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**Supplemental information**

**Human alpha cell transcriptomic  
signatures of types 1 and 2 diabetes highlight  
disease-specific dysfunction pathways**

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Supplementary Figure 1 - Pipeline for the identification of high-quality cells

The figure illustrates the steps implemented to define high- and low-quality cells.

Supplementary Figure 2 - UMAP representation of T1D with confounders

The single-cells from the T1D dataset are reported with cells color-labeled according to the single-cell technology used for sample preparation (left) and the HPAP ID of the donor (right).

Supplementary Figure 3 - UMAP representation of T2D with confounders

The single-cells from the T2D dataset are reported with cells color-labeled according to the single-cell technology used for sample preparation (left) and the HPAP ID of the donor (right).

Supplementary Figure 4 - Expression of genes involved in Glycolysis in T1D and T2D datasets

The KEGG map of the Glycolysis pathway (hsa00010) is reported with the enzymes colored according to the fold-change of the corresponding genes in T1D (left) and T2D (right) datasets.

Supplementary Figure 5 - Expression of genes involved in Insulin Signaling in T1D and T2D datasets

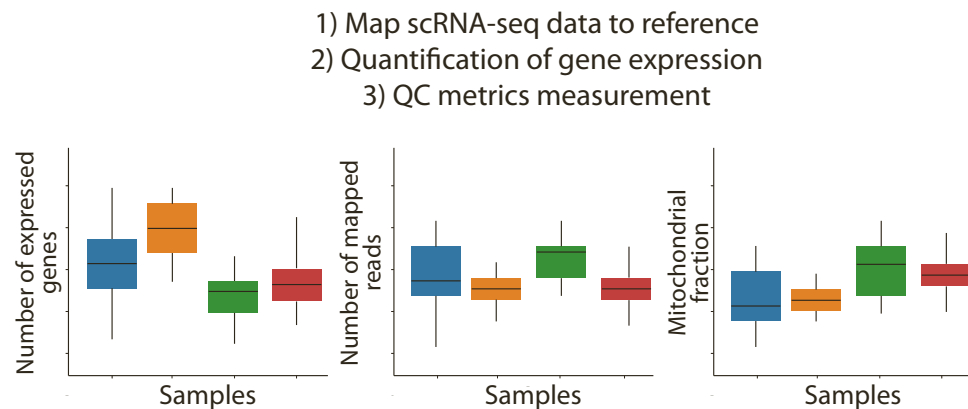
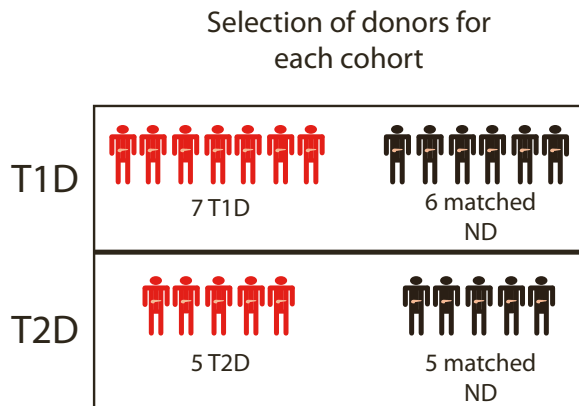
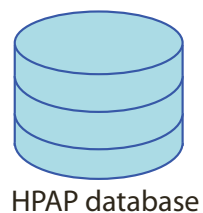
The KEGG map of the Insulin Signaling pathway (hsa04910) is reported with the enzymes coloured according to the fold-change of the corresponding genes in T1D (top) and T2D (bottom) datasets.

Supplementary Figure 6 - Expression of genes involved in Unfolded Protein Response in T1D and T2D datasets

The KEGG map of the Unfolded Protein Response pathway (hsa04141) is reported with the enzymes colored according to the fold-change of the corresponding genes in T1D (left) and T2D (right) datasets.

