

95 **Online repository figure legends:**

96 **Supplemental figure E1: Automated gating analysis reveals reduced**
97 **CXCR5 expression in AIT-treated patients compared to untreated allergic**
98 **and non-allergic controls.** a: Representative dotplots showing Tfh cells in an
99 allergic, AIT-treated and non-allergic patient. b: Percentage Tfh in allergics
100 (n=24), AIT-treated (n=32) and non-allergic (n=13) patients. Statistical analysis
101 was performed using the Mann-Whitney test, one-tailed. **-p<0.01.

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103 **Supplemental figure E2: Cytokine production after PMA/Ionomycin**
104 **stimulation in Tfr cells ex vivo.** Intracellular cytokine staining for IL-10, IFN γ ,
105 IL-4 and IL-13 after 6 hours of stimulation with PMA/Ionomycin was performed in
106 Tfr cells from 4 healthy donors. Percentage of cytokine producing cells out of the
107 total CD4 subset is shown.

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111 Supplemental table E1: Demographic and clinical information of donors recruited
 112 for this study.

Donor	Cohort	Gender	Birth year	Race	Donation Date	Wheal size*	AIT report**
D00013	Non-allergic	M	1979	White	2008-07-15	0	n/a
D00014	Non-allergic	F	1982	White	2008-07-15	0	n/a
D00030	Non-allergic	F	1954	White	2008-08-13	0	n/a
D00032	Non-allergic	M	1982	White	2008-10-13	0	n/a
D00034	Non-allergic	F	1971	White	2008-10-16	0	n/a
D00036	Non-allergic	M	1987	White	2008-10-21	0	n/a
D00038	Non-allergic	F	1980	White	2008-10-22	0	n/a
D00049	Non-allergic	F	1957	Hispanic	2008-11-21	0	n/a
D00055	Non-allergic	F	1948	White	2009-01-05	0	n/a
D00082	Non-allergic	M	1976	Black	2009-12-17	0	n/a
D00086	Non-allergic	F	1974	White	2010-03-09	0	n/a
D00091	Non-allergic	M	1971	Hispanic	2010-04-22	0	n/a
D00118	Non-allergic	F	1951	White	2008-12-12	0	n/a
D00008	Allergic	M	1980	White	2008-07-08	11	n/a
D00052	Allergic	F	1968	White	2008-12-12	10	n/a
D00056	Allergic	M	1967	Hispanic	2009-01-08	5	n/a
D00073	Allergic	F	1965	Black	2009-10-26	12	n/a
D00084	Allergic	M	1979	White	2009-01-20	17	n/a
D00090	Allergic	M	1967	Hispanic	2009-01-08	10	n/a
D00117	Allergic	F	1958	White	2011-01-24	36	n/a
D00122	Allergic	F	1972	White	2011-03-01	20	n/a
D00137	Allergic	F	1985	White	2012-05-22	6	n/a
D00139	Allergic	F	1961	White	2012-06-07	48	n/a
D00140	Allergic	F	1977	White	2012-06-12	10	n/a

