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(54) **IL-11R BINDING PROTEINS AND USES THEREOF**

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(57) **ABSTRACT**

The present disclosure provides proteins comprising antigen binding sites of antibodies that bind to interleukin-11 (IL-11) receptor alpha (IL-11R α) and uses thereof, e.g., in therapy.

8E2 L1	INNYLN	8E2 L3.1	QQYDNL	8E2 L3.2	DNLSPT
TS-303	VDYWVE	TS-2	QQAEDQ	TS-49	ESQAPE
TS-305	VGIYVE	TS-4	QQHEFQ	TS-51	ESQWPF
TS-306	VDKYVE	TS-6	EQFESQ	TS-55	ETQTPA
TS-307	VSMYVE	TS-7	QQHENQ	TS-57	ETQMPL
TS-310	VAMYIE	TS-9	QQAEQ	TS-58	ETQQPF
TS-311	VSQYIE	TS-13	QQNETQ	TS-63	DTQQPN
TS-312	IGQYVE	TS-14	QQHDNQ	TS-64	ESQWPQ
TS-313	VSGYVE	TS-17	SQFESQ	Consensus	ETQXPF
TS-322	VHHYME	TS-20	QQNESQ		
Consensus	VSXYVE	TS-21	QQSESQ		
		TS-22	QQFETQ		
		TS-29	QQSEEQ		
		TS-32	TQWETQ		
		Consensus	QQXESQ		

Figure 1

8E2 H1	SWYSMT	8E2 H2	VPSGGH	8E2 H3.1	GPGWGS	8E2 H3.2	WGSEDL
TS-66	AWWSIA	TS-97	VPWADY	TS-129	PEDWGM	TS-213	WGQFAV
TS-69	GWWSVT	TS-101	VPWGDL	TS-133	FVDWGR	TS-214	WGSEWF
TS-71	WRWSIT	TS-103	VPYGDJ	TS-134	PEDWGL	TS-215	WGSEWQ
TS-76	WRWSIT	TS-104	VPWGTI	TS-135	PLDWGL	TS-218	WGSEWE
TS-79	AWFSVT	TS-107	VPWGDF	TS-136	PLDWGR	TS-221	WGSEWY
TS-82	WRWSVT	TS-108	VPWGFL	TS-140	PNDWGL	TS-222	WGTEFY
TS-88	WRWSIT	TS-115	VPHGDL	TS-143	RHDWGL	TS-224	WGSEWT
TS-89	WRWSIT	Consensus	VPWGDL	TS-151	PHDWGR	Consensus	WGSEWY
TS-90	EWYSIT			TS-156	PEDWGR		
TS-91	GWWSLT			Consensus	PEDWGX		
TS-92	SWWSIT						
	Consensus						
	WWWSIT						

