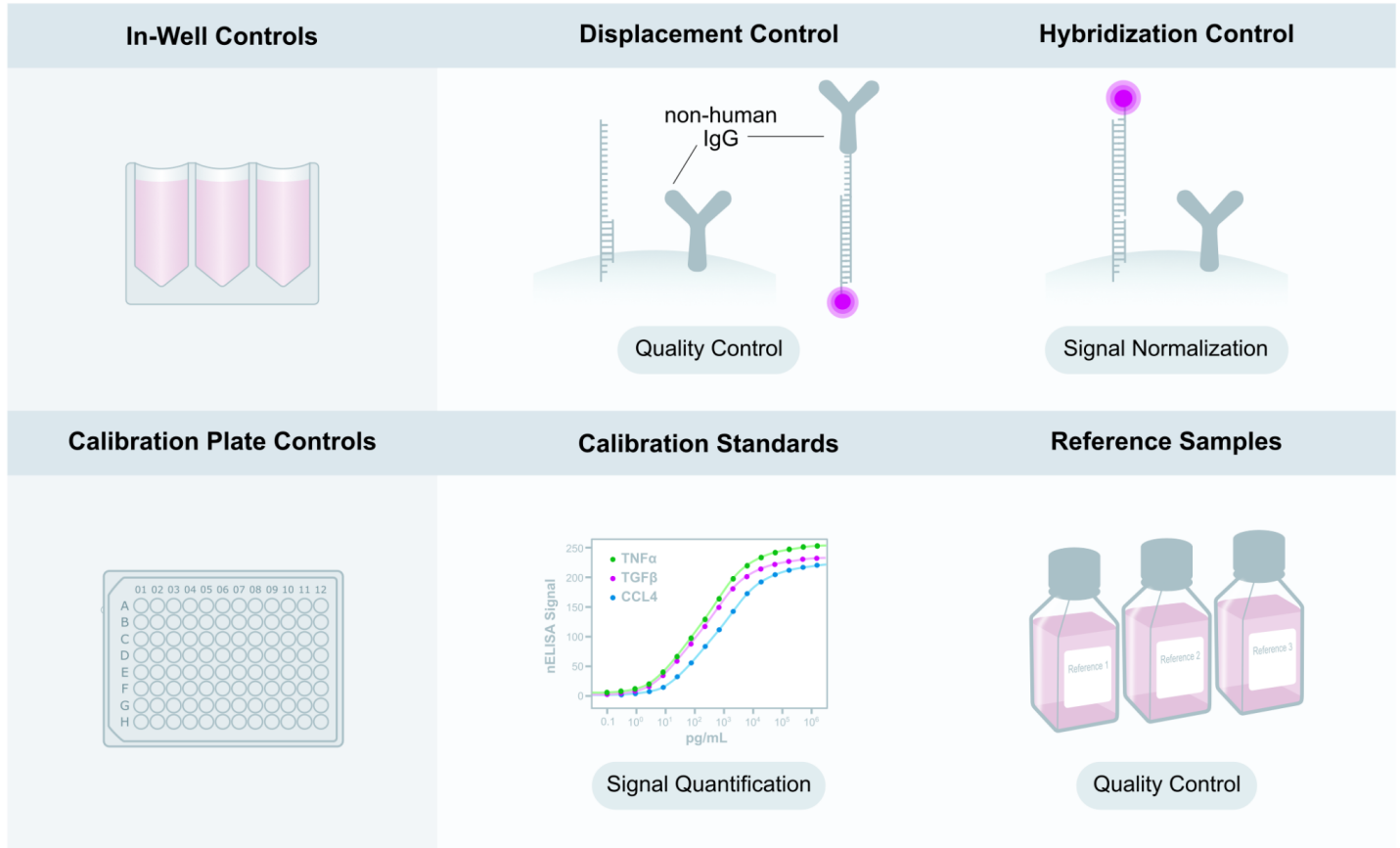


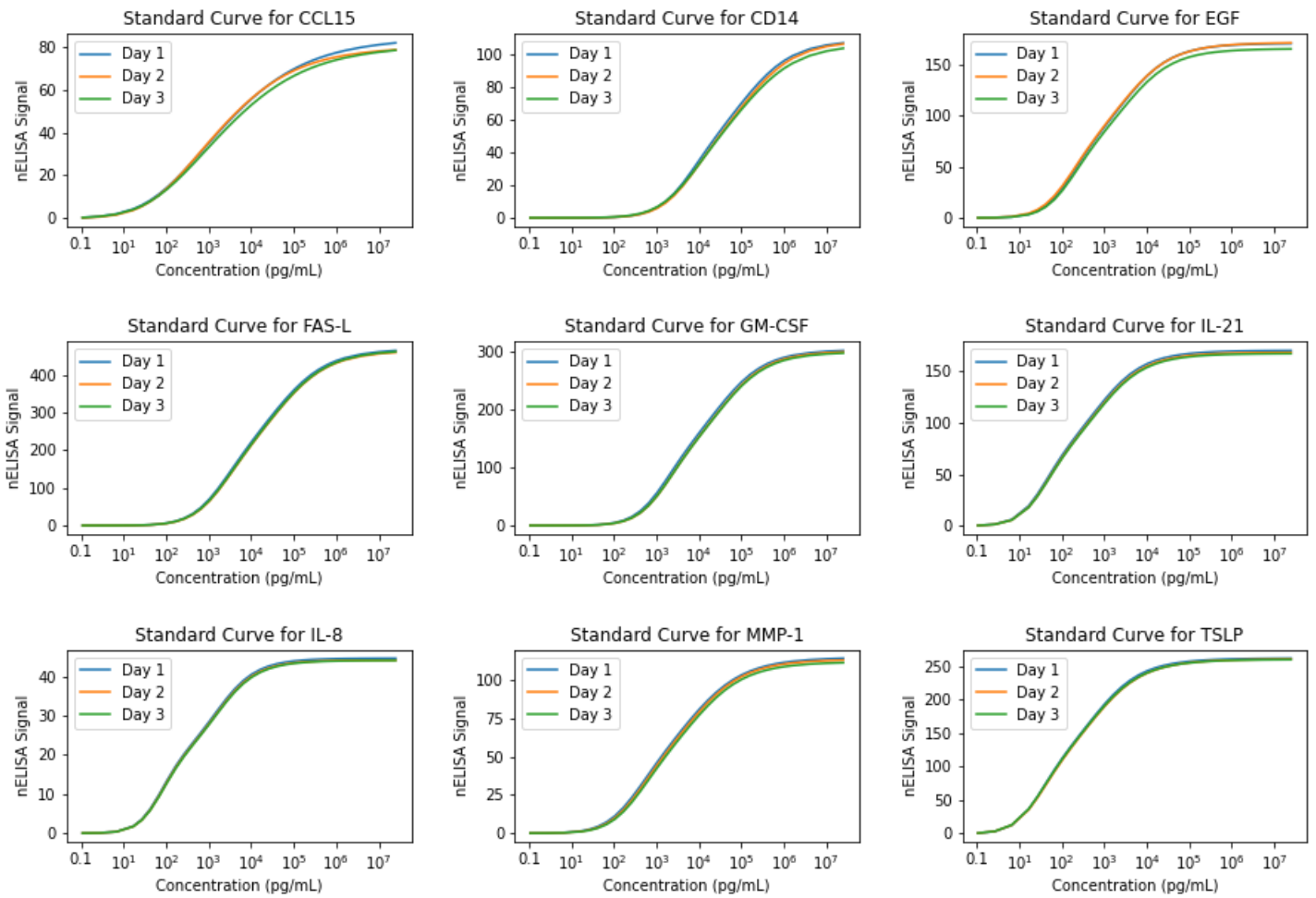
Suppl. Fig. 1: nELISA controls.