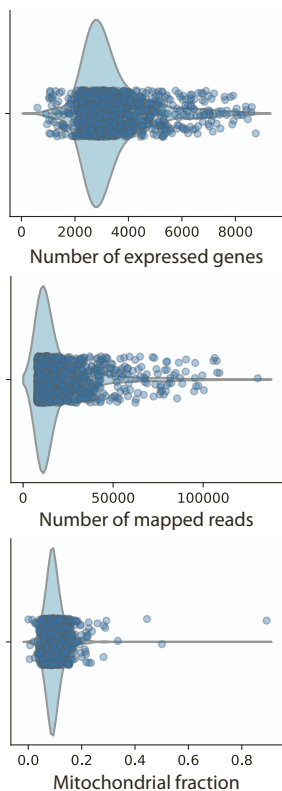
# Supplementary Figure 1

## A)



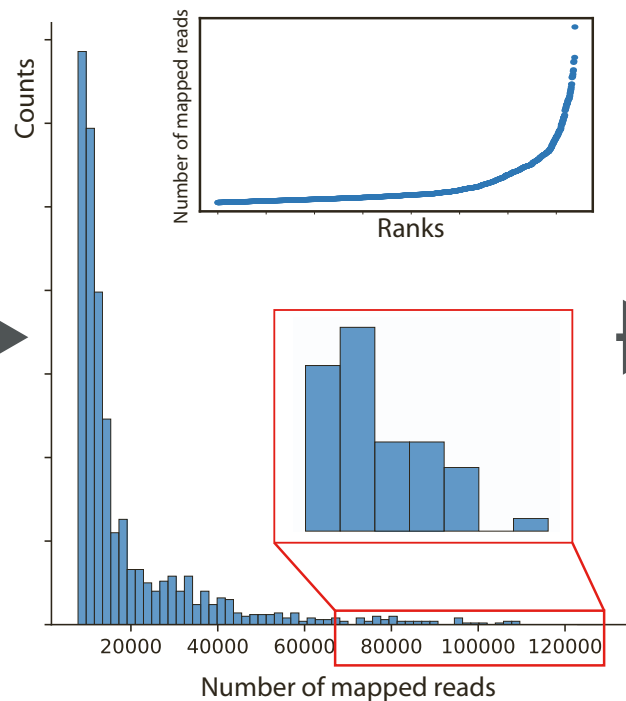
## B)

- 1) Plot the distributions of QC metrics
- 2) Identify candidate thresholds in each distribution



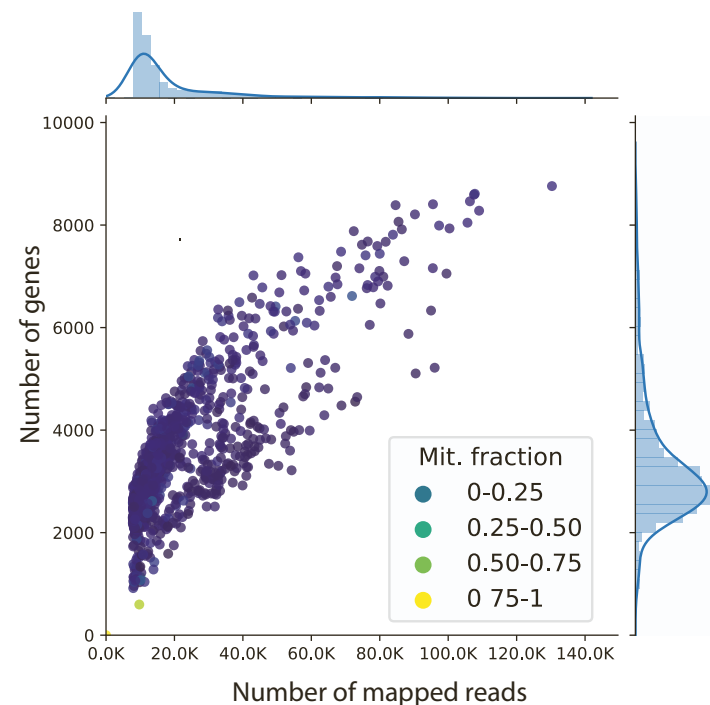
## C)

- Refined threshold selection by:
- 1) Inspecting the extreme values (left and right tail) of each distribution searching for "noise peaks"
  - 2) Plotting the QC variables against the ranks to identify inflection points (elbows)