Figure 2

		CDR1		CDR2
8E2	DIQMTQSPSSLSASVGDRTTTC	QASQD INNYLN	WYQQKPGKAPKLLIY	DASNLQT
TS-303	DIQMTQSPSSLSASVGDRTTTC	QASQD VDYWVE	WYQQKPGKAPKLLIY	DASNLQT
TS-305	DIQMTQSPSSLSASVGDRTTTC	QASQD VGIYVE	WYQQKPGKAPKLLIY	DASNLQT
TS-306	DIQMTQSPSSLSASVGDRTTTC	QASQD VDKYVE	WYQQKPGKAPKLLIY	DASNLQT
TS-307	DIQMTQSPSSLSASVGDRTTTC	QASQD VSMYVE	WYQQKPGKAPKLLIY	DASNLQT
TS-310	DIQMTQSPSSLSASVGDRTTTC	QASQD VAMYIE	WYQQKPGKAPKLLIY	DASNLQT
TS-311	DIQMTQSPSSLSASVGDRTTTC	QASQD VSQYIE	WYQQKPGKAPKLLIY	DASNLQT
TS-312	DIQMTQSPSSLSASVGDRTTTC	QASQD IGGYVE	WYQQKPGKAPKLLIY	DASNLQT
TS-313	DIQMTQSPSSLSASVGDRTTTC	QASQD VSGYVE	WYQQKPGKAPKLLIY	DASNLQT
TS-322	DIQMTQSPSSLSASVGDRTTTC	QASQD VHMYME	WYQQKPGKAPKLLIY	DASNLQT
TS-2	DIQMTQSPSSLSASVGDRTTTC	QASQD INNYLN	WYQQKPGKAPKLLIY	DASNLQT
TS-4	DIQMTQSPSSLSASVGDRTTTC	QASQD INNYLN	WYQQKPGKAPKLLIY	DASNLQT
TS-6	DIQMTQSPSSLSASVGDRTTTC	QASQD INNYLN	WYQQKPGKAPKLLIY	DASNLQT
TS-7	DIQMTQSPSSLSASVGDRTTTC	QASQD INNYLN	WYQQKPGKAPKLLIY	DASNLQT
TS-9	DIQMTQSPSSLSASVGDRTTTC	QASQD INNYLN	WYQQKPGKAPKLLIY	DASNLQT
TS-13	DIQMTQSPSSLSASVGDRTTTC	QASQD INNYLN	WYQQKPGKAPKLLIY	DASNLQT
TS-14	DIQMTQSPSSLSASVGDRTTTC	QASQD INNYLN	WYQQKPGKAPKLLIY	DASNLQT
TS-17	DIQMTQSPSSLSASVGDRTTTC	QASQD INNYLN	WYQQKPGKAPKLLIY	DASNLQT
TS-20	DIQMTQSPSSLSASVGDRTTTC	QASQD INNYLN	WYQQKPGKAPKLLIY	DASNLQT
TS-21	DIQMTQSPSSLSASVGDRTTTC	QASQD INNYLN	WYQQKPGKAPKLLIY	DASNLQT
TS-22	DIQMTQSPSSLSASVGDRTTTC	QASQD INNYLN	WYQQKPGKAPKLLIY	DASNLQT
TS-29	DIQMTQSPSSLSASVGDRTTTC	QASQD INNYLN	WYQQKPGKAPKLLIY	DASNLQT
TS-32	DIQMTQSPSSLSASVGDRTTTC	QASQD INNYLN	WYQQKPGKAPKLLIY	DASNLQT
TS-49	DIQMTQSPSSLSASVGDRTTTC	QASQD INNYLN	WYQQKPGKAPKLLIY	DASNLQT
TS-51	DIQMTQSPSSLSASVGDRTTTC	QASQD INNYLN	WYQQKPGKAPKLLIY	DASNLQT
TS-55	DIQMTQSPSSLSASVGDRTTTC	QASQD INNYLN	WYQQKPGKAPKLLIY	DASNLQT
TS-57	DIQMTQSPSSLSASVGDRTTTC	QASQD INNYLN	WYQQKPGKAPKLLIY	DASNLQT
TS-58	DIQMTQSPSSLSASVGDRTTTC	QASQD INNYLN	WYQQKPGKAPKLLIY	DASNLQT
TS-63	DIQMTQSPSSLSASVGDRTTTC	QASQD INNYLN	WYQQKPGKAPKLLIY	DASNLQT
TS-64	DIQMTQSPSSLSASVGDRTTTC	QASQD INNYLN	WYQQKPGKAPKLLIY	DASNLQT
Consensus	DIQMTQSPSSLSASVGDRTTTC	QASQD XXXXXX INNYLN VDYWVE GI I SK M AM HQ G H	WYQQKPGKAPKLLIY	DASNLQT