(top) nELISA profiling includes internal controls consisting of beads with modified architectures capturing different aspects of the detection and serving as controls in each well to maintain signal consistency across wells and plates. Displacement controls consist of CLAMPs where capture and detection antibodies are specific to a non-human antigen that should not be present in any sample, and are used for quality control. Signal normalization controls consist of beads with no detection antibody, directly binding to the displacer oligo. (bottom) nELISA also includes external controls that are run on a separate calibration plate; as a result, no space need be reserved on sample plates for these controls. Controls include calibration curves and biological reference samples used for quality control.



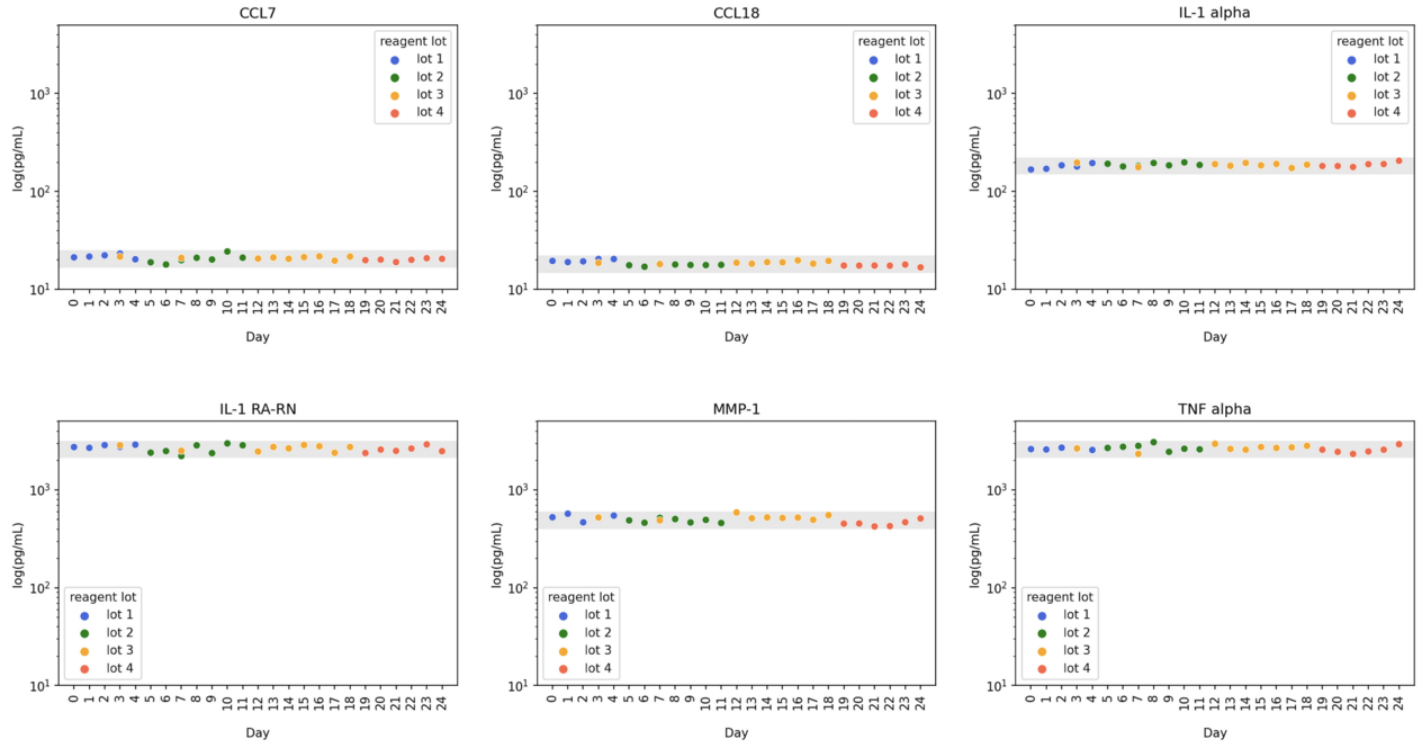
Suppl. Fig. 2: Example calibration curves.

