


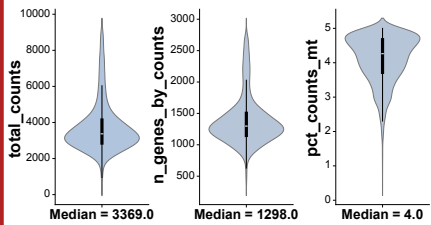
A



.h5 files

Easy ambient RNA removal
(CellBender)

Semi-automated quality control
(Scanpy, Seurat, scDbfFinder, Scrublet, DoubletDetection)



total_counts
Median = 3369.0

n_genes_by_counts
Median = 1298.0

pct_counts_mt
Median = 4.0

Filter based on quantiles
Filter based on absolute cutoffs
Doublet removal
Filter based on mitochondrial content
Evaluate samples correlation

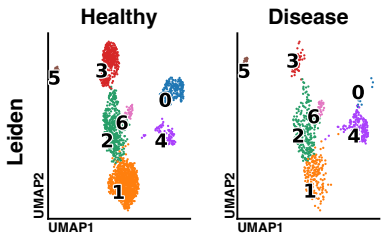
Multi-platform Support
(Zellkonverter)

SeuratObject SingleCell Experiment

AnnData

B

Batch integration and clustering



Healthy Disease

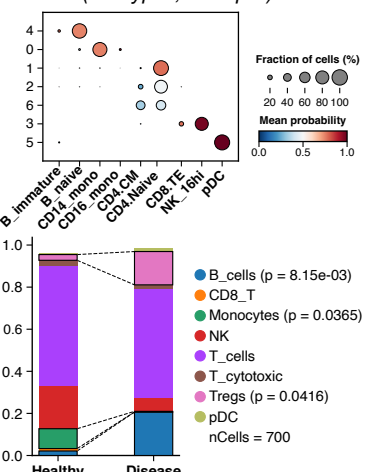
Leiden

UMAP2

UMAP1

Harmony, Scanorama, scVI, CCA, BBKNN

Identification and evaluation of cell population
(Celltypist, Scanpro)



Fraction of cells (%)

Mean probability

Healthy Disease

B_immature
 B_naive
 CD4_T_mono
 CD4_CM
 CD4_naive
 CD8_TE
 NK_16n
 pDC

B_cells (p = 8.15e-03)
 CD8_T
 Monocytes (p = 0.0365)
 NK
 T_cells
 T_cytotoxic
 Tregs (p = 0.0416)
 pDC
 nCells = 700

C

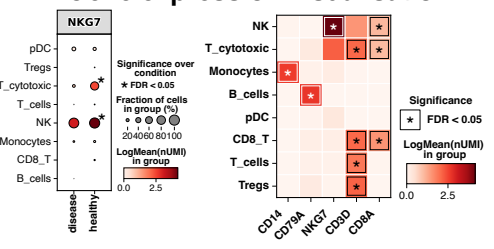
Pseudo-bulk and single-cell differential expression analysis

Pseudobulk
DESeq2
EdgeR
t-test

Consensus

Single-Cell
Wilcoxon
t-test
MAST
LogisticReg

Gene expression visualisation

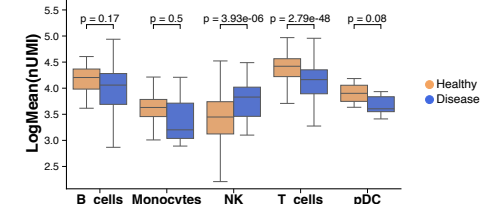


Significance over condition
* FDR < 0.05

LogMean(nUMI) in group

Healthy Disease

RPL11

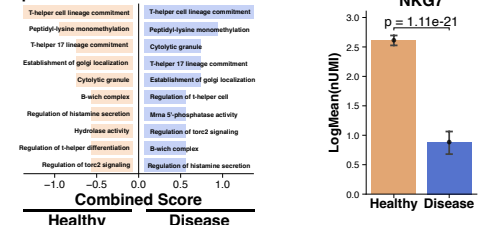


LogMean(nUMI)

Healthy Disease

p = 0.17
 p = 0.5
 p = 3.93e-06
 p = 2.79e-48
 p = 0.08

Top 10 GO Terms in each Condition



Healthy Disease

T-helper cell lineage commitment
 Peptidyl-lysine monomethylation
 T-helper 17 lineage commitment
 Establishment of gap localization
 Cytolytic granule
 B-cell complex
 Regulation of histamine secretion
 Hydrolase activity
 Regulation of i-helper differentiation
 Regulation of t-helper signaling
 Regulation of histamine secretion

T-helper cell lineage commitment
 Peptidyl-lysine monomethylation
 Cytolytic granule
 Establishment of gap localization
 Regulation of i-helper cell
 Mena 5'-phosphatase activity
 Regulation of tork2 signaling
 B-cell complex
 Regulation of histamine secretion

Combined Score
 Healthy Disease

LogMean(nUMI)
 Healthy Disease
 p = 1.11e-21