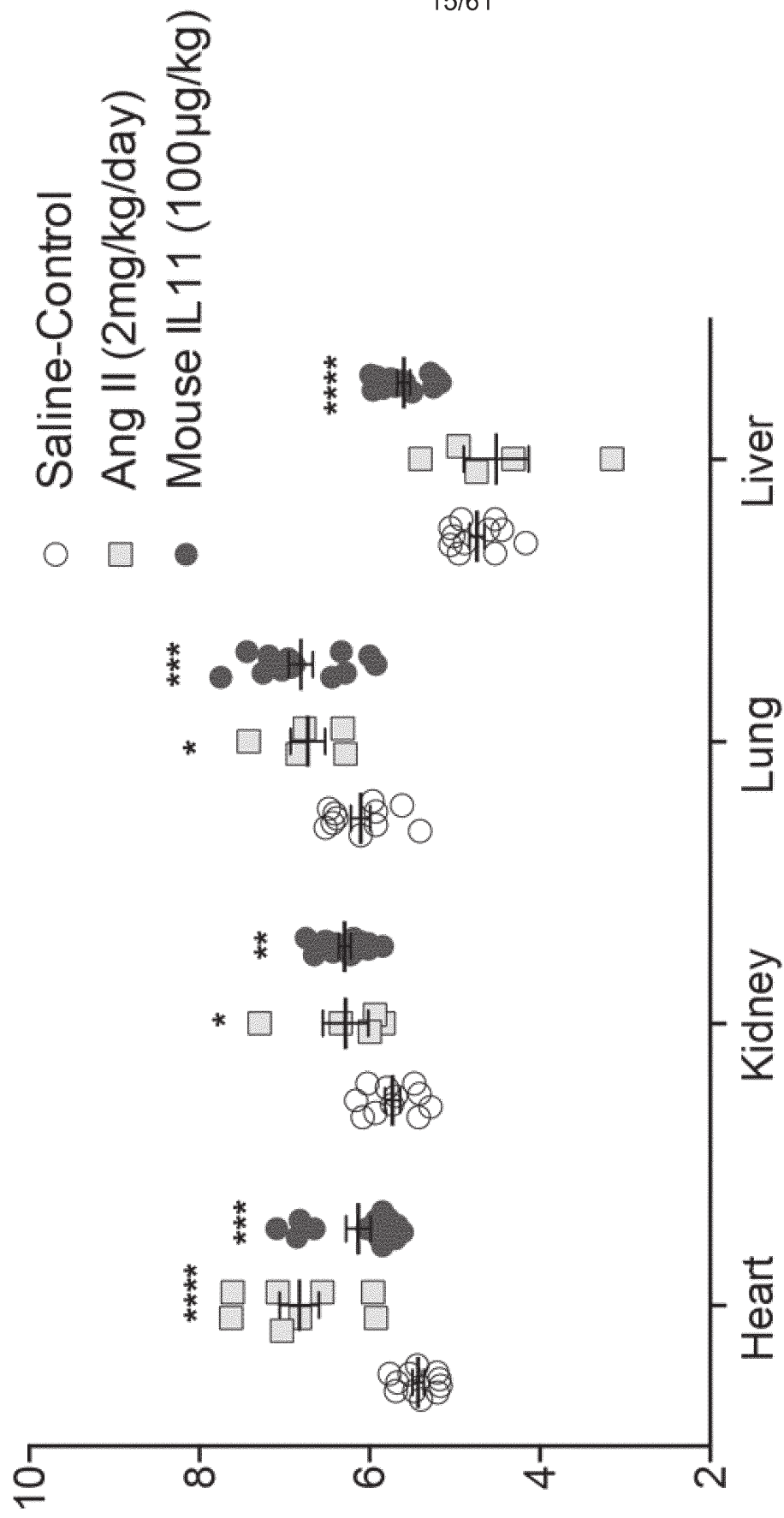


Figure 6B

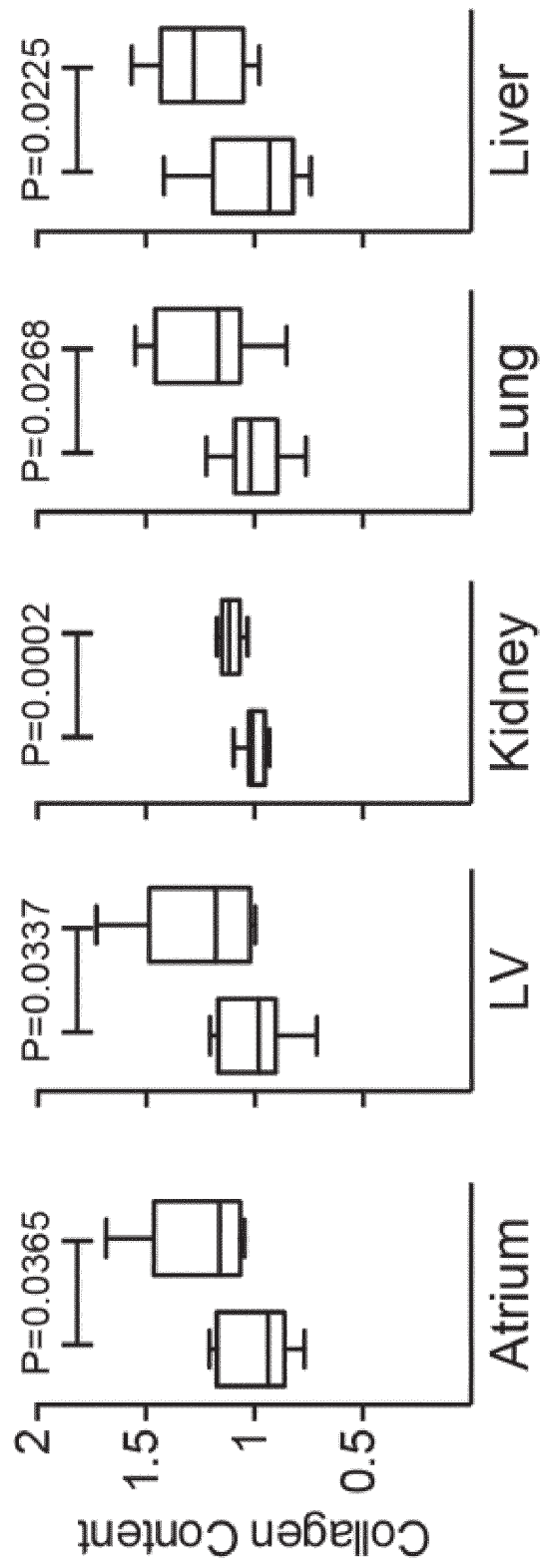


Figure 6C

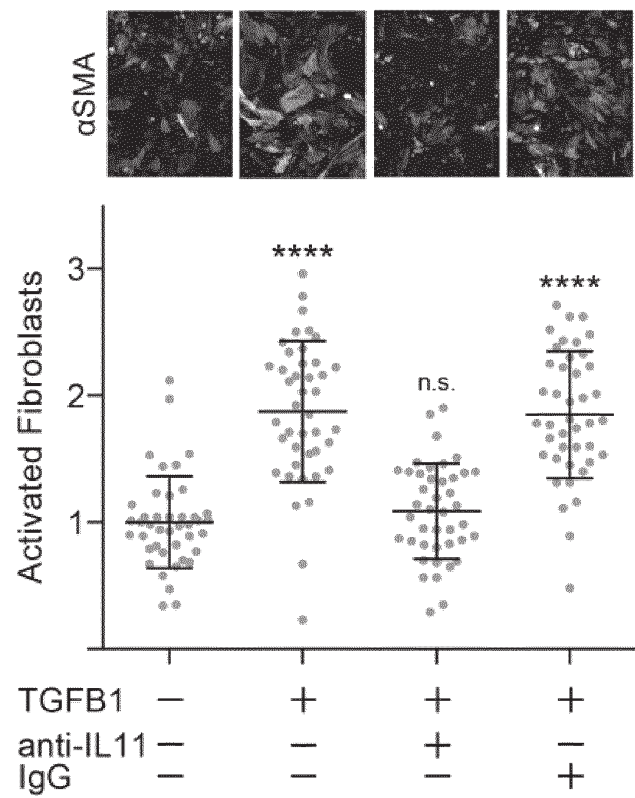


Figure 7A

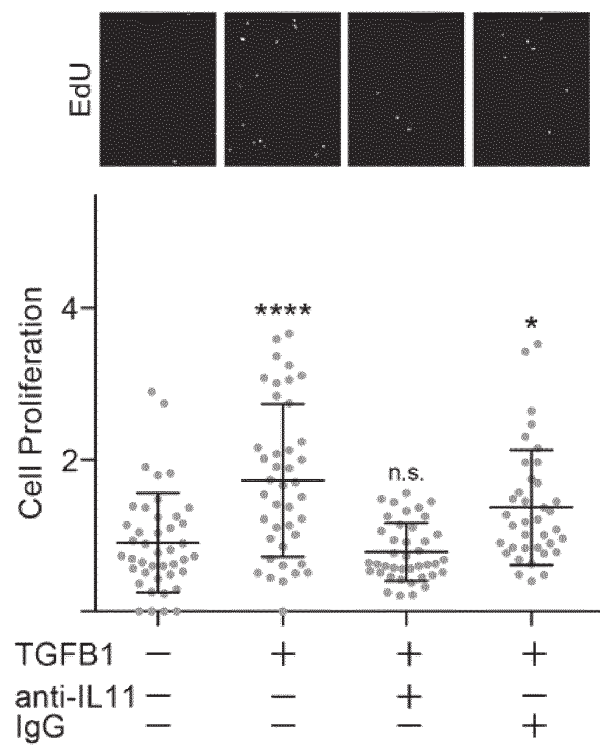


Figure 7B

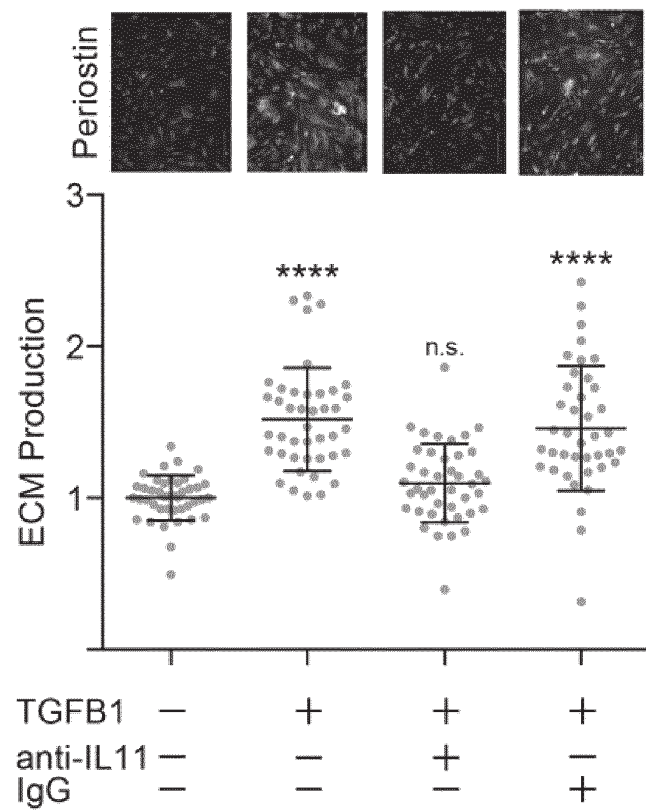


Figure 7C

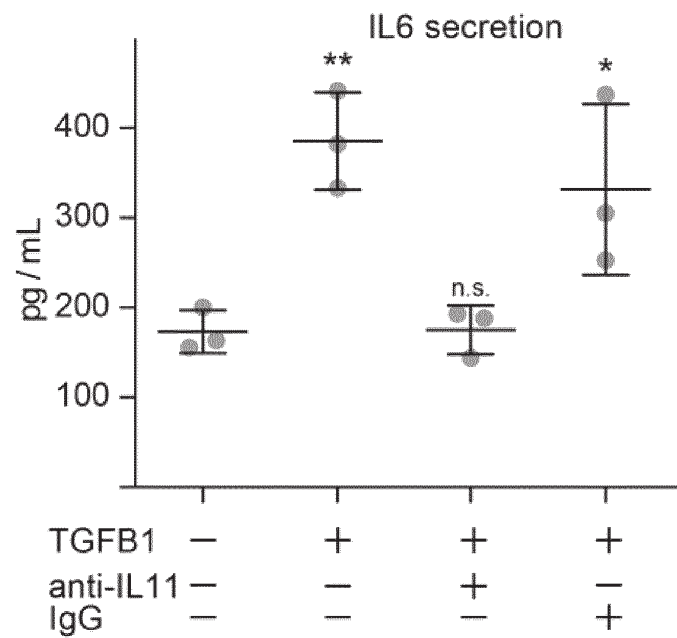


Figure 7D

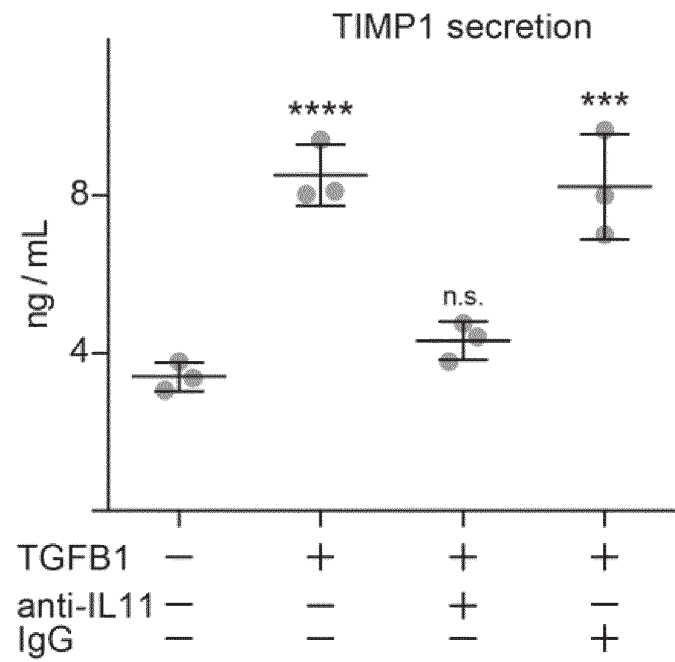


Figure 7E

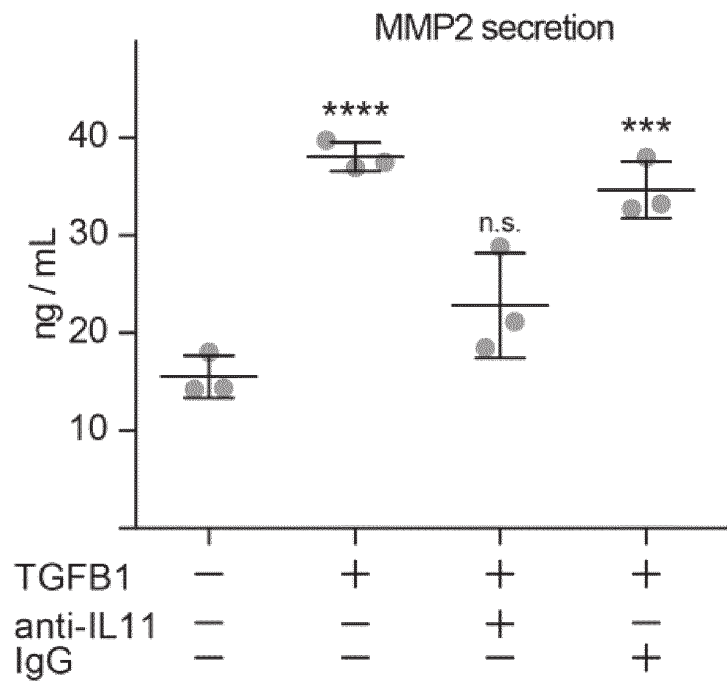


Figure 7F

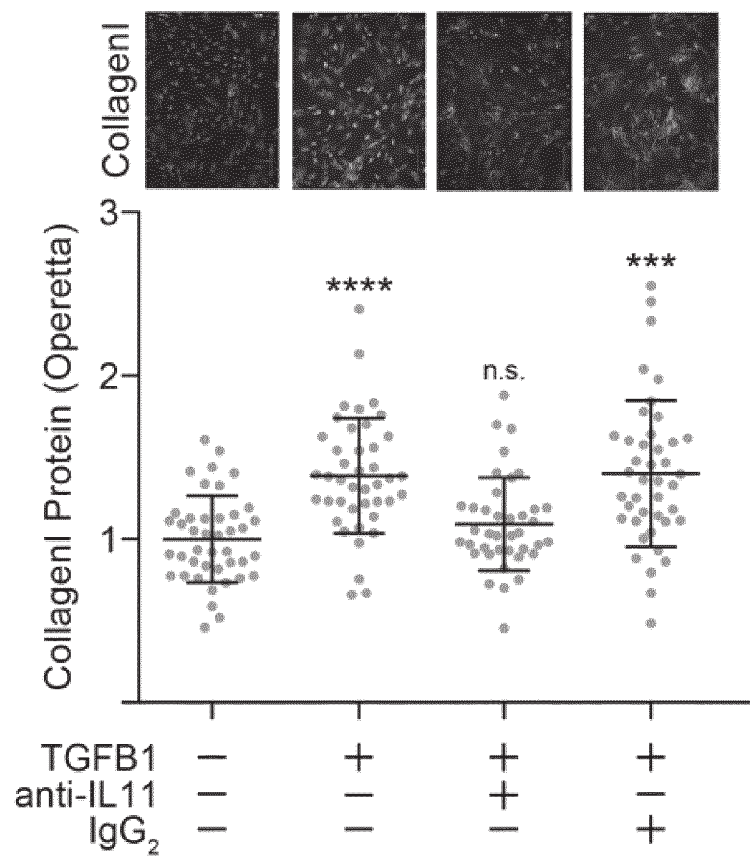


Figure 8A

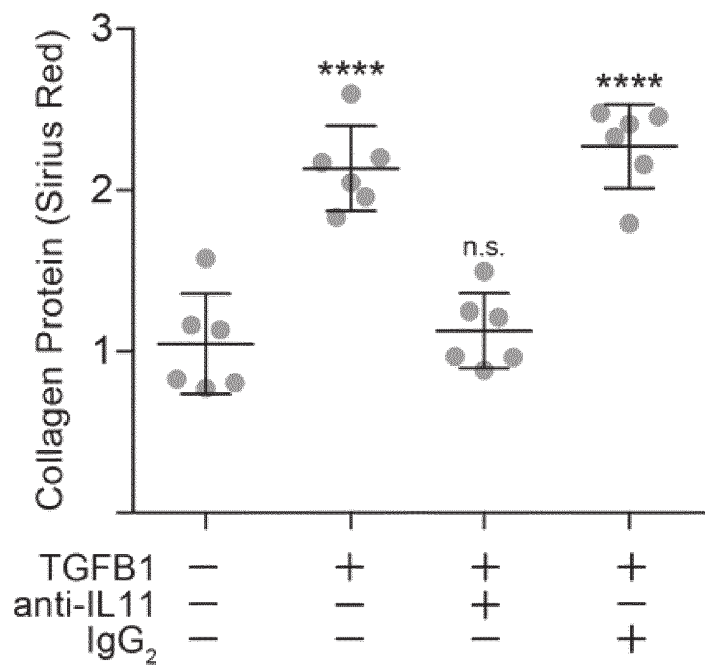


Figure 8B