Calibration curves are produced for each analyte in the nELISA panel for every profiling run. Overlapping curves over 3 days of profiling are shown for a subset of indicated CLAMPs.



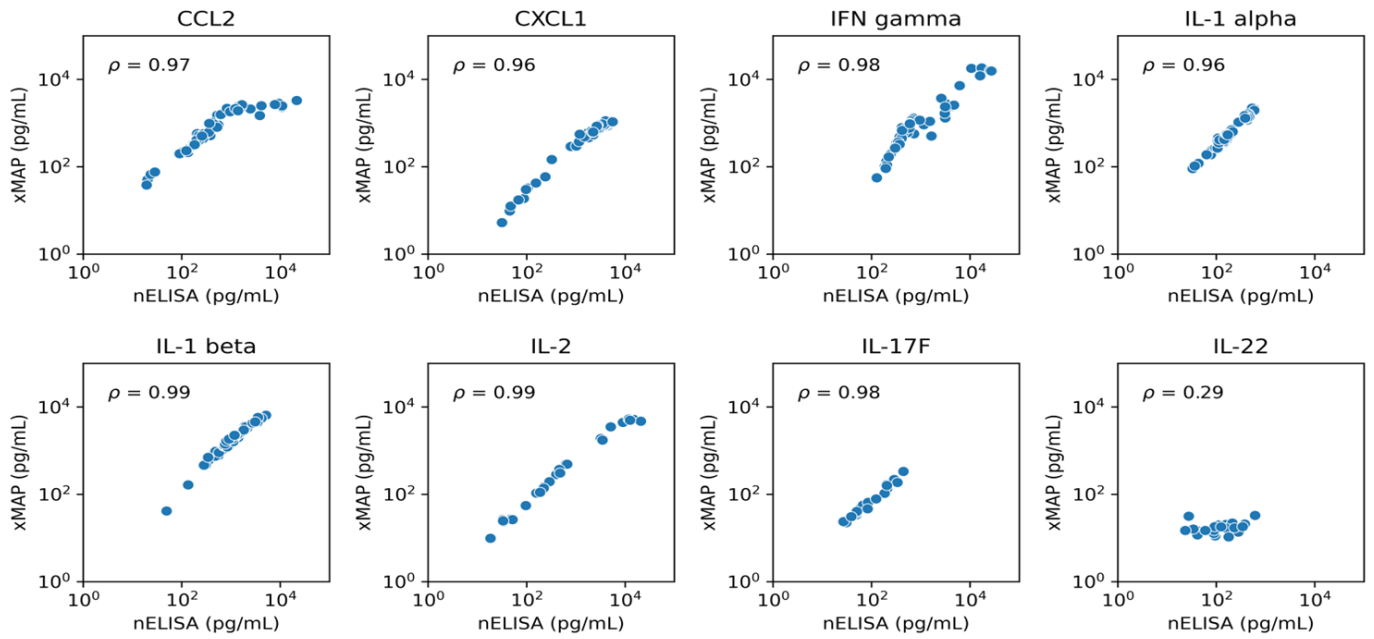
Suppl. Fig. 3: Measurement consistency over time and manufacturing lots.

Four lots of nELISA beads were used to repeatedly profile a reference sample included in every nELISA run. Shown are measured protein concentrations for a subset of indicated analytes over 24 different days of profiling; shaded area represents +/- 20% from average measurement, indicating minimal variation between lots and exquisite consistency over time.



Suppl. Fig. 4: Correlation between nELISA and xMAP.

