AML8_Rx

jtrincado

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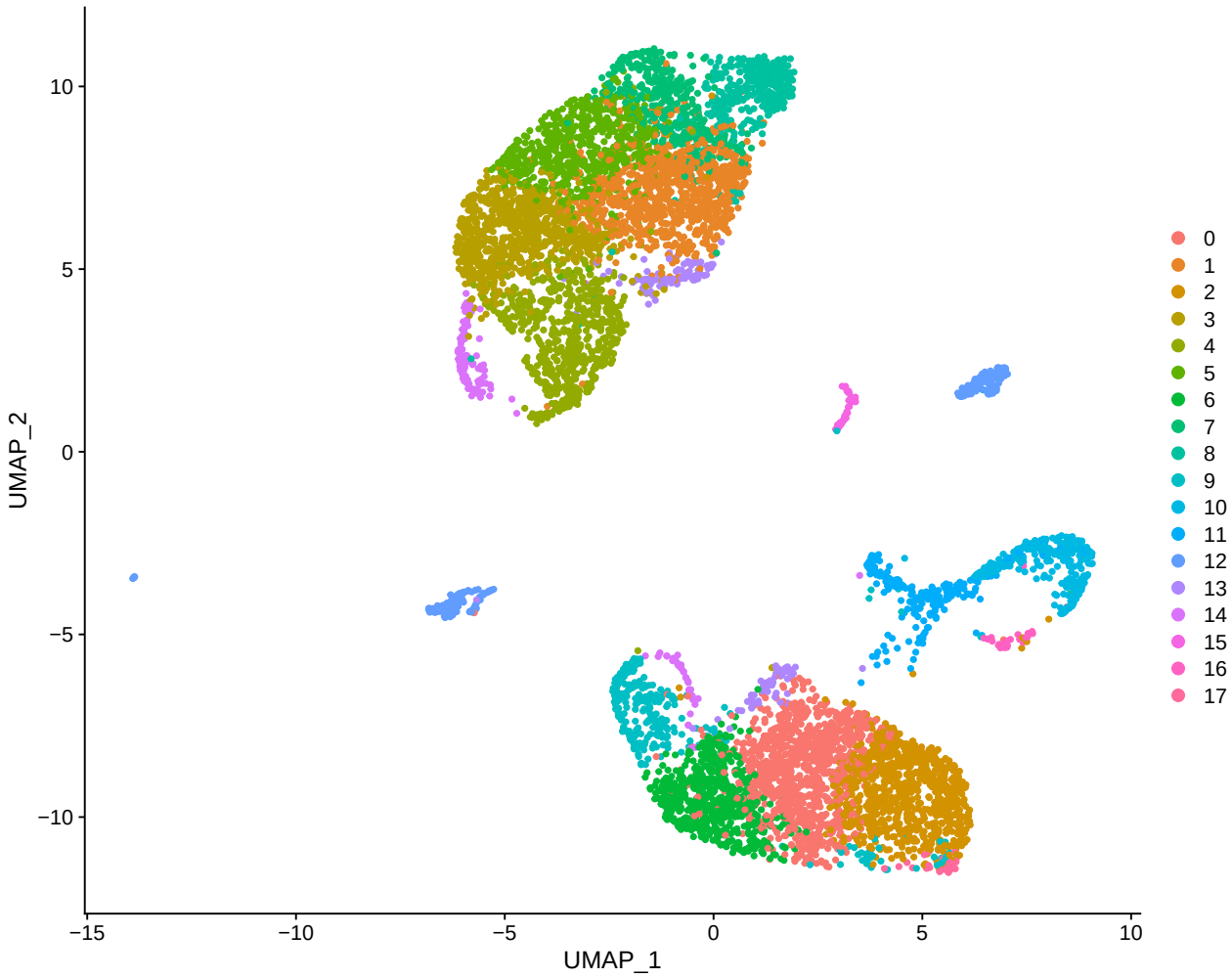
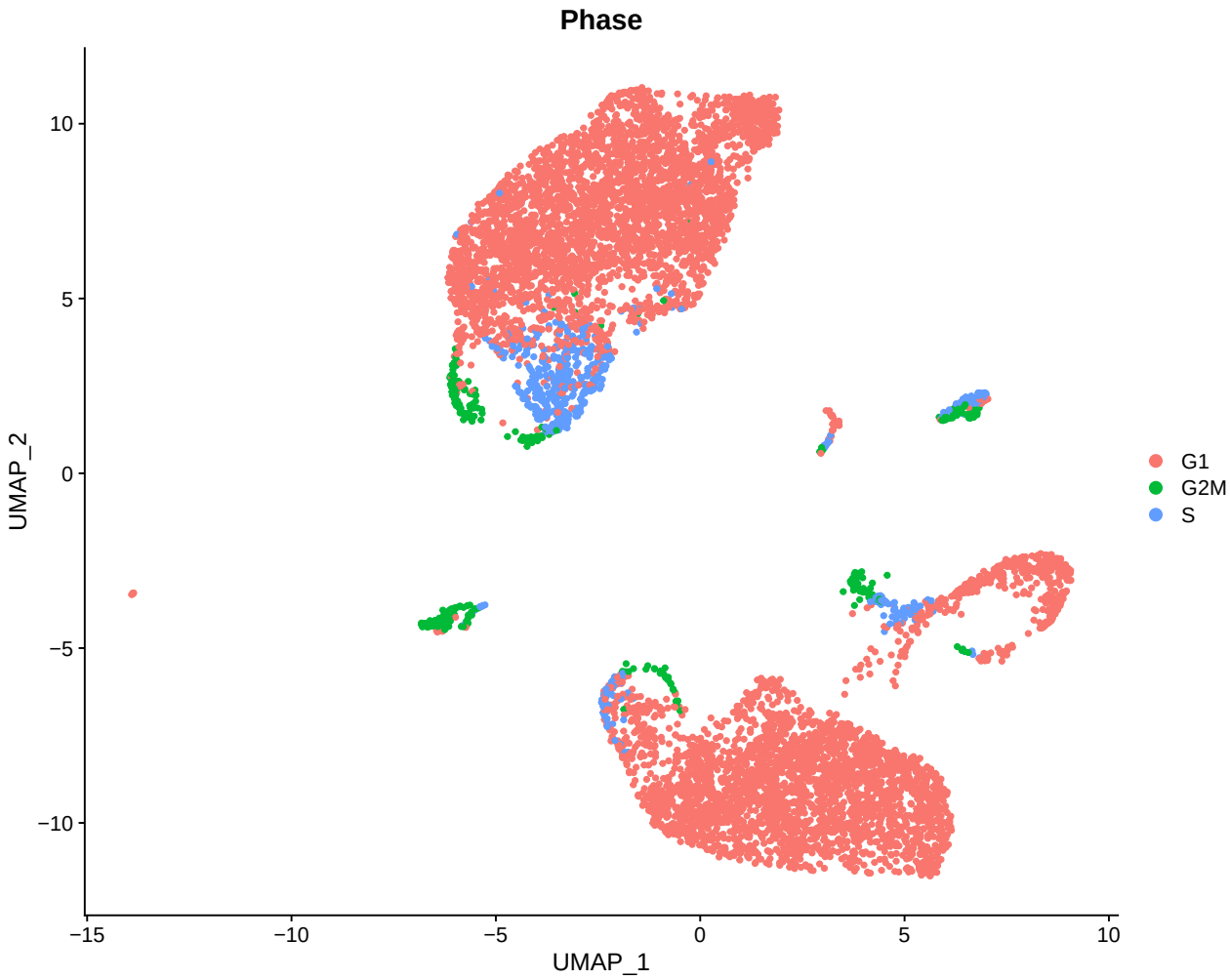
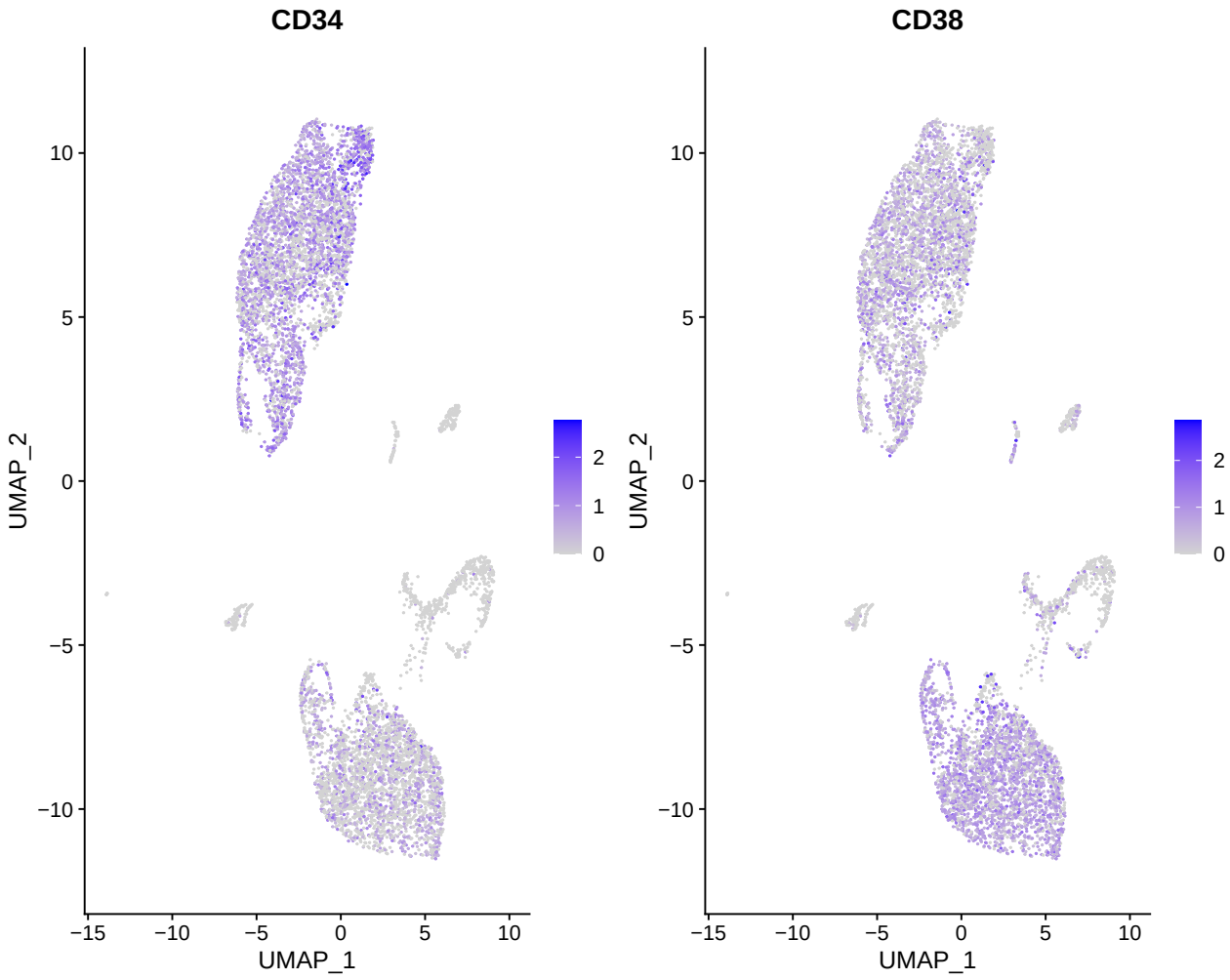
1. Put together both 34 and 38 libraries. Apply QC and dimensionality reduction.

```
## Warning: The default method for RunUMAP has changed from calling Python UMAP via reticulate to the R
## To use Python UMAP via reticulate, set umap.method to 'umap-learn' and metric to 'correlation'
## This message will be shown once per session
```

