

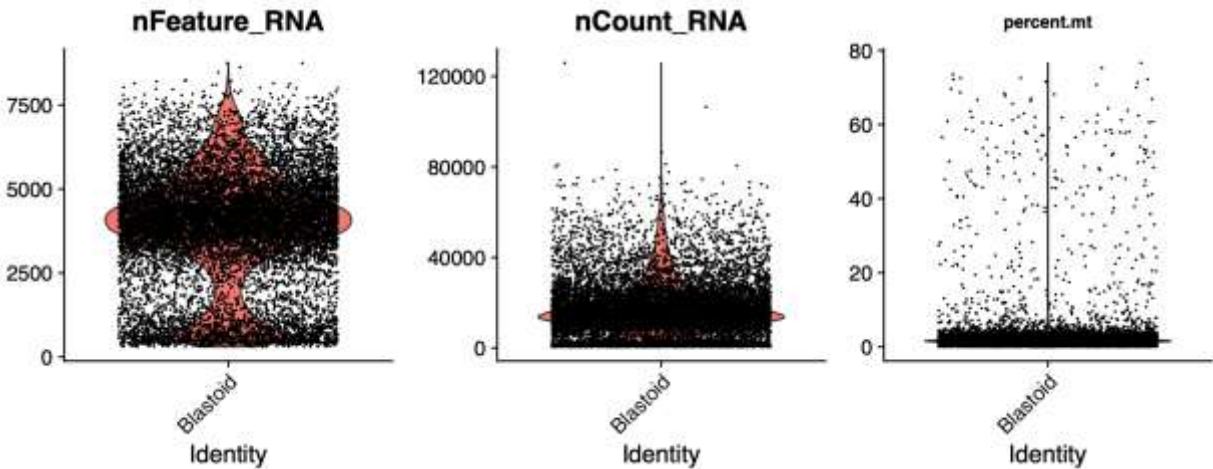
Inhouse数据过滤一下线粒体percent.mt < 10 或 20

```
# 查看过滤前后细胞数对比
cat("过滤前细胞数:", ncol(inhouse), "\n",
    "过滤后细胞数:", ncol(inhouse_filtered), "\n",
    "过滤比例:", round(1 - ncol(inhouse_filtered)/ncol(inhouse), 2)*100, "%\n")
过滤前细胞数: 13444
过滤后细胞数: 13119
过滤比例: 2 %
```

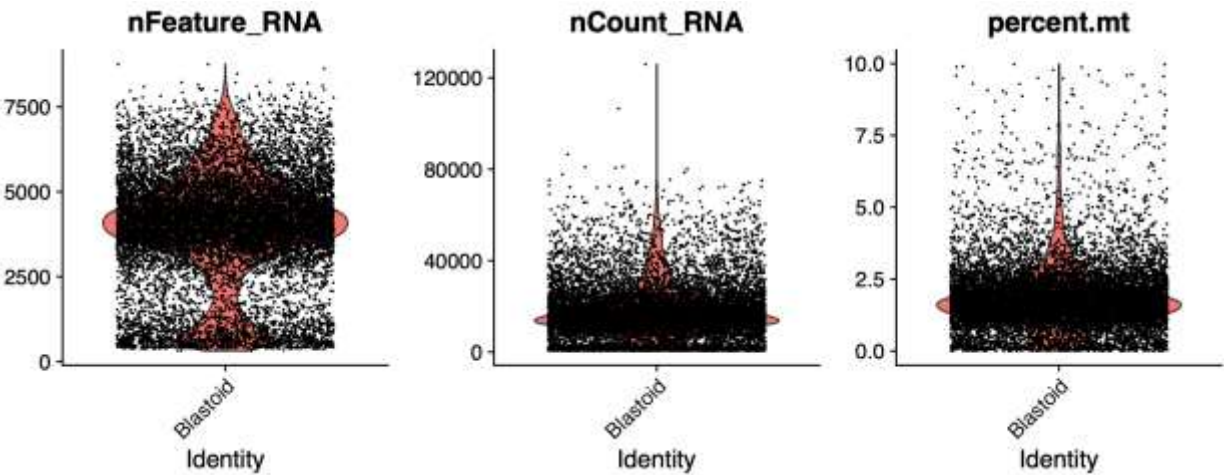
percent.mt < 10

过滤前细胞数: 13444
过滤后细胞数: 13228
过滤比例: 2 %

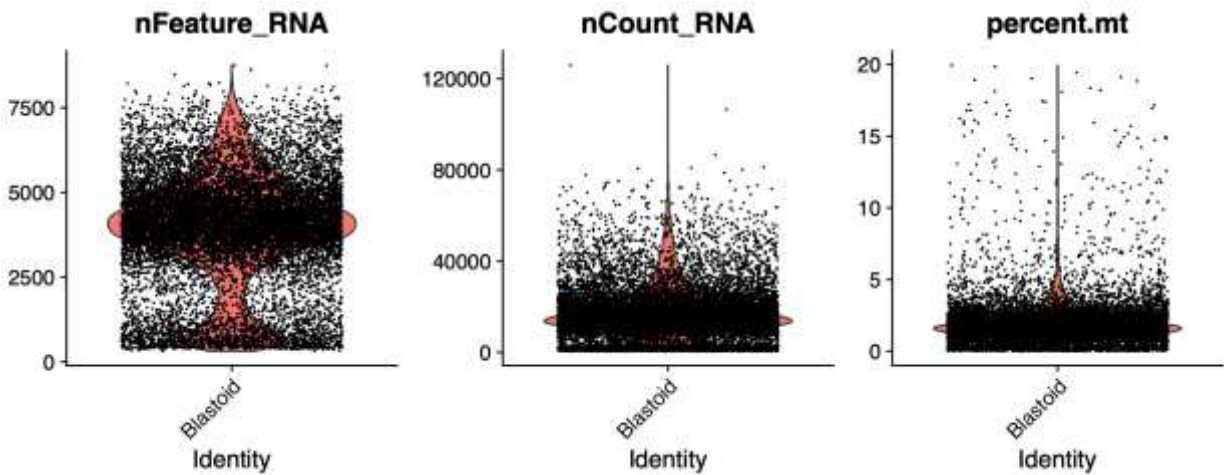
percent.mt < 20



250512/QC_metrics_before_filtering.pdf



250430/QC_metrics_after_filtering.pdf

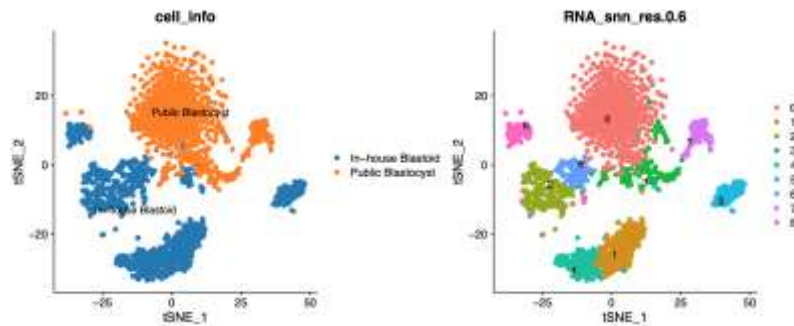


250430 /QC_metrics_after_filtering_20.pdf

分析目的: in house blastoid-10X 和public blastocyst 10X进行对比分析, 是否类似
可参考文章: Mouse totipotent blastomere-like cells model embryogenesis from zygotic genome activation to post implantation

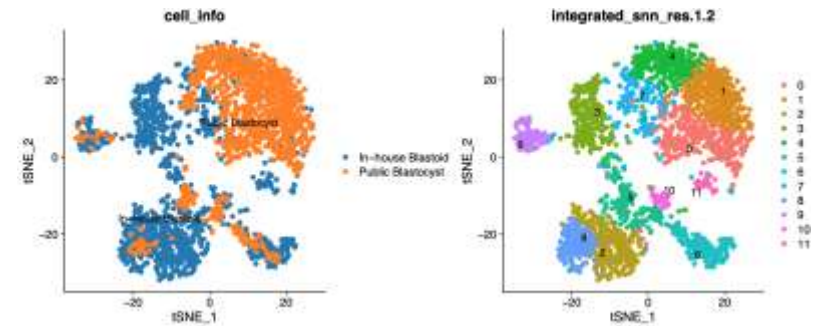
分析需求1: t-SNE 分析 in house blastoid-10X 和public blastocyst 10X ([GSM4026212](#), 咱们已下载)