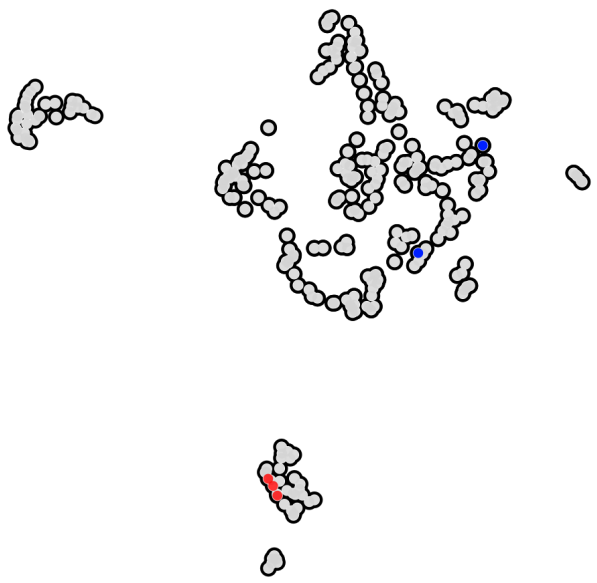
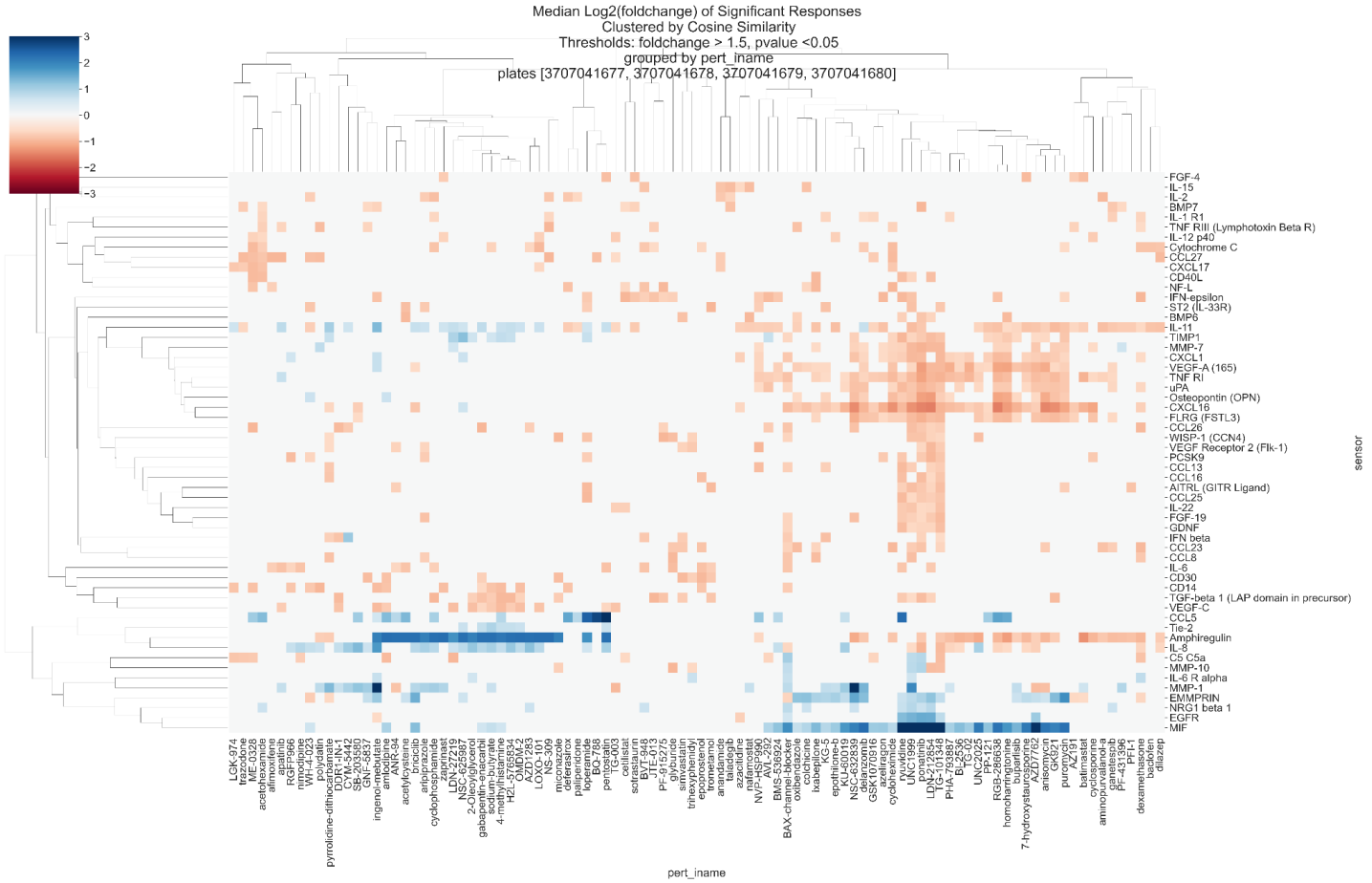
Cytokine levels in cell culture supernatants from stimulated PBMCs profiled with the nELISA 191-plex and a 48-plex panel based on the xMAP platform. Shown are the detected protein levels for a subset of sensors shared by both platforms and yielding detectable protein concentrations, with associated Spearman correlations.



Suppl. Fig. 7: A549 phenotypic screening.