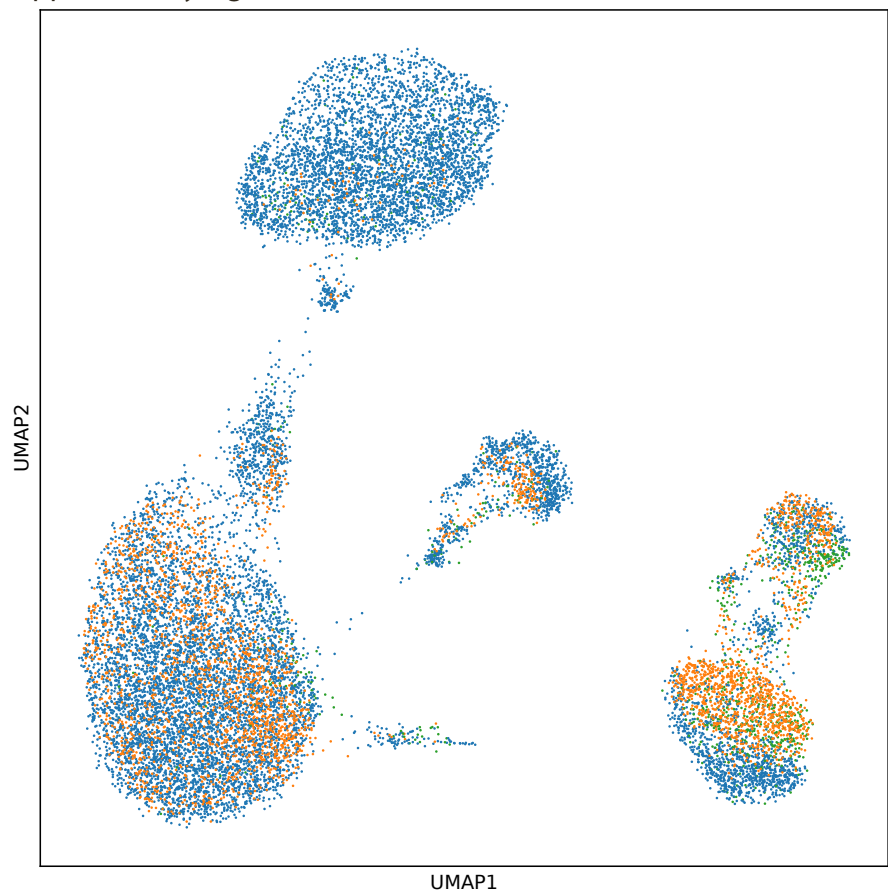
## D)

- The impact of the selected threshold in the context of QC metrics covariation patterns is assessed