Merge Data

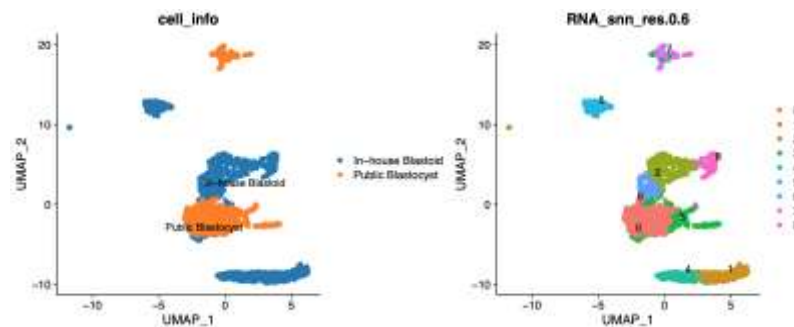


250512/tsne_merge.pdf

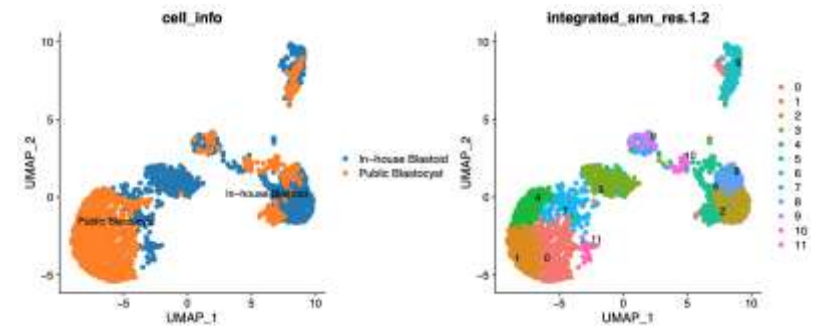
Integrate Data



250512/tsne_inte.pdf



250512/umap_merge.pdf

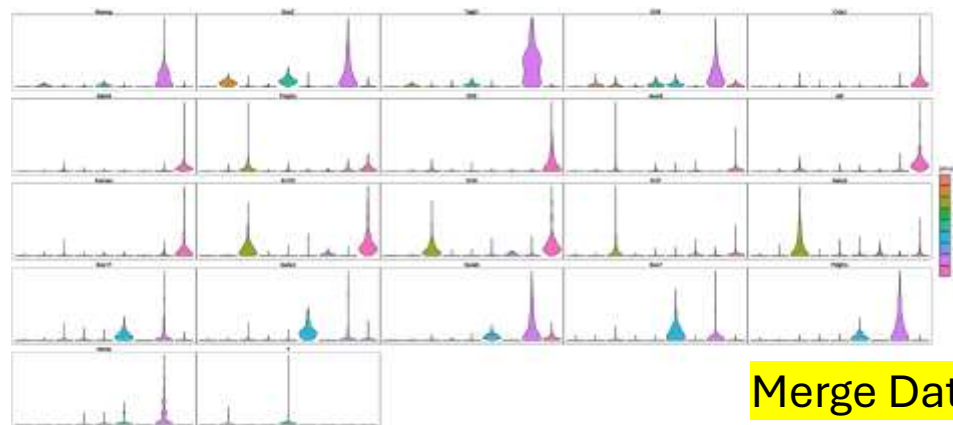


250512/umap_inte.pdf

分析目的: in house blastoid-10X 和public blastocyst 10X进行对比分析, 是否类似

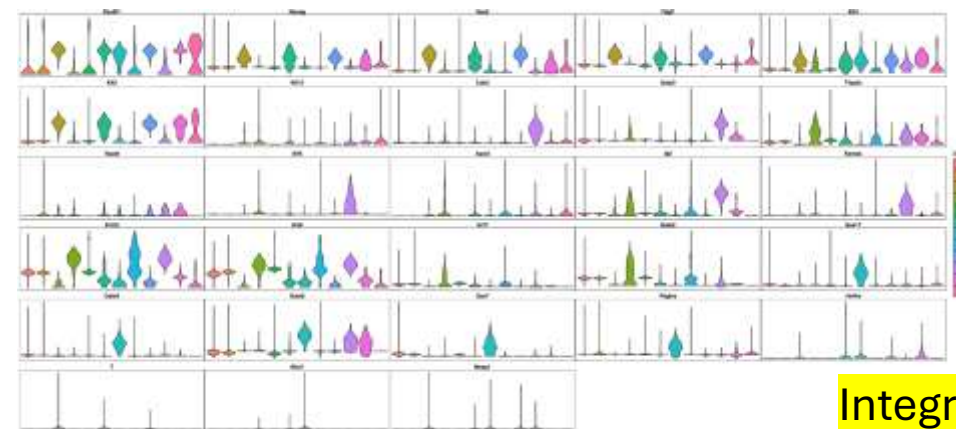
可参考文章: Mouse totipotent blastomere-like cells model embryogenesis from zygotic genome activation to post implantation

分析需求1.4: 分群注释出TE, PrE和ICM/EPI三群



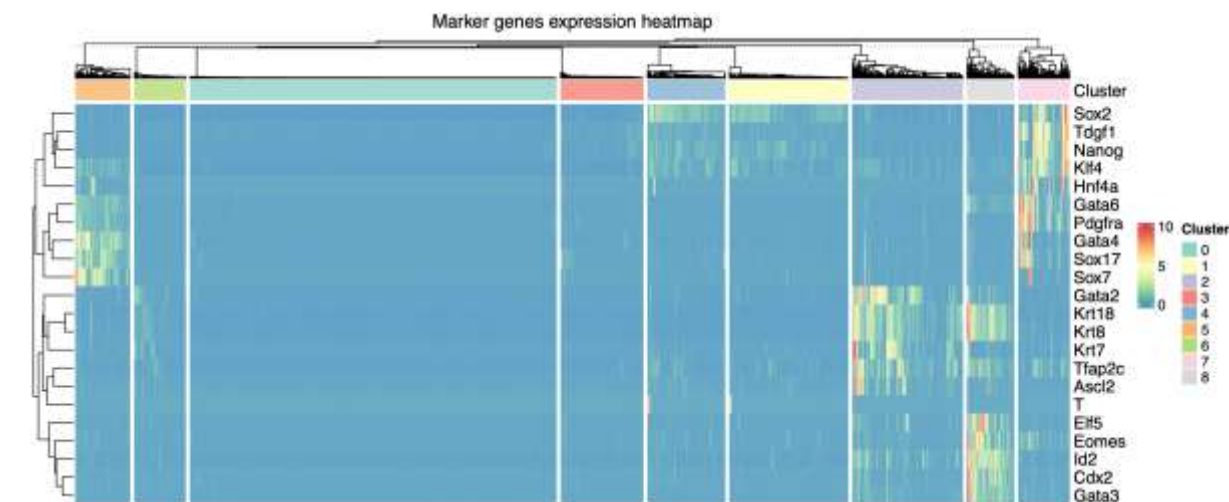
Merge Data

250512/anno_marker_expression_violins_merge.pdf

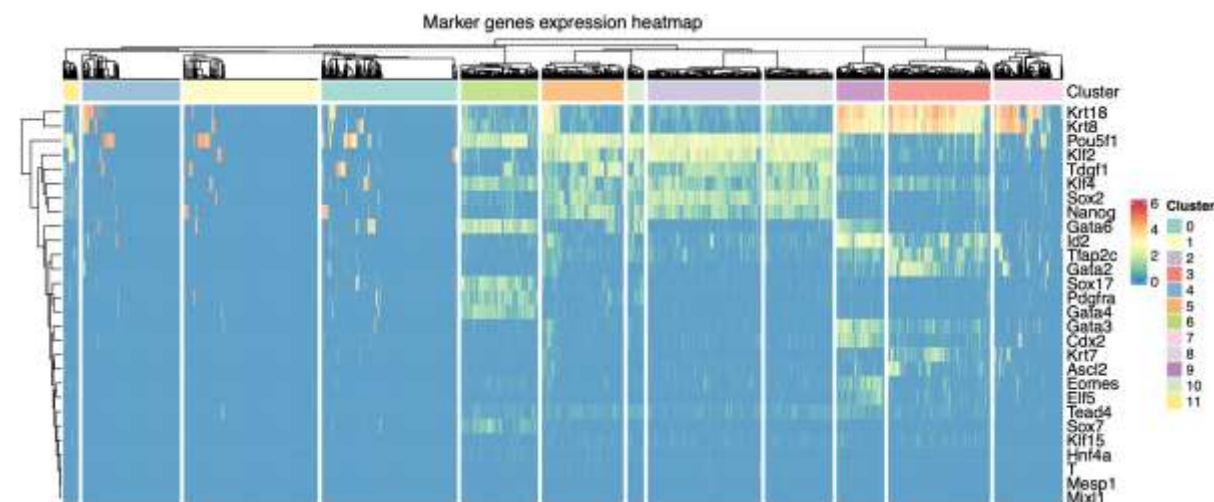


Integrate Data

250512/anno_marker_expression_violins_inte.pdf



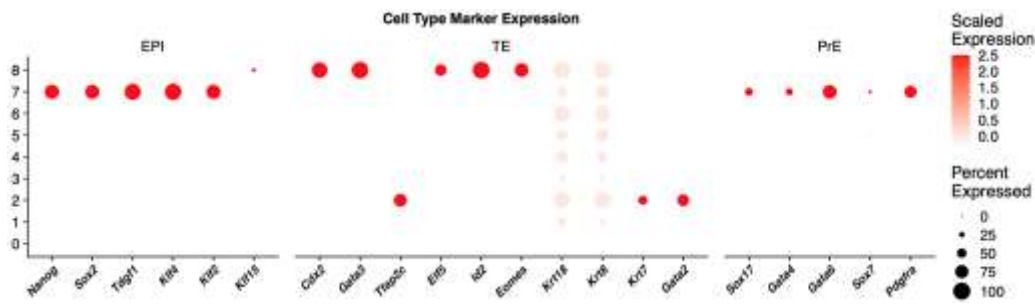
250512/anno_marker_expression_violins_merge.pdf



250512/anno_marker_expression_violins_inte.pdf

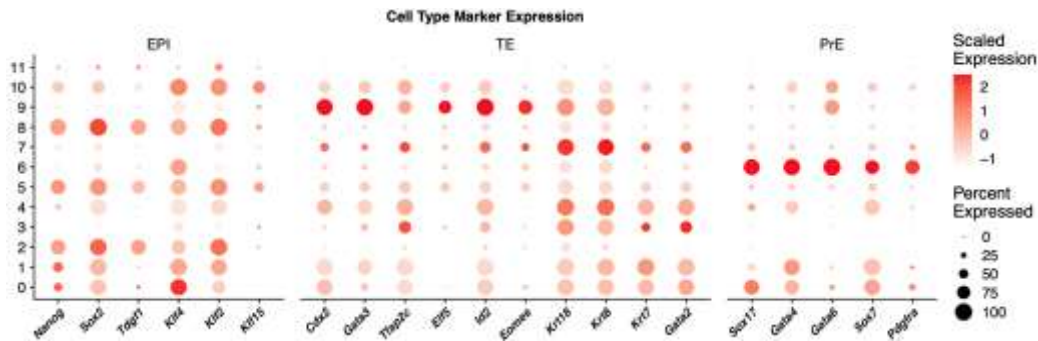
分析目的: in house blastoid-10X 和public blastocyst 10X进行对比分析，是否类似
可参考文章: Mouse totipotent blastomere-like cells model embryogenesis from zygotic genome activation to post implantation

分析需求1.4: 分群注释出TE, PrE和ICM/EPI三群



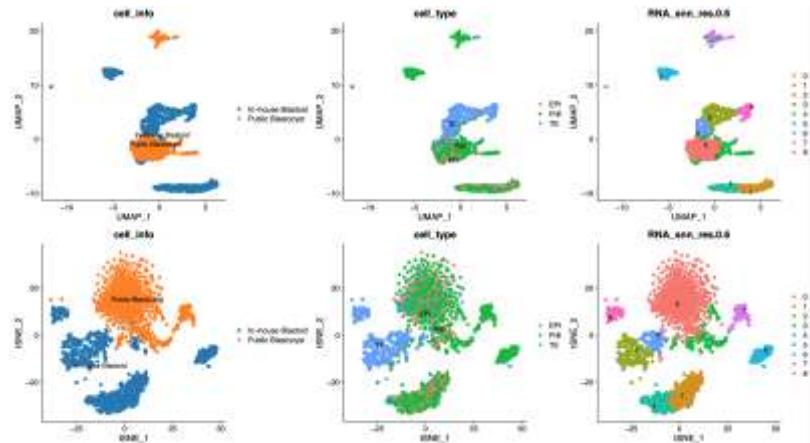
250430/cell_type_markers_dotplot_merge.pdf

← 均为 →
in house blastoid-10X 和
public blastocyst 10X
整合后的数据



250430/cell_type_markers_dotplot_inte.pdf

分辨率提高到6.2, EPI和PrE还是无法分开。后用 AddModuleScore 进行注释

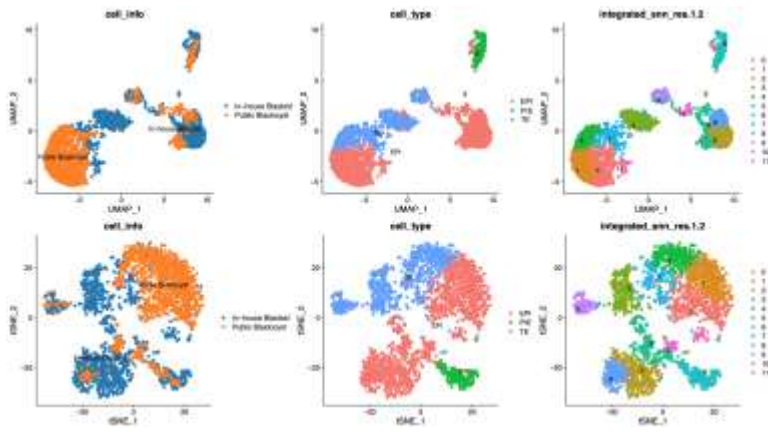


Merge Data

```
r> table(merge_data$cell_type)
EPI_score PrE_score TE_score
387      1655      714
```