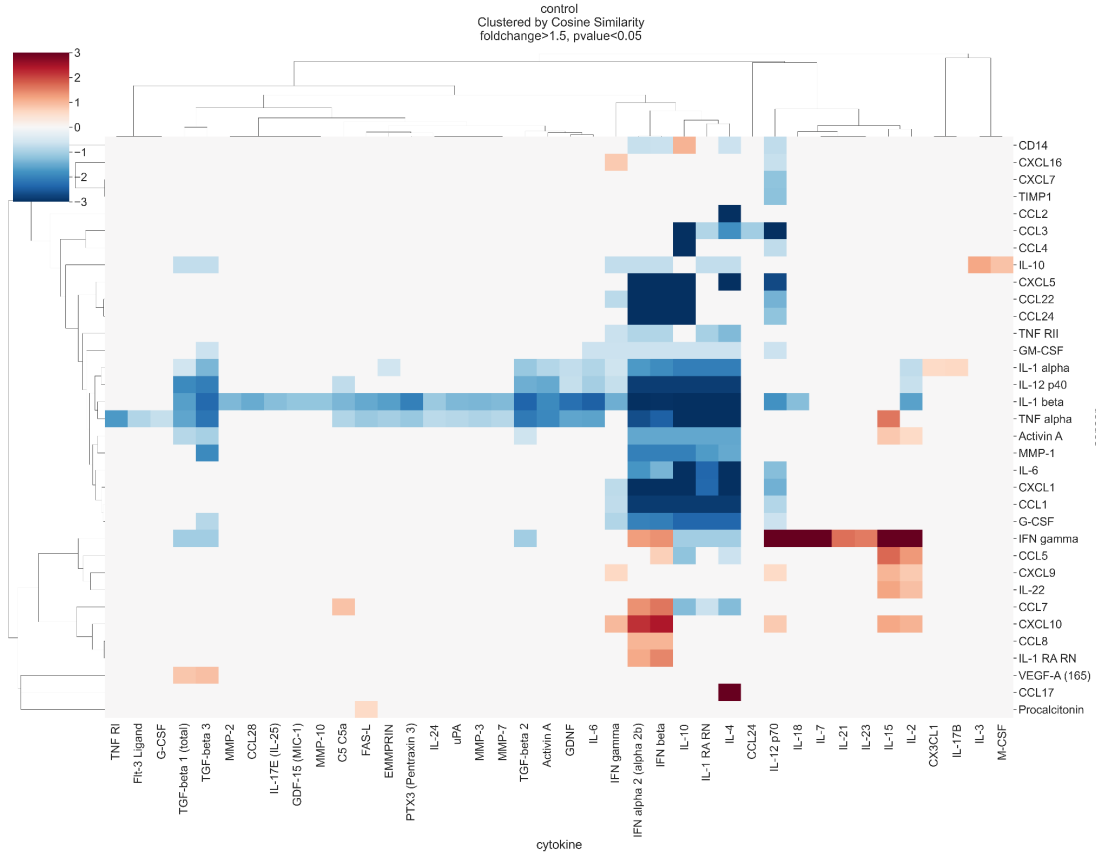
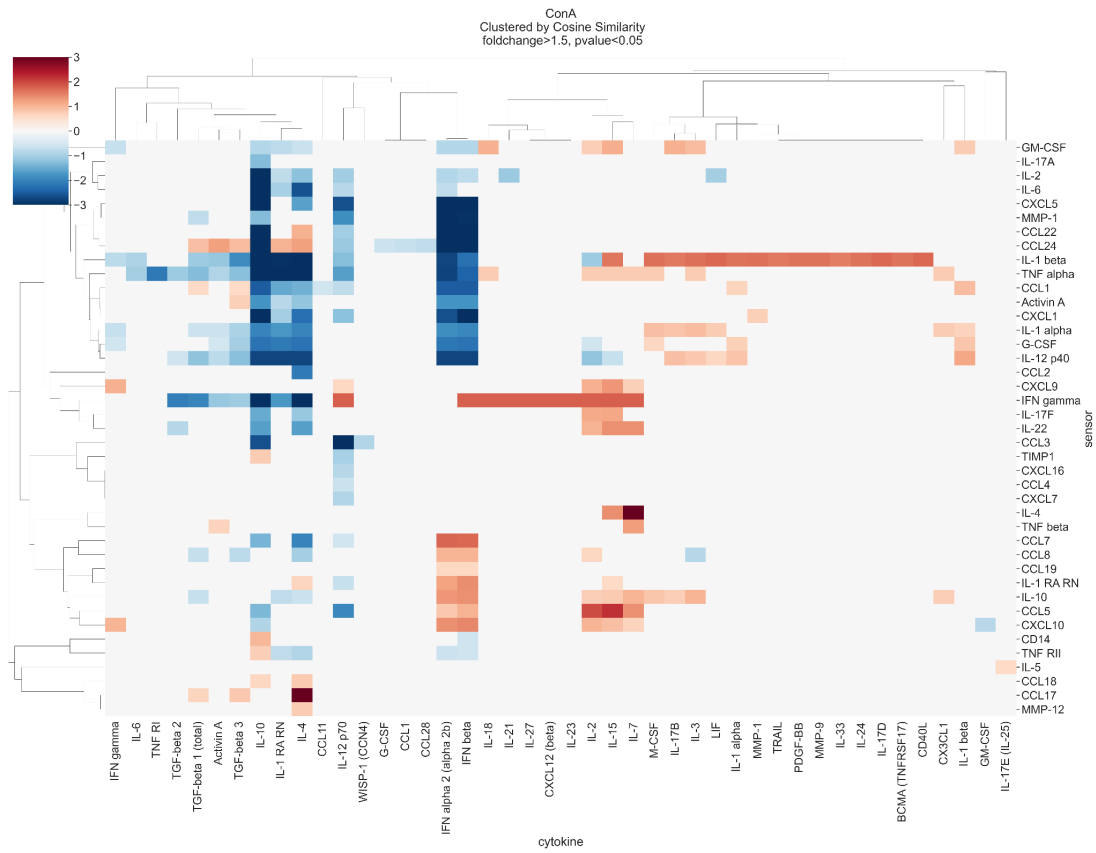
(top) Heatmap dendrogram of significant changes in cytokine expression levels in response to treatment with indicated compounds.

(bottom) UMAP clustering of compounds with shared effects on A549 secretomes; CHK inhibitors and the downstream Aurora B/C kinase inhibitor GSK1070916 are identified in red; pan-Aurora kinase inhibitors danusertib and AMG900 are colored blue.