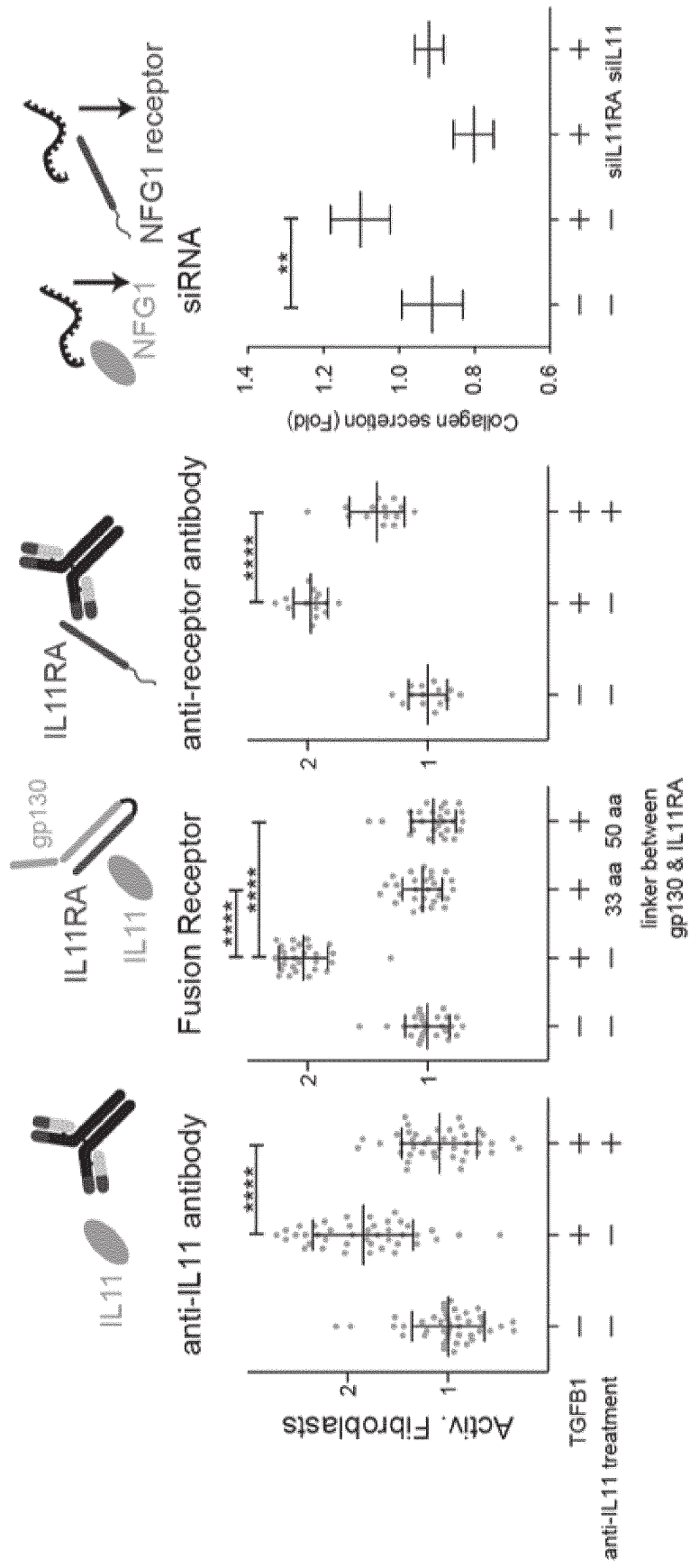


Figure 9

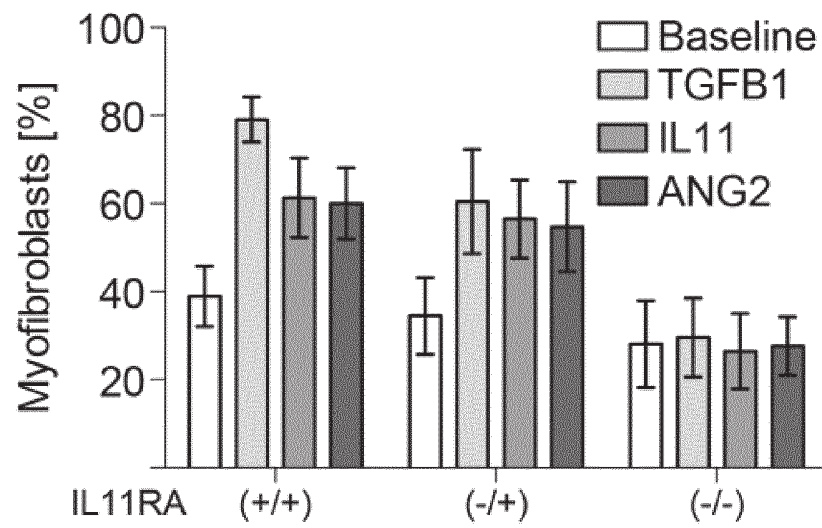


Figure 10A

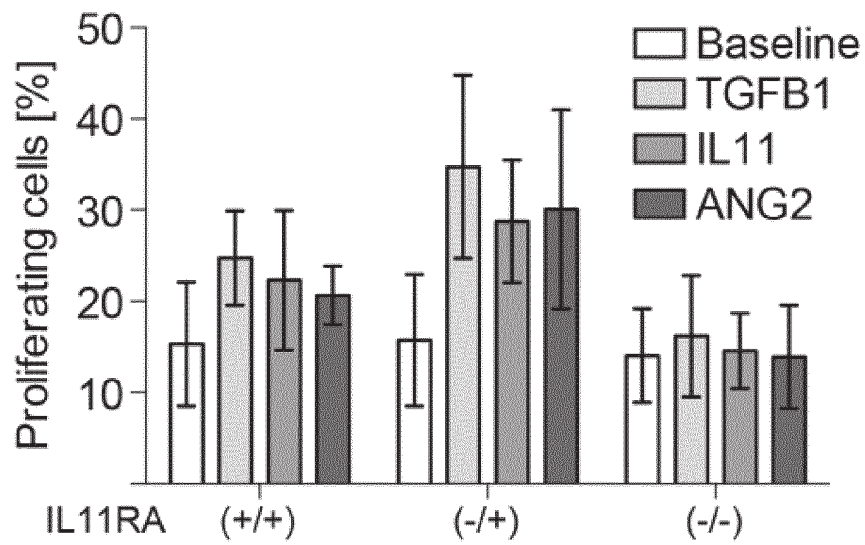


Figure 10B

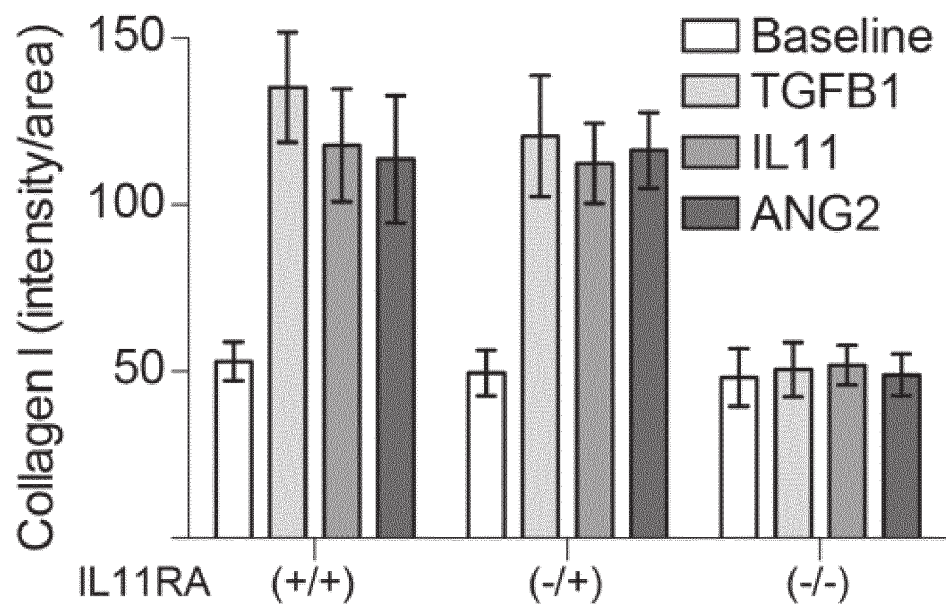


Figure 10C

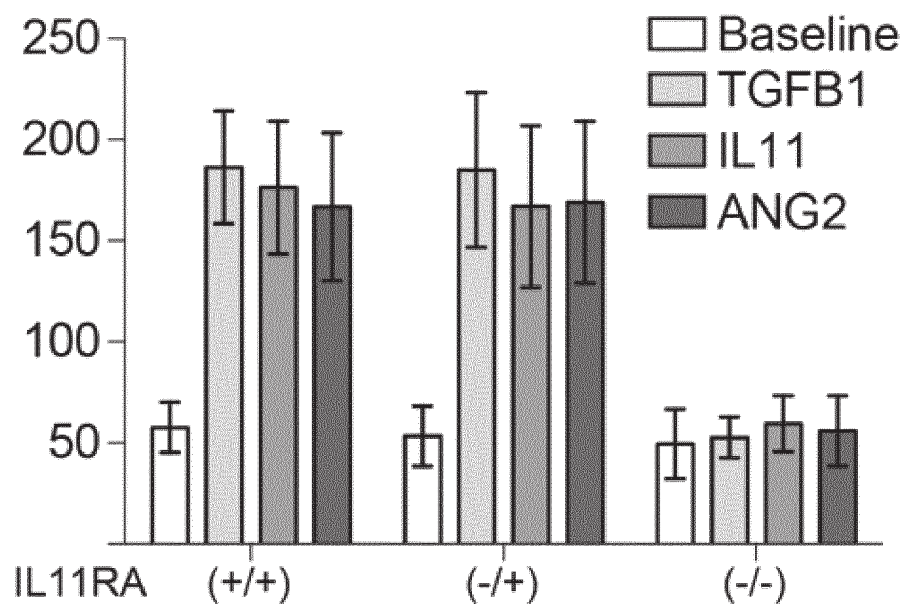


Figure 10D

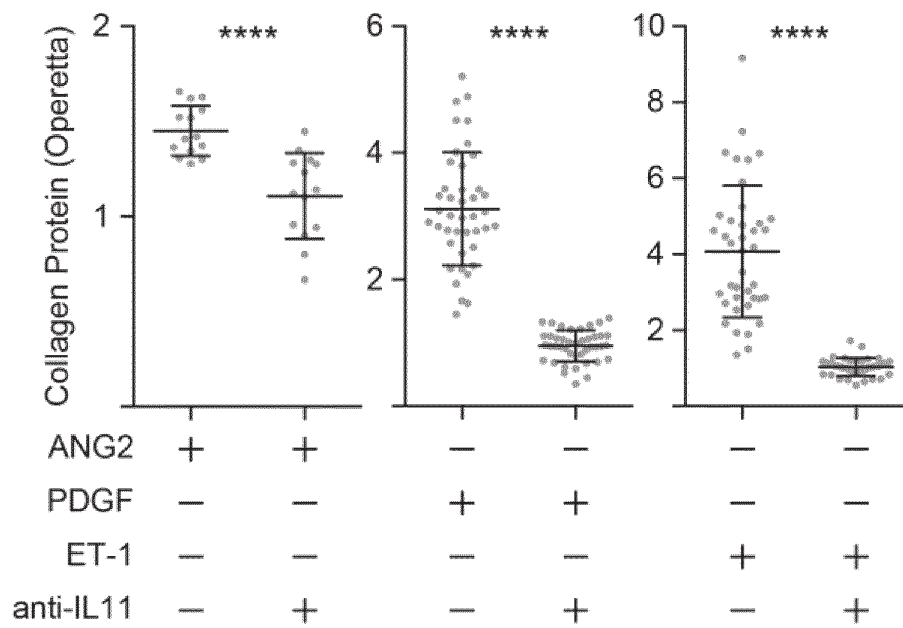


Figure 11A

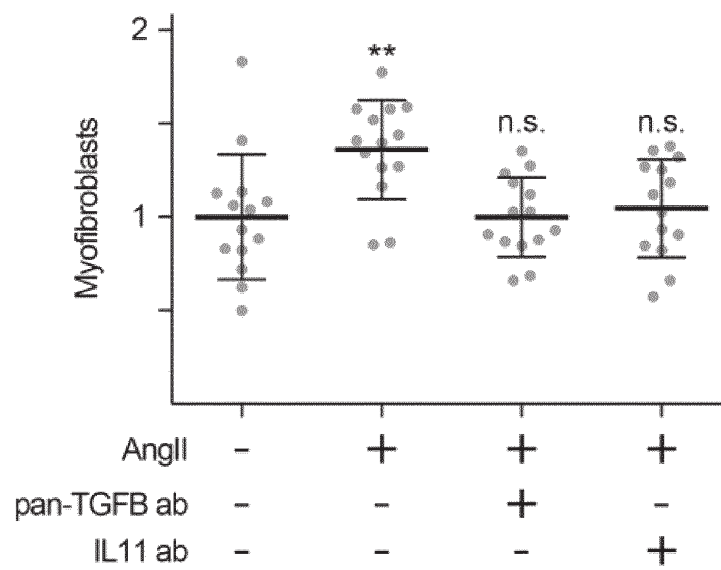


Figure 11B

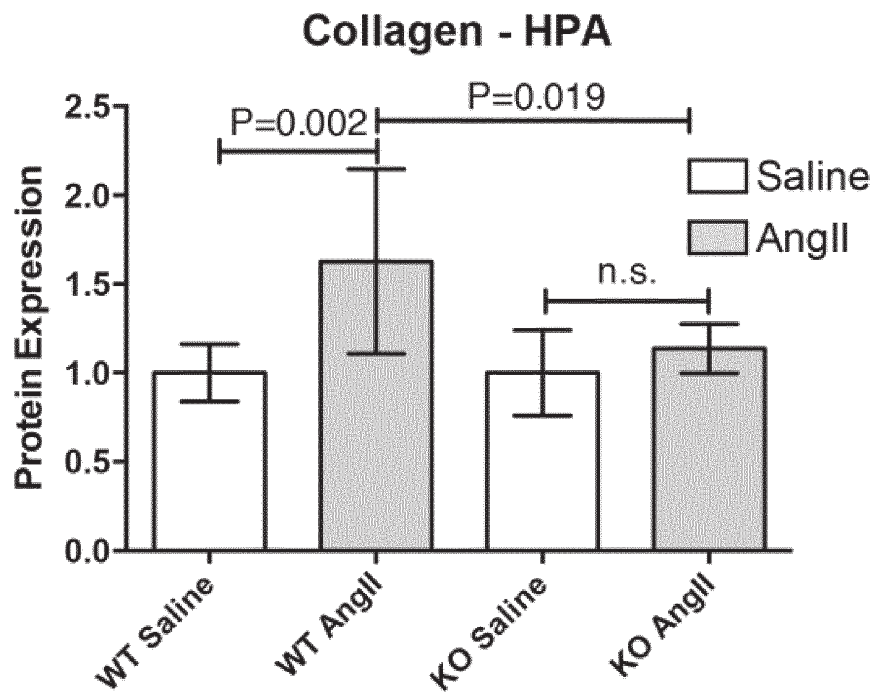


Figure 12A

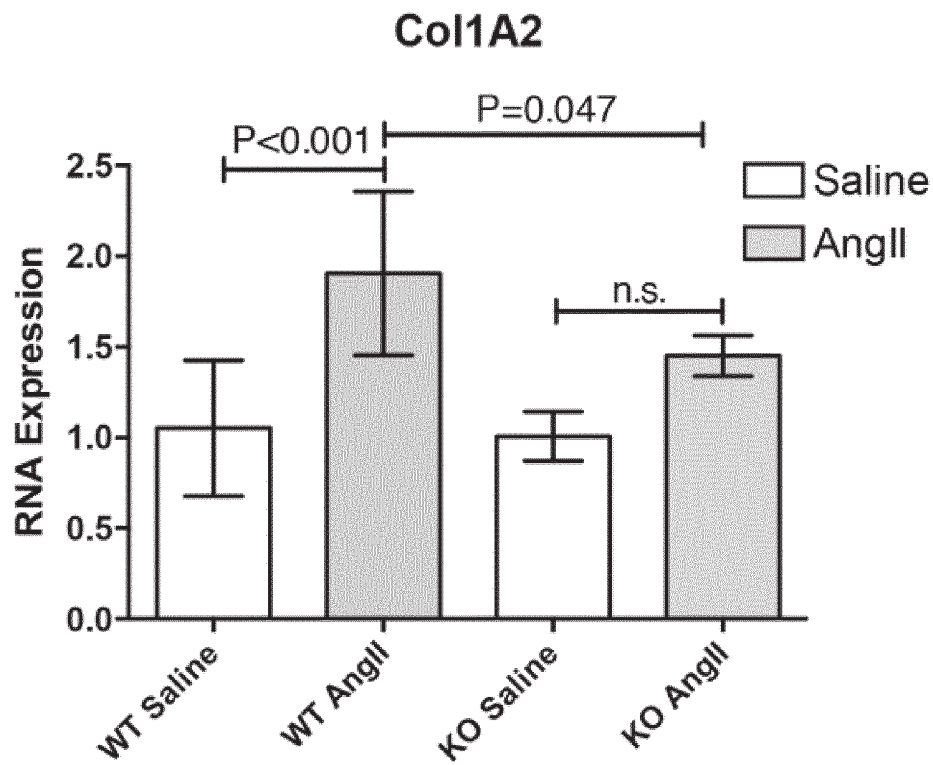


Figure 12B

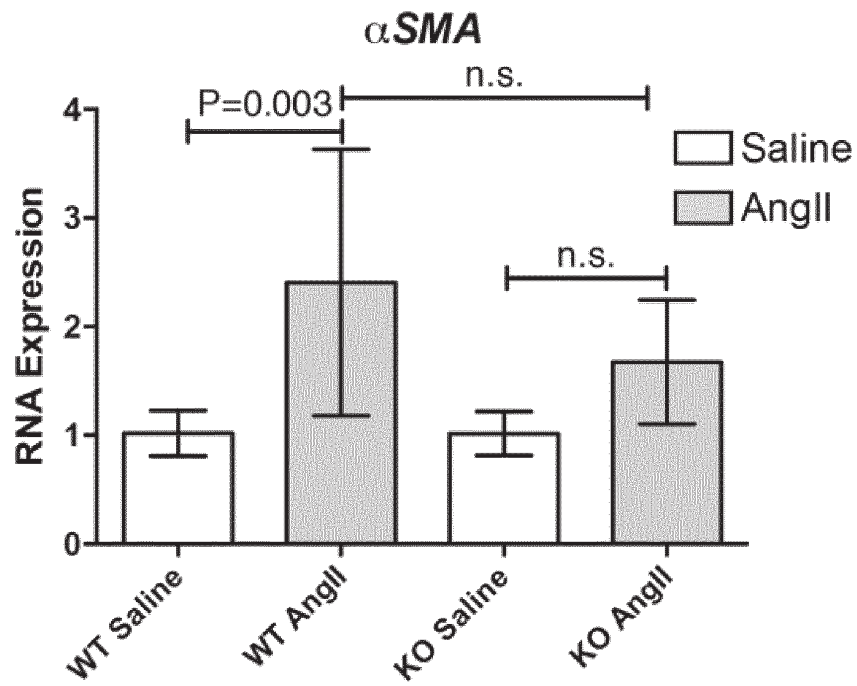


Figure 12C

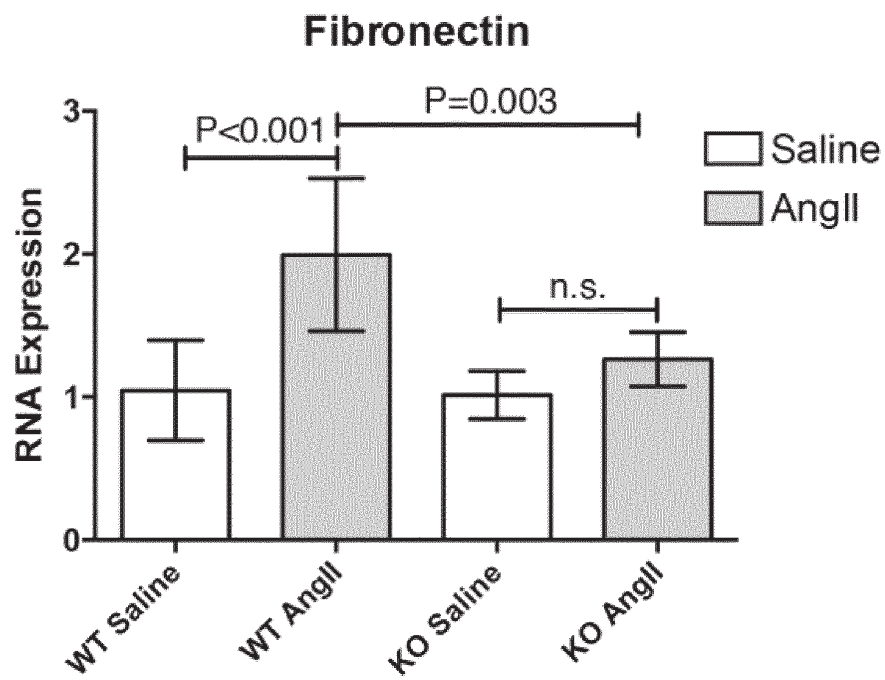