In-house Blastoid	EPI	PrE	TE
Public Blastocyst	158	647	573
	229	1008	141

250512/cell_type_merge.pdf



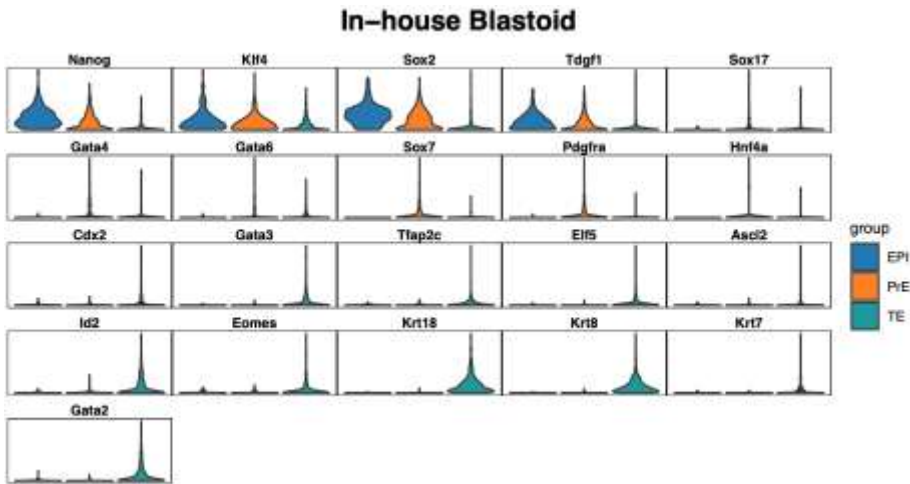
Integrate Data

```
r> table(integrated_ab$cell_type)
EPI PrE TE
1624 222 910
```

	EPI	PrE	TE
In-house Blastoid	697	157	524
Public Blastocyst	927	65	386

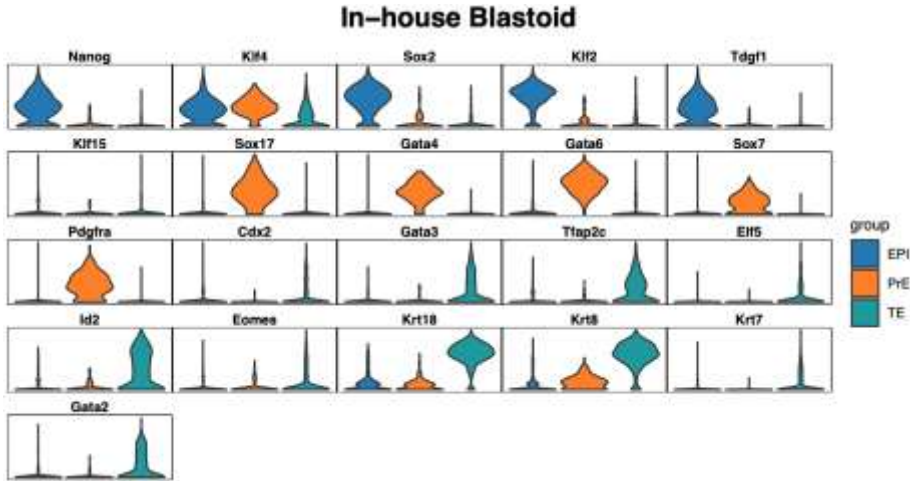
250512/cell_type_inte.pdf

分析需求3: Violin plot of TE marker/EPI marker and prE marker expression of in house blastoid-10X 和public blastocyst 10X ([GSM4026212](#), 咱们已下载)



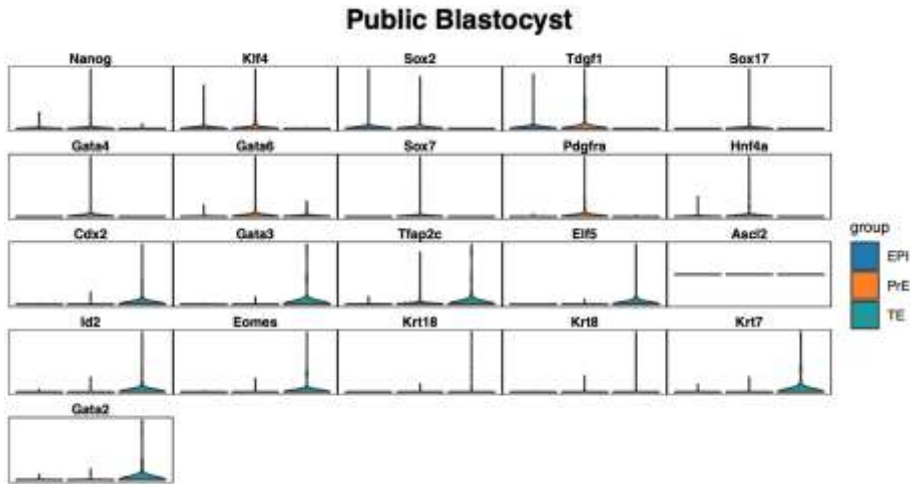
Merge Data

250512/marker_expression_violins_merge_blastoid.pdf

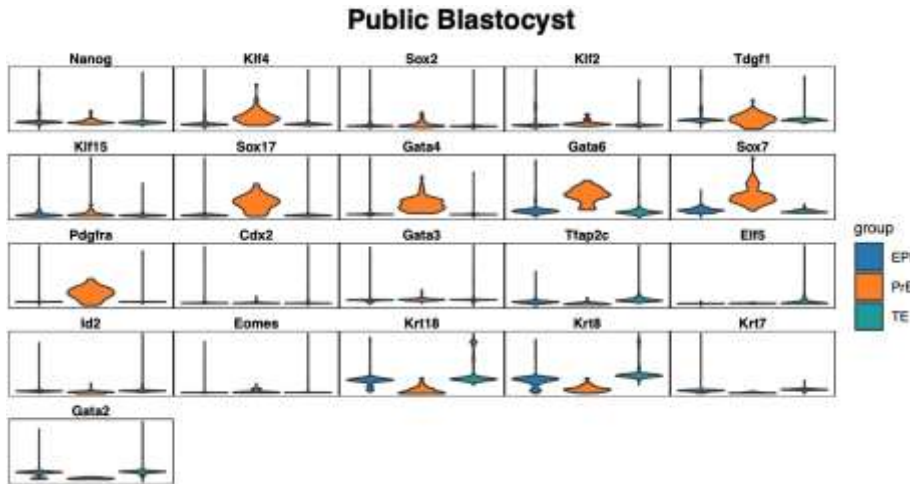


Integrate Data

250512/marker_expression_violins_inte_blastoid.pdf

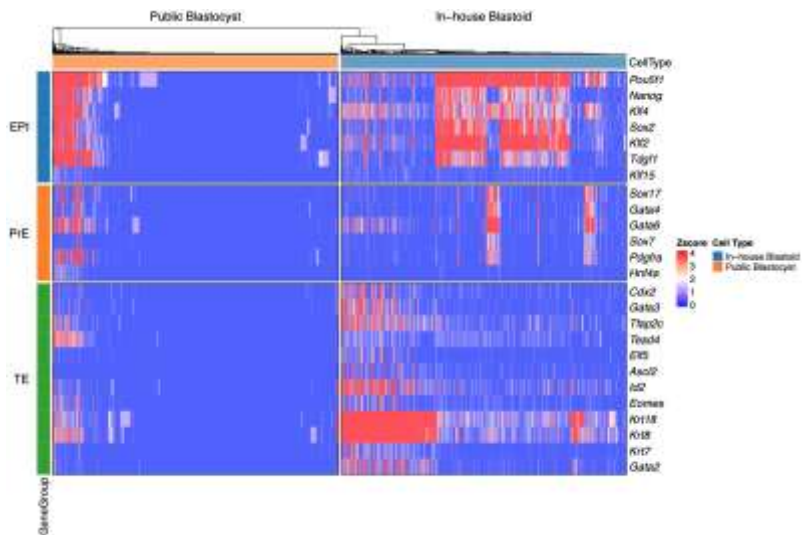


250512/marker_expression_violins_merge_blastocyst.pdf



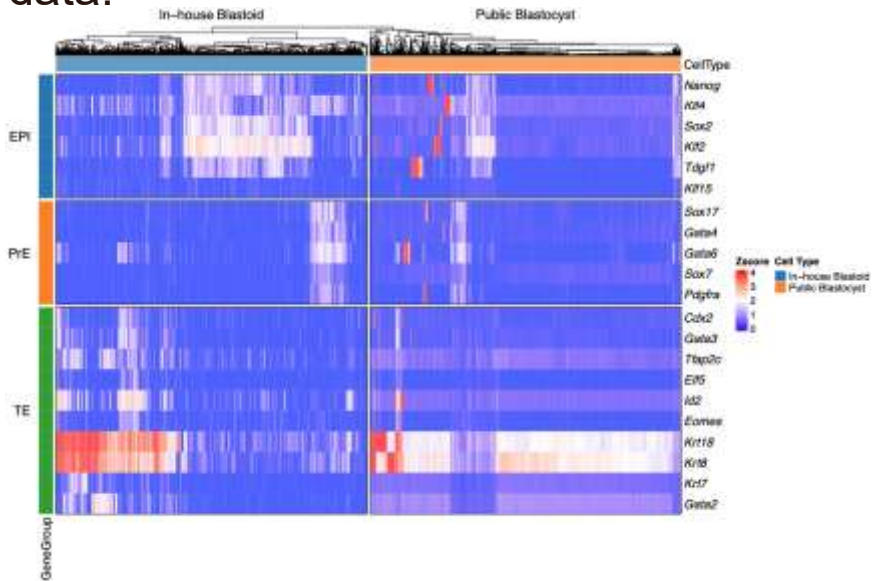
250512/marker_expression_violins_inte_blastocyst.pdf

分析需求4: Heatmap showing the relative expression of representative EPI, TE and PrE genes of blastocyst ([GSM4026212](#), 咱们已下载) and in house blastoids, using scRNA-seq data.