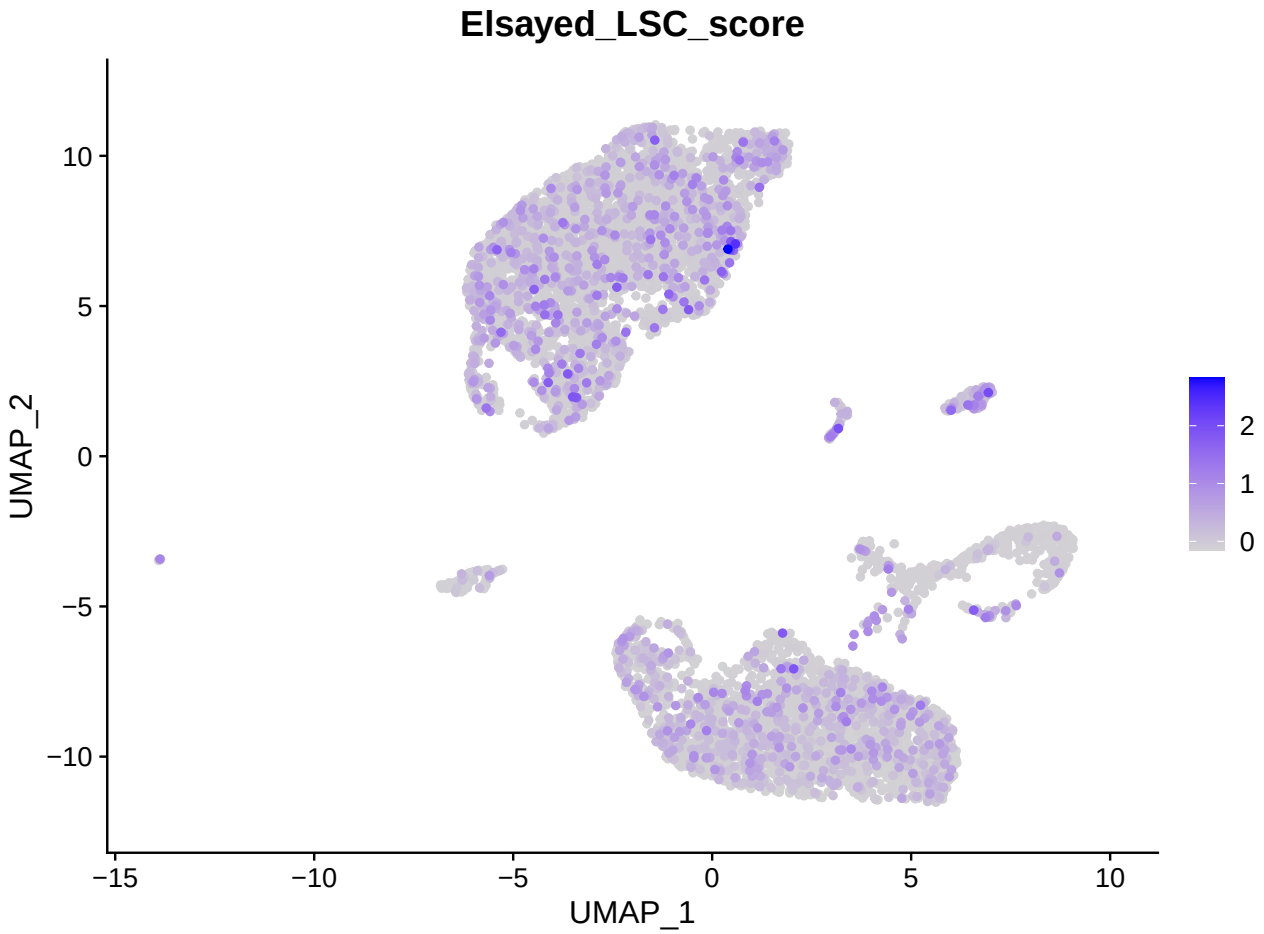

UMAP_2
UMAP_1
10
5
0
−5
−10
−15
−10
−5
0
5
10
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17