D00141	Allergic	M	1991	White	2012-06-14	14	n/a
D00145	Allergic	F	1961	White	2012-07-05	8	n/a
D00149	Allergic	F	1992	White	2012-08-01	5	n/a
D00156	Allergic	F	1960	Black	2012-08-22	17	n/a
D00158	Allergic	M	1982	White	2012-09-04	31	n/a
D00159	Allergic	F	1976	Black	2012-09-04	10	n/a
D00160	Allergic	F	1964	Black	2012-09-11	31	n/a
D00161	Allergic	F	1981	Hispanic	2012-09-11	17	n/a
D00163	Allergic	M	1984	Black	2012-09-18	22	n/a
D00166	Allergic	M	1982	White	2012-09-21	28	n/a
D00167	Allergic	M	1949	White	2012-09-21	13	n/a
D00168	Allergic	M	1969	White	2012-09-24	21	n/a
D00170	Allergic	M	1966	White	2012-09-26	37	n/a
D00172	Allergic	F	1953	White	2012-09-26	12	n/a
D00031	AIT	F	1969	Hispanic	2008-08-25	7	yes
				Asian/Pacific			
D00063	AIT	M	1970	Islander	2009-03-25	15	yes
D00072	AIT	F	1954	White	2009-10-14	8	yes
D00080	AIT	M	1973	White	2009-12-02	25	yes
D00087	AIT	M	1973	White	2010-03-23	18	yes
D00106	AIT	F	1971	White	2010-09-16	9	yes
D00101	AIT	M	1964	White	2009-11-12	17	yes
D00109	AIT	F	1980	Black	2010-09-27	10	yes
D00111	AIT	M	1963	White	2010-09-29	11	yes
D00114	AIT	F	1961	White	2010-10-21	11	uncertain
D00126	AIT	M	1969	White	2011-03-14	17	yes
D00127	AIT	M	1973	White	2010-03-23	14	yes
D00129	AIT	F	1990	White	2012-01-23	17	uncertain
D00130	AIT	M	1973	White	2012-01-24	15	yes
D00132	AIT	M	1969	White	2012-02-14	11	yes
D00133	AIT	M	1973	White	2012-02-14	11	yes
D00134	AIT	F	1954	White	2012-02-16	15	yes
D00135	AIT	M	1962	White	2012-03-15	13	yes
D00136	AIT	F	1946	White	2012-03-16	10	yes
D00142	AIT	F	1984	White	2012-06-28	5	no
D00143	AIT	F	1960	White	2012-06-29	7	yes
D00144	AIT	M	1978	White	2012-07-02	9	yes
D00146	AIT	M	1982	Black	2012-07-09	7	yes
D00147	AIT	M	1981	White	2012-07-25	6	yes
D00148	AIT	F	1967	Black	2012-07-25	10	no
D00150	AIT	F	1966	White	2012-08-02	6	yes
D00151	AIT	F	1961	White	2012-08-02	9	no
D00152	AIT	F	1974	White	2012-08-03	10	yes

D00153	AIT	M	1967	White	2012-08-03	5	yes
D00155	AIT	M	1985	Black	2012-08-14	9	yes
D00157	AIT	F	1987	White	2012-08-27	10	yes
D00162	AIT	F	1956	White	2012-09-14	7	yes

* wheal size of skin prick test with Timothy grass

** self report on whether patient felt that AIT treatment helped to improve allergic symptoms

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114 Supplemental table E2: A list of genes significantly differentially expressed by the

115 CXCR5^{lo} vs CXCR5^{hi} subset. *IKZF2* and *CXCR5* shown for reference.

	Gene	Protein	Fold change	p adjusted	Median CXCR5 ^{Hi}	Median CXCR5 ^{Lo}
1	CCR8	CCR8	>100	0.008	0	10
2	LRRC32	Garp	33.3	0.001	2	54
		Zinc finger and BTB domain-containing				
3	ZBTB32	protein 32	11.6	0.046	2	19
4	ENC1	CD93	11.5	0.005	9	107
		Hydroxyprostaglandin dehydrogenase 15-				
5	HPGD	(NAD)	9.7	0.028	5	49
6	SEMA5A	Semaphorin 5A	8.6	0.000	5	41
7	CHN1	Chimerin 1	8.3	0.009	28	234
8	FOXP3	Fox p 3	7.5	0.000	12	91
9	LAG3	Lag3	6.0	0.000	13	77
10	GZMA	Granzyme A	6.0	0.000	44	264
		coiled-coil domain containing 141				
11	CCDC141		5.5	0.004	16	90
12	MKI67	Ki67	5.5	0.018	6	35
13	RTKN2	Rhotekin 2	5.3	0.008	36	191
14	CLECL1	C-type lectin like 1	4.5	0.000	13	59
		Natural killer cell granule protein 7				
15	NKG7		4.0	0.023	52	210

16	LGALS3	Galectin 3	4.0	0.004	75	302
17	CD70	CD70	3.6	0.020	3	11
18	CCL5	Rantes	3.6	0.000	350	1254
19	LOC541471	n.d.	3.2	0.004	39	123
		Zinc finger E-box- binding homeobox 2				
20	ZEB2		2.9	0.041	37	107
21	CD200	CD200	2.9	0.001	49	144
		Centromere protein				
22	MLF1IP	U	2.8	0.028	26	74
23	CST7	Cystatin-F	2.6	0.008	242	621
24	LYAR	LYAR	2.5	0.008	148	366
25	SMC4	SMC-4	1.9	0.018	233	441
26	FLJ22184	n.d.	0.0	0.028	8	0
27	IKZF2	Helios	11.9	0.160	9	104
28	CXCR5	CXCR5	0.4	-	2321	968

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