Figure 12D

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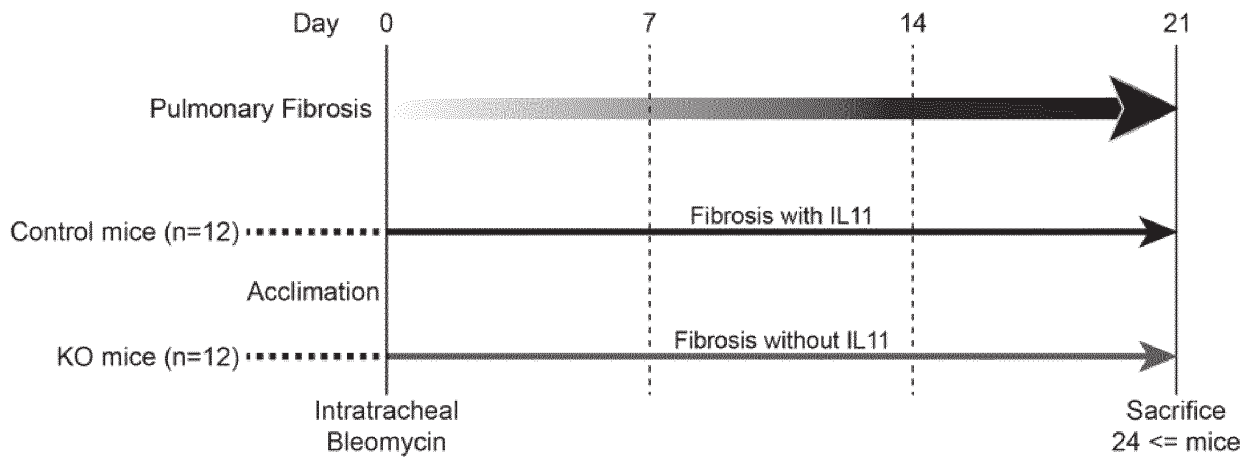


Figure 13A

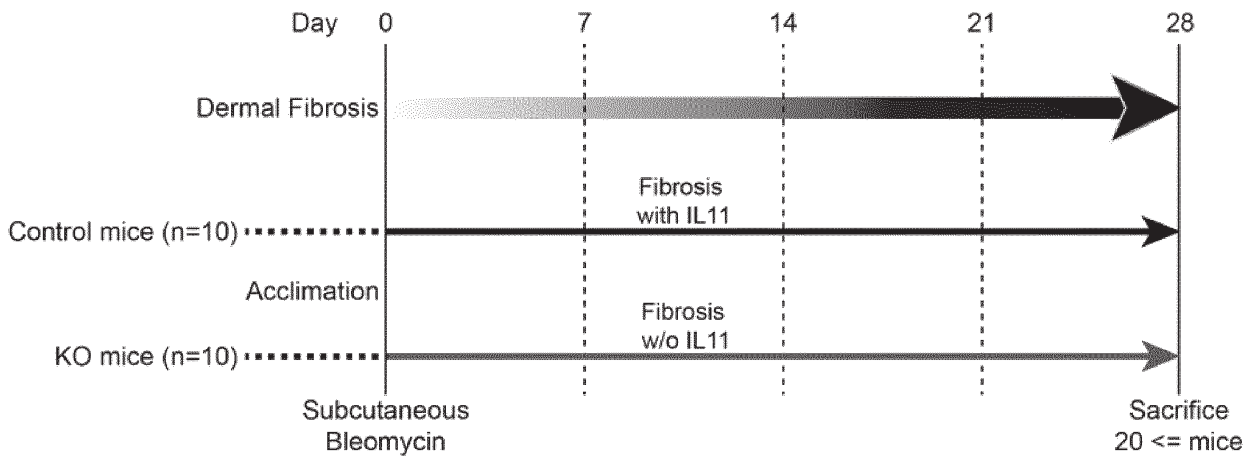


Figure 13B

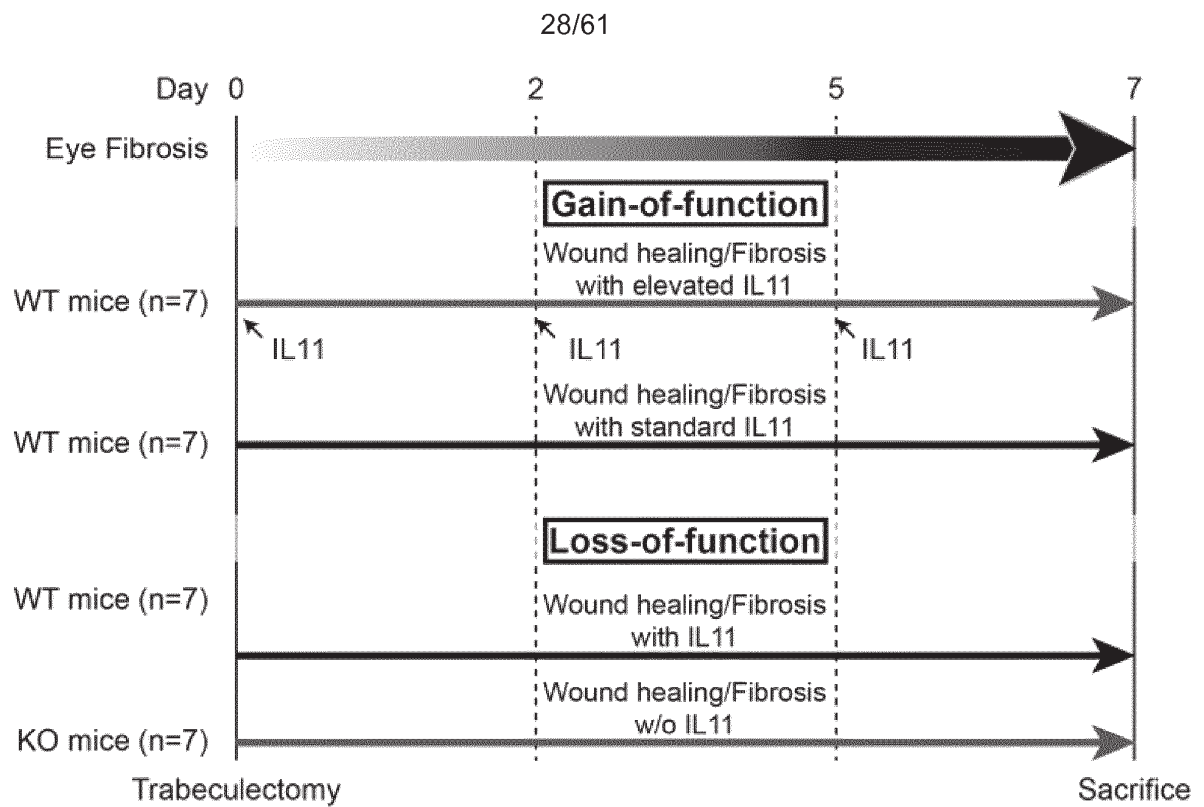


Figure 13C

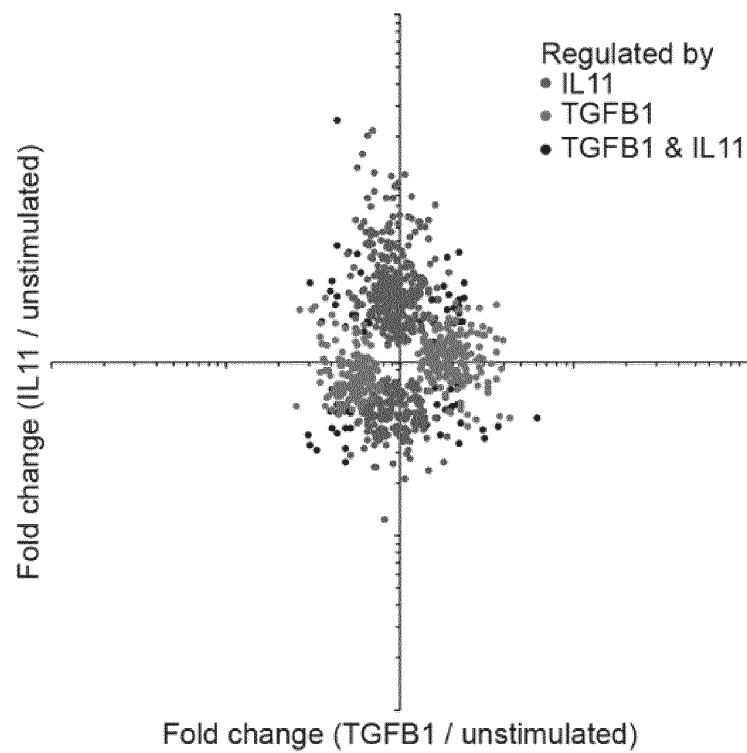


Figure 14A

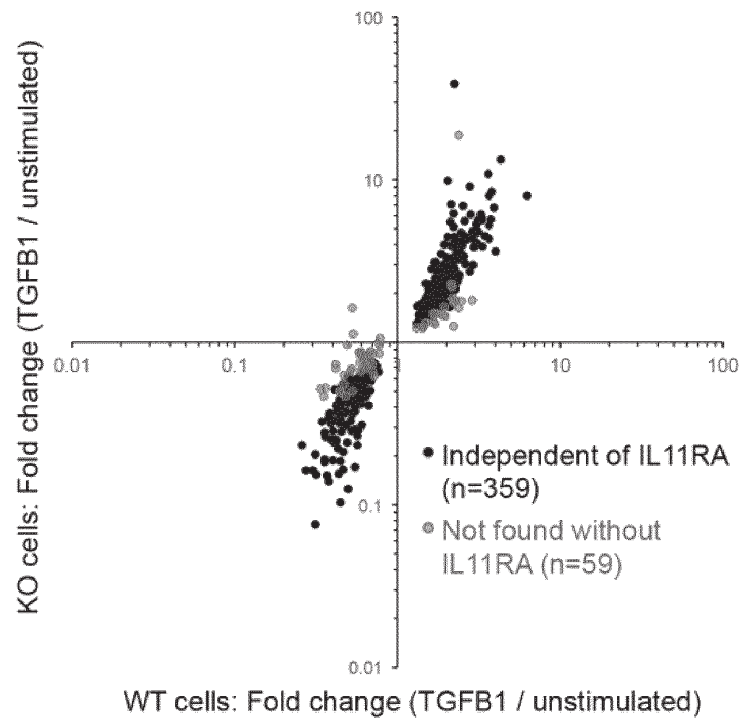


Figure 14B

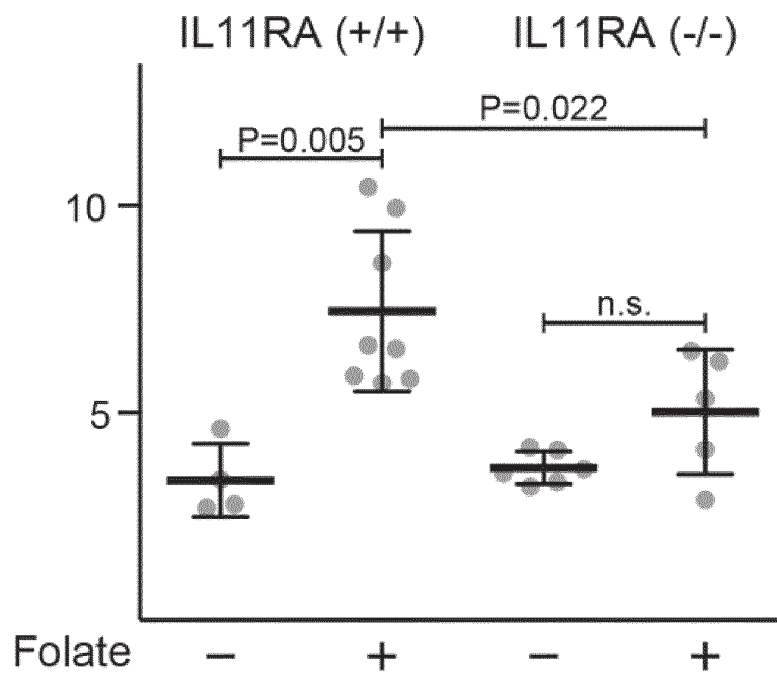


Figure 15

BSO-1E3 1

DVVM~~T~~QIPLSLSVSMKFQASISCRSSQSLVHSNGNTYLHWY~~L~~QKPGQSPKLLIYKVS~~N~~RFS
 GVPDRFSGSGSGTDFTLKISRVEAEDLGVYFCSQSTHVPLTFGAGTKLELK (SEQ ID NO:1)

