Computational Health Laboratory Report
Supplementary material

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Note: of course, this document does not contain *all* the material we have produced (just keep in mind that, for each patient, we produce at least 30 plots!). This file contains only the data and the plots we have deemed useful, but not crucial, to understand the project, but that could not fit in the main report without violating the 10-page constraint.

Table 1: List of cells known to be present in the TI IMM and the CO IMM datasets

Cell name	Markers
B cells	MS4A1;CD19;VPREB3;CD79A;BANK1;CD79B;CD22
B cells AICDA+ LRMP+	AICDA;LRMP;TCL1A;SNX29P2;NEIL1
DC1	CLEC9A;IDO1;CPNE3;BATF3
DC2 CD1D-	FCER1A;CLEC10A;CD1D
DC2 CD1D+	FCER1A;CLEC10A;CD1D
IELs ID3+ ENTPD1+ (NK-like cells ID3+ ENTPD1+)	ID3;ENTPD1;GZMA;CD247;CD7;HOPX
ILCs	ALDOC;LINC00299;LST1;IL4I1;AREG
Immune Cycling cells	STMN1;HMGB2;TCL1A;NUSAP1;KIAA0101;TOP2A;TYMS;CDK1;UBE2C;PTTG1
Macrophages	CD163;C1QC;C1QA;C1QB
Macrophages CCL3+ CCL4+	CCL3;CCL4;DAB2;A2M
Macrophages CXCL9+ CXCL10+	CXCL10;CXCL9;GBP1;CXCL11
Macrophages LYVE1+	LYVE1;F13A1;CCL18
Macrophages Metallothionein	MT1G;MT1X;MT2A;MT1H;MT1E;MT1F;MT1M
Macrophages PLA2G2D+	PLA2G2D;MMP9;PTGDS
Mast cells	TPSAB1;CPA3;CTSG;HDC;GATA2;VWA5A;SLC18A2
Mature DCs	LAMP3;FSCN1;CCL19;CCL22;IDO1;CCR7;MARCKSL1
Monocytes CHI3L1+ CYP27A1+	CHI3L1;CYP27A1
Monocytes S100A8+ S100A9+	S100A9;S100A8;FCN1;G0S2;EREG;FPR1
Neutrophils S100A8+ S100A9+	S100A8;S100A9;FCGR3B;APOBEC3A;S100A12;FCN1;ACSL1;FPR2;FPR1
NK cells KLRF1+ CD3G-	KLRF1;NCAM1;KLRD1
Plasma cells	IGJ;MZB1;IGLL5;DERL3;SSR4;TNFRSF17;FKBP11;SEC11C;ANKRD28;AL928768.3
T cells CD4+ FOSB+	CD4;FOSB;IL7R;RORA;CD2
T cells CD4+ IL17A+	IL17A;IL22;CXCR6;CCL20
T cells CD8+	CD8A;CD8B
T cells CD8+ KLRG1+	KLRG1;GZMH;IFNG;CD8B;CD8A
T cells Naive CD4+	CCR7;SELL;TCF7
T cells OGT+	OGT;MIAT;CELF2;RORA;ANKRD44;ARAP2;AKNA;CBLB
Tregs	CTLA4;TIGIT;TBC1D4;BATF;TNFRSF4