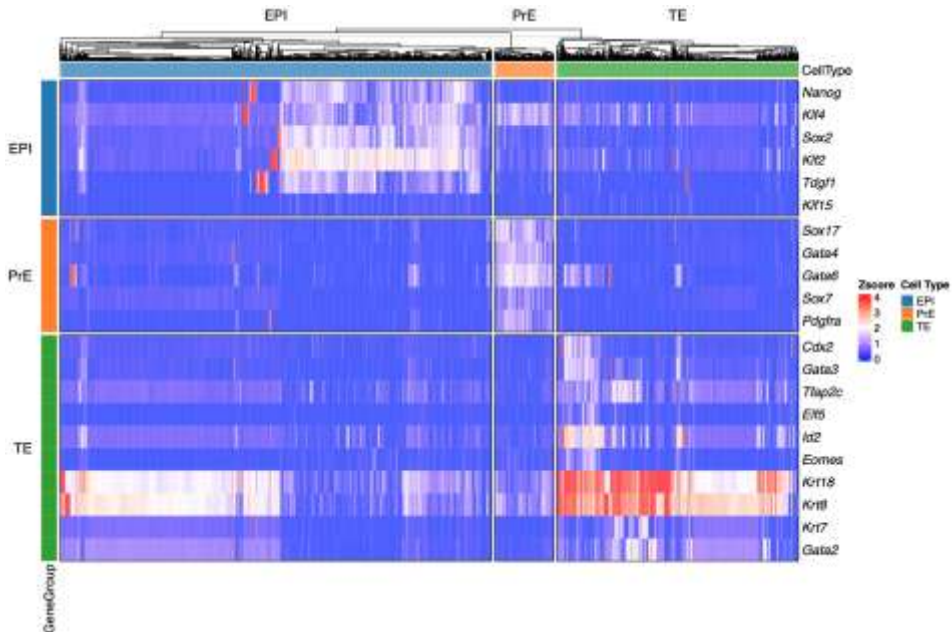
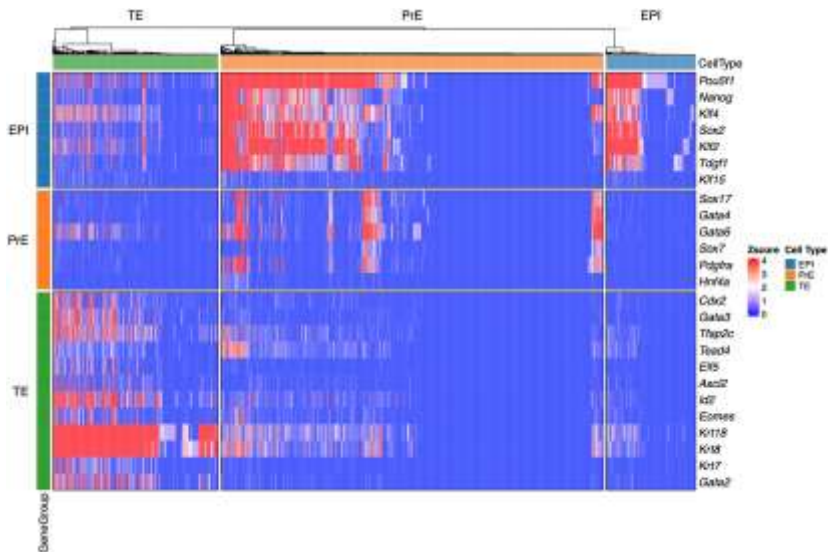
Merge Data

250430/EPI_TE_PrE_Markers_Heatmap_merge.pdf

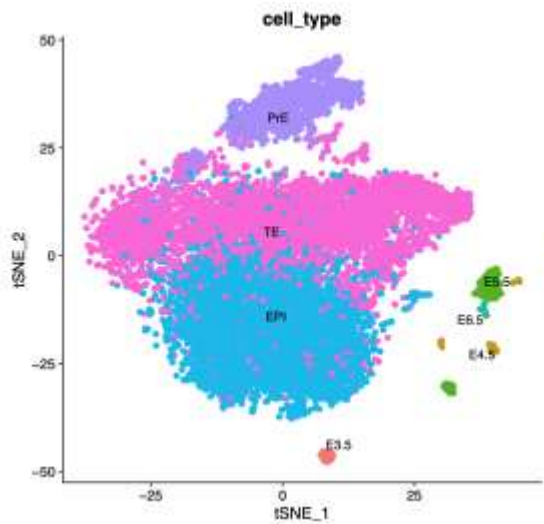
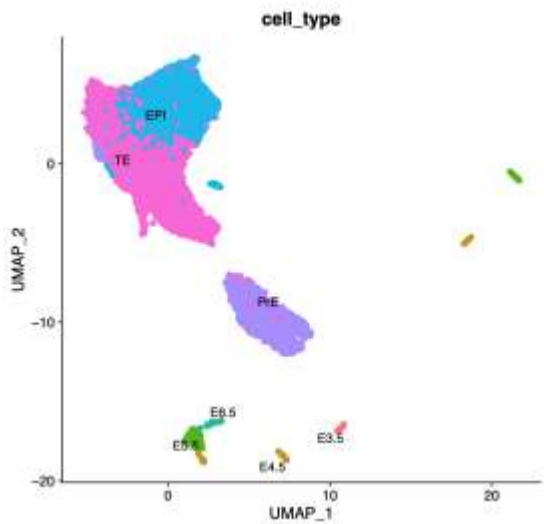


Integrate Data

250430 /EPI_TE_PrE_Markers_Heatmap_inte.pdf

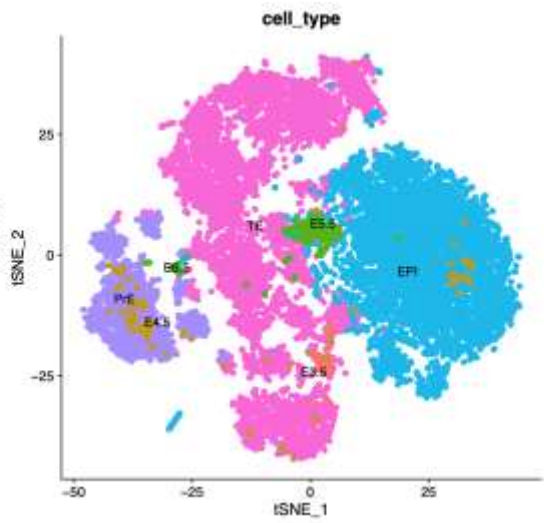
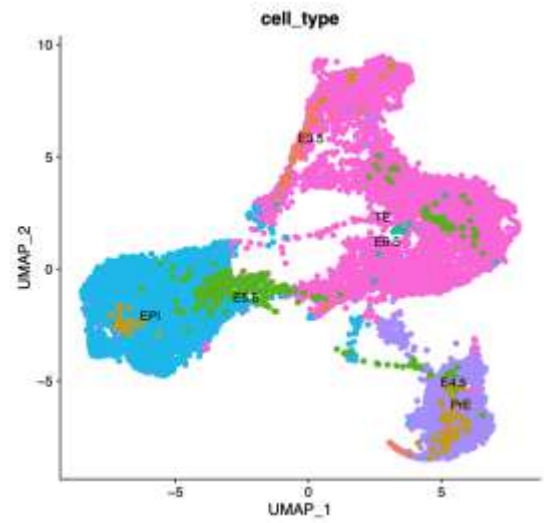


分析需求2：UMAP 分析 in house blastoid-10X 和 public 数据 GSE100597 (咱们已下载)



Merge Data

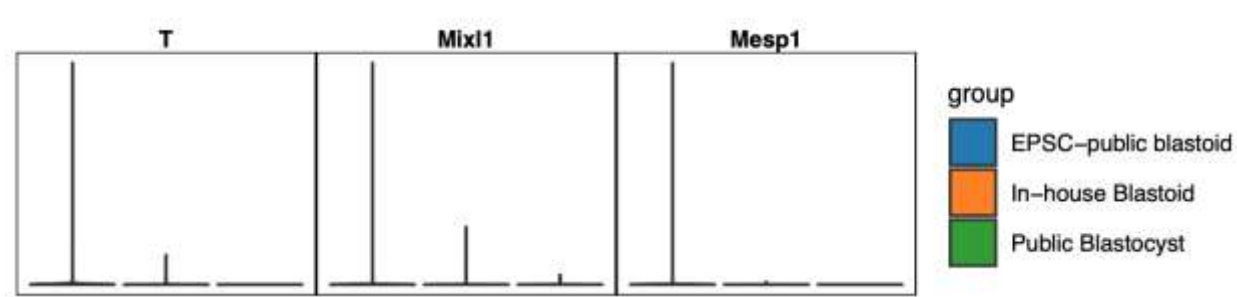
250430 /umap_tsne_merge_GSE100597.pdf



Integrate Data

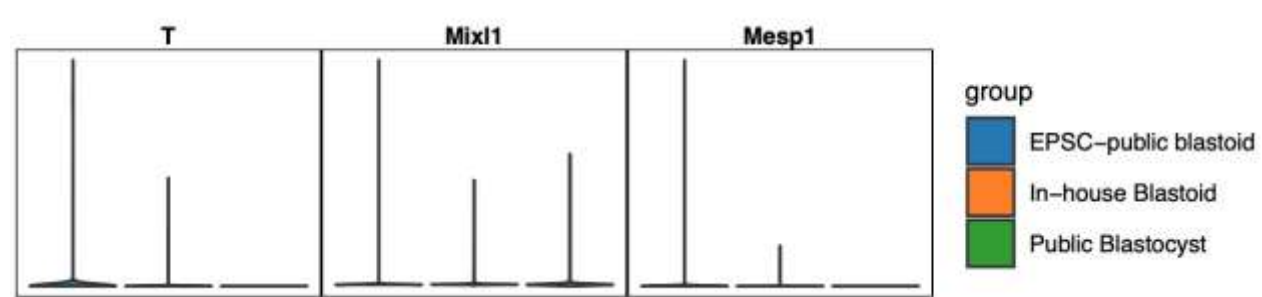
250430 /umap_tsne_inte_GSE100597_GSE74155.pdf

分析需求5：分析in house blastoid和 public EPSC-blastoid (10X, [GSM4026211](#)), 我们的in house blastoid不表达除 **EPI/TE/prE** 三个lineage以外的中间态细胞（这群中间态细胞表达**mesoderm marker: T / Mixl1 / Mesp1**）