LC-CDR1: QSLVHSNGNTY (SEQ ID NO:19)
 LC-CDR2: KVS (SEQ ID NO:20)
 LC-CDR3: SQSTHVPLT (SEQ ID NO:21)

BSO-1E3 2

NIVMTQSPKSMMSVGERVTLSCKASENVGTYVSWYQQKPEQSPKLLIYGAS~~N~~RYTGVPD
 RFTGSGSATDFTLTISSVQAEDLADYHCGQGYSYPYTFGGGKLEIK (SEQ ID NO:2)

LC-CDR1: ENVGTY (SEQ ID NO:22)
 LC-CDR2: GAS (SEQ ID NO:23)
 LC-CDR3: QQGYSYPYT (SEQ ID NO:24)

BSO-2E5

DIQMTQSPSSLSASLGERSVLTCSRASQDIGSSLNLW~~L~~QQEPDGTIKRLIYATASLES~~G~~VPKRF
 SGRSGSDYSLTISRLESEDFVDYYCQQYASSPPTFGAGTKLELK (SEQ ID NO:3)

LC-CDR1: QDIGSS (SEQ ID NO:25)
 LC-CDR2: ATA (SEQ ID NO:26)
 LC-CDR3: QQYASSPPT (SEQ ID NO:27)

BSO-4G3

DIVLTQSPASLAVSLGQSVTISCRASESVEYSGTTL~~M~~QWYQQKPGQPPKLLIYGAS~~N~~VESG
 VPARFSGSGSGTD~~F~~SLNIHPVEEDDIAMYFCQ~~Q~~SRKVPYTFGSGTKLEIK (SEQ ID NO:4)

LC-CDR1: ESVEYSGTTL (SEQ ID NO:28)
 LC-CDR2: GAS (SEQ ID NO:23)
 LC-CDR3: QQSRKVPYT (SEQ ID NO:29)

Figure 16

BSO-5E5

DIVMSQSPSSLPVSVGENVTMSCKSSQSLLYGSNQKNYLAWYQQKPGQSPKLLIYWASTR
 ESGVPDRFTGSGSGTDFTLTISSVKAEDLAVYFCQQYYSPRTFGGGTKLEIK (SEQ ID NO:5)

LC-CDR1: QSLLYGSNQKNY (SEQ ID NO:30)
 LC-CDR2: WAS (SEQ ID NO:31)
 LC-CDR3: QQYYSPRT (SEQ ID NO:32)

BSO-7G9

DVVMQTQTPSLPVS LGDQASISCRSSQSLVHSNGNTYLHWYLQKPGQSPKLLIYKVSNRFS
 GVPDRFSGSGSGTDFTLKISRVEAEDLGVYFCSQSTHVPLTFGAGTKLELK (SEQ ID NO:6)

LC-CDR1: QSLVHSNGNTY (SEQ ID NO:19)
 LC-CDR2: KVS (SEQ ID NO:20)
 LC-CDR3: SQSTHVPLT (SEQ ID NO:21)

BSO-9A7

DIVLTQSPATLSMTPGDSVSLSCRASQSISNNLHWYQQKSHESPRLLIKYASQSIGIPSRFS
 GSGSGTDFTLSFNSVETEDFGVYFCQQRYSWPLTFGAGTKLEMK (SEQ ID NO:7)

LC-CDR1: QSISNN (SEQ ID NO:33)
 LC-CDR2: YAS (SEQ ID NO:34)
 LC-CDR3: QQRYSWPLT (SEQ ID NO:35)

BSO-10D11

DIQMTQSPSSLSASLGERVSLTCRASQEISAYLSWLQKPDGTIKRLIYSTSTLD SGV PKRF
 SGRSGSDYSLTISSEDFADYFCLQYASSPLTFGAGTKLELK (SEQ ID NO:8)

LC-CDR1: QEISAY (SEQ ID NO:36)
 LC-CDR2: STS (SEQ ID NO:37)
 LC-CDR3: LQYASSPLT (SEQ ID NO:38)

Figure 16 (Cont.)

BSO-13B10

DIVMTQSQKFMSTSVGDRVSVTCKASQNVGSNVAWYQQKAGQSPKALIYSASRYSGVP
DRFTGSGSGTDFTLTISNVQSEDLAEYFCQQYNSYPLTFGAGTKLELK (SEQ ID NO:9)

LC-CDR1:	QNVGSN	(SEQ ID NO:39)
LC-CDR2:	SAS	(SEQ ID NO:40)
LC-CDR3:	QQYNSYPLT	(SEQ ID NO:41)

Figure 16 (Cont.)

BSO-1E3 1

QVQLQQPGAELVTPGASVKLSCKASGFTFTNNWMHWVKQRPQGQLEWIGMIIHPNSGITNI
NEKFKNKATVTVDKSSSTVYIQLSSLTSEDSAVYYCRSDGTYEGYFDYWGQGTPLTVSS
(SEQ ID NO:10)

HC-CDR1:	GFTFTNNW	(SEQ ID NO:42)
HC-CDR2:	IHPNSGIT	(SEQ ID NO:43)
HC-CDR3:	RSDGTYEGYFDY	(SEQ ID NO:44)

BSO-1E3 2

QVQLQQSGPELVKPGASVKISCKASGYNFNDYYINWVNQRPQGQLEWIGWIFPGRITYYN
EKFKGKATLTVDTSSNTAYMLLSSLTSEDSAVYFCARGVGEGFDYWGQGTTLTVSS (SEQ
ID NO:11)

HC-CDR1:	GYNFNDYY	(SEQ ID NO:45)
HC-CDR2:	IFPGRIT	(SEQ ID NO:46)
HC-CDR3:	ARGVGEGFDY	(SEQ ID NO:47)

BSO-2E5

QGQVQQSGAELVKPGASVKLSCKTSGFTFSTSYISWLKQKPRQSLEWIAWIYAGTGSTSYN
QKFTGKAQLTVDTSSSTAYMQLSSLTSEDSAIYYCCARHWAYWGQGTTLTVSA (SEQ ID
NO:12)

HC-CDR1:	GFTFSTSY	(SEQ ID NO:48)
HC-CDR2:	IYAGTGST	(SEQ ID NO:49)
HC-CDR3:	ARHWAY	(SEQ ID NO:50)

BSO-4G3

EVQLVESGGGLVKPGGSLKLSCAASGFTFSTYAMSWVRQTPEKRLEWVAAIKSNGGSTYY
PDTVKDRFTISRDNANTLYLQMSSLRPEDTALYYCAHGLLFAHWGQGTTLTVSA (SEQ ID
NO:13)

HC-CDR1:	GFTFSTYA	(SEQ ID NO:51)
HC-CDR2:	IKSNGGST	(SEQ ID NO:52)
HC-CDR3:	AHGLLFAH	(SEQ ID NO:53)

Figure 17

BSO-5E5

DVQLQESGPGLVKPSQSLSLTCSVTGYSITSDYYWNWIRQFPGNKLEWMGYISYDSSNNY
 NPSLKNRISITRDTSKNQFFLKLNSVTTEDTATYYCASVGYYYVSDWYFDVWGTGTTVTVS
 S (SEQ ID NO:14)

HC-CDR1:	GYSITSDYY	(SEQ ID NO:54)
HC-CDR2:	ISYDSSN	(SEQ ID NO:55)
HC-CDR3:	ASVGYYYVSDWYFDV	(SEQ ID NO:56)

BSO-7G9

QVQLQQPGAELVKPGASVRLSCKASGYTFTSYWMHWVKQRPGQGLEWIGMIHPNSGYTN
 YNEKFKIKATLTVDKSSSTAQMQLSSLTSEDSAVYHCCARGGYDGSYGPWFAYWGQGLTVT
 VSA (SEQ ID NO:15)

HC-CDR1:	GYTFTSYW	(SEQ ID NO:57)
HC-CDR2:	IHPNSGYT	(SEQ ID NO:58)
HC-CDR3:	ARGGYDGSYGPWFAY	(SEQ ID NO:59)

BSO-9A7

QVQLQQPGAELVRPGSSVKLSCKASGYTFTNYWMHWLKQRPVQGLEWIGNIGPSDSKTH
 YNQKFKDKATLTVDKSSSTAYMQLNSLTSEDSAVYYCARGDYVLFTYWGQGLTVTVSA
 (SEQ ID NO:16)

HC-CDR1:	GYTFTNYW	(SEQ ID NO:60)
HC-CDR2:	IGPSDSKT	(SEQ ID NO:61)
HC-CDR3:	ARGDYVLFTY	(SEQ ID NO:62)

BSO-10D11

QVQLQQSGTELVRPGTSVKMSCKAAGYTFTDYWIGWIKQRPGHGLEWIGDIFPGGDYTKC
 SERFKGKAKLTADTSSSTAYMQLSRLTSEDSAIYYCCARRSTTIRFGAMDNWGQGTSTVTVSS
 (SEQ ID NO:17)

HC-CDR1:	GYTFTDYW	(SEQ ID NO:63)
HC-CDR2:	IFPGGDYT	(SEQ ID NO:64)
HC-CDR3:	ARRSTTIRFGAMDN	(SEQ ID NO:65)

Figure 17 (Cont.)

BSO-13B10

QVQLKESGPGLVAPSQSLSITCTVSGFSLTSFSISWVRQPPGKGLEWLGGIWTGGGTNYN
SALKPRLSISKDNSKSQVFLKMNSLQTTDDTARYYCARNSNYPSGFAYWGQGTLLTVSA
(SEQ ID NO:18)

HC-CDR1:	GFSLTFS	(SEQ ID NO:66)
HC-CDR2:	IWTGGGT	(SEQ ID NO:67)
HC-CDR3:	ARNSNYPSGFAY	(SEQ ID NO:68)

Figure 17 (Cont.)

Clone	CDR 1	CDR 2	CDR 3
Light Chain			
BSO-1E3_1	QSLVHSNGNTY (SEQ ID NO:19)	KVS (SEQ ID NO:20)	SQSTHVPLT (SEQ ID NO:21)
BSO-1E3_2	ENVGTY (SEQ ID NO:22)	GAS (SEQ ID NO:23)	GQGYSYPYT (SEQ ID NO:24)
BSO-2E5	QDIGSS (SEQ ID NO:25)	ATA (SEQ ID NO:26)	QQYASSPPT (SEQ ID NO:27)
BSO-4G3	ESVEYSGTTL (SEQ ID NO:28)	GAS (SEQ ID NO:23)	QQSRKVPYT (SEQ ID NO:29)
BSO-5E5	QSLLYGSNQKNY (SEQ ID NO:30)	WAS (SEQ ID NO:31)	QQYYSYPRT (SEQ ID NO:32)
BSO-7G9	QSLVHSNGNTY (SEQ ID NO:19)	KVS (SEQ ID NO:20)	SQSTHVPLT (SEQ ID NO:21)
BSO-9A7	QSIENN (SEQ ID NO:33)	YAS (SEQ ID NO:34)	QQRYSWPLT (SEQ ID NO:35)
BSO-10D11	QEISAY (SEQ ID NO:36)	STS (SEQ ID NO:37)	LQYASSPLT (SEQ ID NO:38)
BSO-13B10	QNVGSN (SEQ ID NO:39)	SAS (SEQ ID NO:40)	QQYNSYPLT (SEQ ID NO:41)

Figure 18

Clone	CDR 1	CDR 2	CDR 3
Heavy Chain			
BSO-1E3_1	GFTFTNNW (SEQ ID NO:42)	IHPNSGIT (SEQ ID NO:43)	RSDGTYEGYFDY (SEQ ID NO:44)
BSO-1E3_2	GYNFNDYY (SEQ ID NO:45)	IFPGRIIT (SEQ ID NO:46)	ARGVGEGFDY (SEQ ID NO:47)
BSO-2E5	GFTFSTSY (SEQ ID NO:48)	IYAGTGST (SEQ ID NO:49)	ARHWAY (SEQ ID NO:50)
BSO-4G3	GFTFSTYA (SEQ ID NO:51)	IKSNGGST (SEQ ID NO:52)	AHGLLFAH (SEQ ID NO:53)
BSO-5E5	GYSITSDYY (SEQ ID NO:54)	ISYDSSN (SEQ ID NO:55)	ASVGYYYVSDWYFDV (SEQ ID NO:56)
BSO-7G9	GYTFTSYW (SEQ ID NO:57)	IHPNSGYT (SEQ ID NO:58)	ARGGYDGSYGPWFAY (SEQ ID NO:59)
BSO-9A7	GYTFTNYW (SEQ ID NO:60)	IGPSDSKT (SEQ ID NO:61)	ARGDYVLFTY (SEQ ID NO:62)
BSO-10D11	GYTFTDYW (SEQ ID NO:63)	IFPGGDYT (SEQ ID NO:64)	ARRSTTIRFGAMDN (SEQ ID NO:65)
BSO-13B10	GFSLTFSFS (SEQ ID NO:66)	IWTGGGT (SEQ ID NO:67)	ARNSNYPSGFAY (SEQ ID NO:68)

Figure 19

Clone(s)	LC-CDR1	Sequence family	Family Consensus
BSO-9A7	QSIENN (SEQ ID NO:33)	LC-CDR1-1	QX ₁ X ₂ X ₃ X ₄ X ₅ (SEQ ID NO:69) X ₁ = N, S, E or D X ₂ = I or V X ₃ = G or S X ₄ = S, N or A X ₅ = N, Y or S
BSO-10D11	QEISAY (SEQ ID NO:36)		
BSO-13B10	QNVGSN (SEQ ID NO:39)		
BSO-2E5	QDIGSS (SEQ ID NO:25)		
BSO-5E5	QSLLYGSNQKNY (SEQ ID NO:30)	LC-CDR1-2	QSLX ₆ X ₇ X ₈ SNX ₉ X ₁₀ X ₁₁ Y (SEQ ID NO:70) X ₆ = Absent or L X ₇ = V or Y X ₈ = H or G X ₉ = G or Q X ₁₀ = N or K X ₁₁ = T or N
BSO-1E3_1, BSO-7G9	QSLVHSNGNTY (SEQ ID NO:19)		
BSO-4G3	ESVEYSGTTL (SEQ ID NO:28)	LC-CDR1-3	ESVEYSGTTL (SEQ ID NO:28)
BSO-1E3_2	ENVGTY (SEQ ID NO:22)	LC-CDR1-4	ENVGTY (SEQ ID NO:22)

Figure 20A

Clone(s)	LC-CDR2	Sequence family	Family Consensus
BSO-4G3, BSO-1E3_2	GAS (SEQ ID NO:23)	LC-CDR2-1	X ₁₂ AS (SEQ ID NO:71) X ₁₂ = G, W, Y or S
BSO-5E5	WAS (SEQ ID NO:31)		
BSO-9A7	YAS (SEQ ID NO:34)		
BSO-13B10	SAS (SEQ ID NO:40)		
BSO-10D11	STS (SEQ ID NO:37)	LC-CDR2-2	X ₁₃ X ₁₄ S (SEQ ID NO:72) X ₁₃ = S or K X ₁₄ = T or V
BSO-1E3_1, BSO-7G9	KVS (SEQ ID NO:20)		
BSO-2E5	ATA (SEQ ID NO:26)	LC-CDR2-3	ATA (SEQ ID NO:26)