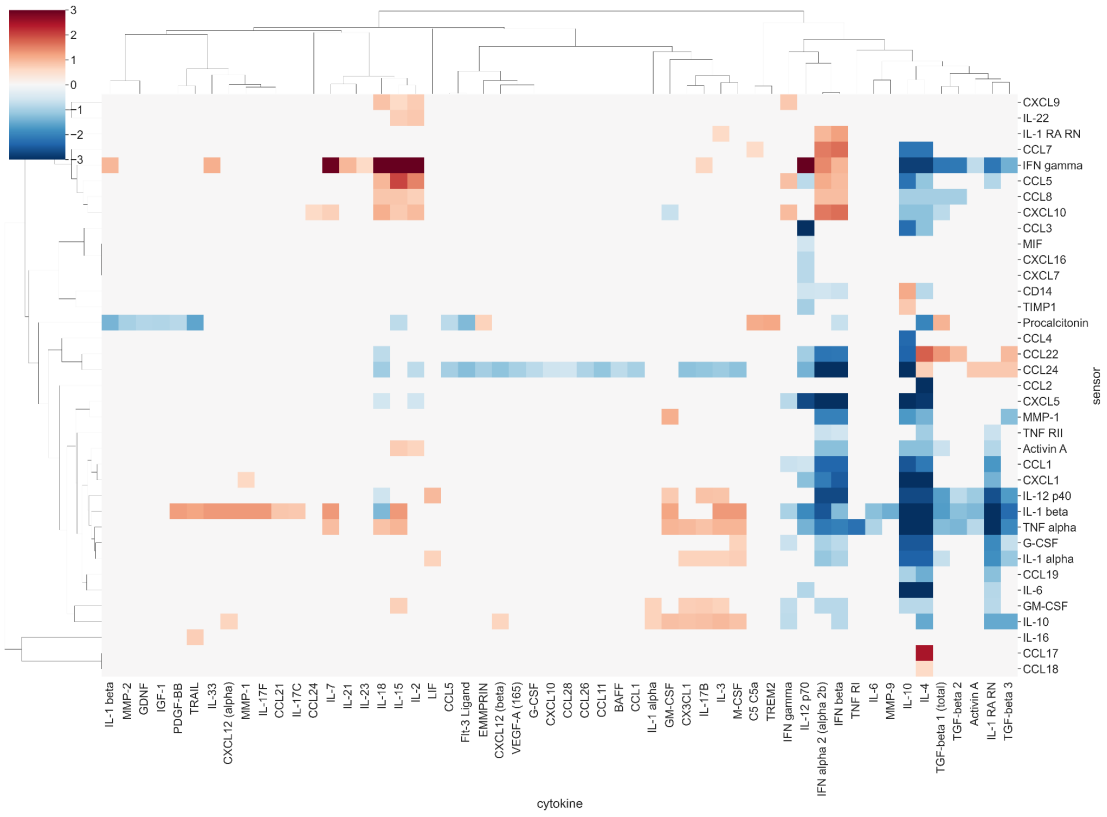


Suppl. Fig. 8: Heatmap dendrograms of cytokine interactions in each stimulus condition.

PBMCs were treated with indicated stimuli (ConA, Control, LPS, PMA/i or PolyIC; a separate heatmap is shown for each), and a library of 80 recombinant cytokines; shown are the significant fold changes in expression of each sensor in response to each recombinant cytokine.



PolyIC
 Clustered by Cosine Similarity
 foldchange>1.5, pvalue<0.05



Uniprot	Protein	Gene Name	LLOD (pg/mL)	ULOD (pg/mL)
P08476	Activin A	INHBA	158.4	1253384.8
Q9UNG2	AITRL (GITR Ligand)	TNFSF18 AITRL GITRL 1	732.3	2029446.9
P37840	alpha-Synuclein	SNCA NACP PARK1		
P15514	Amphiregulin	AREG AREGB SDGF	10.3	72254.3
P05067	Amyloid beta	APP A4 AD1	759.3	4911570.1
O75888	APRIL	TNFSF13 APRIL TALL2 2	96.8	12420.4
Q9Y275	BAFF	TNFSF13B BAFF BLYS T	2573.7	4670425.1
Q02223	BCMA (TNFRSF17)	TNFRSF17 BCM BCMA	25.2	1476157.7
P23560	BDNF	BDNF	11.8	495166.4
P12643	BMP2	BMP2 BMP2A	25.7	158463.9
P12645	BMP3	BMP3 BMP3A	6518.1	3965366.5
P12644	BMP4	BMP4 BMP2B DVR4	43.0	214213.0
P22004	BMP6	BMP6 VGR	22330.3	2962253.1
P18075	BMP7	BMP7 OP1	656.4	4297353.1
Q9UK05	BMP9	GDF2 BMP9	5.0	598944.4
P01031	C5/C5a	C5 CPAMD4	1.5	274415.8
P05937	Calbindin	CALB1 CAB27	156.4	4144773.8
P22362	CCL1	CCL1 SCYA1	3.5	22824.2
P51671	CCL11	CCL11 SCYA11	2.6	17770.4
Q99616	CCL13	CCL13 MCP4 NCC1 SCY	1.6	5488.9
Q16627	CCL14	CCL14 NCC2 SCYA14	2.0	56057.4
Q16663	CCL15	CCL15 MIP5 NCC3 SCY	0.6	1612307.4
O15467	CCL16	CCL16 ILINCK NCC4 SC	15.7	41417.5
Q92583	CCL17	CCL17 SCYA17 TARC	1.9	37813.1
P55774	CCL18	CCL18 AMAC1 DCCK1 I	1.6	32184.7
Q99731	CCL19	CCL19 ELC MIP3B SCYA	6.2	73761.0
P13500	CCL2	CCL2 MCP1 SCYA2	1.8	8802.9
P78556	CCL20	CCL20 LARC MIP3A SC	19.8	30574.1
O00585	CCL21	CCL21 SCYA21 UNQ78.	44.0	1755993.1
O00626	CCL22	CCL22 MDC SCYA22 A-	7.6	164807.7
P55773	CCL23	CCL23 MIP3 MPIF1 SCY	96.9	77953.0
O00175	CCL24	CCL24 MPIF2 SCYA24	7.6	31862.6
O15444	CCL25	CCL25 SCYA25 TECK	38.1	676134.3
Q9Y258	CCL26	CCL26 SCYA26 UNQ216/PRO242		
Q9Y4X3	CCL27	CCL27 ILC SCYA27	111.5	1175188.3
Q9NRJ3	CCL28	CCL28 SCYA28	7.7	59253.1
P10147	CCL3	CCL3 GOS19-1 MIP1A S	1.3	25392.6
P13236	CCL4	CCL4 LAG1 MIP1B SCY	5.9	68324.8
P13501	CCL5	CCL5 D17S136E SCYA5	1.8	5201.0
P80098	CCL7	CCL7 MCP3 SCYA6 SCY	3.9	5536.3
P80075	CCL8	CCL8 MCP2 SCYA10 SC	45.0	50256.8
P08571	CD14	CD14	69.7	1847643.7