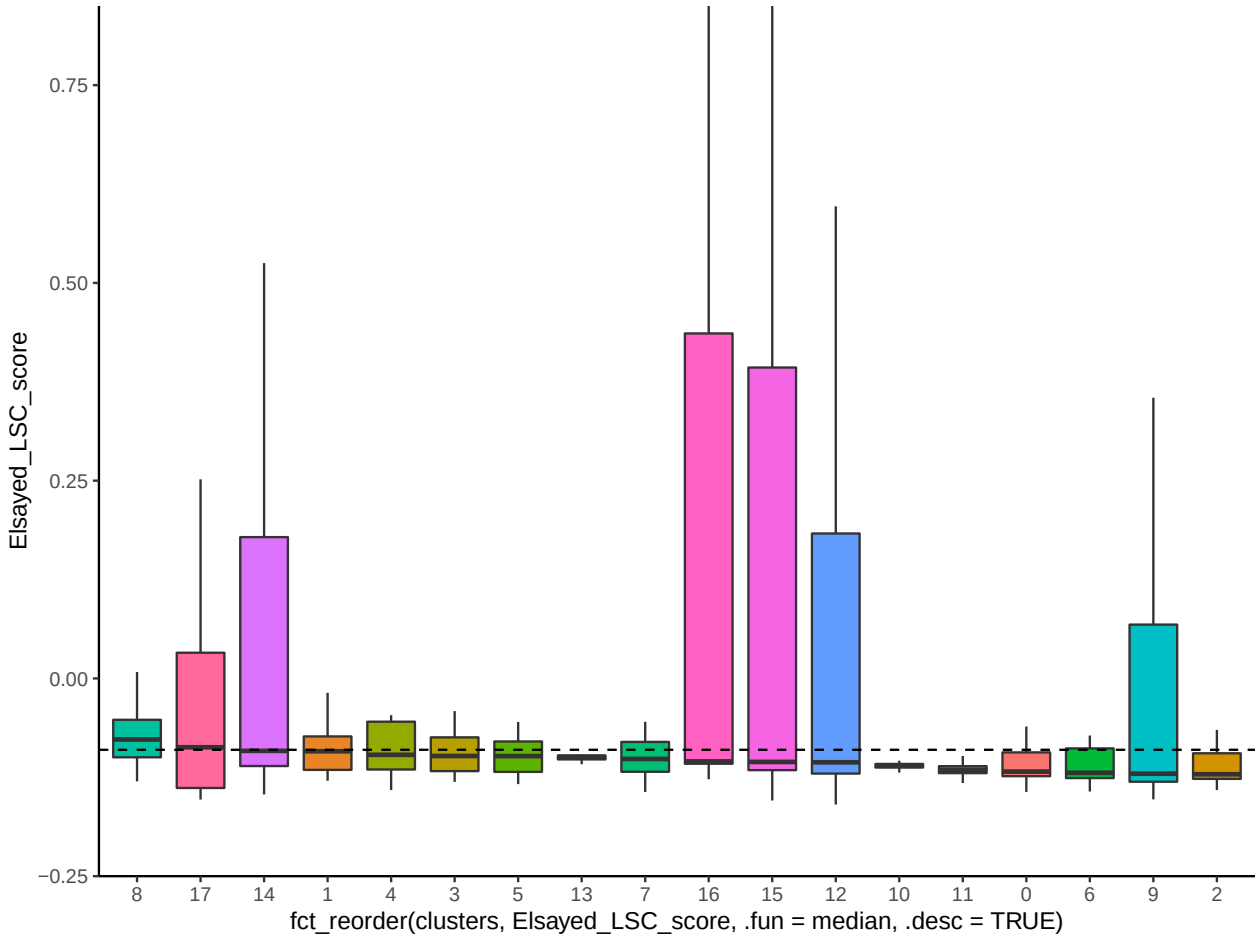

Phase
UMAP_2
UMAP_1
10
5
0
−5
−10
−15
−10
−5
0
5
10
G1
G2M
S



2. Get the LSC6 score

```
## [1] "CD34"   "SPINK2" "SOCS2"  "FAM30A" "ADGRG1" "DNMT3B"
```

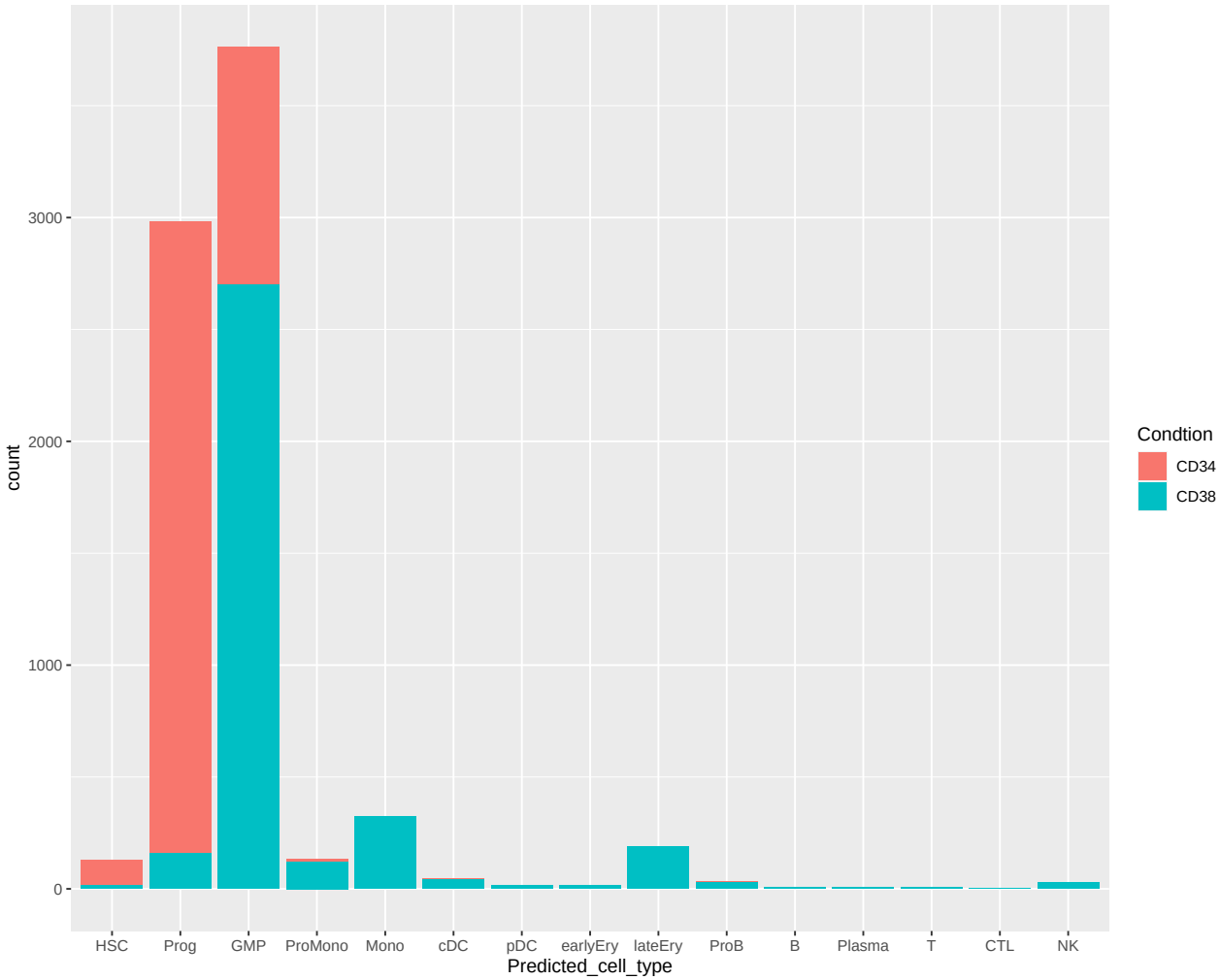

Elsayed_LSC_score
UMAP_2
UMAP_1
10
5
0
−5
−10
−15
−10
−5
0
5
10
2
1
0

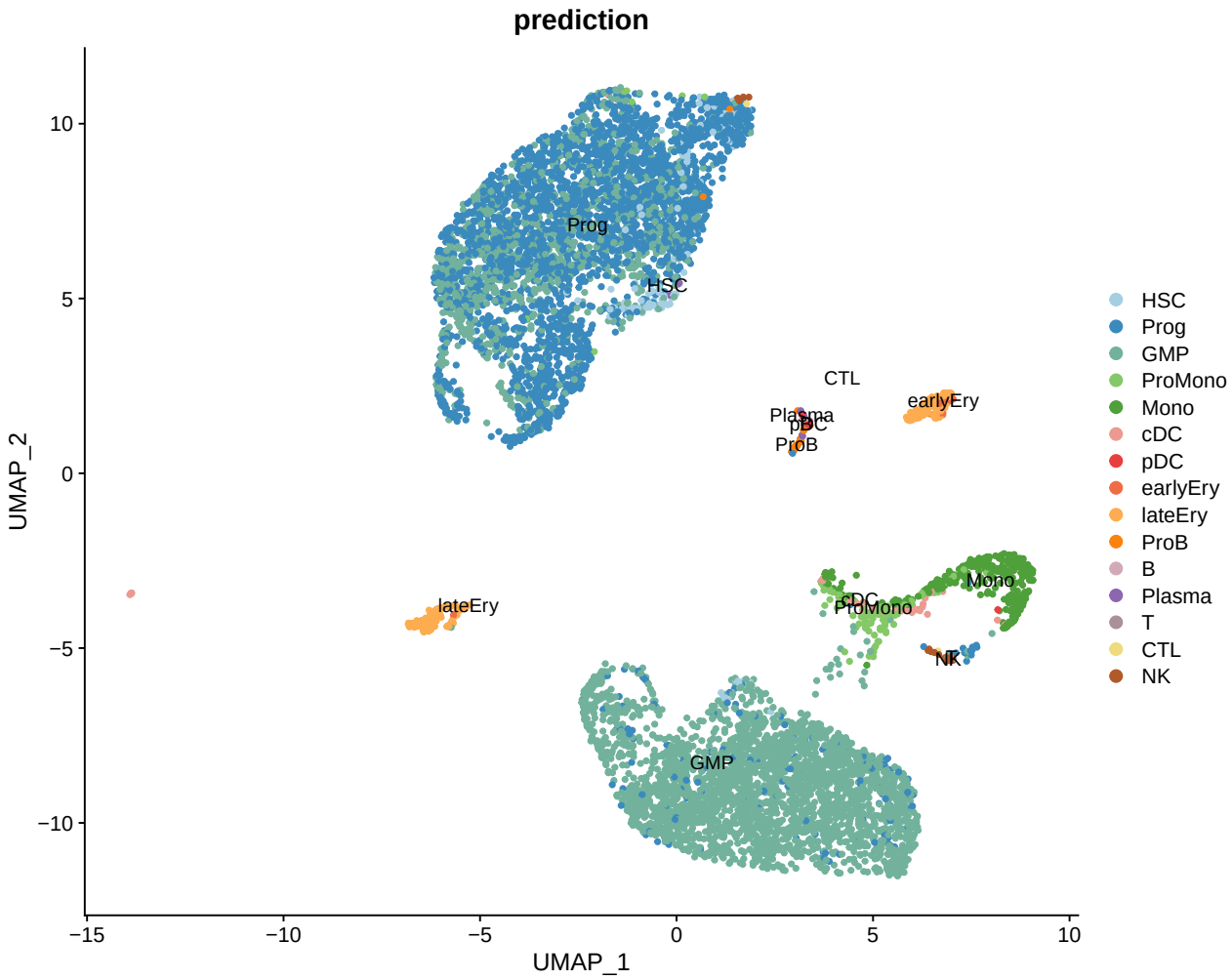