Table 2: List of cells known to be present in TI STR and the CO STR datasets

Cell name	Markers
Activated fibroblasts CCL19+ ADAMADEC1+	CCL19;ADAMDEC1
Endothelial cells CD36+	CD36;RBP7;TMEM88;PLVAP;COL15A1
Endothelial cells DARC+	DARC;SELE;C2CD4B;GPR126;CPE
Endothelial cells LTC4S+ SEMA3G+	SEMA3G;LTC4S;C10orf10
Fibroblasts ADAMDEC1+	CCL11;ADAMDEC1;CCL13;HAPLN1
Fibroblasts KCNN3+ LY6H+	KCNN3;LY6H;DPT;C7;;SCN7A
Fibroblasts NPY+ SLITRK6+	NPY;SLITRK6;F3;EDNRB;NSG1
Fibroblasts SFRP2+ SLPI+	SLPI;SFRP2;IGFBP6;MFAP5
Fibroblasts SMOC2+ PTGIS+	SMOC2;PTGIS;F3;PCSK6;ADAMTSL3;PCSK6
Glial cells	GPM6B;S100B;PLP1;NRXN1;CDH19;SCN7A;LGI4;SPP1
Inflammatory fibroblasts IL11+ CHI3L1+	CHI3L1;IL11;MMP3;MMP1;TNC
Myofibroblasts GREM1+ GREM2+	GREM1;GREM2;ACTG2;DES;TAGLN;MYH11
Myofibroblasts HHIP+ NPNT+	HHIP;NPNT;SOSTDC1;ACTG2;ACTA2;MYH11;TAGLN
Pericytes HIGD1B+ STEAP4+	NOTCH3;HIGD1B;STEAP4;COX4I2;FABP4
Pericytes RERGL+ NTRK2+	NTRK2;RERGL;PLN;NOTCH3
Stromal Cycling cells	HMGB2;UBE2C;PTTG1;TOP2A;MKI67;CDC20;H2AFZ;CCNB1;BIRC5;NUSAP1

