SUPPLEMENTARY MATERIAL

Differential Changes in ACPA Fine Specificity and Gene Expression in a Randomized Trial of Abatacept and Adalimumab in Rheumatoid Arthritis

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Details of the batch correction steps and programming code for each analysis can be obtained from the authors upon request.

Table S1. Peptide sequences of ACPAs

Full name	Short name	Peptide sequence (N-COOH)
Fibrinogen A 616–635 cit3 small cyclic (75)	Fibrinogen A 616–635	Biotin-Ahx-THSTK[CIT]CHAKS[CIT]PV[CIT]GIHTSC-CONH2
Clusterin 231–250 cit sm-1 cyclic (94)	Clusterin 231–250	Biotin-Ahx-CHFS[Cit]ASSCIDELFQD[Cit]FFT[Cit]-CONH2
Filaggrin 48–65 cit2 v1 cyclic (79)	Filaggrin 48–65	Biotin-Ahx-CTIHAHPGS[CIT][CIT]GGRHGYHHC-CONH2
Fibrinogen A 556–575 cit sm cyclic (81)	Fibrinogen A 556–575	Biotin-Ahx-NTKESSSHHPGCAEFPS[CIT]GKC-CONH2
Vimentin 58–77 cit3 cyclic small-1 (77)	Vimentin 58–77	Biotin-Ahx-GGCVYAT[CIT]SSACV[CIT]L[CIT]SSVPGV-CONH2
H2A/a 1–20 cit sm-2 cyclic (71)	H2A/a 1–20	Biotin-Ahx-MSG[Cit]GKQGCKA[Cit]AKAKT[Cit]SSC-CONH2
Enolase-1A 5–21 cit (73)	Enolase-1A 5–21	Biotin-CKIHA[CIT]EIFDS[CIT]GNPTVEC
Biglycan 247–266 cit sm-1 cyclic (58)	Biglycan 247–266	Biotin-Ahx-CEDLL[Cit]YSKLY[Cit]LGCGHNQI[Cit]-CONH2
Clusterin 221–240 cit cyclic (52)	Clusterin 221–240	Biotin-Ahx-CQTHMLDVMQDHFS[Cit]ASSIIDC-CONH2
Fibrinogen B 246–267 cit (17)	Fibrinogen B 246–267	Biotin-[Cit]KGGETSEMYLIQPDSSVKPY[Cit]Y

Apolipo E 277–296 cit2 sm2 cyclic (96)	Apolipo E 277–296	Biotin-Ahx-A[CIT]LKSWFECPLVEDMQ[CIT]QWAGC-CONH2
H2B/a 62–81 cit cyclic (32)	H2B/a 62–81	Biotin-Ahx-IMNSFVNDCIFE[Cit]IAGEAS[Cit]LC-CONH2
Fibrinogen A 211–230 cit small cyclic (6)	Fibrinogen A 211–230	Biotin-Ahx-CDLLPS[CIT]D[CIT]QHLPCIKMKPVP-CONH2
Fibrinogen A 582–599 cit (50)	Fibrinogen A 582–599	Biotin-QFTSSTSYN[Cit]GDSTFESK

ACPAs not included in this table: CCP (8), vimentin (recombinant) CIT (21), histones 2A cit (54), histones 2B CIT (36), fibrinogen CIT (19), apolipoprotein E CIT (56). *ACPA* anti-citrullinated protein antibody, *CCP* cyclic citrullinated peptide.