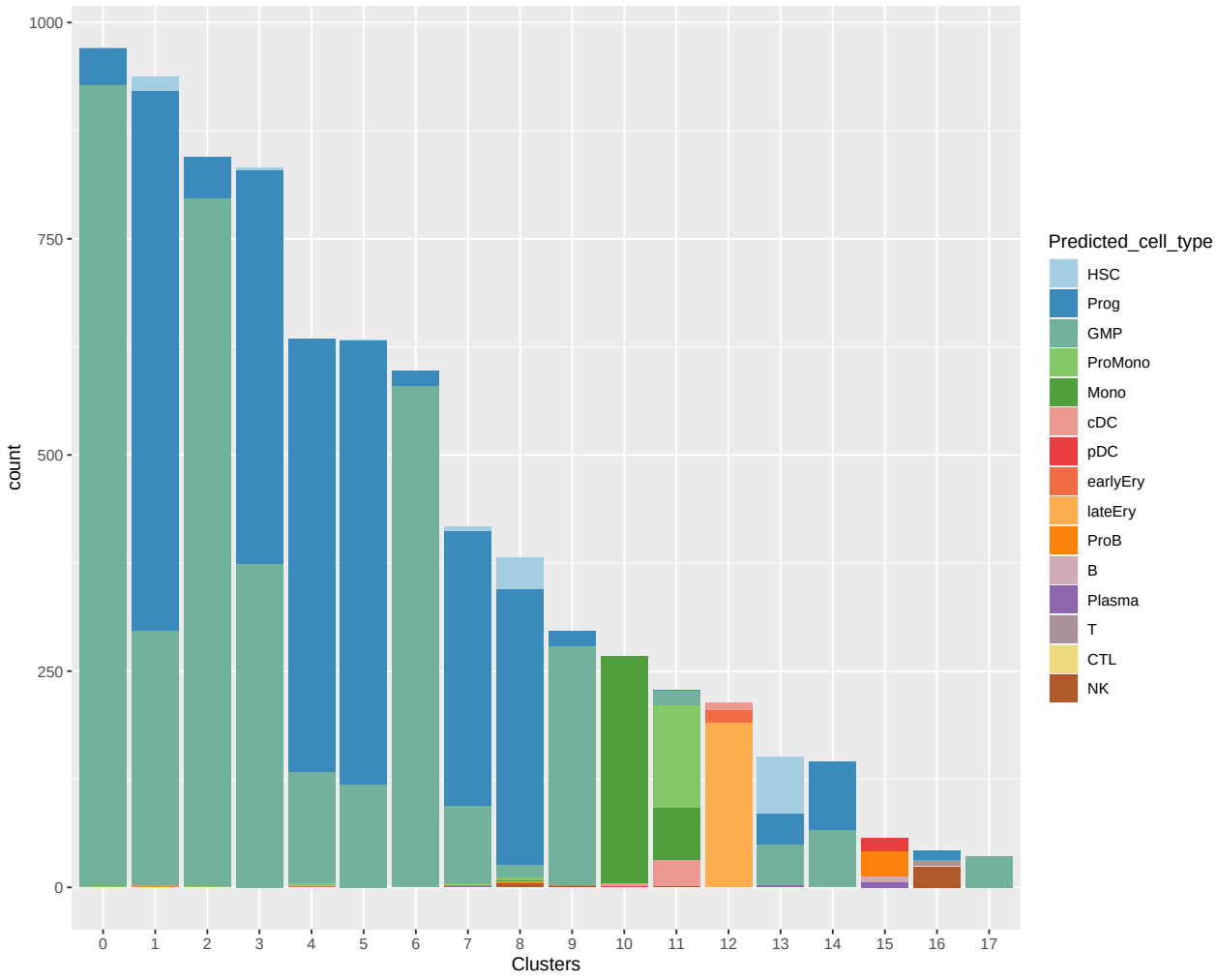
3. Predict the class of the cells using the markers and the expression of the BM cells form Van_Galen paper

```
## Performing PCA on the provided reference using 1821 features as input.
## Projecting cell embeddings
## Finding neighborhoods
## Finding anchors
##  Found 3142 anchors
## Filtering anchors
##  Retained 2243 anchors
## Finding integration vectors
## Finding integration vector weights
## Predicting cell labels
##
##         HSC Prog  GMP ProMono Mono  cDC  pDC earlyEry lateEry ProB    B Plasma
##   CD34  113 2826 1066       9    0    4    0        1       0    4    0      2
##   CD38   17  157 2698     122  323   42   16       17     190   29    6      7
```