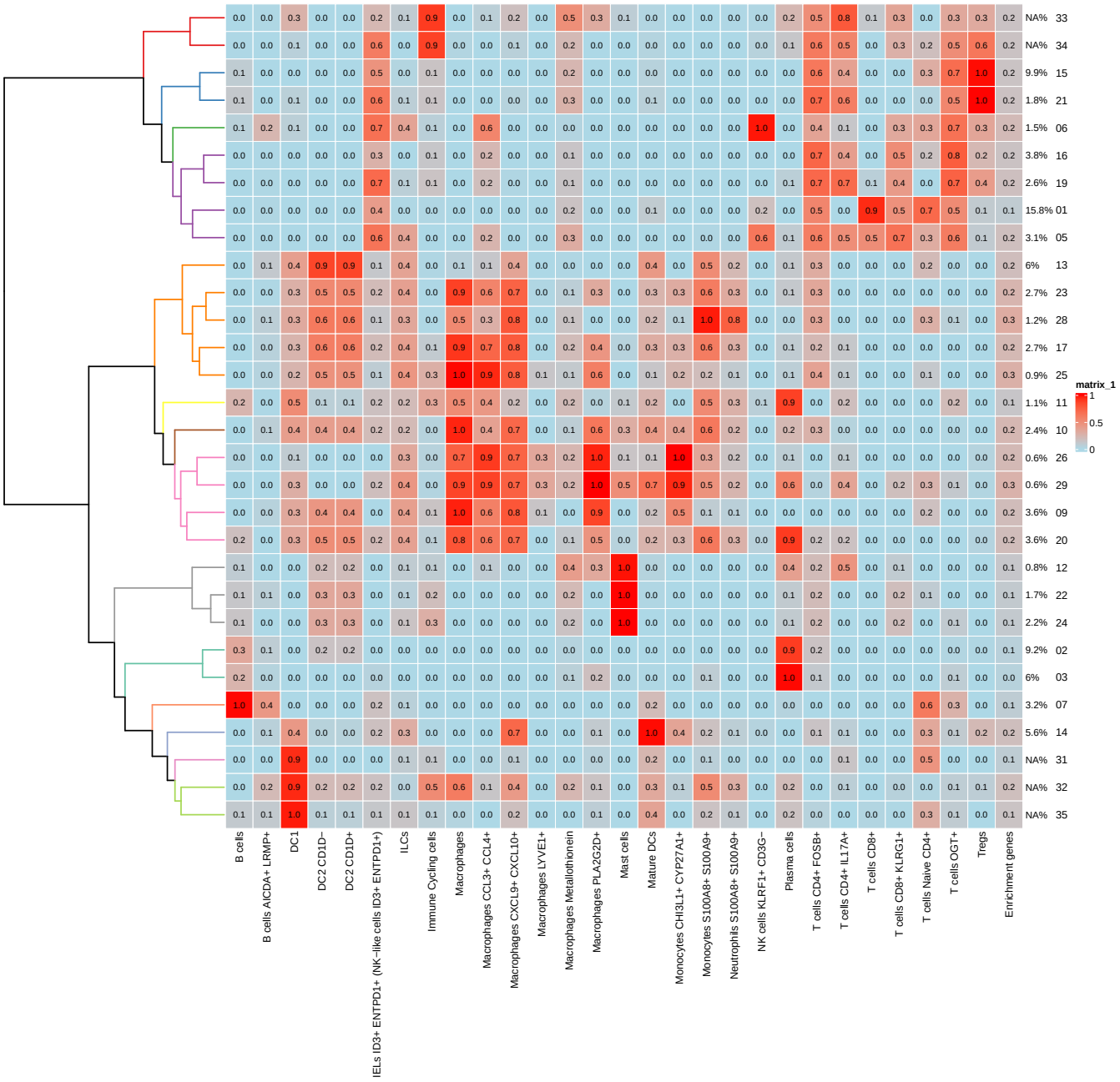

Figure 1: Heatmap of the cell markers against the clusters found on patient I104689. Note the last column on the right ("Enrichment genes"), which contains the whole list of genes we were asked to analyze the enrichment of. This feature can help with giving a good idea of which clusters do have the highest "activity".

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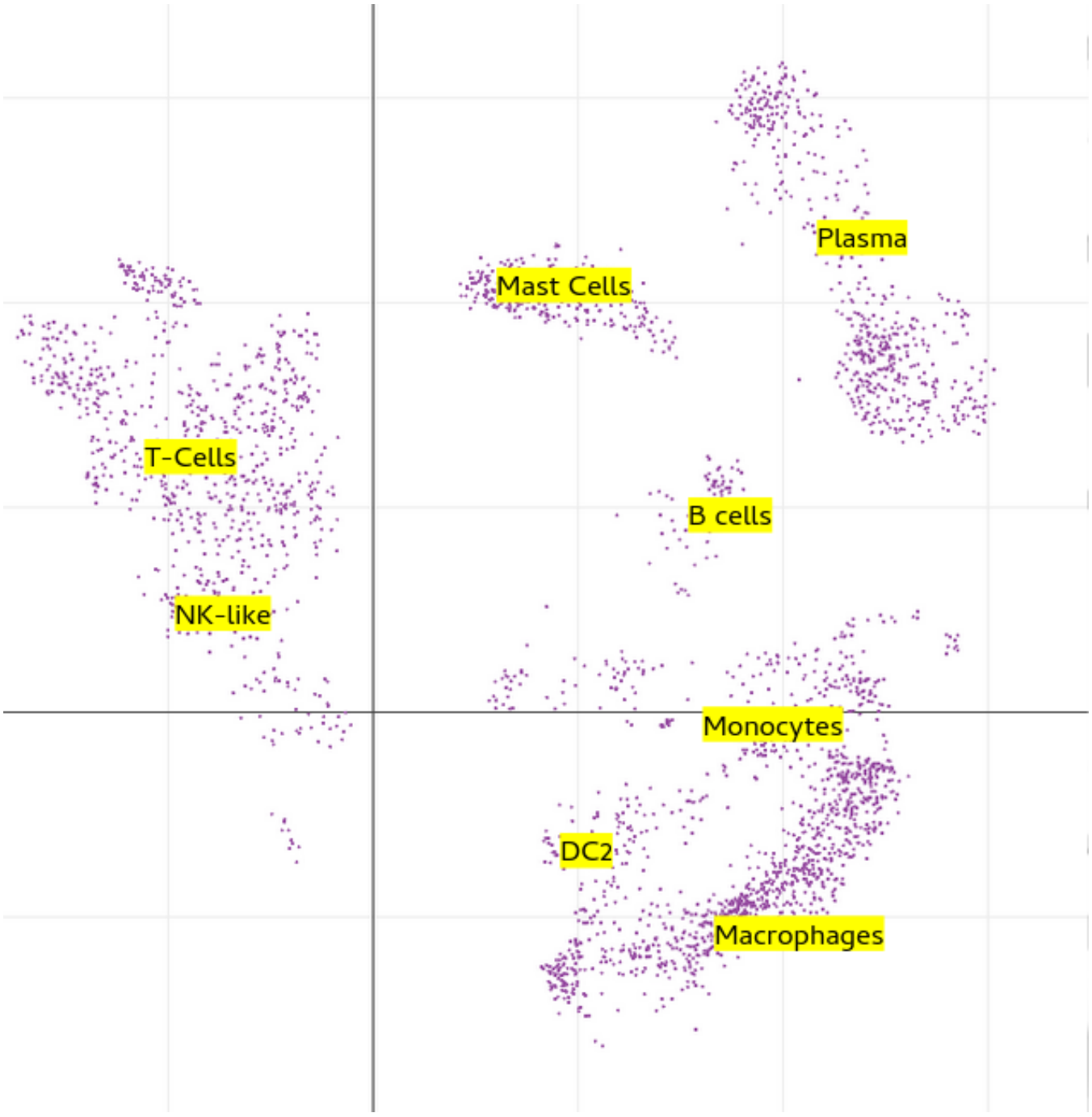