Merge Data

250512/ mesoderm_marker_expression_violins_merge.pdf

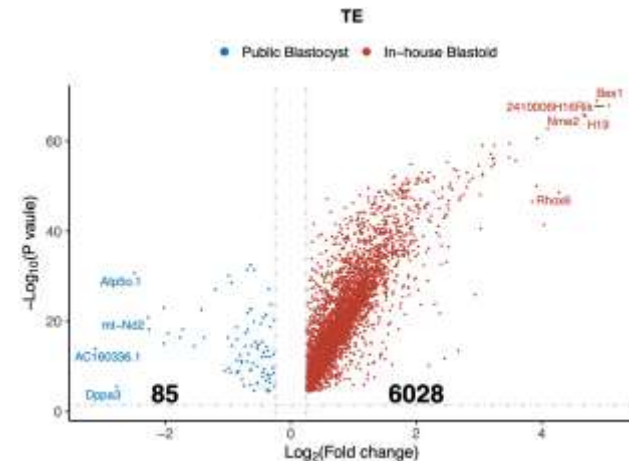
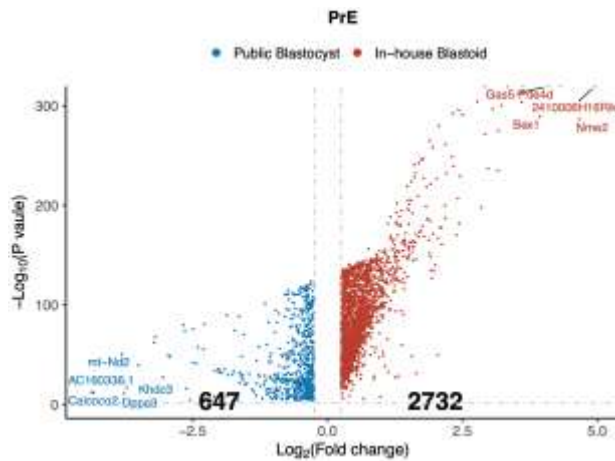
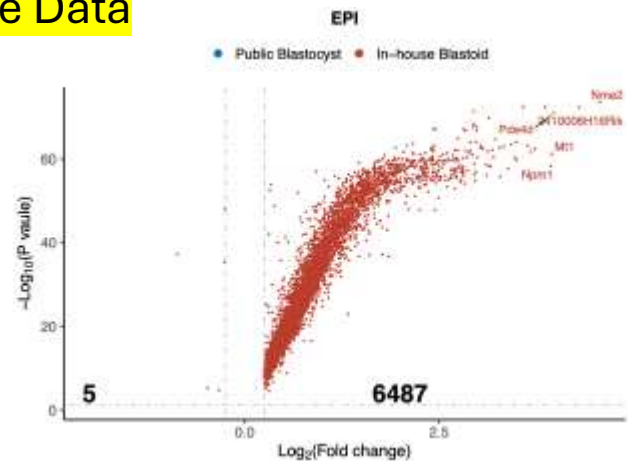


Integrate Data

250512/ mesoderm_marker_expression_violins_inte.pdf

blastocyst and blastoid prE/TE/ICM 的DEGs火山图

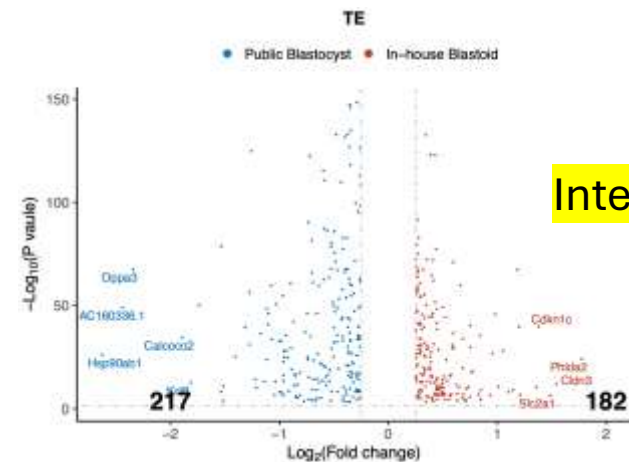
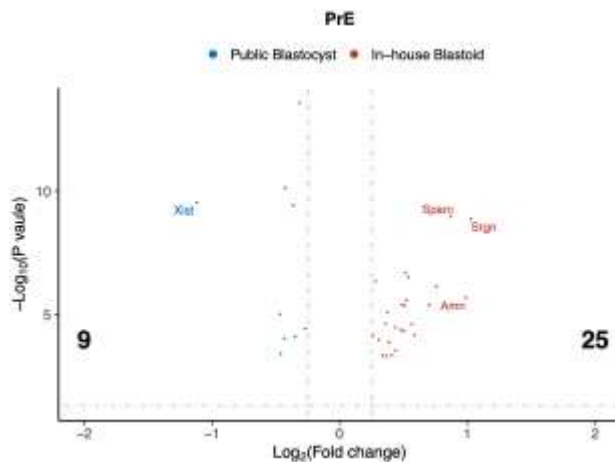
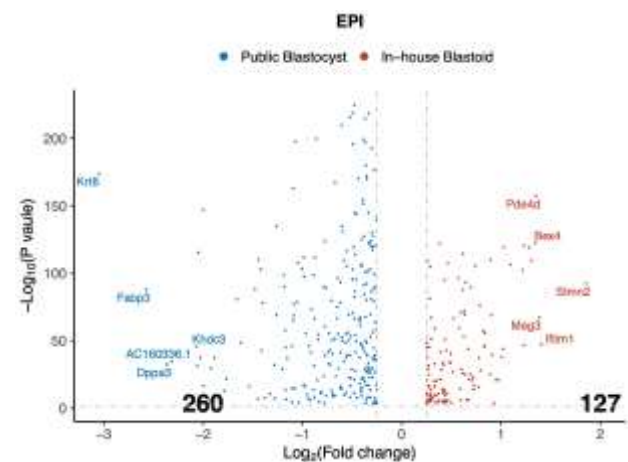
Merge Data



250512/merge_Volcanoplot_EPI.pdf

250512/merge_Volcanoplot_PrE.pdf

250512/merge_Volcanoplot_TE.pdf



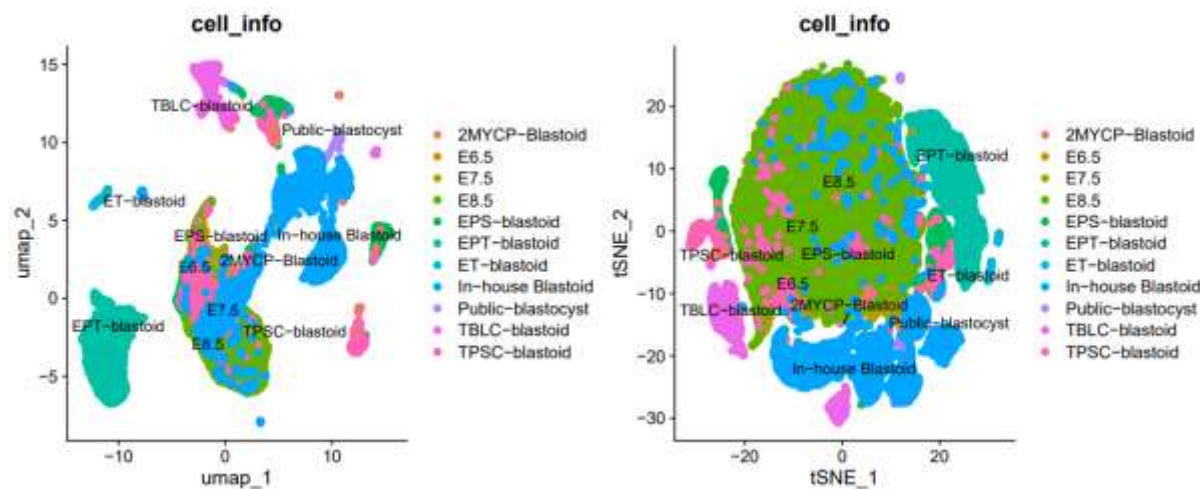
Integrate Data

250512/inte_Volcanoplot_EPI.pdf

250512/inte_Volcanoplot_PrE.pdf

250512/inte_Volcanoplot_TE.pdf

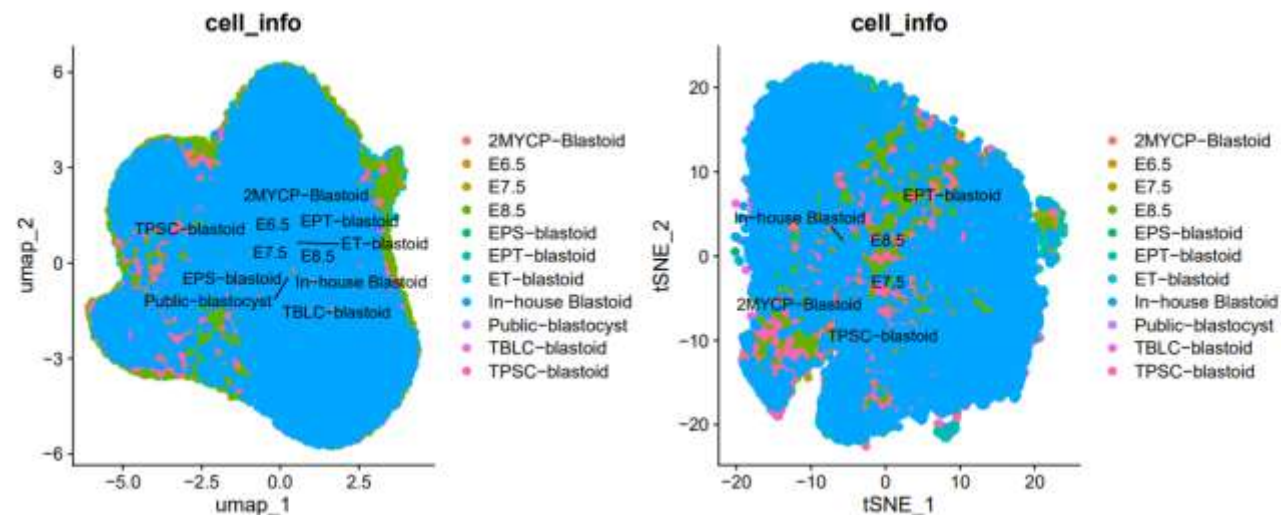
1.Public blastoid 10X数据+ 2.Public post-implantation drop-seq数据+4. In house blastoid 10X



Merge Data

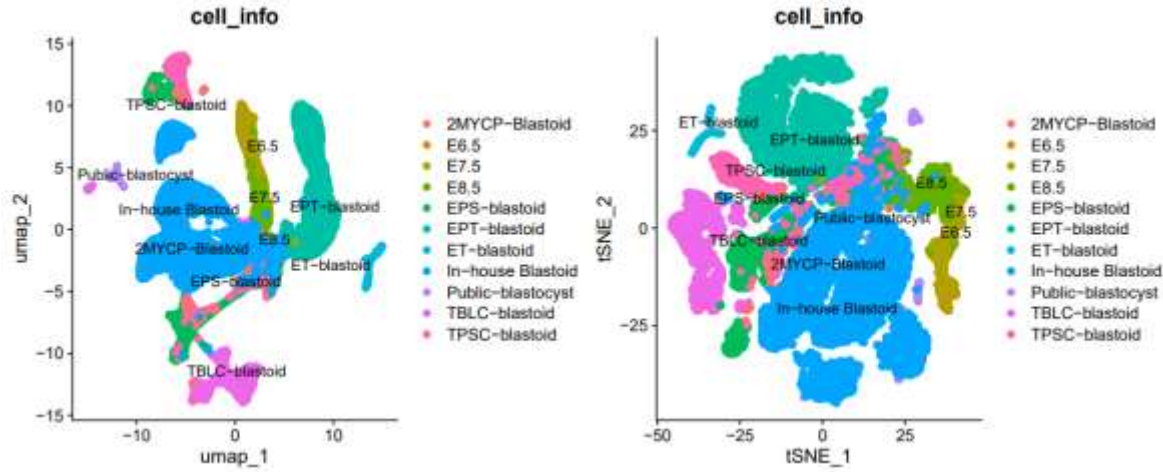
/home/zygao02/blastoid/250616/umap_tsne_merge.pdf