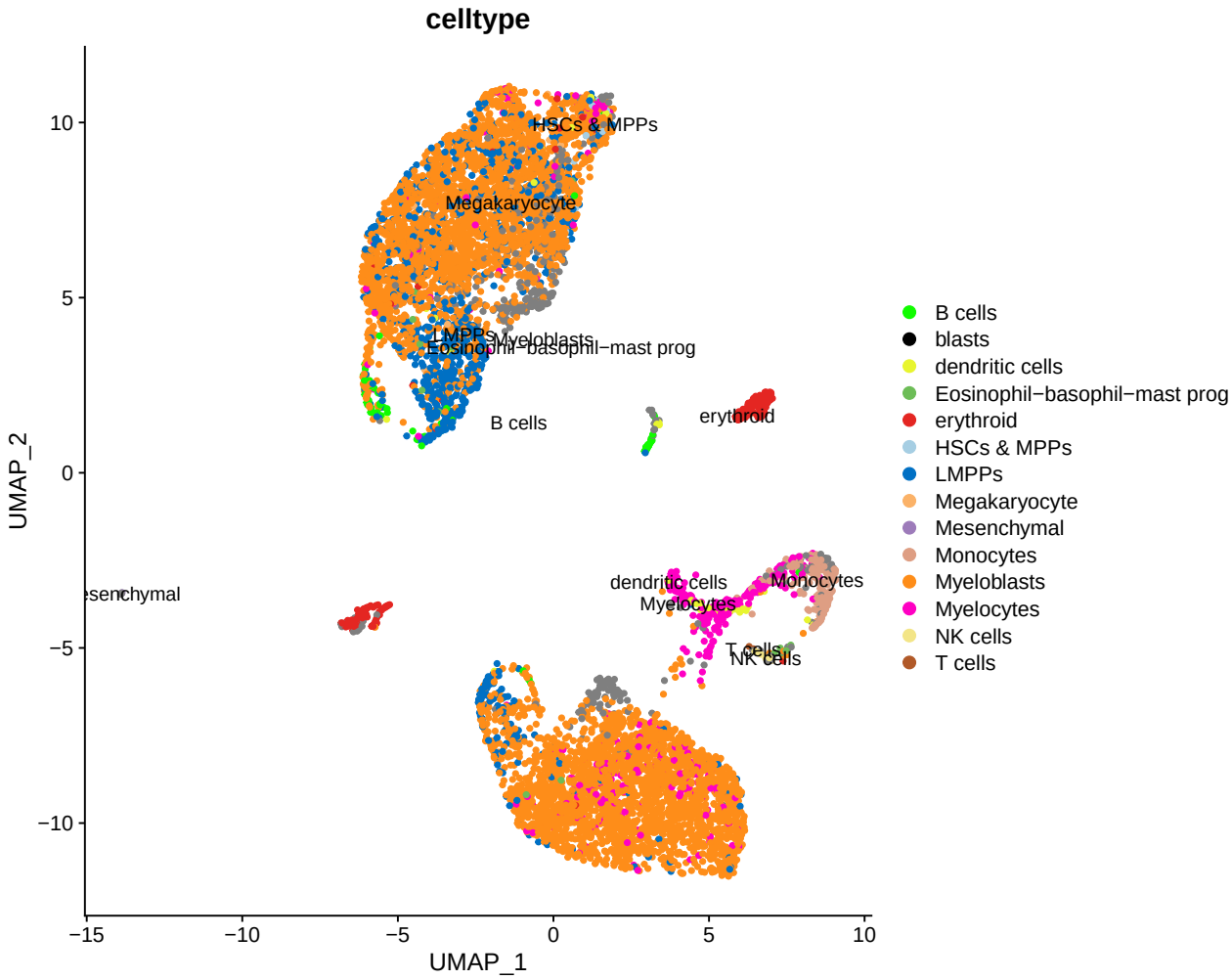
```
##
##          T  CTL   NK
##    CD34  0    1    0
##    CD38  5    1   30
```