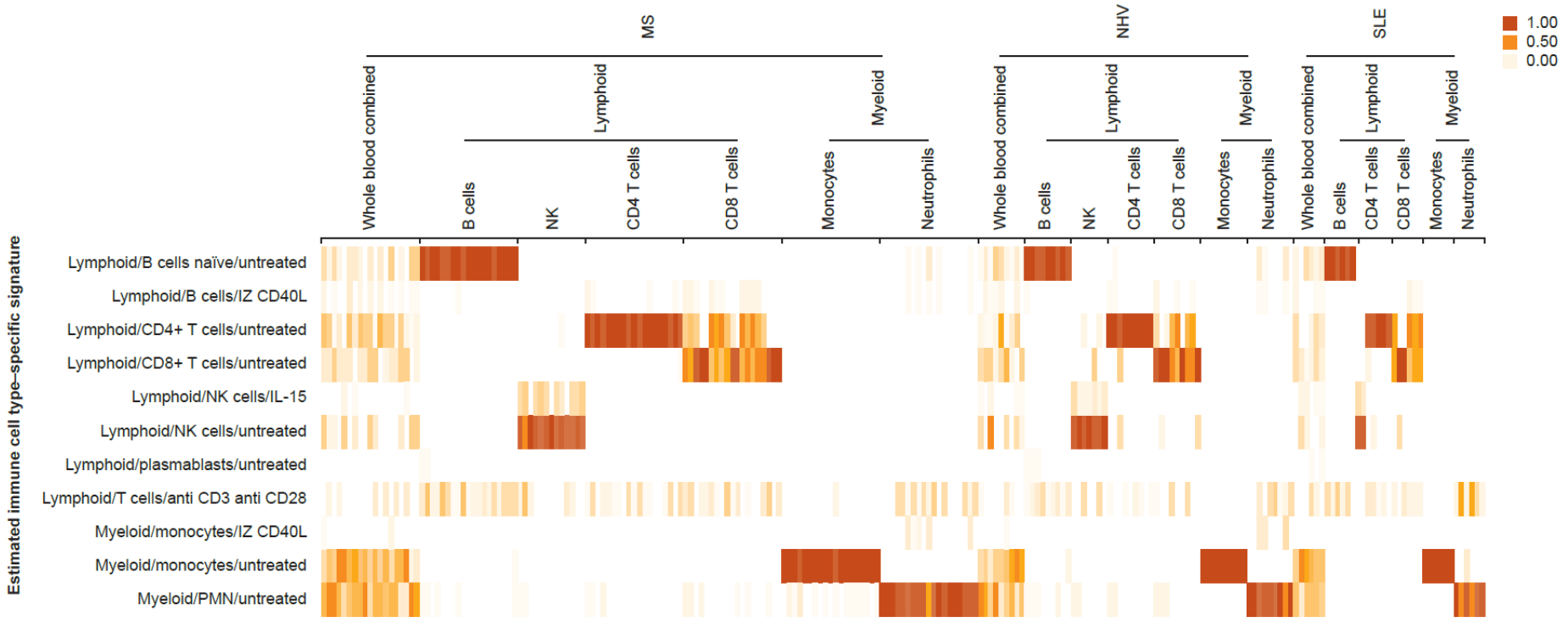

Fig. S1 Validation of immune cell type-specific gene signatures using a separate cohort from the Benaroya Research Institute at Virginia Mason. Each column represents a sample from an individual patient. *IL* interleukin, *IZ* isoleucine zipper, *MS* multiple sclerosis, *NHV* normal healthy volunteers, *NK* natural killer, *PMN* polymorphonuclear, *SLE* systemic lupus erythematosus.