Integrate Data



/home/zygao02/blastoid/250616/umap_tsne_inte.pdf

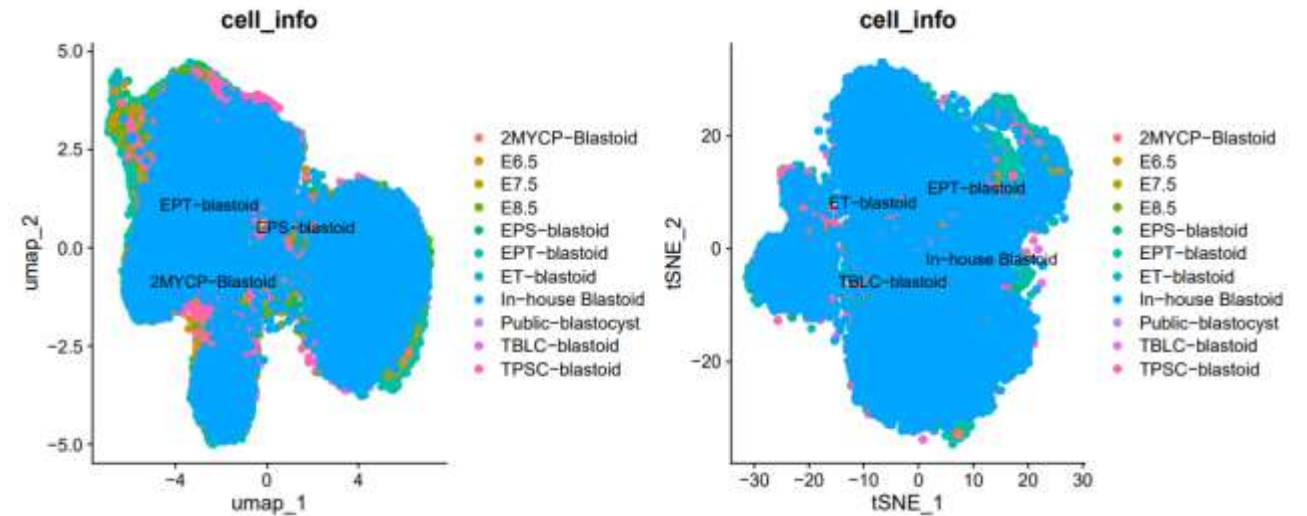
1.Public blastoid 10X数据+ 2.Public post-implantation drop-seq数据+4. In house blastoid 10X Down sample to 1000 cells



Merge Data

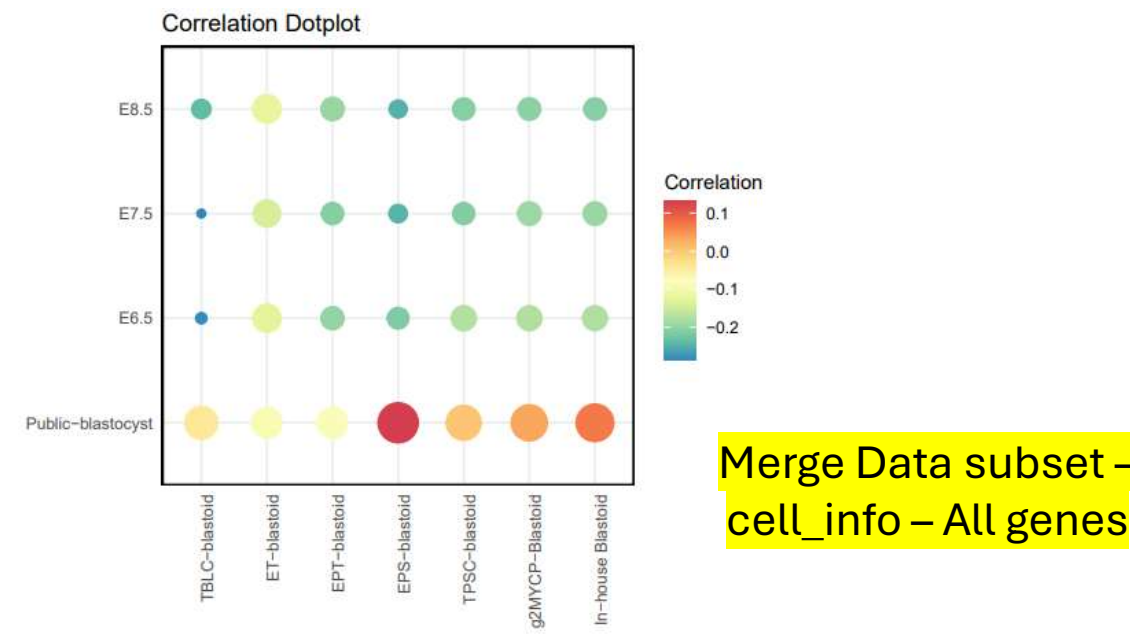
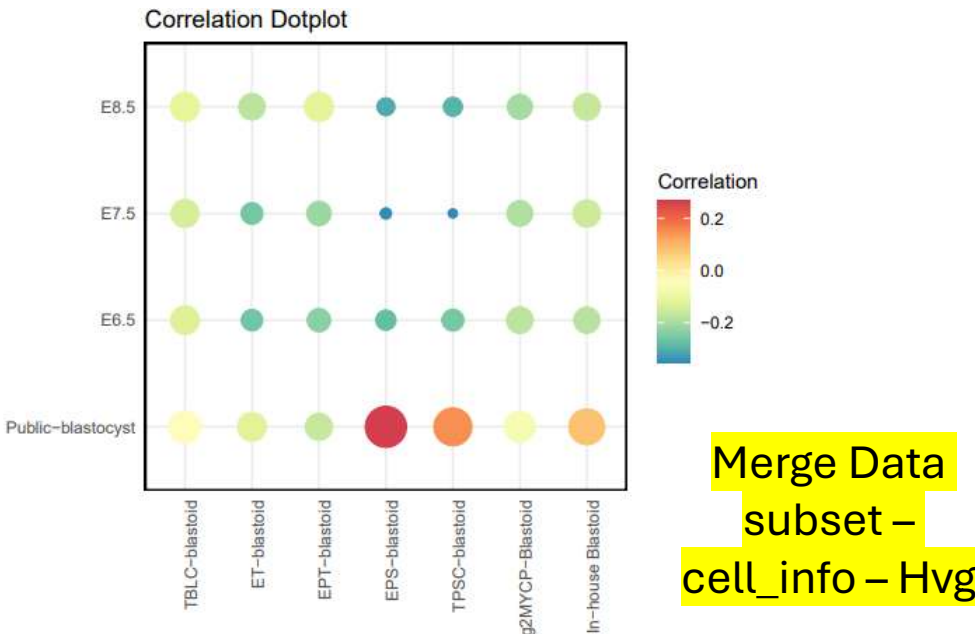
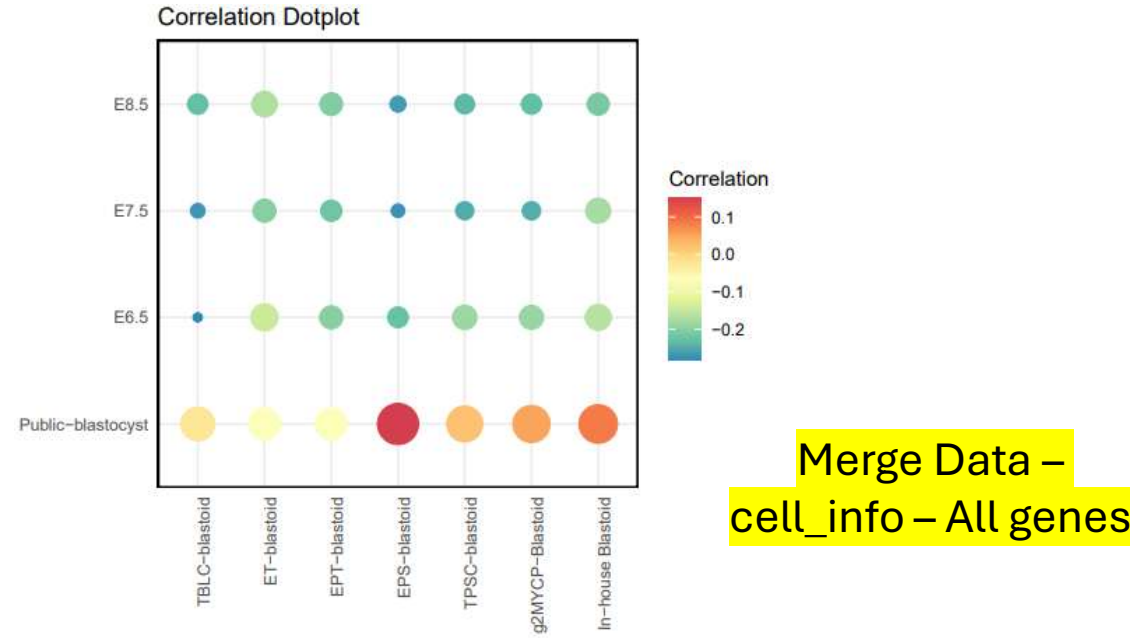
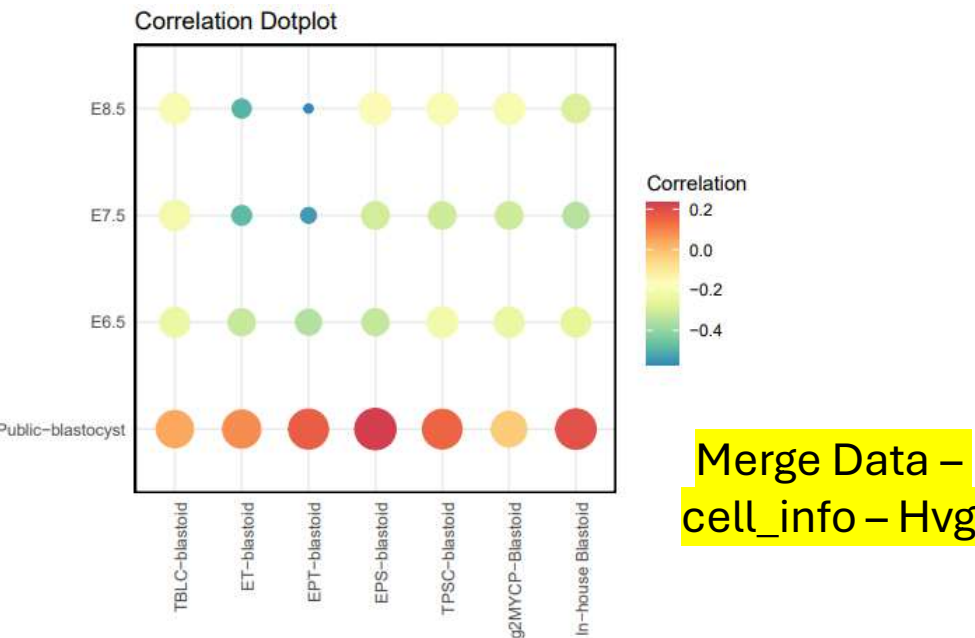
/home/zygao02/blastoid/250616/umap_tsne_merge.pdf