Q86VB7	CD163	CD163 M130	3925.3	5024700.5
Q5ZPR3	CD276 (B7-H3)	CD276 B7H3 PSEC0249	789.5	1233225.3
P32970	CD27L	CD70 CD27L CD27LG T	2453.5	4919848.7
P28908	CD30	TNFRSF8 CD30 D1S166	1618.5	1654368.3
P29965	CD40L	CD40LG CD40L TNFSF5	17.4	351069.5
P26441	CNTF	CNTF	59.3	4274439.2
P02741	CRP	CRP PTX1	50.1	715617.6
P78423	CX3CL1	CX3CL1 FKN NTT SCYD	254.0	2963968.0
P09341	CXCL1	CXCL1 GRO GRO1 GRO	11.4	268519.6
P02778	CXCL10	CXCL10 INP10 SCYB10	26.6	56012.0
O14625	CXCL11	CXCL11 ITAC SCYB11 S	17.7	27214.7
P48061	CXCL12 (alpha)	CXCL12 SDF1 SDF1A S	17.2	48264.8
P48061	CXCL12 (beta)	CXCL12 SDF1 SDF1A S	13.5	1003520.2
O43927	CXCL13	CXCL13 BCA1 BLC SCYE	6.0	119996.2
O95715	CXCL14	CXCL14 MIP2G NJAC S	18.8	214476.1
Q9H2A7	CXCL16	CXCL16 SCYB16 SRPSO	6.5	450627.7
Q6UXB2	CXCL17	CXCL17 VCC1 UNQ473	18.4	212399.3
P19876	CXCL3	CXCL3 GRO3 GROG SC	5.7	5252.1
P02776	CXCL4	PF4 CXCL4 SCYB4	95.4	511256.5
P42830	CXCL5	CXCL5 ENA78 SCYB5	8.0	85960.0
P80162	CXCL6	CXCL6 GCP2 SCYB6	20.4	35260.1
P02775	CXCL7	PPBP CTAP3 CXCL7 SC	9.3	58955.3
Q07325	CXCL9	CXCL9 CMK MIG SCYB9	9.0	230711.0
P99999	Cytochrome C	CYCS CYC	974.1	286430.0
P01133	EGF	EGF	2.9	136661.0
P00533	EGFR	EGFR ERBB ERBB1 HER	39.5	2396952.0
P35613	EMMPRIN	BSG UNQ6505/PRO213	161.6	3145017.8
P48023	FAS-L	FASLG APT1LG1 CD95L	15.9	2197357.9
P05230	FGF-1	FGF1 FGFA	160.5	3102350.6
O95750	FGF-19	FGF19 UNQ334/PRO53	30.5	599004.7
P09038	FGF-2	FGF2 FGFB	27.1	88051.2
Q9NSA1	FGF-21	FGF21 UNQ3115/PRO1	114.2	4104819.7
P08620	FGF-4	FGF4 HST HSTF1 KS3	24.5	117570.3
P10767	FGF-6	FGF6 HST2 HSTF2	33.5	128444.5
P21781	FGF-7 (KGF)	FGF7 KGF	4.3	63753.8
P31371	FGF-9	FGF9	53.6	570678.6
P22607	FGFR3 (IIIc)	FGFR3 JTK4	406.3	1959101.2
O95633	FLRG (FSTL3)	FSTL3 FLRG UNQ674/P	18.8	388920.7
P49771	Flt-3 Ligand	FLT3LG	13.1	356591.7
P09919	G-CSF	CSF3 C17orf33 GCSF	16.1	131746.1
O95390	GDF-11 (BMP-11)	GDF11 BMP11	273.8	4613427.1
Q99988	GDF-15 (MIC-1)	GDF15 MIC1 PDF PLAB	7.9	126651.5
P39905	GDNF	GDNF	6.7	80204.4

P04141	GM-CSF	CSF2 GMCSF	41.6	841289.1
P10144	Granzyme B	GZMB CGL1 CSPB CTLA	4586.1	3361279.4
P01241	Growth Hormone (Somat GH1		38.6	1465366.7
P14210	HGF	HGF HPTA	72.9	886255.6
Q92956	HVEM	TNFRSF14 HVEA HVEM	45.1	1530655.0
P05362	ICAM-1	ICAM1	82.8	1643119.7
P13598	ICAM-2	ICAM2	1315.5	4604524.4
P01563	IFN alpha 2 (alpha 2b)	IFNA2 IFNA2A IFNA2B	23.1	1015243.6
P01574	IFN beta	IFNB1 IFB IFNB	17.7	345232.9
P01579	IFN gamma	IFNG	38.9	188337.4
Q86WN2	IFN-epsilon	IFNE IFNE1 UNQ360/P	1664.4	4070576.5
P05019	IGF-1	IGF1 IBP1	2243.5	4673624.6
P01583	IL-1 alpha	IL1A IL1F1	9.5	276639.2
P01584	IL-1 beta	IL1B IL1F2	10.2	87709.4
P14778	IL-1 R1	IL1R1 IL1R IL1RA IL1RT	120.0	1260165.3
P18510	IL-1 RA/RN	IL1RN IL1F3 IL1RA	53.2	2100195.8
P22301	IL-10	IL10	11.1	622881.2
P20809	IL-11	IL11	13.2	3881517.2
P29459	IL-12 p35	IL12A NKSF1	38.5	1159448.1
P29460	IL-12 p40	IL12B NKSF2	17.8	878191.8
P29459	IL-12 p70	IL12A NKSF1	16.3	235395.5
P40933	IL-15	IL15	18.9	670824.0
P40933 & Q1	IL-15/IL-15R alpha complex	IL15 & IL15RA	55.4	1459300.1
Q14005	IL-16	IL16	8.3	3745650.3
Q16552	IL-17A	IL17A CTLA8 IL17	41.1	1083101.1
Q9UHF5	IL-17B	IL17B IL20 NIRF ZCYTO	59.5	47819.3
Q9P0M4	IL-17C	IL17C UNQ561/PRO11	305.5	1421069.6
Q8TAD2	IL-17D	IL17D UNQ3096/PRO2	95.0	68341.1
Q9H293	IL-17E (IL-25)	IL25 IL17E UNQ3120/P	19.2	5119455.5
Q96PD4	IL-17F	IL17F	4.7	3782439.3
Q14116	IL-18	IL18 IGIF IL1F4	36.6	554601.0
P60568	IL-2	IL2	6.0	382201.0
P01589	IL-2 RA	IL2RA	56.9	2325155.1
Q9HBE4	IL-21	IL21	1.0	39066.2
Q9GZX6	IL-22	IL22 ILTIF ZCYTO18 UN	10.7	371635.4
Q969J5	IL-22 BP	IL22RA2 UNQ5793/PR	3717.0	4788254.9
Q9NPF7	IL-23	IL23A SGRF UNQ2498/	60.4	2079795.2
Q13007	IL-24	IL24 MDA7 ST16	48.3	3050192.7
Q8NEV9	IL-27	IL27 IL27A IL30	14.2	524163.9
Q8IZJ0	IL-28A	IFNL2 IL28A ZCYTO20	5.7	2000050.4
Q8IU54	IL-29	IFNL1 IL29 ZCYTO21	20.1	3678013.5
P08700	IL-3	IL3	524.9	48721.3
Q6EBC2	IL-31	IL31	26.9	3805176.0