Figure 2: A PCA of patient I104689 from Kong et. al, retrieved here

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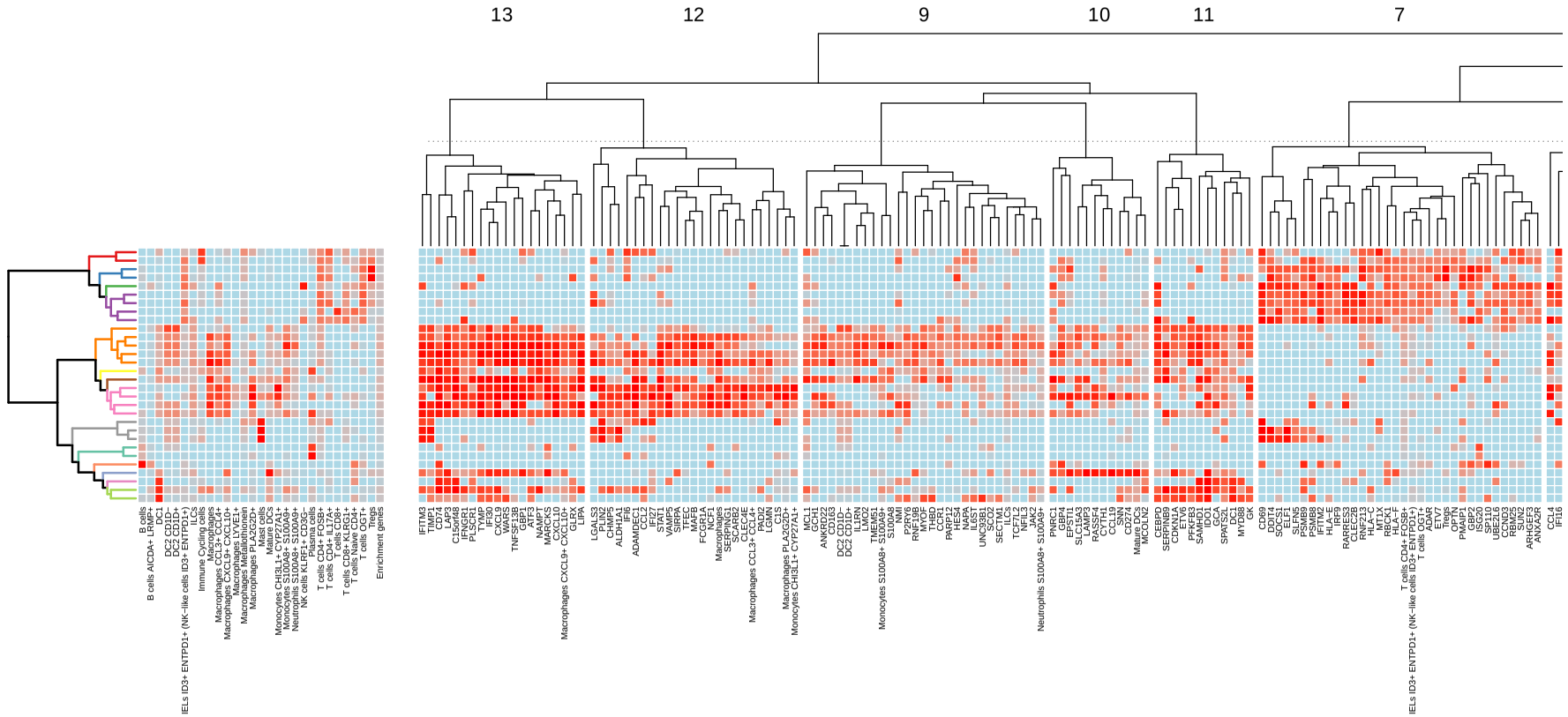