Figure 20B

Clone(s)	LC-CDR3	Sequence family	Family Consensus
BSO-1E3_1, BSO-7G9	SQSTHVPLT (SEQ ID NO:21)	LC-CDR3-1	$X_{15}QX_{16}X_{17}X_{18}X_{19}PX_{20}T$ (SEQ ID NO:73) $X_{15} = Q, S, G \text{ or } L$ $X_{16} = Y, S, G \text{ or } R$ $X_{17} = Y, A, T, N \text{ or } R$ $X_{18} = S, H \text{ or } K$ $X_{19} = V, Y, S \text{ or } W$ $X_{20} = L, Y, R \text{ or } P$
BSO-1E3_2	GQGYSYPYT (SEQ ID NO:24)		
BSO-2E5	QQYASSPPT (SEQ ID NO:27)		
BSO-4G3	QQSRKVPLYT (SEQ ID NO:29)		
BSO-5E5	QQYYSPRT (SEQ ID NO:32)		
BSO-9A7	QQRYSWPLT (SEQ ID NO:35)		
BSO-10D11	LQYASSPLT (SEQ ID NO:38)		
BSO-13B10	QQYNSYPLT (SEQ ID NO:41)		

Figure 20C

Clone(s)	HC-CDR1	Sequence family	Family Consensus
BSO-7G9	GYTFTSYW (SEQ ID NO:57)	HC-CDR1-1	$GYTFTX_{21}YW$ (SEQ ID NO:74) $X_{21} = S, N \text{ or } D$
BSO-9A7	GYTFTNYW (SEQ ID NO:60)		
BSO-10D11	GYTFTDYW (SEQ ID NO:63)		
BSO-2E5	GFTFSTSY (SEQ ID NO:48)	HC-CDR1-2	$GFTFX_{22}X_{23}X_{24}X_{25}$ (SEQ ID NO:75) $X_{22} = S \text{ or } T$ $X_{23} = T \text{ or } N$ $X_{24} = S, Y \text{ or } N$ $X_{25} = Y, A \text{ or } W$
BSO-4G3	GFTFSTYA (SEQ ID NO:51)		
BSO-1E3_1	GFTFTNNW (SEQ ID NO:42)		
BSO-5E5	GYSITSDYY (SEQ ID NO:54)	HC-CDR1-3	$GYX_{26}X_{27}X_{28}X_{29}DYY$ (SEQ ID NO:76) $X_{26} = S \text{ or } N$ $X_{27} = I \text{ or } F$ $X_{28} = T \text{ or } N$ $X_{29} = \text{Absent or } S$
BSO-1E3_2	GYNFNDYY (SEQ ID NO:45)		
BSO-13B10	GFSLTFSFS (SEQ ID NO:66)	HC-CDR1-4	GFSLTFSFS (SEQ ID NO:66)

Figure 21A

Clone(s)	HC-CDR2	Sequence family	Family Consensus
BSO-1E3_1	IHPNSGIT (SEQ ID NO:43)	HC-CDR2-1	IX ₃₀ X ₃₁ X ₃₂ X ₃₃ GX ₃₄ T (SEQ ID NO:77) X ₃₀ = H, K or Y X ₃₁ = P, S or A X ₃₂ = N or G X ₃₃ = S, G or T X ₃₄ = S, I or Y
BSO-4G3	IKSNGGST (SEQ ID NO:52)		
BSO-2E5	IYAGTGST (SEQ ID NO:49)		
BSO-7G9	IHPNSGYT (SEQ ID NO:58)		
BSO-1E3_2	IFPGRIIT (SEQ ID NO:46)	HC-CDR2-2	IFPGX ₃₅ X ₃₆ X ₃₇ T (SEQ ID NO:78) X ₃₅ = R or G X ₃₆ = I or D X ₃₇ = I or Y
BSO-10D11	IFPGGDYT (SEQ ID NO:64)		
BSO-5E5	ISYDSSN (SEQ ID NO:55)	HC-CDR2-3	ISYDSSN (SEQ ID NO:55)
BSO-9A7	IGPSDSKT (SEQ ID NO:61)	HC-CDR2-4	IGPSDSKT (SEQ ID NO:61)
BSO-13B10	IWTGGGT (SEQ ID NO:67)	HC-CDR2-5	IWTGGGT (SEQ ID NO:67)

Figure 21B

Clone(s)	HC-CDR3	Sequence family	Family Consensus
BSO-7G9	ARGGYDGSYGPWFAY (SEQ ID NO:59)	HC-CDR3-1	ARGX ₃₈ X ₃₉ X ₄₀ X ₄₁ X ₄₂ X ₄₃ X ₄₄ X ₄₅ X ₄₆ FX ₄₇ Y (SEQ ID NO:79) X ₃₈ = Absent, D or G X ₃₉ = Absent or Y X ₄₀ = V or D X ₄₁ = G or L X ₄₂ = Absent, E or S X ₄₃ = Absent or Y X ₄₄ = Absent or G X ₄₅ = Absent or P X ₄₆ = Absent or W X ₄₇ = D, T or A
BSO-1E3_2	ARGVGEGFDY (SEQ ID NO:47)		
BSO-9A7	ARGDYVLFTY (SEQ ID NO:62)		
BSO-5E5	ASVGYYVSDWYFDV (SEQ ID NO:56)	HC-CDR3-2	ASVGYYVSDWYFDV (SEQ ID NO:56)
BSO-2E5	ARHWAY (SEQ ID NO:50)	HC-CDR3-3	ARHWAY (SEQ ID NO:50)
BSO-4G3	AHGLLFAH (SEQ ID NO:53)	HC-CDR3-4	AHGLLFAH (SEQ ID NO:53)
BSO-1E3_1	RSDGTYEGYFDY (SEQ ID NO:44)	HC-CDR3-5	RSDGTYEGYFDY (SEQ ID NO:44)
BSO-13B10	ARNSNYPGSGFAY (SEQ ID NO:68)	HC-CDR3-6	ARNSNYPGSGFAY (SEQ ID NO:68)
BSO-10D11	ARRSTTIRFGAMDN (SEQ ID NO:65)	HC-CDR3-7	ARRSTTIRFGAMDN (SEQ ID NO:65)

Figure 21C

BSO-1E3 1

GATGTTGTGATGACCCAAATTCCACTCTCCCTGTCTGTCAGTATGAAGTTCCAAGCCTC
 CATCTCTTGCAGATCTAGTCAGAGCCTTGTACACAGTAATGGAAACACCTATTTACATTG
 GTACCTGCAGAAGCCAGGCCAGTCTCCAAAGCTCCTGATCTACAAAGTTTCCAACCGAT
 TTTCTGGGGTCCCAGACAGGTTTCAGTGGCAGTGGATCAGGGACAGATTTCACTCAA
 GATCAGCAGAGTGGAGGCTGAGGATCTGGGAGTTTATTTCTGCTCTCAAAGTACACATG
 TTCCGCTCACGTTCCGGTGTCTGGGACCAAGCTGGAGCTGAAA (SEQ ID NO:80)

BSO-1E3 2

AACATTGTAATGACCCAATCTCCCAAATCCATGTCCATGTCAGTAGGAGAGAGGGTCCAC
 CTTGAGCTGCAAGGCCAGTGAGAATGTGGGTACTTATGTATCCTGGTATCAACAGAAAC
 CAGAGCAGTCTCCTAAACTGCTGATATACGGGGCATCCAACCGGTACACTGGGGTCCC
 CGATCGCTTCACAGGCAGTGGATCTGCAACAGATTTCACTCTGACCATCAGCAGTGTG
 CAGGCTGAAGACCTTGCAGATTATCACTGTGGACAGGGTTACAGCTATCCGTACACGTT
 CGGAGGGGGGACCAAGCTGGAAATAAAA (SEQ ID NO:81)

BSO-2E5

GACATCCAGATGACCCAGTCTCCATCCTCCTTATCTGCCTCTCTGGGAGAAAGAGTCAG
 TCTCACTTGTCTGGGCAAGTCAGGACATTGGTAGTAGCTTAAACTGGCTTCAGCAGGAAC
 CAGATGGAACATTAAACGCCTGATCTACGCCACAGCCAGTTTAGAATCTGGTGTCCCC
 AAAAGGTTTCAGTGGCAGTAGGTCTGGGTGCACTATTCTCTCACCATCAGCAGACTTGA
 GTCTGAAGATTTTGTAGACTATTACTGTCAACAATATGCTAGCTCTCCTCCACGTTCCG
 TGCTGGGACCAAGCTGGAGCTGAAA (SEQ ID NO:82)

BSO-4G3

GACATTGTGCTCACCCAATCTCCAGCTTCTTTGGCTGTGTCTCTAGGGCAGAGTGTAC
 CATCTCCTGCAGAGCCAGTGAAAGTGTTGAATATTCTGGCACTACTTTAATGCAGTGGT
 ACCAACAGAAACCAGGACAGCCACCCAAACTCCTCATCTATGGTGCATCCAACGTAGAA
 TCTGGGGTCCCTGCCAGGTTTAGTGGCAGTGGGTCTGGGACAGACTTCAGCCTCAACA
 TCCATCCTGTGGAGGAGGATGATATTGCAATGTATTTCTGTCAGCAAAGTAGGAAGGTT
 CCGTATACGTTCCGATCGGGGACCAAGCTGGAAATAAAA (SEQ ID NO:83)

Figure 22A

BSO-5E5

GACATTGTGATGTCACAGTCTCCATCCTCCCTACCTGTGTCAGTTGGAGAGAATGTTAC
 TATGAGCTGCAAGTCCAGTCAGAGCCTTTTATATGGTAGCAATCAAAAGAACTACTTGG
 CCTGGTACCAGCAGAAACCAGGGCAGTCTCCTAAACTGCTGATTTACTGGGCATCCAC
 TAGGGAATCTGGGGTCCCTGATCGCTTACAGGCAGTGGATCTGGGACAGATTTCACT
 CTCACCATCAGCAGTGTGAAGGCTGAAGACCTGGCAGTTTATTTCTGTCAGCAATATTA
 TAGCTATCCTCGGACGTTCCGGTGGAGGCACCAAGCTGGAAATCAAA (SEQ ID NO:84)

BSO-7G9

GATGTTGTGATGACCCAACTCCACTCTCCCTGCCTGTCAGTCTTGGAGATCAAGCCTC
 CATCTCTTGCAGATCTAGTCAGAGCCTTGTACACAGTAATGGAAACACCTATTTACATTG
 GTACCTGCAGAAGCCAGGCCAGTCTCCAAAGCTCCTGATCTACAAAGTTTCCAACCGAT
 TTTCTGGGGTCCCAGACAGGTTTCAGTGGCAGTGGATCAGGGACAGATTTCACTCAA
 GATCAGCAGAGTGGAGGCTGAGGATCTGGGAGTTTATTTCTGCTCTCAAAGTACACATG
 TTCCGCTCACGTTCCGGTGTCTGGGACCAAGCTGGAGCTGAAA (SEQ ID NO:85)

BSO-9A7

GATATTGTGCTAACTCAGTCTCCAGCCACCCTGTCTATGACTCCAGGAGATAGCGTCAG
 TCTTTCCTGCAGGGCCAGCCAAAGTATTAGCAACAACCTACACTGGTATCAACAAAAAT
 CACATGAGTCTCCAAGGCTTCTCATCAAGTATGCTTCCCAGTCCATCTCTGGGATCCCC
 TCCAGGTTTCAGTGGCAGTGGATCGGGGACAGATTTCACTCTCAGTTTCAACAGTGTGG
 AGACTGAAGATTTTGGAGTGTATTTCTGTCAACAGAGATACAGCTGGCCTCTCACGTTT
 GGTGCTGGGACCAAGCTGGAAATGAAA (SEQ ID NO:86)

BSO-10D11

GACATCCAGATGACCCAGTCTCCATCCTCCTTATCTGCCTCTCTGGGAGAAAGAGTCAG
 TCTCACTTGTCTGGGCAAGTCAGGAAATTAGTGCTTACTTAAGCTGGCTTCAGCAGAAAC
 CAGATGGAATATTAACGCCTGATCTACAGCACATCCACTTTAGATTCTGGTGTCCCA
 AAAAGGTTTCAGTGGCAGTAGGTCTGGGTGAGATTATTCTCTCACCATCAGCAGCCTTGA
 GTCTGAAGATTTTGCAGACTATTTCTGTCTCCAATATGCTAGTTCTCCGCTCACGTTCCG
 TGCTGGGACCAAGCTGGAGCTGAAA (SEQ ID NO:87)

Figure 22A (Cont.)

BSO-13B10

GACATTGTGATGACCCAGTCTCAAAAATTCATGTCCACATCAGTAGGAGACAGGGTCAG
CGTCACCTGCAAGGCCAGTCAGAATGTGGGTAGTAATGTAGCCTGGTATCAACAGAAA
GCAGGGCAATCTCCTAAAGCACTGATTTACTCGGCATCCTACCGGTACAGTGGAGTCC
CTGATCGCTTCACAGGCAGTGGATCTGGGACAGATTTCACTCTCACCATCAGCAATGTG
CAGTCTGAAGACTTGGCAGAGTATTTCTGTCAGCAATATAACAGCTATCCGCTCACGTT
CGGTGCTGGGACCAAGCTGGAGCTGAAA (SEQ ID NO:88)

Figure 22A (Cont.)

BSO-1E3 1

CAGGTCCAACTGCAGCAGCCTGGGGCTGAACTGGTCACGCCTGGGGCTTCAGTGAAG
 TTGTCCTGCAAGGCTTCTGGCTTCACTTTCACCAACAACCTGGATGCACTGGGTGAAGCA
 GAGACCTGGACAAGGCCTTGAGTGGATTGGAATGATTCATCCTAATAGTGGGATTACTA
 ACATCAATGAGAAGTTCAAGAACAAGGCCACAGTGACTGTAGACAAATCCTCCAGCACA
 GTCTACATACAACTCAGCAGCCTGACATCTGAGGACTCTGCGGTCTATTACTGTCGCTC
 CGATGGTACCTACGAGGGCTACTTTGACTACTGGGGCCAAGGCACCCCTCTCACAGTC
 TCCTCA (SEQ ID NO:89)

BSO-1E3 2

CAGGTCCAACTACAGCAGTCTGGACCTGAACTGGTGAAGCCTGGGGCTTCAGTGAAGA
 TATCCTGCAAGGCTTCTGGCTACAATTTCAATGACTACTATATAAACTGGGTGAACCAGA
 GGCCTGGACAGGGACTTGAGTGGATTGGATGGATTTTTCTGGAAGAATTATTACTTAC
 TACAATGAGAAATTCAAGGGCAAGGCCACACTTACTGTAGACACATCCTCCAACACAGC
 CTACATGTTGCTCAGCAGCCTGACCTCTGAGGACTCTGCGGTCTATTTCTGTGCAAGAG
 GGGTAGGAGAGGGCTTTGACTACTGGGGCCAAGGCACCACTCTCACAGTCTCCTCA
 (SEQ ID NO:90)

BSO-2E5

CAGGGTCAGGTGCAGCAGTCTGGAGCTGAGCTGGTGAAGCCTGGGGCTTCAGTGAAG
 CTGTCCTGCAAGACTTCTGGCTTCACTTTCAGTACTAGTTATATAAGTTGGTTGAAGCA
 GAAGCCTCGACAGAGTCTTGAGTGGATTGCATGGATTTATGCTGGAAGTGGTAGTACTA
 GCTATAATCAGAAATTCACAGGCAAGGCCCAACTGACTGTAGACACATCCTCCAGCACA
 GCCTACATGCAACTCAGCAGCCTGACATCTGAGGACTCTGCCATCTATTACTGTGCAAG
 AACTGGGCTTACTGGGGCCAAGGGACTCTGGTCACTGTCTCTGCA (SEQ ID NO:91)

BSO-4G3

GAGGTGCAGCTGGTGGAGTCTGGGGGAGGCTTAGTGAAGCCTGGCGGGTCCCTGAAA
 CTCTCCTGTGCAGCCTCTGGATTCACTTTCAGTACCTATGCCATGTCTTGGGTTGCGCA
 GACTCCAGAGAAGAGGCTGGAGTGGGTGCGAGCCATTAAAAGTAATGGTGGTAGCACC
 TACTATCCAGACACTGTGAAGGACCGATTCAACATTTCCAGAGACAATGCCAAGAACAC
 CCTGTACCTGCAAATGAGCAGTCTGAGGCCTGAGGACACAGCCTTGTATTACTGTGCA
 CATGGTCTCCTGTTTGCTCACTGGGGCCAAGGGACTCTGGTCACTGTCTCTGCA (SEQ
 ID NO:92)