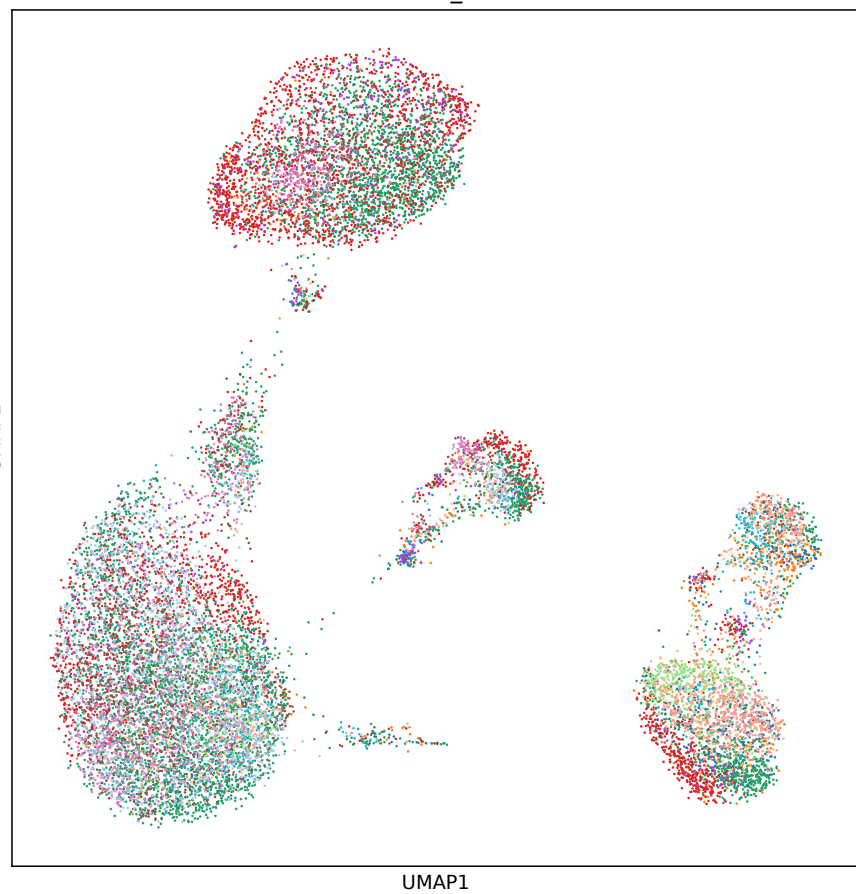


Supplementary Figure 2

Tech

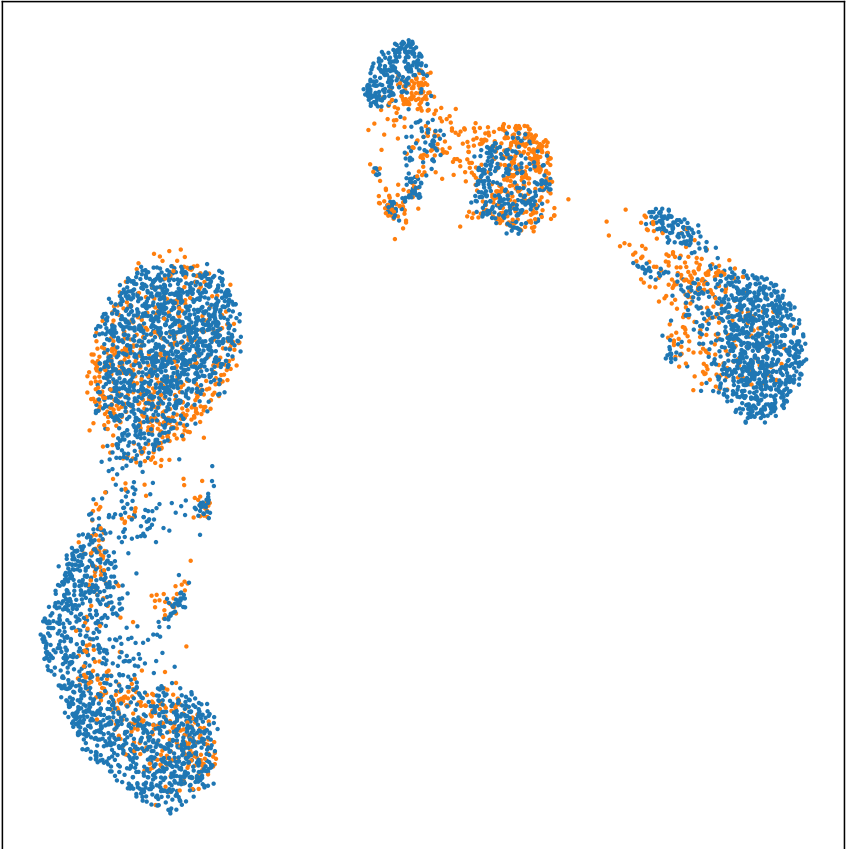


HPAP\_id



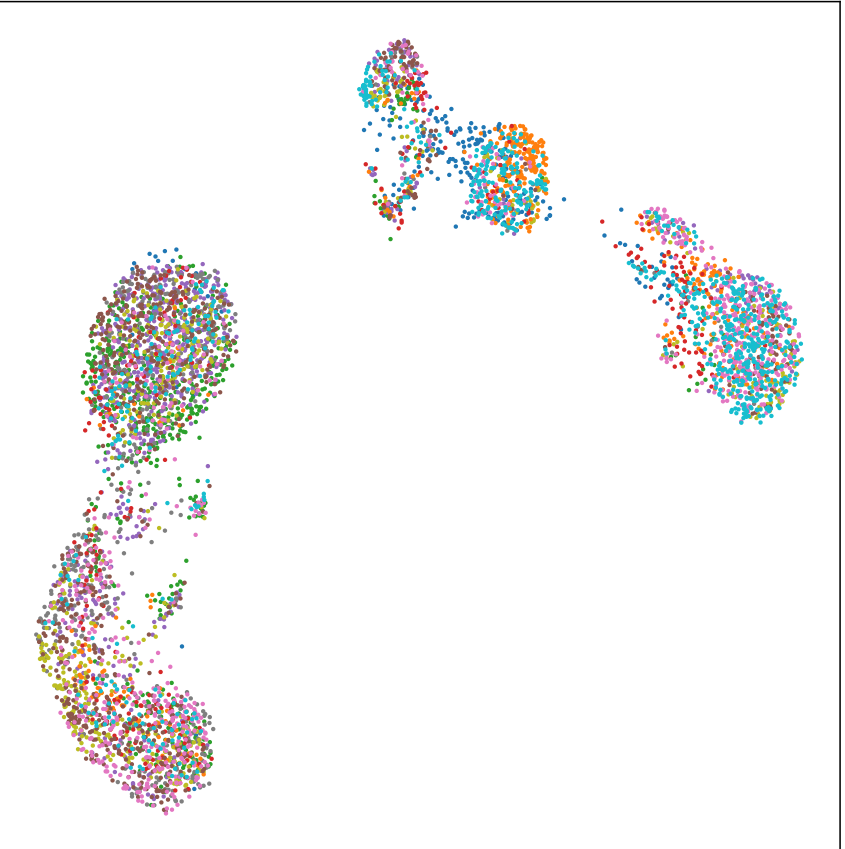
Supplementary Figure 3

Tech



- 10X.3
- Fluidigm

HPAP\_id