Figure 3A

CDR3

8E2	GVPSRFSGGSGGIDFTFTISSLQPEDIAIYYC	QQYDNL SPT	FGPGTKVDIK	SEQ ID NO: 5
TS-303	GVPSRFSGGSGGIDFTFTISSLQPEDIAIYYC	QQYDNL SPT	FGPGTKVDIK	SEQ ID NO: 6
TS-305	GVPSRFSGGSGGIDFTFTISSLQPEDIAIYYC	QQYDNL SPT	FGPGTKVDIK	SEQ ID NO: 7
TS-306	GVPSRFSGGSGGIDFTFTISSLQPEDIAIYYC	QQYDNL SPT	FGPGTKVDIK	SEQ ID NO: 8
TS-307	GVPSRFSGGSGGIDFTFTISSLQPEDIAIYYC	QQYDNL SPT	FGPGTKVDIK	SEQ ID NO: 9
TS-310	GVPSRFSGGSGGIDFTFTISSLQPEDIAIYYC	QQYDNL SPT	FGPGTKVDIK	SEQ ID NO: 10
TS-311	GVPSRFSGGSGGIDFTFTISSLQPEDIAIYYC	QQYDNL SPT	FGPGTKVDIK	SEQ ID NO: 11
TS-312	GVPSRFSGGSGGIDFTFTISSLQPEDIAIYYC	QQYDNL SPT	FGPGTKVDIK	SEQ ID NO: 12
TS-313	GVPSRFSGGSGGIDFTFTISSLQPEDIAIYYC	QQYDNL SPT	FGPGTKVDIK	SEQ ID NO: 13
TS-322	GVPSRFSGGSGGIDFTFTISSLQPEDIAIYYC	QQYDNL SPT	FGPGTKVDIK	SEQ ID NO: 14
TS-2	GVPSRFSGGSGGIDFTFTISSLQPEDIAIYYC	QQAEDQ SPT	FGPGTKVDIK	SEQ ID NO: 15
TS-4	GVPSRFSGGSGGIDFTFTISSLQPEDIAIYYC	QQHEFQ SPT	FGPGTKVDIK	SEQ ID NO: 16
TS-6	GVPSRFSGGSGGIDFTFTISSLQPEDIAIYYC	QQFESQ SPT	FGPGTKVDIK	SEQ ID NO: 17
TS-7	GVPSRFSGGSGGIDFTFTISSLQPEDIAIYYC	QQHENQ SPT	FGPGTKVDIK	SEQ ID NO: 18
TS-9	GVPSRFSGGSGGIDFTFTISSLQPEDIAIYYC	QQAEEQ SPT	FGPGTKVDIK	SEQ ID NO: 19
TS-13	GVPSRFSGGSGGIDFTFTISSLQPEDIAIYYC	QQNETQ SPT	FGPGTKVDIK	SEQ ID NO: 20
TS-14	GVPSRFSGGSGGIDFTFTISSLQPEDIAIYYC	QQHDNQ SPT	FGPGTKVDIK	SEQ ID NO: 21
TS-17	GVPSRFSGGSGGIDFTFTISSLQPEDIAIYYC	QQFESQ SPT	FGPGTKVDIK	SEQ ID NO: 22
TS-20	GVPSRFSGGSGGIDFTFTISSLQPEDIAIYYC	QQNESQ SPT	FGPGTKVDIK	SEQ ID NO: 23
TS-21	GVPSRFSGGSGGIDFTFTISSLQPEDIAIYYC	QQSEEQ SPT	FGPGTKVDIK	SEQ ID NO: 24
TS-22	GVPSRFSGGSGGIDFTFTISSLQPEDIAIYYC	QQFETQ SPT	FGPGTKVDIK	SEQ ID NO: 25
TS-29	GVPSRFSGGSGGIDFTFTISSLQPEDIAIYYC	QQSEEQ SPT	FGPGTKVDIK	SEQ ID NO: 26
TS-32	GVPSRFSGGSGGIDFTFTISSLQPEDIAIYYC	TQWEIQ SPT	FGPGTKVDIK	SEQ ID NO: 27
TS-49	GVPSRFSGGSGGIDFTFTISSLQPEDIAIYYC	QQYESQ AFE	FGPGTKVDIK	SEQ ID NO: 28
TS-51	GVPSRFSGGSGGIDFTFTISSLQPEDIAIYYC	QQYESQ WFF	FGPGTKVDIK	SEQ ID NO: 29
TS-55	GVPSRFSGGSGGIDFTFTISSLQPEDIAIYYC	QQYETQ TFA	FGPGTKVDIK	SEQ ID NO: 30
TS-57	GVPSRFSGGSGGIDFTFTISSLQPEDIAIYYC	QQYETQ MPL	FGPGTKVDIK	SEQ ID NO: 31
TS-58	GVPSRFSGGSGGIDFTFTISSLQPEDIAIYYC	QQYETQ QFF	FGPGTKVDIK	SEQ ID NO: 32
TS-63	GVPSRFSGGSGGIDFTFTISSLQPEDIAIYYC	QQYDTQ QFM	FGPGTKVDIK	SEQ ID NO: 33
TS-64	GVPSRFSGGSGGIDFTFTISSLQPEDIAIYYC	QQYRSQ WFO	FGPGTKVDIK	SEQ ID NO: 34
Consensus	GVPSRFSGGSGGIDFTFTISSLQPEDIAIYYC	QXXXXX XPX Q YDNL S T E AEDQ A E S H F W F T F S T A N E M L S T Q N W	FGPGTKVDIK	SEQ ID NO: 35

Figure 3A Continued

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