Figure 22B

BSO-5E5

GATGTACAGCTTCAGGAGTCAGGACCTGGCCTCGTGAAACCTTCTCAGTCTCTGTCTCT
CACCTGCTCTGTCACTGGCTACTCCATCACCAGTGATTATTACTGGAAGTGGATCCGGC
AGTTTCCAGGAAACAACTGGAATGGATGGGCTACATAAGCTACGATAGTAGCAATAAC
TACAACCCATCTCTCAAAAATCGAATCTCCATCACTCGTGACACATCTAAGAACCAGTTT
TTCCTGAAGTTGAATTCTGTGACTACTGAGGACACAGCCACATATTACTGTGCTTCAGT
GGGTTATTACTACGTTAGTGACTGGTACTTCGATGTCTGGGGCACAGGGACCACGNTC
ACCGTCTCCTCA (SEQ ID NO:93)

BSO-7G9

CAGGTCCAAGTGCAGCAGCCTGGGGCTGAGCTGGTAAAGCCTGGGGCTTCAGTGAGG
TTGTCCTGCAAGGCTTCTGGCTACACTTTCACCAGCTACTGGATGCACTGGGTGAAGCA
GAGGCCTGGACAAGGCCTTGAGTGGATTGGAATGATTCATCCTAATAGTGGTTATACTA
ATTACAATGAGAAGTTCAAGATCAAGGCCACACTGACTGTAGACAAATCCTCCAGCACA
GCCCACATGCAACTCAGCAGCCTGACATCTGAGGATTCTGCGGTCTATCACTGTGCAA
GAGGGGGGTATGATGGTTCCTACGGGCCCTGGTTTGCTTACTGGGGCCAAGGGACTC
TGGTCACTGTCTCTGCA (SEQ ID NO:94)

BSO-9A7

CAGGTCCAAGTGCAGCAGCCTGGGGCTGAGCTGGTGAAGCCTGGGTCTTCAGTGAAG
CTGTCCTGCAAGGCTTCTGGCTACACCTTCACCAACTACTGGATGCATTGGTTGAAGCA
GAGGCCTGTACAAGGCCTTGAGTGGATTGGTAACATTGGCCCTTCTGATAGTAAACTC
ACTACAATCAAAAATTCAAGGACAAGGCCACATTGACTGTAGACAAATCCTCCAGCACA
GCCTACATGCAACTCAACAGCCTGACATCTGAGGACTCTGCGGTCTATTACTGTGCAAG
GGGTGATTACGTCCTGTTTACTTACTGGGGCCAAGGGACTCTGGTCACTGTCTCTGCA
(SEQ ID NO:95)

BSO-10D11

CAGGTCCAGCTGCAGCAGTCTGGAAGTGGTAAAGCCTGGGACTTCAGTGAAGA
TGTCCTGCAAGGCTGCTGGATACACCTTCACTGACTACTGGATAGGTTGGATAAAGCAG
AGGCCTGGACATGGCCTTGAGTGGATTGGAGATATTTTCCCTGGAGGTGATTATACTAA
GTGCAGTGAGAGGTTCAAGGGCAAGGCCAACTGACTGCAGACACATCCTCCAGCACT
GCCTACATGCAGCTCAGCAGACTGACATCTGAGGACTCTGCCATCTATTACTGTGCAAG
AAGGAGTACTACGATACGCTTCGGGGCTATGGACAAGTGGGTCAAGGAACCTCAGTC
ACCGTCTCCTCA (SEQ ID NO:96)

Figure 22B (Cont.)

BSO-13B10

CAGGTGCAGCTGAAGGAGTCAGGACCTGGCCTGGTGGCGCCCTCACAGAGCCTGTCC
ATCACATGCACTGTCTCTGGGTTCTCATTAACCAGCTTTTCTATAAGCTGGGTTGCGCA
GCCACCAGGAAAGGGTCTGGAGTGGCTTGGAGGAATATGGACTGGTGGAGGCACAAA
TTATAATTCAGCTCTCAAACCCAGACTGAGCATCAGCAAAGACAACCTCCAAGAGTCAAG
TTTTCTTAAAAATGAACAGTCTGCAAACCTGATGACACAGCCAGGTACTACTGTGCCAGA
AATAGTAACTACCCTTCCGGGTTTGCTTACTGGGGCCAAGGGACTCTGGTCACTGTCTC
TGCA (SEQ ID NO:97)

Figure 22B (Cont.)

ID	Clone
RA1	BSO-1E3
RA2	BSO-2C1
RA3	BSO-2E5
RA4	BSO-4G3
RA5	BSO-5E5
RA6	BSO-7G9
RA7	BSO-9A7
RA8	BSO-10D11
RA9	BSO-13B10
RA10	BSW-1D3
RA11	BSW-1F6
RA12	BSW-4G5
RA13	BSW-6H3
RA14	BSW-7E9
RA15	BSW-7G8
RA16	BSW-7H8
RA17	BSW-8B7

Figure 23

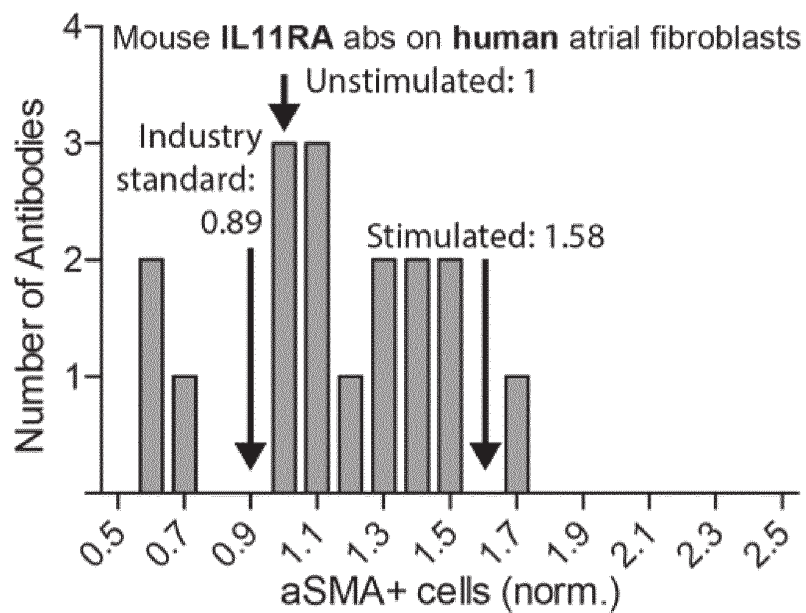


Figure 24

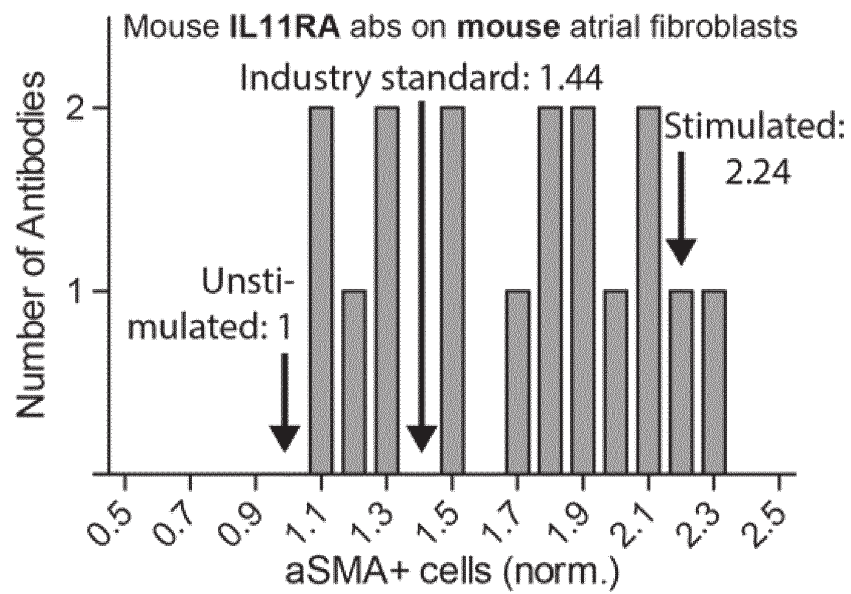


Figure 25

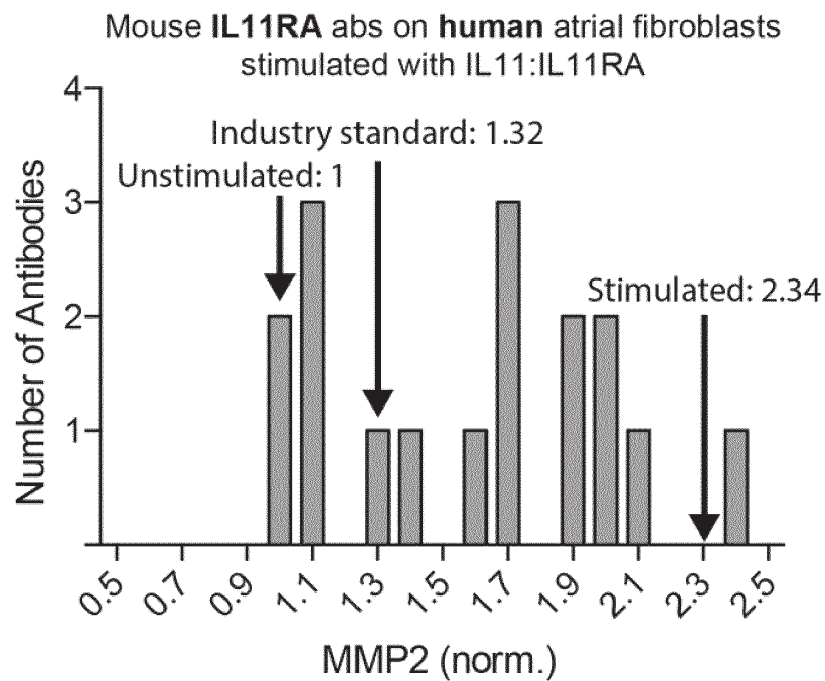


Figure 26

Antibody Candidate	Human IL11 activated fibroblasts (norm.)	Mouse IL11 activated fibroblasts (norm.)	Trans IL11 MMP2 (norm.)
Unstimulated	1	1	1
Stimulated	1.58	2.24	2.34
Industry Standard	0.89	1.44	1.32
RA1	0.66	1.24	1.00
RA2	1.12	1.28	2.41
RA3	1.35	2.03	1.29
RA4	1.30	1.93	1.69
RA5	0.62	1.11	1.02
RA6	1.05	2.12	1.97
RA7	0.95	1.31	1.11
RA8	1.09	1.89	1.61
RA9	0.62	1.09	1.07
RA10	1.54	1.77	1.67
RA11	1.10	2.07	1.66
RA12	1.00	2.15	1.13
RA13	1.50	1.82	1.39
RA14	1.19	1.54	2.03
RA15	1.70	1.54	1.93
RA16	1.37	2.28	2.09
RA17	1.32	1.73	1.90