Integrate Data

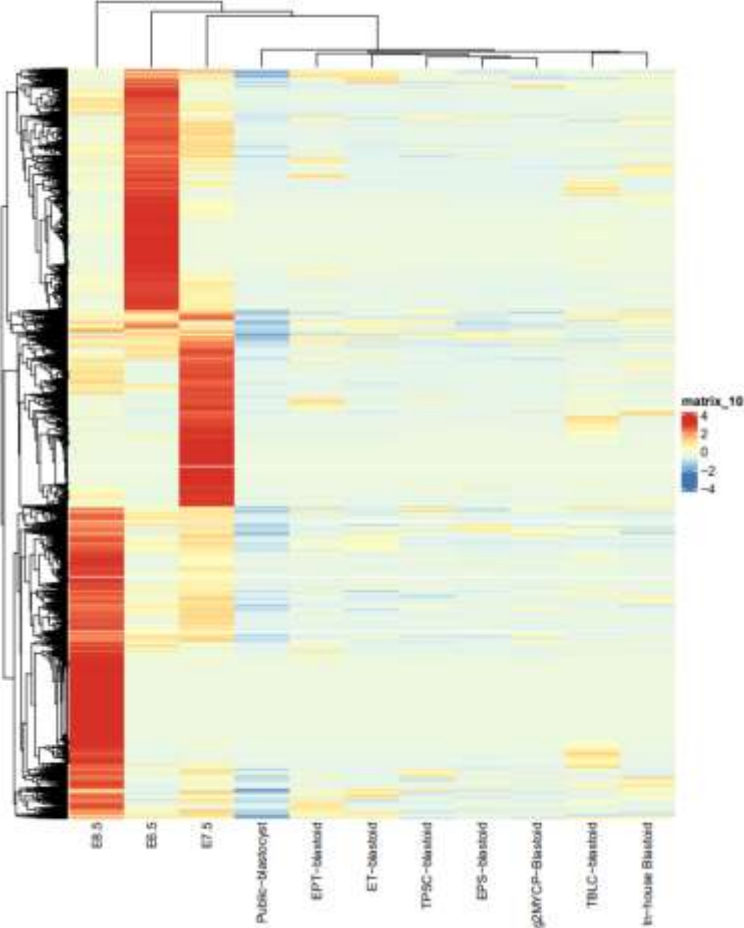


/home/zygao02/blastoid/250616/umap_tsne_inte.pdf

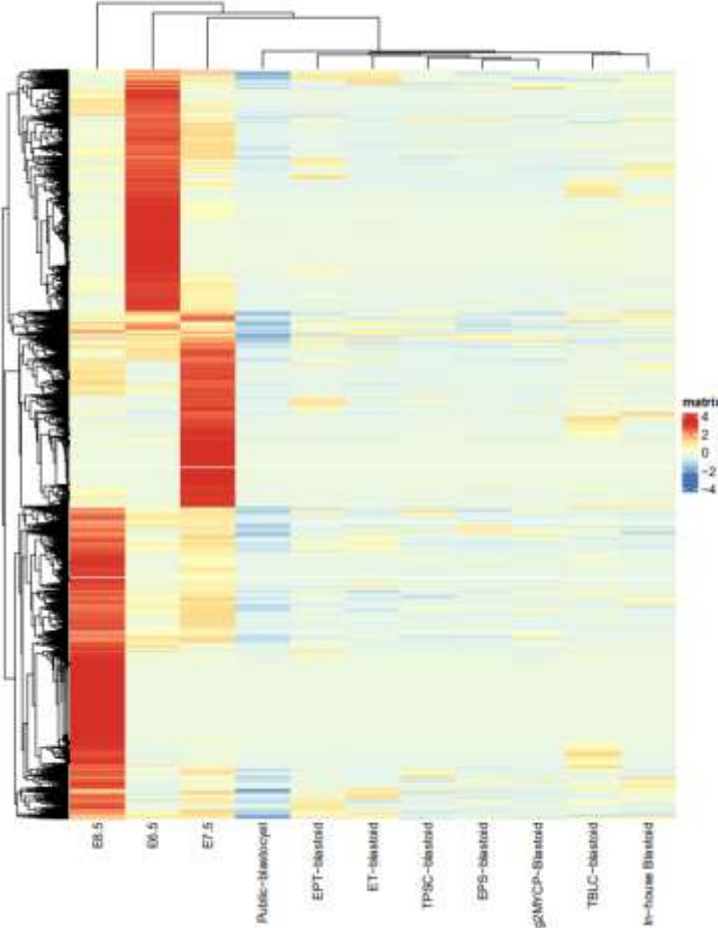
Pearson correlation analysis



Post-implantation stage specific genes

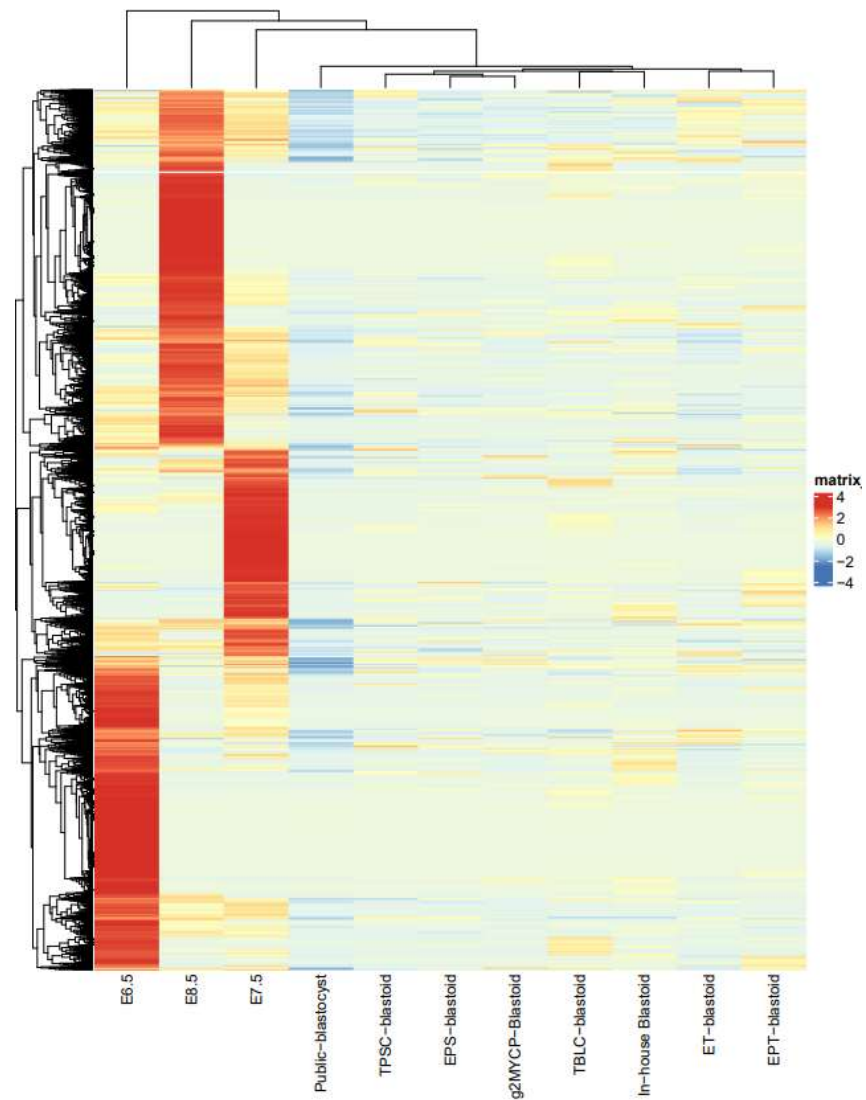


Merge Data –
cell_info – Hvg

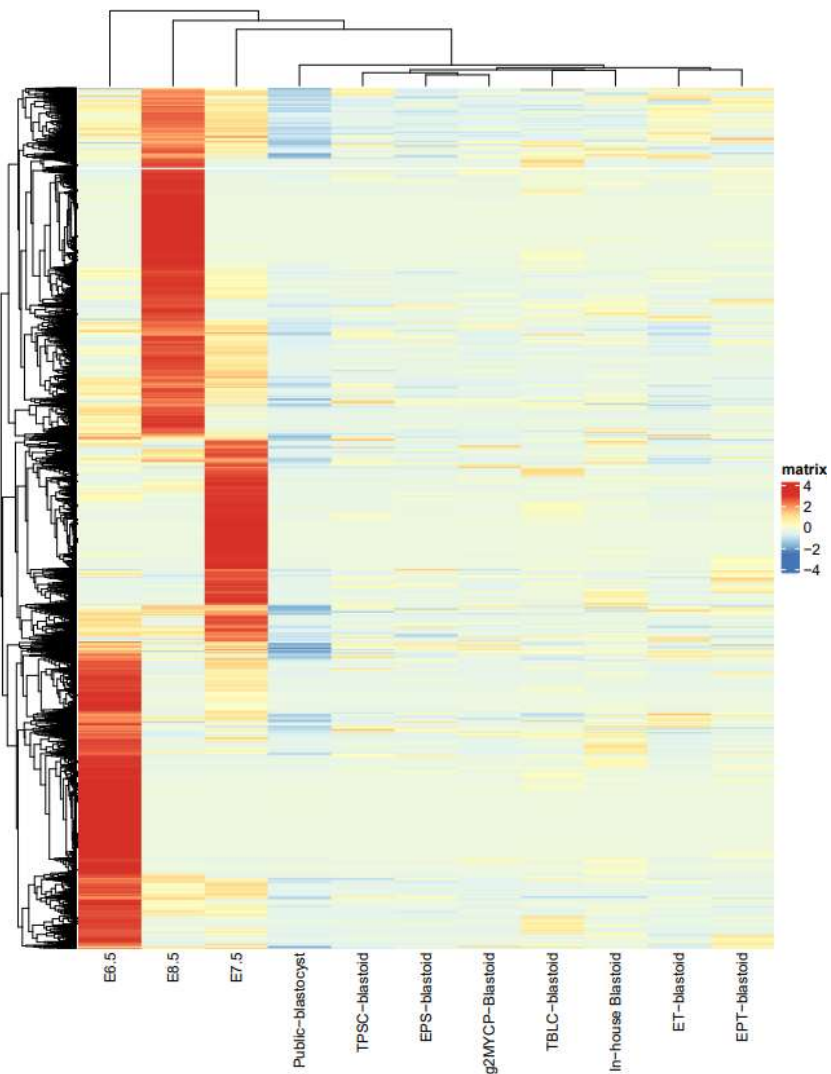


Merge Data –
cell_info – All genes

Post-implantation stage specific genes

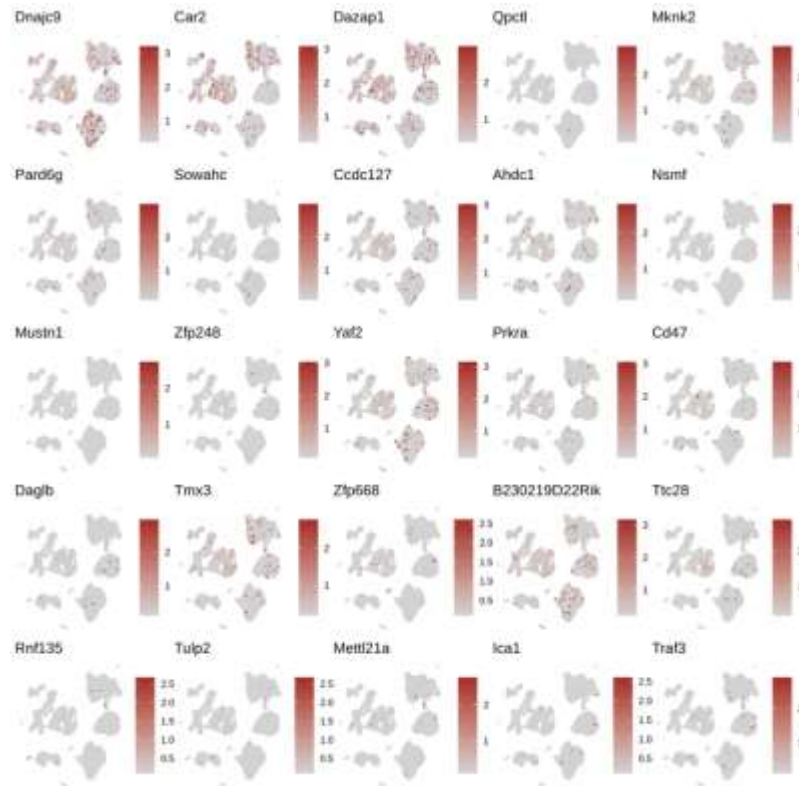


Merge Data subset –
cell_info – Hvg