P24001	IL-32 (alpha)	IL32 NK4 TAIF	232.2	2919949.8
O95760	IL-33	IL33 C9orf26 IL1F11 NF	21.1	1402724.1
Q14213	IL-35	EBI3 IL27B	587.0	4471381.4
P05112	IL-4	IL4	2.8	191393.0
P05113	IL-5	IL5	3.9	496838.6
P05231	IL-6	IL6 IFNB2	8.3	877447.8
P08887	IL-6 R alpha	IL6R	11.4	647680.0
P13232	IL-7	IL7	4.3	9810.2
P10145	IL-8	CXCL8 IL8	3.5	11643.4
P15248	IL-9	IL9	3735.5	4891685.7
P41159	Leptin	LEP OB OBS	49.4	3361527.9
P15018	LIF	LIF HILDA	7.9	418219.0
P78380	LOX1 (OLR1)	OLR1 CLEC8A LOX1	20.5	1781872.9
P09603	M-CSF	CSF1	166.9	821814.6
P07333	M-CSF R (CD115)	CSF1R FMS	536.3	596833.1
Q13421	Mesothelin	MSLN MPF	301.4	4952685.7
P14174	MIF	MIF GLIF MMIF	22.1	4445989.7
P03956	MMP-1	MMP1 CLG	3.3	536936.4
P09238	MMP-10	MMP10 STMY2	329.1	2188296.2
P39900	MMP-12	MMP12 HME	32.0	334447.4
P08253	MMP-2	MMP2 CLG4A	3420.1	3879473.7
P08254	MMP-3	MMP3 STMY1	21.2	2659660.7
P09237	MMP-7	MMP7 MPSL1 PUMP1	32.8	831478.1
P14780	MMP-9	MMP9 CLG4B	1131.1	3386978.6
P07196	NF-L	NEFL NF68 NFL	27998.5	192174.3
P01138	NGF beta	NGF NGFB	3.7	113544.0
Q02297	NRG1 beta 1	NRG1 GGF HGL HRGA	164.6	511762.7
P13725	Oncostatin M (OSM)	OSM	10.9	175054.2
P10451	Osteopontin (OPN)	SPP1 BNSP OPN PSEC0	143.4	3131871.1
Q8NBP7	PCSK9	PCSK9 NARC1 PSEC005	507.5	3398229.3
P01127	PDGF-BB	PDGFB PDGF2 SIS	1220.5	399584.0
P49763	PLGF	PGF PGFL PLGF	31.9	277595.4
P26022	PTX3 (Pentraxin 3)	PTX3 TNFAIP5 TSG14	143.1	2375867.0
Q9HD89	Resistin	RETN FIZZ3 HXCP1 RST	142.6	2160416.8
PODJI8	SAA	SAA1	2640.8	4367304.3
P21583	SCF	KITLG MGF SCF	21.7	4028932.8
Q01638	ST2 (IL-33R)	IL1RL1 DER4 ST2 T1	100.1	132439.6
P01137	TGF-beta 1 (LAP domain i	TGFB1 TGFB	34.6	1833062.7
P01137	TGF-beta 1 (total)	TGFB1 TGFB	18.5	63287.3
P61812	TGF-beta 2	TGFB2	64.9	121809.2
P10600	TGF-beta 3	TGFB3	49.3	860397.4
Q02763	Tie-2	TEK TIE2 VMCM VMCM	403.5	3099346.9
P01033	TIMP1	TIMP1 CLGI TIMP	13.0	320543.3

P13726	Tissue Factor (TF)	F3	11.1	2145895.1
P01375	TNF alpha	TNF TNFA TNFSF2	30.7	1948014.7
P01374	TNF beta	LTA TNFB TNFSF1	197.4	14280.5
P19438	TNF RI	TNFRSF1A TNFAR TNFF	67.6	1593844.0
P20333	TNF RII	TNFRSF1B TNFBR TNFF	18.1	628088.5
P36941	TNF RIII (Lymphotoxin Be	LTBR D12S370 TNFCR	140.5	3411941.5
P40225	TPO (Thrombopoietin)	THPO MGDF	364.7	1209706.7
P50591	TRAIL	TNFSF10 APO2L TRAIL	896.0	2248416.3
Q9NZC2	TREM2	TREM2	2463.4	5426102.1
Q969D9	TSLP	TSLP	0.7	45525.2
O43508	TWEAK	TNFSF12 APO3L DR3LC	39.2	96416.3
P00749	uPA	PLAU	183.4	4800650.7
P19320	VCAM-1	VCAM1	627.0	3045738.2
P35968	VEGF Receptor 2 (Flk-1)	KDR FLK1 VEGFR2	474.8	3748541.5
P15692	VEGF-A (165)	VEGFA VEGF	12.4	85831.4
P49767	VEGF-C	VEGFC	1496.3	3921745.2
O43915	VEGF-D	VEGFD FIGF	35.3	1785955.1
P17948	VEGFR-1	FLT1 FLT FRT VEGFR1	111.2	3076963.4
O95388	WISP-1 (CCN4)	CCN4 WISP1	33.4	801513.2
P47992	XCL1 (Lymphotactin)	XCL1 LTN SCYC1	37.6	584462.3