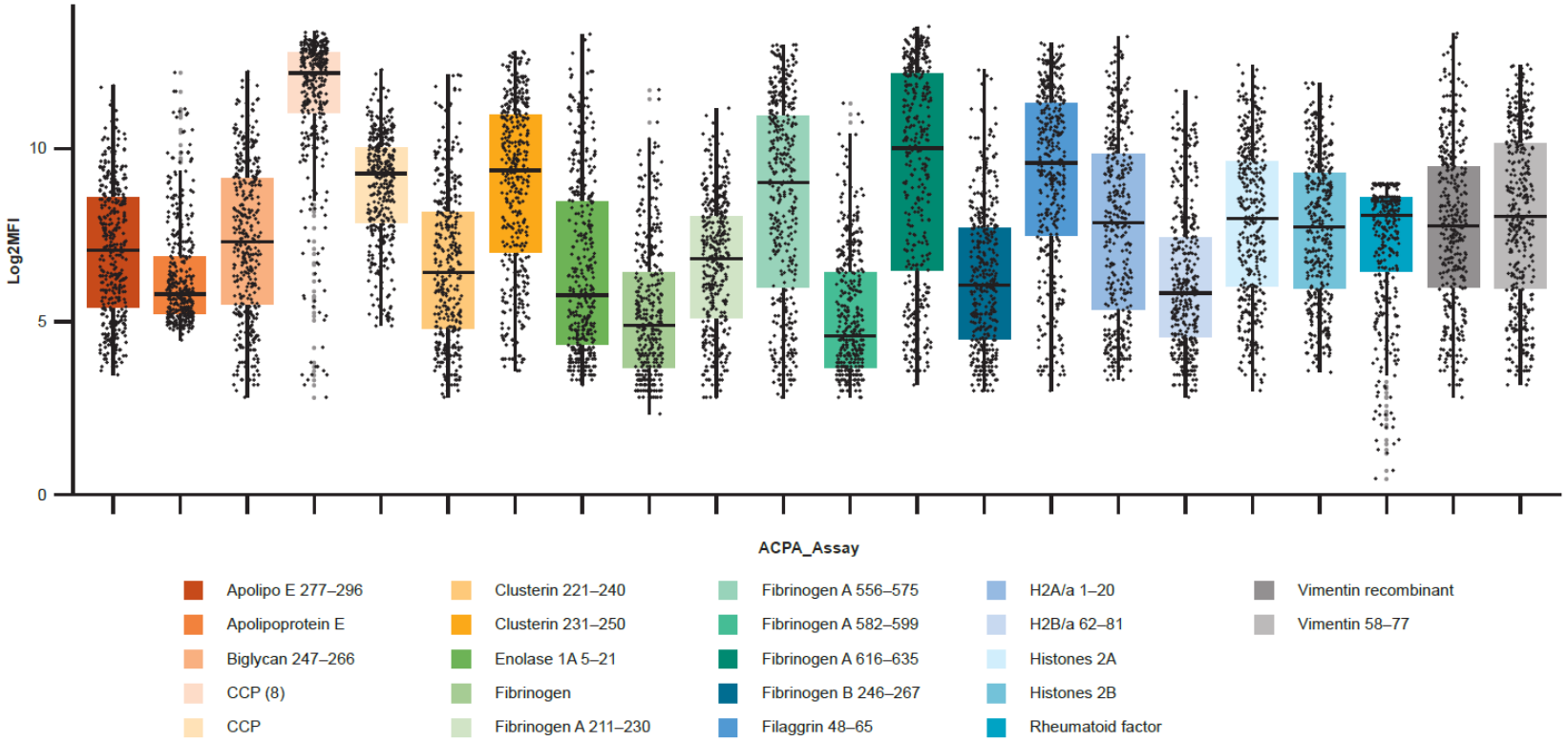

Fig. S2 Fluorescent signals of ACPAs at baseline. Lines denote medians, boxes denote lower to upper quartiles, vertical lines denote the lower to upper range. *ACPA* anti-citrullinated protein antibody, *CCP* cyclic citrullinated peptide.