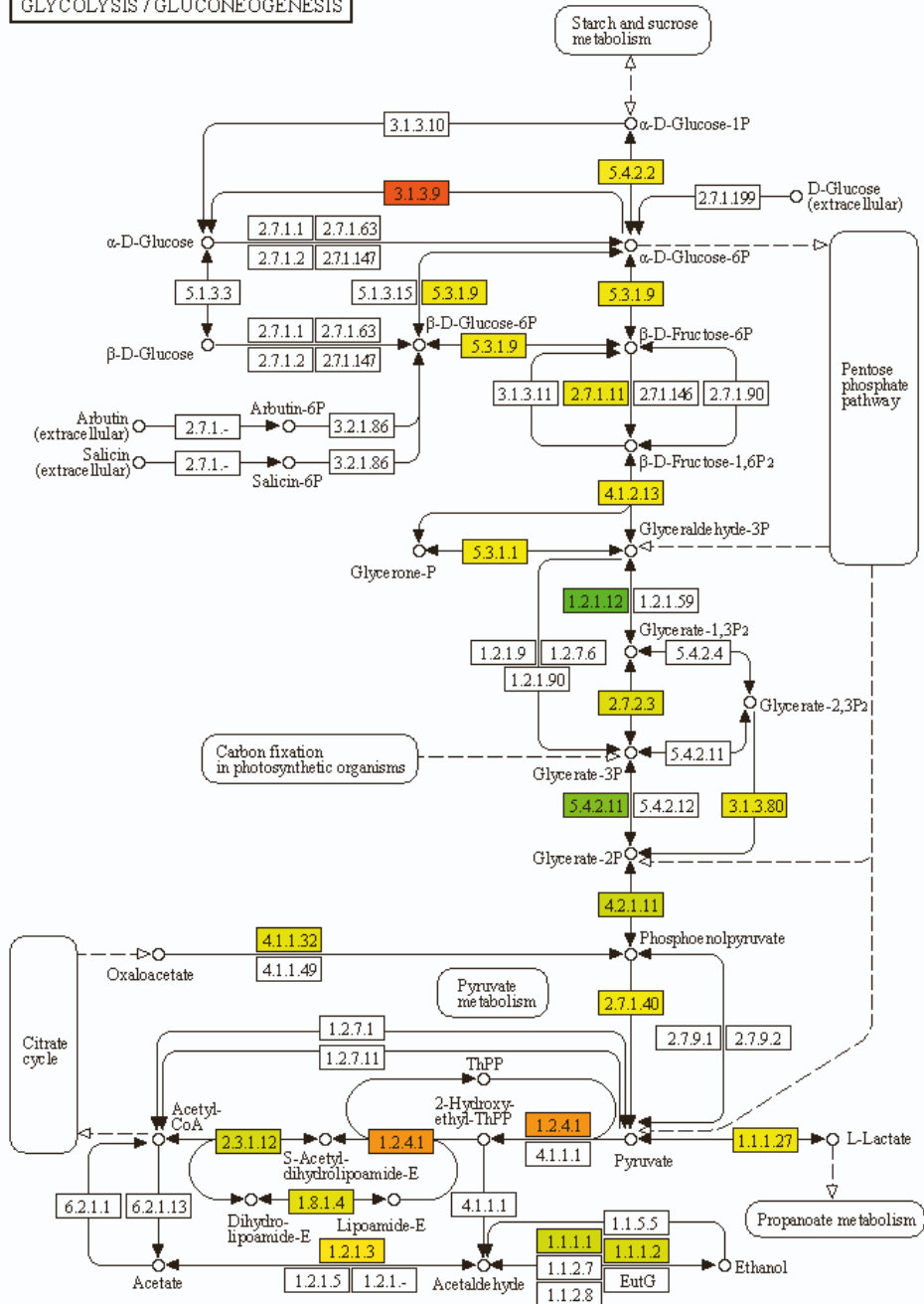


- HPAP-001
- HPAP-006
- HPAP-007
- HPAP-014
- HPAP-051
- HPAP-053
- HPAP-054
- HPAP-057
- HPAP-058
- HPAP-059

Supplementary Figure 4

GLYCOLYSIS / GLUCONEOGENESIS

T1D



T2D

GLYCOLYSIS / GLUCONEOGENESIS