Figure 27

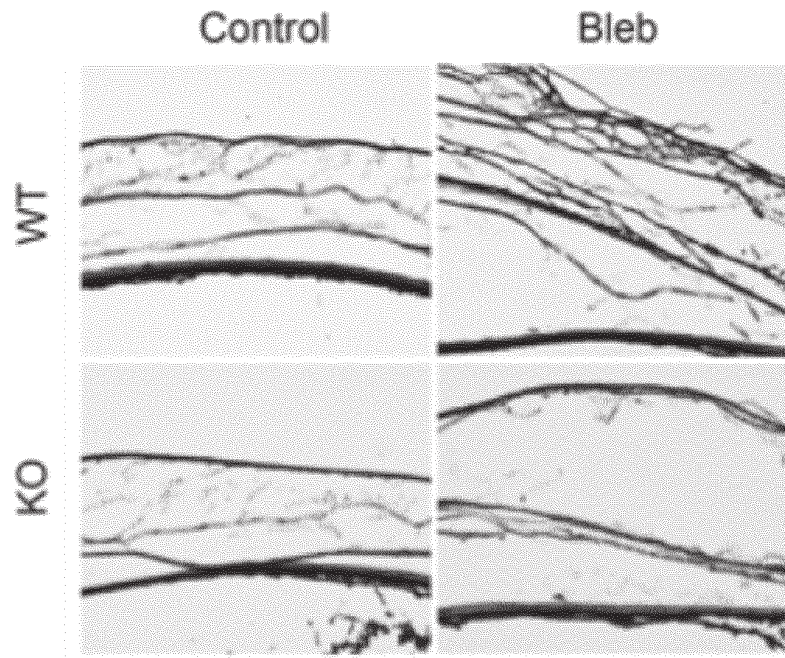


Figure 28A

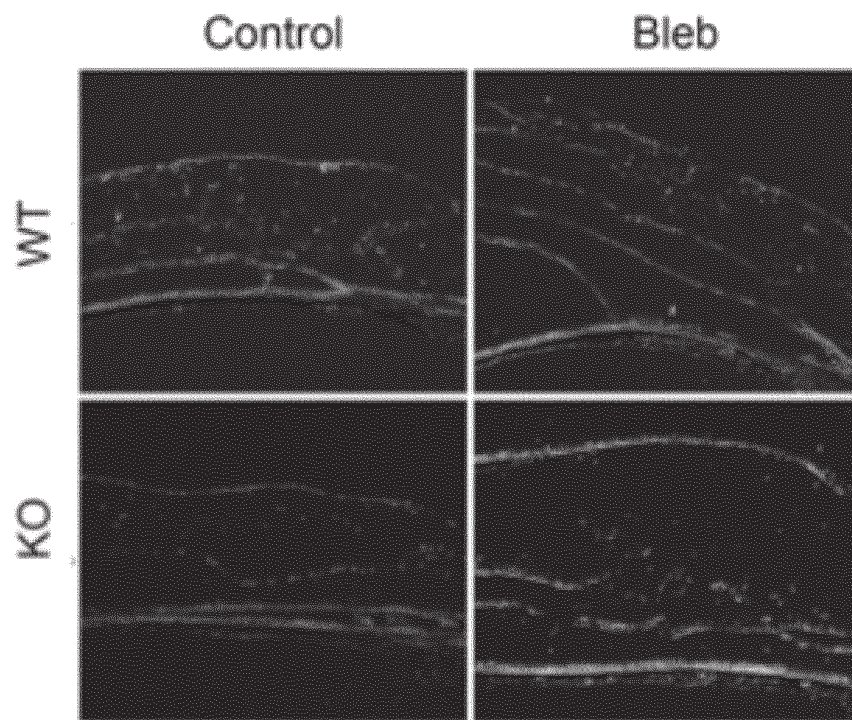


Figure 28B

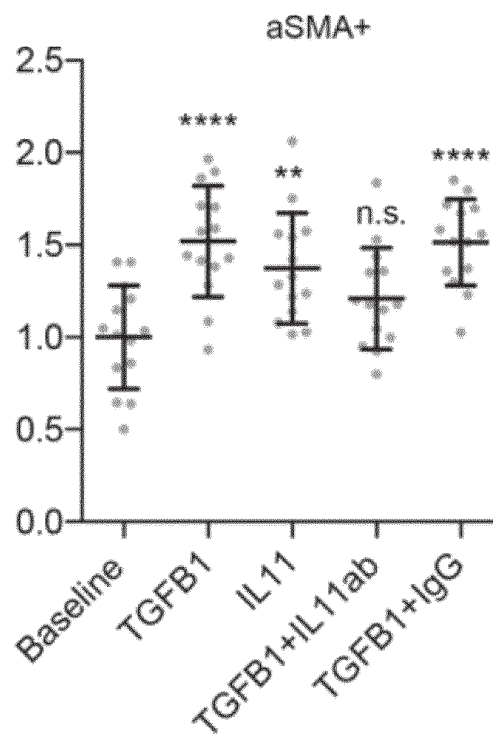


Figure 29A

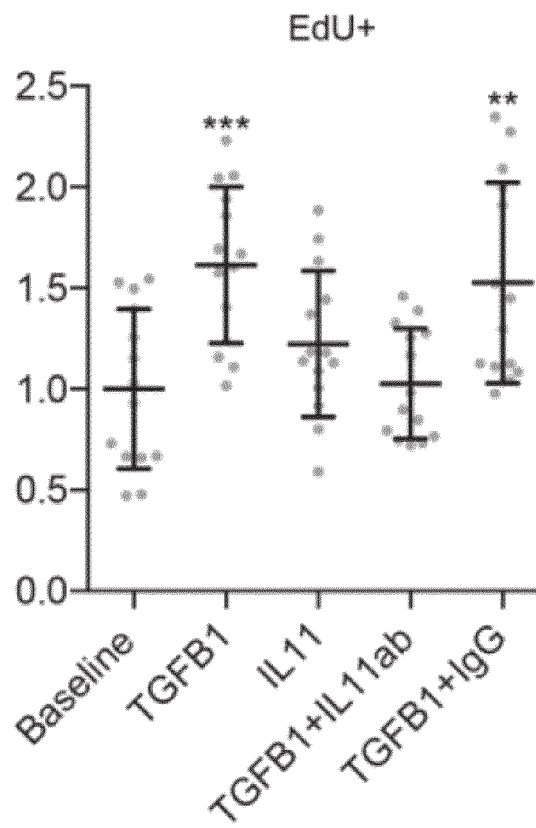


Figure 29B

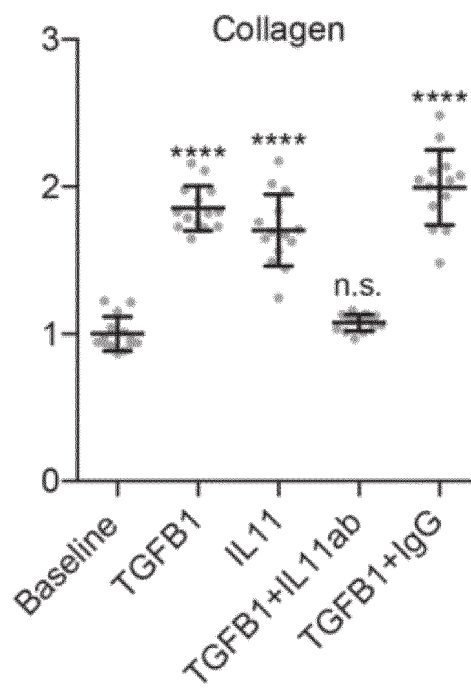


Figure 29C

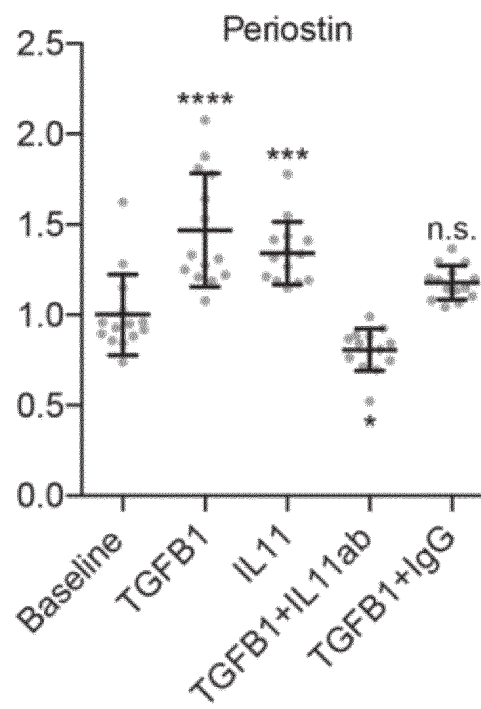


Figure 29D

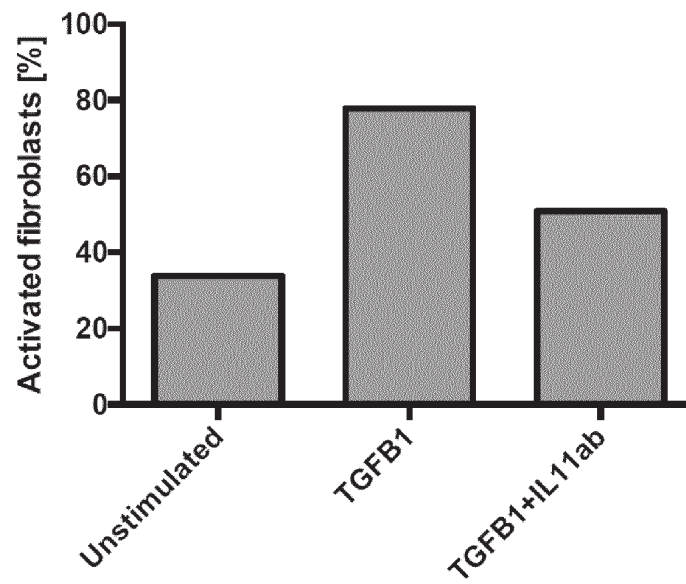


Figure 30

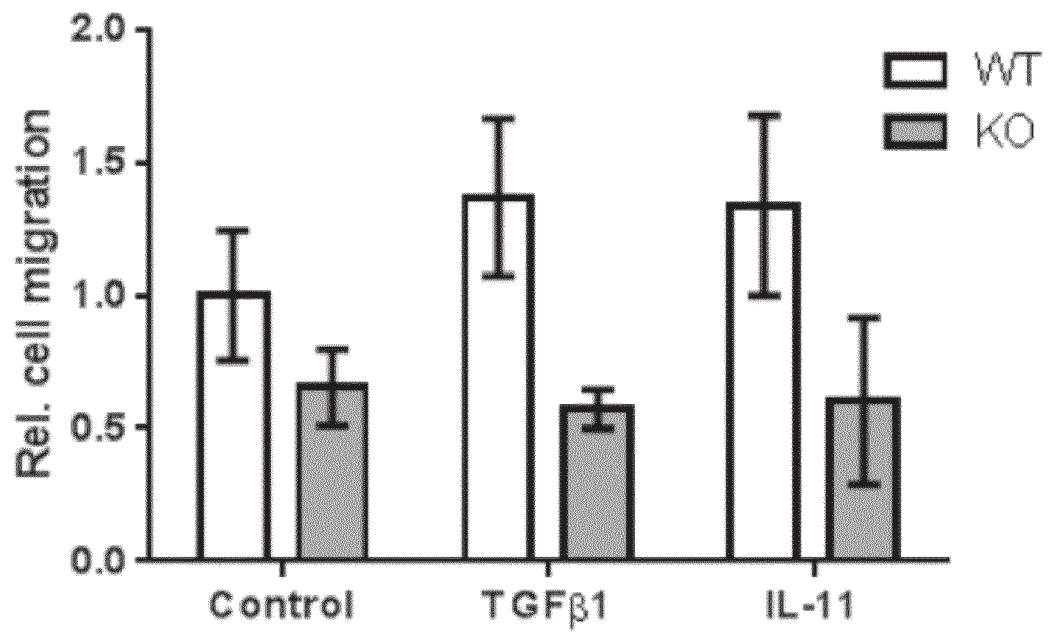


Figure 31

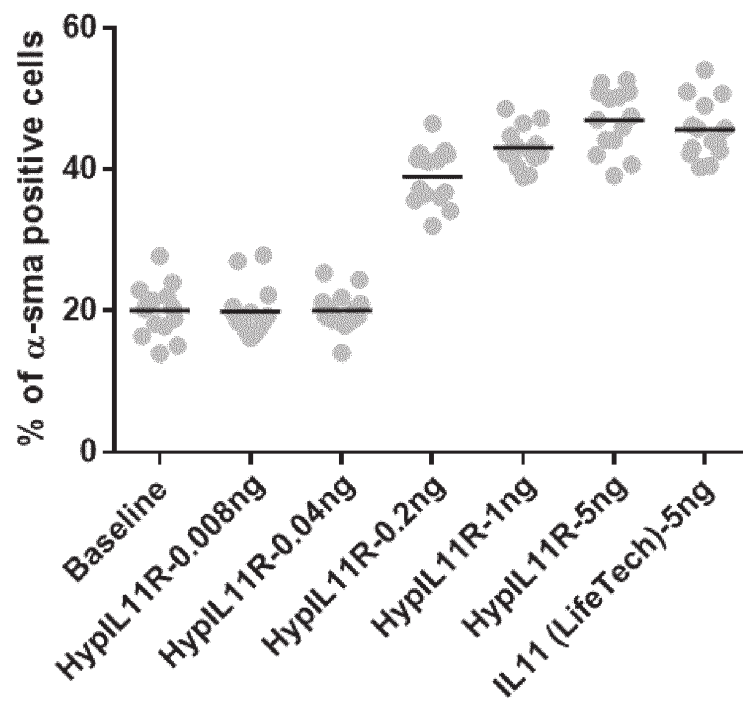
**Pa203**

Figure 32A

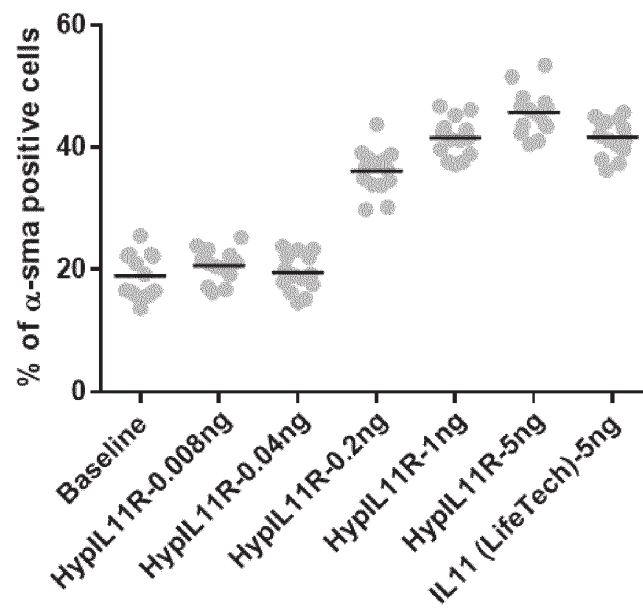
**Pa204**

Figure 32B

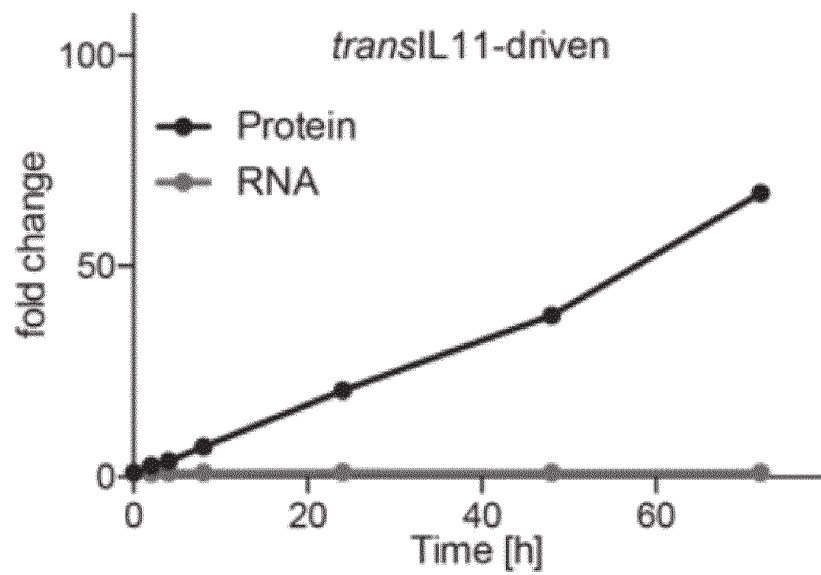


Figure 33

		incubated on cells transfected with pB1-IL11-hum.FL		
		flow cytometry (Attunes)		
		Results of subcloning		
No	Clone	GMFI	% positive	isotype
1	BSO-1E3	4697	15%	n.d. /kappa
2	BSO-2C1	44127	140%	IgG1/kappa
3	BSO-2E5	9545	30%	IgG2b/kappa
4	BSO-4G3	9302	30%	IgG1/kappa
5	BSO-5E5	8780	28%	IgG1/IgG2b/kappa
6	BSO-7G9	18649	59%	IgG2a&2c /kappa
7	BSO-9A7	34771	111%	IgG1/kappa
8	BSO-10D11	13139	42%	IgG1/kappa
9	BSO-13B10	10931	35%	IgG1/kappa
	positive control	31429	100%	
	negative control	930	3%	