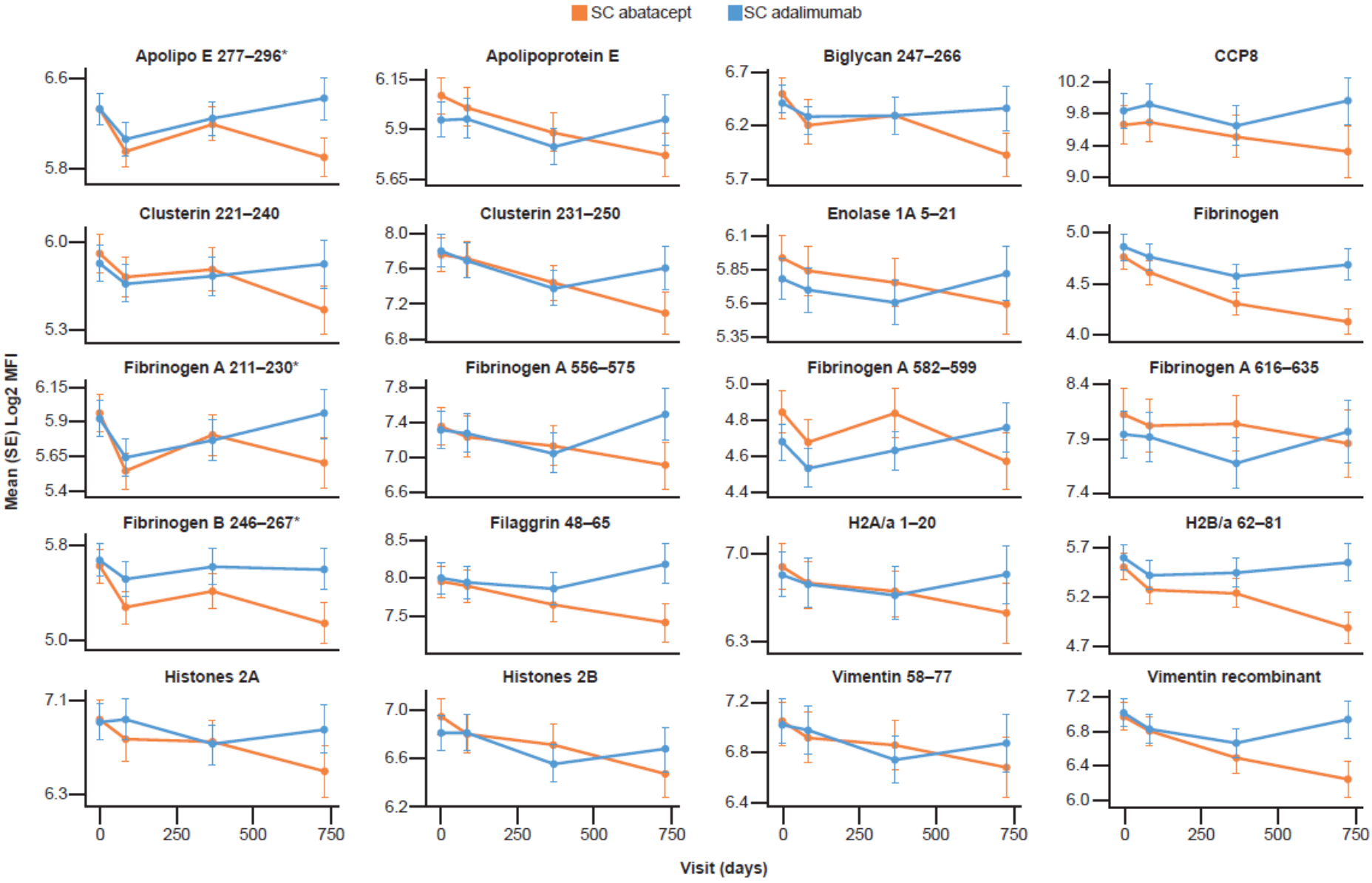
SC abatacept
SC adalimumab
Apolipo E 277–296*
Apolipoprotein E
Biglycan 247–266
CCP8
Clusterin 221–240
Clusterin 231–250
Enolase 1A 5–21
Fibrinogen
Fibrinogen A 211–230*
Fibrinogen A 556–575
Fibrinogen A 582–599
Fibrinogen A 616–635
Fibrinogen B 246–267*
Filaggrin 48–65
H2A/a 1–20
H2B/a 62–81
Histones 2A
Histones 2B
Vimentin 58–77
Vimentin recombinant
Mean (SE) Log2 MFI
Visit (days)
0
250
500
750

Fig. S3 Profiles of selected ACPAs from baseline to Year 2, by treatment group.

*Profiles which were significantly different ($p < 0.05$; linear regression model) between treatments at Year 2.

ACPA anti-citrullinated protein antibody, *CCP* cyclic citrullinated peptide, *MFI* mean fluorescence intensity, *SC* subcutaneous, *SE* standard error.