

Supplemental Table 32. The 20 most relevant pathways sorted by p-value for AI intervention.

Top-level pathway	Pathway name	Reactome Entities				Reactions		Gene
		found	ratio	p-value	FDR*	found	ratio	
Immune System	Initial triggering of complement	3 / 138	0.007	7.90e-05	0.009	6 / 21	0.001	C4A, IGLL1
Immune System	Regulation of Complement cascade	3 / 231	0.012	3.58e-04	0.011	17 / 42	0.003	C4A, IGLL1
Immune System	Activation of C3 and C5	2 / 45	0.002	3.61e-04	0.011	3 / 4	2.69e-04	C4A
Immune System	Complement cascade	3 / 240	0.013	4.01e-04	0.011	26 / 72	0.005	C4A, IGLL1
Metabolism of proteins	Post-translational protein phosphorylation	2 / 107	0.006	0.002	0.044	1 / 1	6.72e-05	AHSG, C4A
Development Biology	Formation of the cornified envelope	2 / 218	0.011	0.008	0.143	8 / 27	0.002	KRT80
Metabolism of proteins	Regulation of Insulin-like Growth Factor (IGF) transport and uptake by Insulin-like Growth Factor Binding Proteins (IGFBPs)	2 / 254	0.013	0.011	0.154	1 / 14	9.40e-04	AHSG, C4A
Metabolism of RNA	mRNA decay by 3' to 5'exoribonuclease	1 / 19	9.95e-04	0.012	0.154	1 / 3	2.02e-04	EXOSC3
Gene expression	RUNX2 regulates genes involved in differentiation of myeloid cells	1 / 23	0.001	0.014	0.164	1 / 2	1.34e-04	AHSG
Development Biology	Keratinization	2 / 303	0.016	0.015	0.164	15 / 34	0.002	KRT80
DNA replication	Unwinding of	1 / 47	0.002	0.029	0.222	1 / 4	2.69e-	KT80

Supplemental Table 32. The 20 most relevant pathways sorted by p-value for AI intervention.

	DNA						04	
Development Biology	NCAM1 interactions	1 / 69	0.004	0.042	0.222	1 / 10	6.72e-04	AZGP1
DNA replication	DNA strand elongation	1 / 71	0.004	0.044	0.222	1 / 15	0.001	KRT80
gene expression	RUNX1 regulates transcription of genes involved in differentiation of myeloid cells	1 / 74	0.004	0.046	0.222	1 / 7	4.70e-04	AHSG
Immune System	Classical antibody-mediated complement activation	1 / 95	0.005	0.058	0.222	2 / 2	1.34e-04	IgLL1
Transport of small molecules	Miscellaneous transport and binding events	1 / 100	0.005	0.061	0.222	1 / 13	8.73e-04	AZGP1
Immune System	Creation of C4 and C2 activators	1 / 103	0.005	0.063	0.222	2 / 8	5.37e-04	IgLL1
Vesicle-mediated transport	Scavenging of heme from plasma	1 / 115	0.006	0.07	0.222	1 / 12	8.06e-04	IgLL1
Immune System	FCERI mediated Ca ²⁺ mobilization	1 / 118	0.006	0.072	0.222	2 / 11	7.39e-04	IgLL1
Immune System	FCGR activation	1 / 123	0.006	0.075	0.222	6 / 6	4.03e-04	IgLL1