Figure 34A

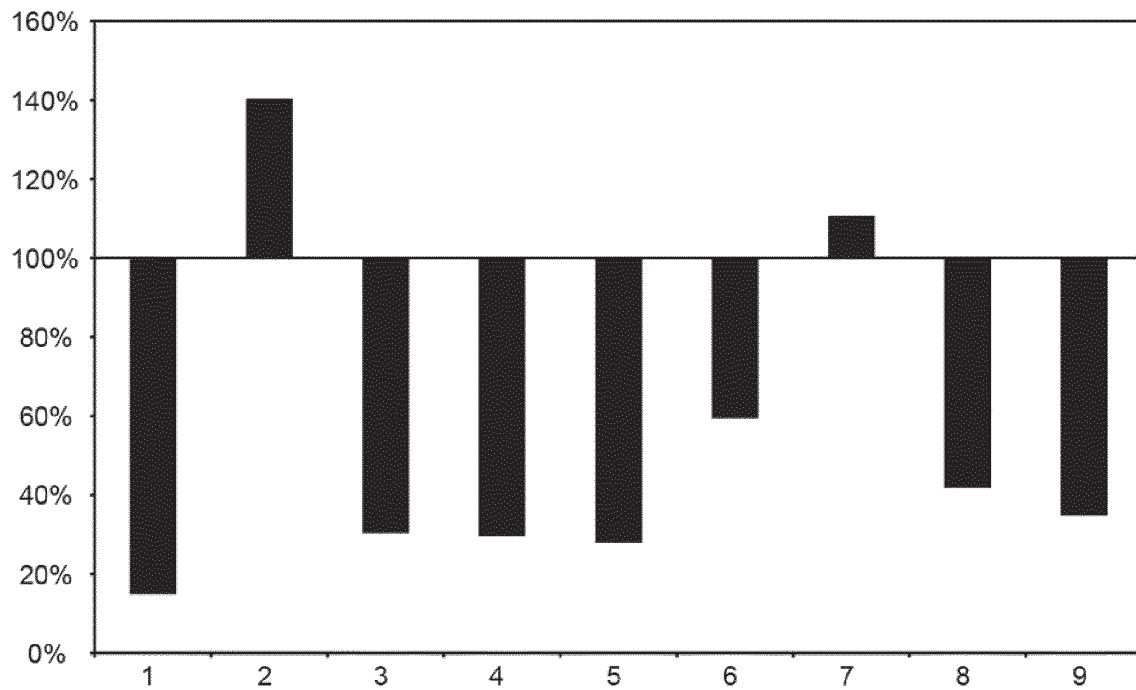


Figure 34B

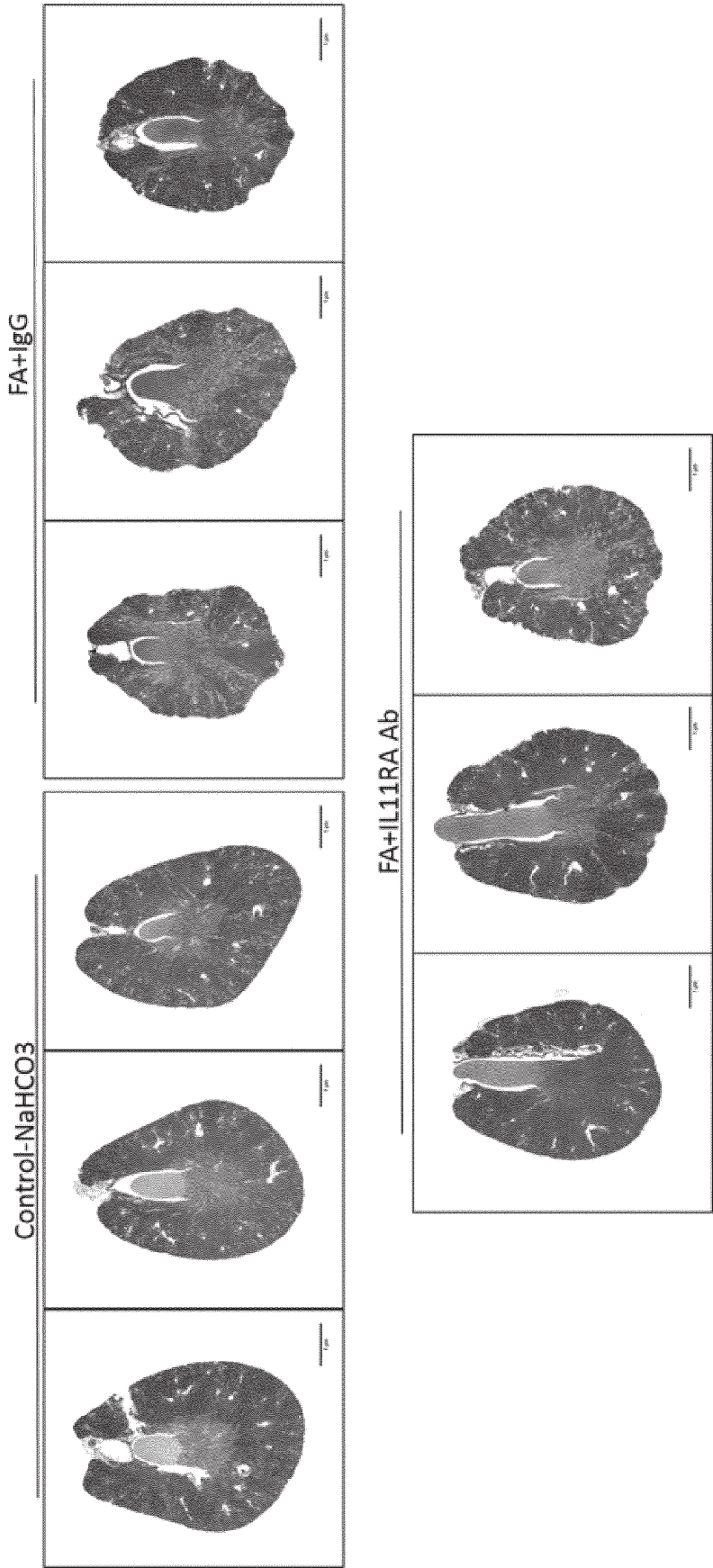


Figure 35A

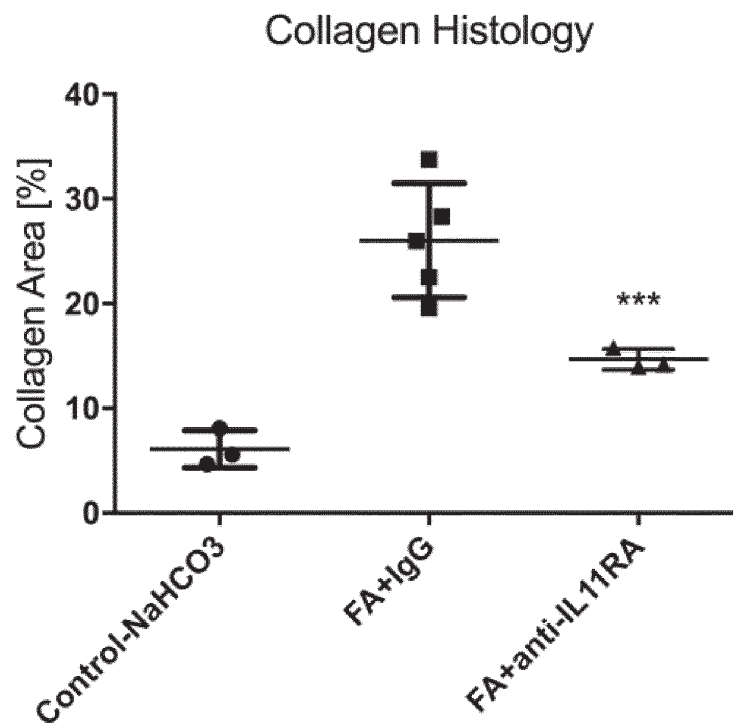


Figure 35B

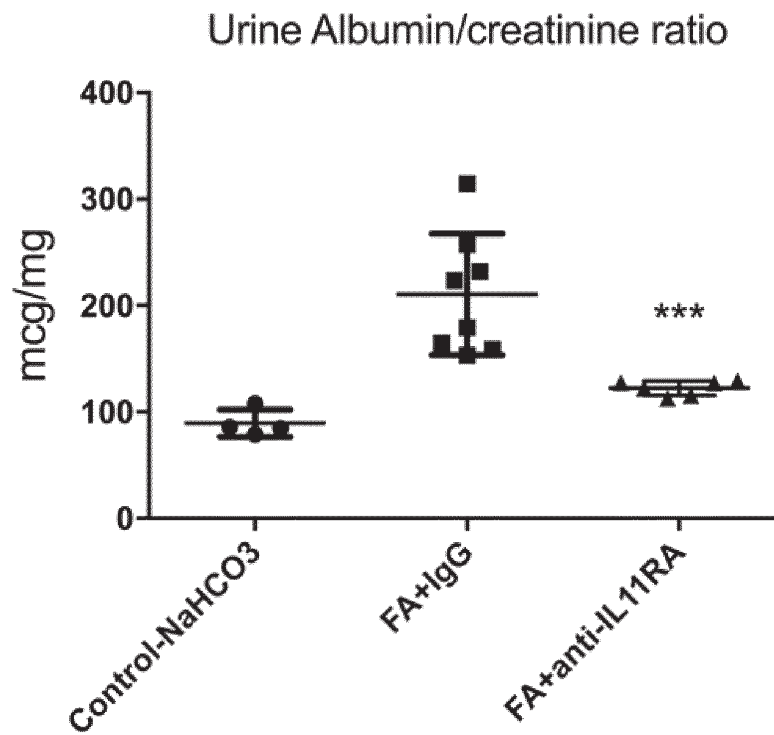


Figure 36

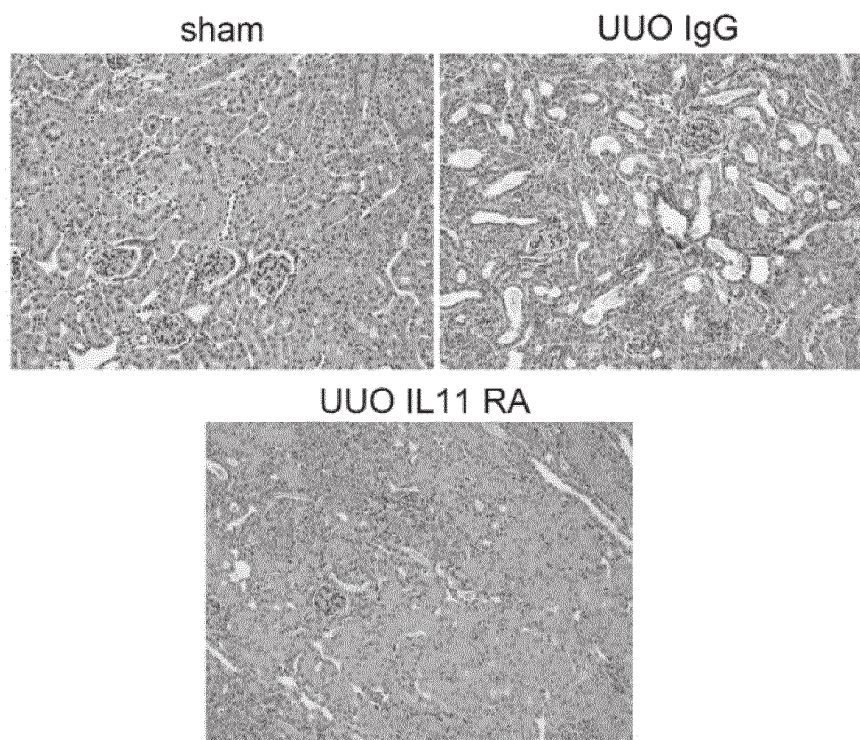


Figure 37A

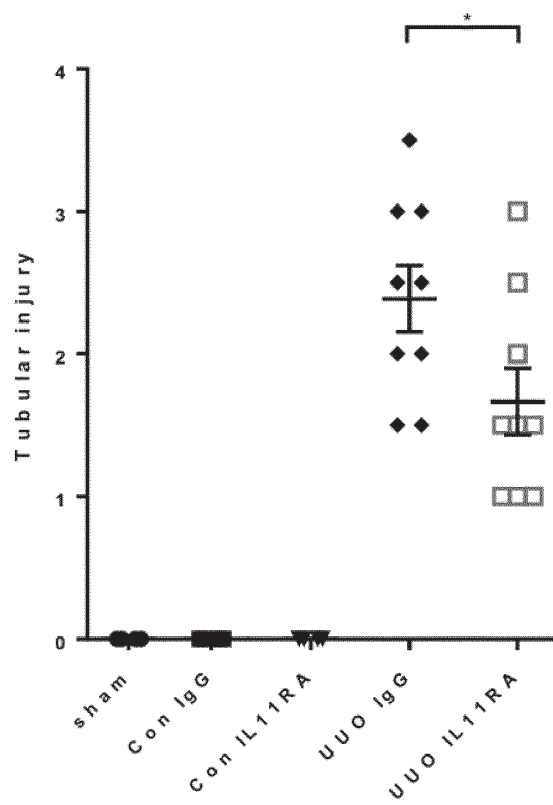


Figure 37B

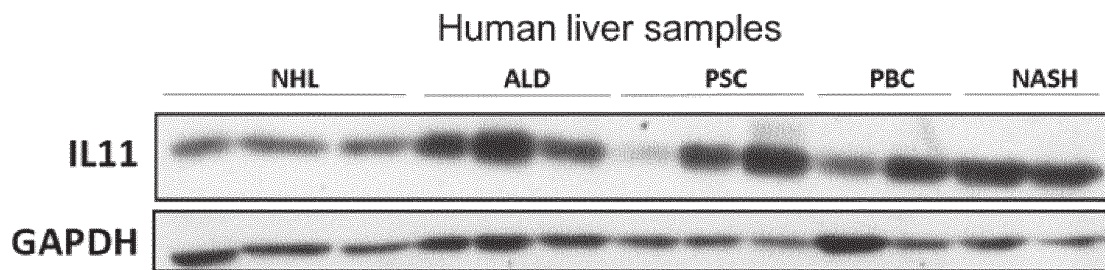


Figure 38

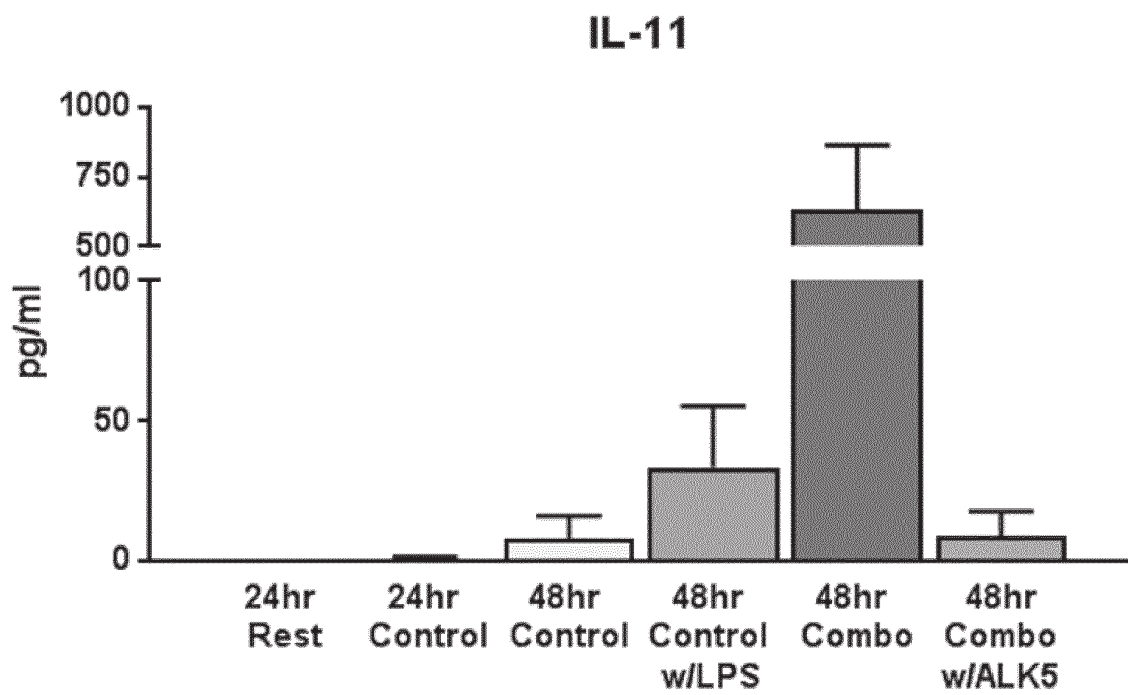


Figure 39

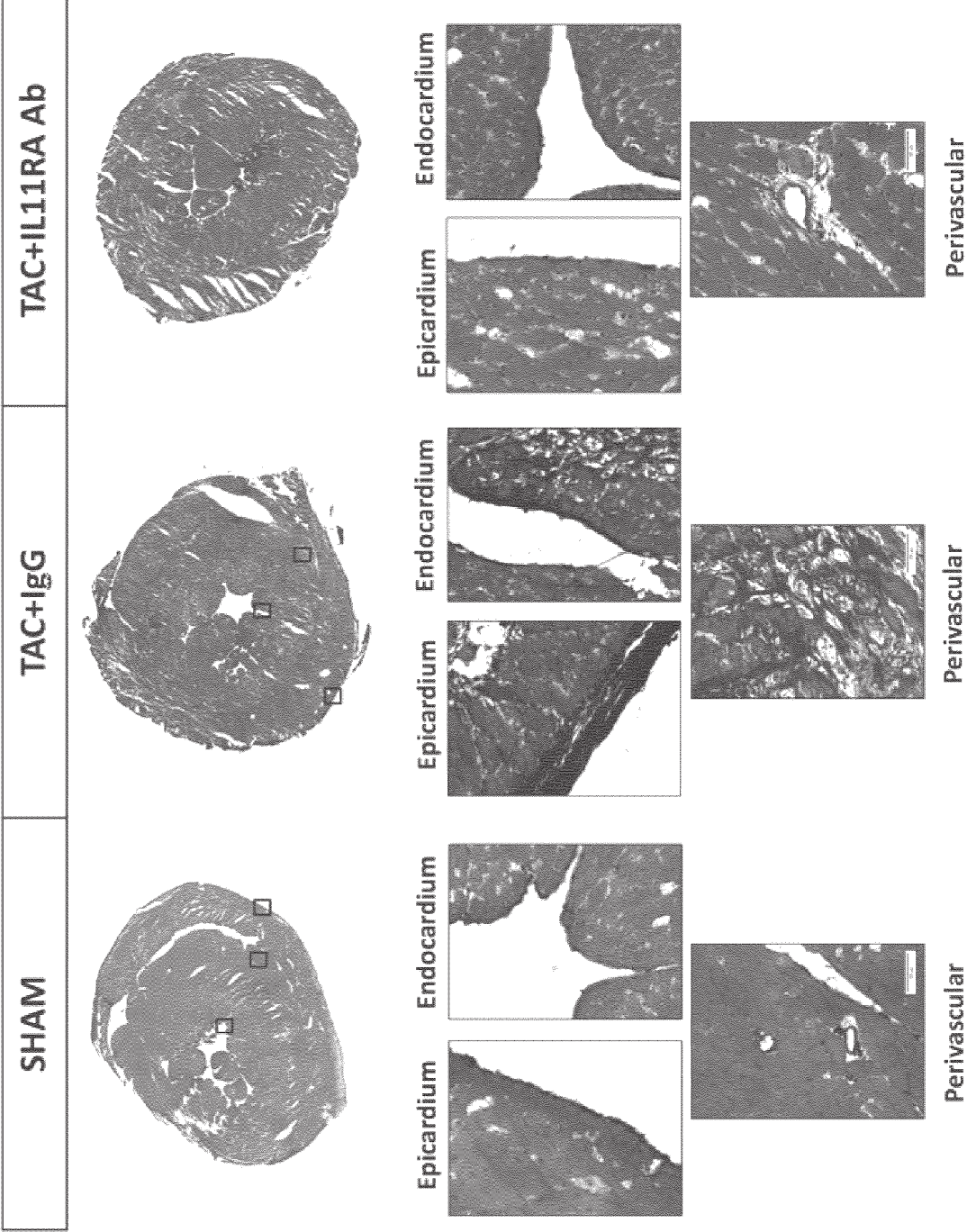


Figure 40A

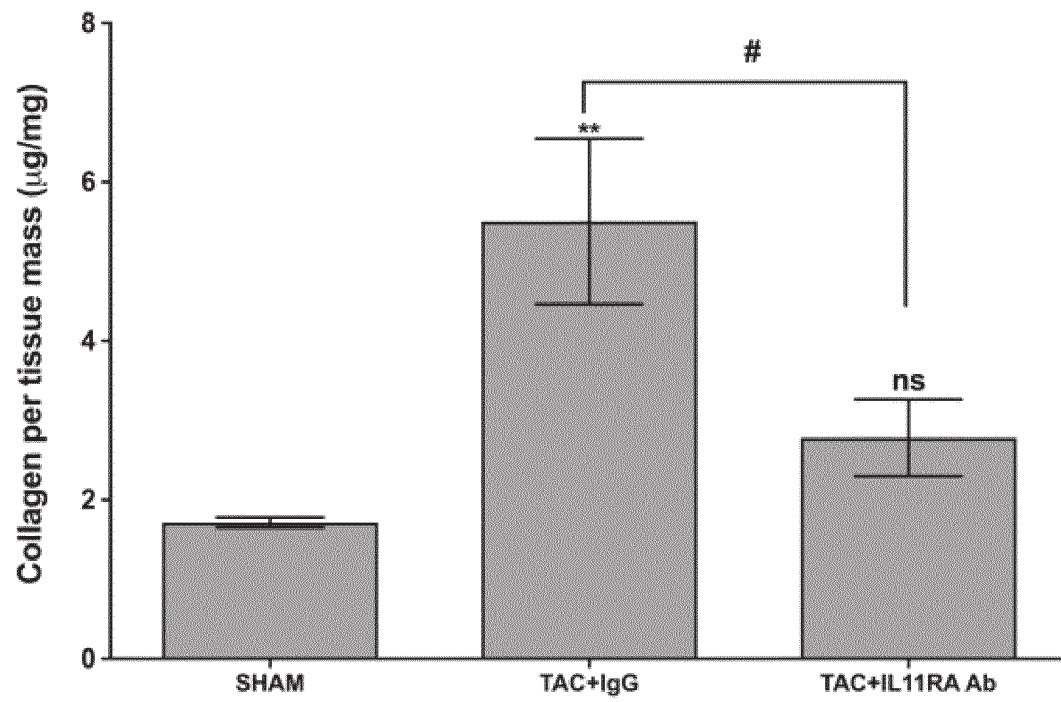


Figure 40B