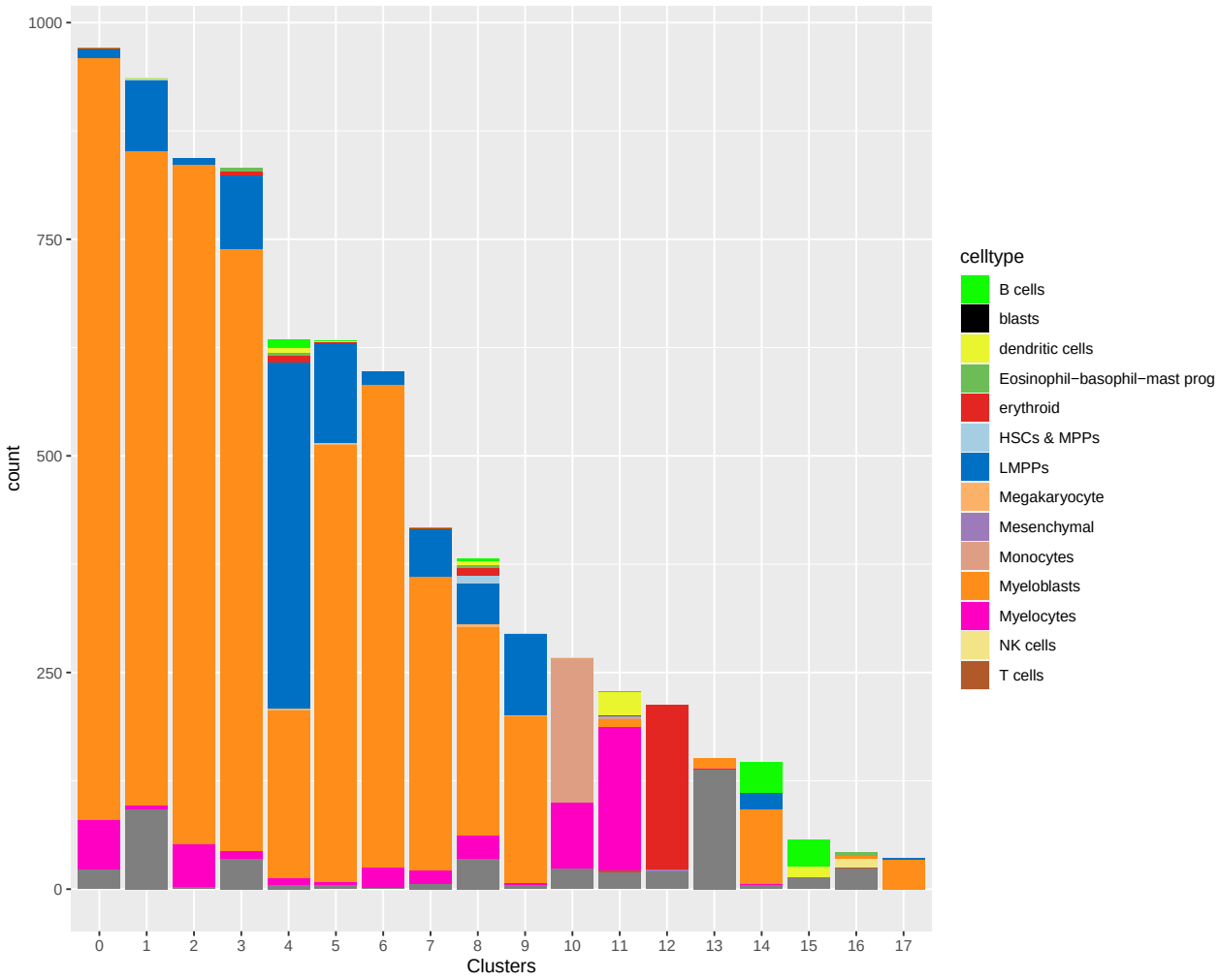



prediction
UMAP_2
UMAP_1
10
5
0
−5
−10
−15
−10
−5
0
5
10
Prog
HSC
CTL
earlyEry
Plasma
pDC
ProB
lateEry
cDC
ProMono
Mono
NK
GMP
HSC
Prog
GMP
ProMono
Mono
cDC
pDC
earlyEry
lateEry
ProB
B
Plasma
T
CTL
NK


1000
750
500
250
0
count
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
Clusters
Predicted_cell_type
HSC
Prog
GMP
ProMono
Mono
cDC
pDC
earlyEry
lateEry
ProB
B
Plasma
T
CTL
NK

4. Project the predictions from Velten onto our UMAP





Cluster 8 seems the one with the highest LSC6 score. Cluster 17 also seems to be over the the threshold, but there is not HSC predicted cells in the cluster. We propose cluster 8 as the one with LSC enrichment