Figure 3: The enrichment heatmap of patient I104689 (cropped on the right to allow for better visibility, full picture available in the repository as TI_IMM_I104689__27_enrichmentHm_13.pdf). As per the professor's request, the heatmap featured on the left is the same heatmap which, in this patient's case, is the one seen in figure 2, in order to have a better visual of in hich clusters each gene is enriched in.

Table 3: Genes found to behave like the markers of the listed cells in the TI IMM dataset, only when the donor has an healthy intestine. Only one gene, to the best of our knowledge, was already known to be related to that particular cell type.

Cell name	New genes	Known genes
B cells, B cells AICDA+ LRMP+	NCF1;PXK	
Macrophages CCL3+ CCL4+	LIPA	
Macrophages CXCL9+ CXCL10+	CASP7	
Macrophages LYVE1+	FCGR1A	
Monocytes CHI3L1+ CYP27A1+	NDC80;HELZ2;IL15RA;STARD5;SLC16A1;PI4K2B	
Neutrophils S100A8+ S100A9+		S100A8
T cells CD4+ IL17A+	DDX58	
T cells CD8+, T cells CD8+ KLRG1+	CCL5;GZMB	
T cells Naive CD4+, Tregs	SUN2;SOCS1;SLFN5;FAM134B;	
T cells OGT+	ANXA2R	

Table 4: Genes found to behave like the markers of the listed cells in the TI IMM dataset, only when the donor has Chron's disease, but donated a portion of intestine which was not inflamed.

Cell name	New genes	Known genes
B cells	MX1;HSH2D;AIM2;STAP1	
B cells AICDA+ LRMP+	MX1;HSH2D;AIM2	
DC1	Mature DCs;LAMP3	IDO1
DC2 CD1D-, DC2 CD1D+	PLSCR1	
Macrophages	MAFB;LGMN	
Macrophages CCL3+ CCL4+	LGMN	
Mature DCs		IDO1;LAMP3
Monocytes CHI3L1+ CYP27A1+	MYOF;APOBEC3A;ERLIN1;LRG1;SAMD4A;FZD5;TNFAIP6 STEAP4;ST3GAL4;MT1H;IFNLR1;GPX2;FFAR2;ENPP1 CYP1B1;CXCL11;BCL2L14;BATF2;AQP9;ANKRD22	
T cells CD4+ IL17A+	IRF9	

Table 5: Genes found to behave like the markers of the listed cells in the TI IMM dataset, only when the donor has Chron's disease and donated a portion of inflamed intestine.

Cell name	New genes
IELs ID3+ ENTPD1+ (NK-like cells ID3+ ENTPD1+)	ANXA2R
Monocytes S100A8+ S100A9+	THBD
Neutrophils S100A8+ S100A9+	TCF7L2
Plasma cells	CD38;COMMD3
T cells CD4+ FOSB+, T cells OGT+	SOCS1;SLFN5;RARRES3