

Supplementary Table 1. List of peptides used for screening

Index	Sequence	Peptide_ID
1	ZXEIKVNPPQDFEIVDP	Peptide_001
2	ZXIKVNPPQDFEIVDPG	Peptide_002
3	ZXKVNPPQDFEIVDPGY	Peptide_003
4	ZXVNPPQDFEIVDPGYL	Peptide_004
5	ZXNPPQDFEIVDPGYLG	Peptide_005
6	ZXPPQDFEIVDPGYLGY	Peptide_006
7	ZXPQDFEIVDPGYLGYL	Peptide_007
8	ZXQDFEIVDPGYLGYLY	Peptide_008
9	ZXDVEIVDPGYLGYLYL	Peptide_009
10	ZXFEIVDPGYLGYLYLQ	Peptide_010
11	ZXEIVDPGYLGYLYLQW	Peptide_011
12	ZXIVDPGYLGYLYLQWQ	Peptide_012
13	ZXVDPGYLGYLYLQWQP	Peptide_013
14	ZXDPGYLGYLYLQWQPP	Peptide_014
15	ZXPGYLGYLYLQWQPPL	Peptide_015
16	ZXGYLGYLYLQWQPPLS	Peptide_016
17	ZXYLGYLQWQPPPLSL	Peptide_017
18	ZXLGYLYLQWQPPPLSLD	Peptide_018
19	ZXGYLYLQWQPPPLSLDH	Peptide_019
20	ZXYLYLQWQPPPLSLDHF	Peptide_020
21	ZXLYLQWQPPPLSLDHFK	Peptide_021
22	ZXYLQWQPPPLSLDHFK	Peptide_022
23	ZXLQWQPPPLSLDHFKEC	Peptide_023
24	ZXQWQPPPLSLDHFKECT	Peptide_024
25	ZXWQPPPLSLDHFKECTV	Peptide_025
26	ZXQPPPLSLDHFKECTVE	Peptide_026
27	ZXPPLSLDHFKECTVEY	Peptide_027
28	ZXPLSLDHFKECTVEYE	Peptide_028
29	ZXLSLDHFKECTVEYEL	Peptide_029
30	ZXSLDHFKECTVEYELK	Peptide_030
31	ZXLDHFKECTVEYELKY	Peptide_031
32	ZXDHFKECTVEYELKYR	Peptide_032
33	ZXHFKECTVEYELKYRN	Peptide_033
34	ZXFKECTVEYELKYRNI	Peptide_034
35	ZXKECTVEYELKYRNIG	Peptide_035
36	ZXECTVEYELKYRNIGS	Peptide_036
37	ZXCTVEYELKYRNIGSE	Peptide_037
38	ZXTVEYELKYRNIGSET	Peptide_038
39	ZXVEYELKYRNIGSETW	Peptide_039
40	ZXEYELKYRNIGSETWK	Peptide_040
41	ZXYELKYRNIGSETWKT	Peptide_041
42	ZXELKYRNIGSETWKTI	Peptide_042
43	ZXLKYRNIGSETWKTI	Peptide_043
44	ZXKYRNIGSETWKTIIT	Peptide_044
45	ZXYRNIGSETWKTIITK	Peptide_045
46	ZXRNIGSETWKTIITKN	Peptide_046
47	ZXNIGSETWKTIITKNL	Peptide_047
48	ZXIGSETWKTIITKNLH	Peptide_048
49	ZXGSETWKTIITKNLHY	Peptide_049
50	ZXSETWKTIITKNLHYK	Peptide_050
51	ZXETWKTIITKNLHYKD	Peptide_051
52	ZXTWKTIITKNLHYKDG	Peptide_052
53	ZXWKTIITKNLHYKDGF	Peptide_053
54	ZXKTIITKNLHYKDGF	Peptide_054
55	ZXTIITKNLHYKDGF	Peptide_055
56	ZXIITKNLHYKDGF	Peptide_056
57	ZXITKNLHYKDGF	Peptide_057
58	ZXTKNLHYKDGF	Peptide_058
59	ZXKNLHYKDGF	Peptide_059
60	ZXNLHYKDGF	Peptide_060

Supplementary Table 2. List of antibodies and dyes used for flow cytometry assays.

	Marker	Clone	Fluorochrome	Dilution	Company	Identifier (Cat # and RRID)
Used for hIL13Rα2 detection	hIL13R α 2	Polyclonal	Unconjugated	1:25	R&D	# AF146 RRID:AB_354809
	Goat IgG (H+L)	Polyclonal	AF647	1:200	Invitrogen	# A-21447 RRID:AB_141844
Used for mIL13Rα2 detection	mIL13R α 2	Polyclonal	Unconjugated	1:25	R&D	# AF539 RRID:AB_2280210
	Goat IgG (H+L)	Polyclonal	AF647	1:200	Invitrogen	# A-21447 RRID:AB_141844
Used for <i>in vivo</i> safety assessment	CD45.1	A20	BV510	1:100	BD	# 565278 RRID:AB_2739150
	CD45.2	104	FITC	1:100	BD	# 561874 RRID:AB_10894189
Used for T cell phenotype <i>in vivo</i>	CD3	145-2C11	BUV395	1:100	BD	# 563565 RRID:AB_2738278
	CD4	GK1.5	BUV496	1:100	BD	# 612952 RRID:AB_2813886
	CD8	53-6.7	BUV737	1:100	BD	# 612759 RRID:AB_2870090
	CD107a	1D4B	BV421	1:100	BD	# 564347 RRID:AB_2738760
	CD45.1	A20	BV510	1:100	BD	# 565278 RRID:AB_2739150
	TIM-3	RMT3-23	BV605	1:100	BioLegend	# 119721 RRID:AB_2616907
	CX3CR1	SA011F11	BV650	1:100	BioLegend	# 149033 RRID:AB_2565999
	KLRG1	2F1	BV711	1:100	BD	# 564014 RRID:AB_2738542
	PD-1	29F.1A12	BV785	1:100	BioLegend	# 135225 RRID:AB_2563680
	CD44	IM7	BB515	1:100	BD	# 564587 RRID:AB_2738855
	LAG-3	C9B7W	PE/Dazzle	1:100	BioLegend	# 125223 RRID:AB_2572081
	CD127	A7R34	PE/Cy5	1:100	BioLegend	# 135016 RRID:AB_1937261
	CD62L	MEL-14	PE/ Cy7	1:100	BD	# 560516 RRID:AB_1645257
	Tet	-	APC	1:100	MBL Life Science	# tb-m507-2
	Live/Dead	-	AF700	1:2000	BD	# 564997 RRID:AB_286963
	Thy1.1	OX-7	APC/Cy7	1:100	BioLegend	# 202508 RRID:AB_492884
	Ki67	16A8	PerCP/Cy5.5	1:100	BioLegend	# 652423 RRID:AB_2629530
	IFN γ	XMG1.2	PE	1:100	BioLegend	# 505808 RRID:AB_315402