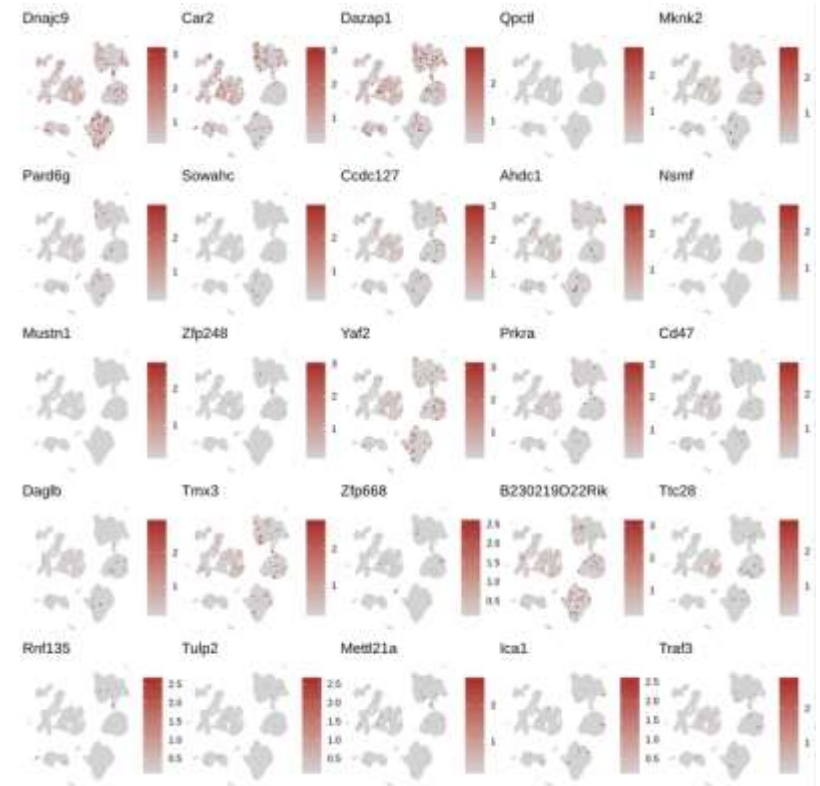


Merge Data subset –
cell_info – All genes

Analysis of post-implantation-specific gene expression in scBlastocyst and blastoid

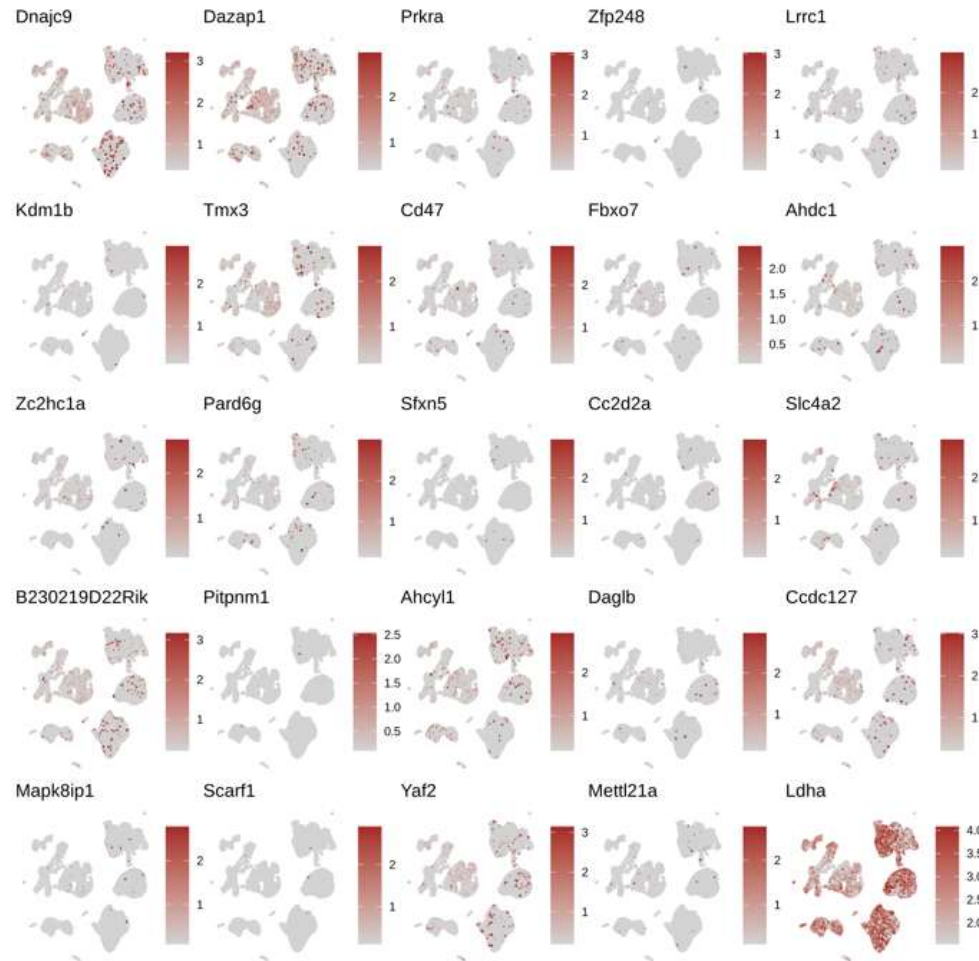


Merge Data –
cell_info – Hvg

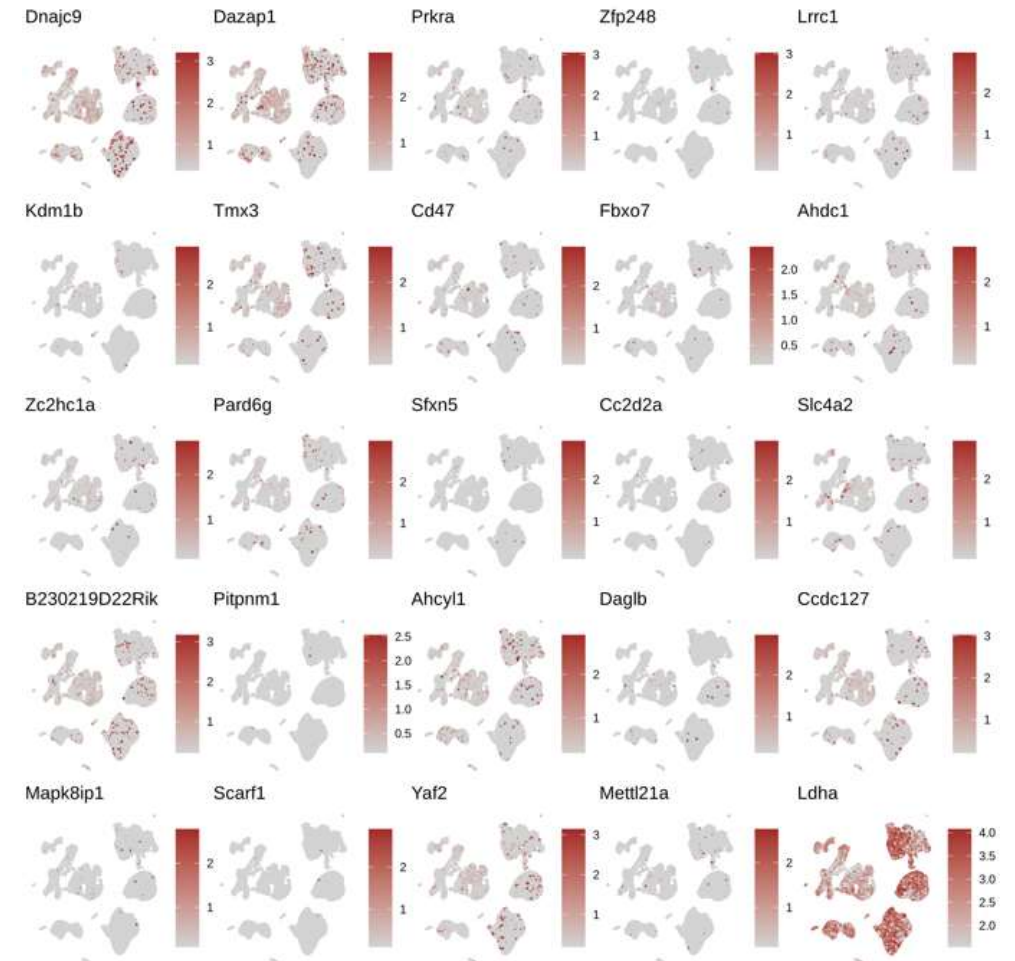


Merge Data –
cell_info – All genes

Analysis of post-implantation-specific gene expression in scBlastocyst and blastoid



Merge Data subset –
cell_info – Hvg



Merge Data subset –
cell_info – All genes