**S1 Table. Clustering methods.**

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| **Method** | **Description** |
| Ascend | PCA dimension reduction and iterative hierarchical cluster |
| CIDR | PCA dimension reduction and hierarchical clustering |
| FlowSOM | PCA dimension reduction, then self-organizing maps and hierarchical consensus meta-clustering |
| PCAHC | PCA dimension reduction and hierarchical clustering |
| PCAKmeans | PCA dimension reduction and Kmeans |
| pcaReduce | PCA dimension reduction and iterative Kmeans |
| RtsneKmeans | t-SNE dimension reduction and Kmeans |
| SAFE | Ensemble clustering using SC3, Seurat, and tSNE+Kmeans |
| SC3 | PCA dimension reduction, then kmeans and different dimensions and hierarchical clustering on consensus |
| SC3svm | SC3 and SVM |
| Seurat | PCA dimension reduction and nearest neighbor graph clustering |
| TSCAN | PCA dimension reduction and model based clustering |