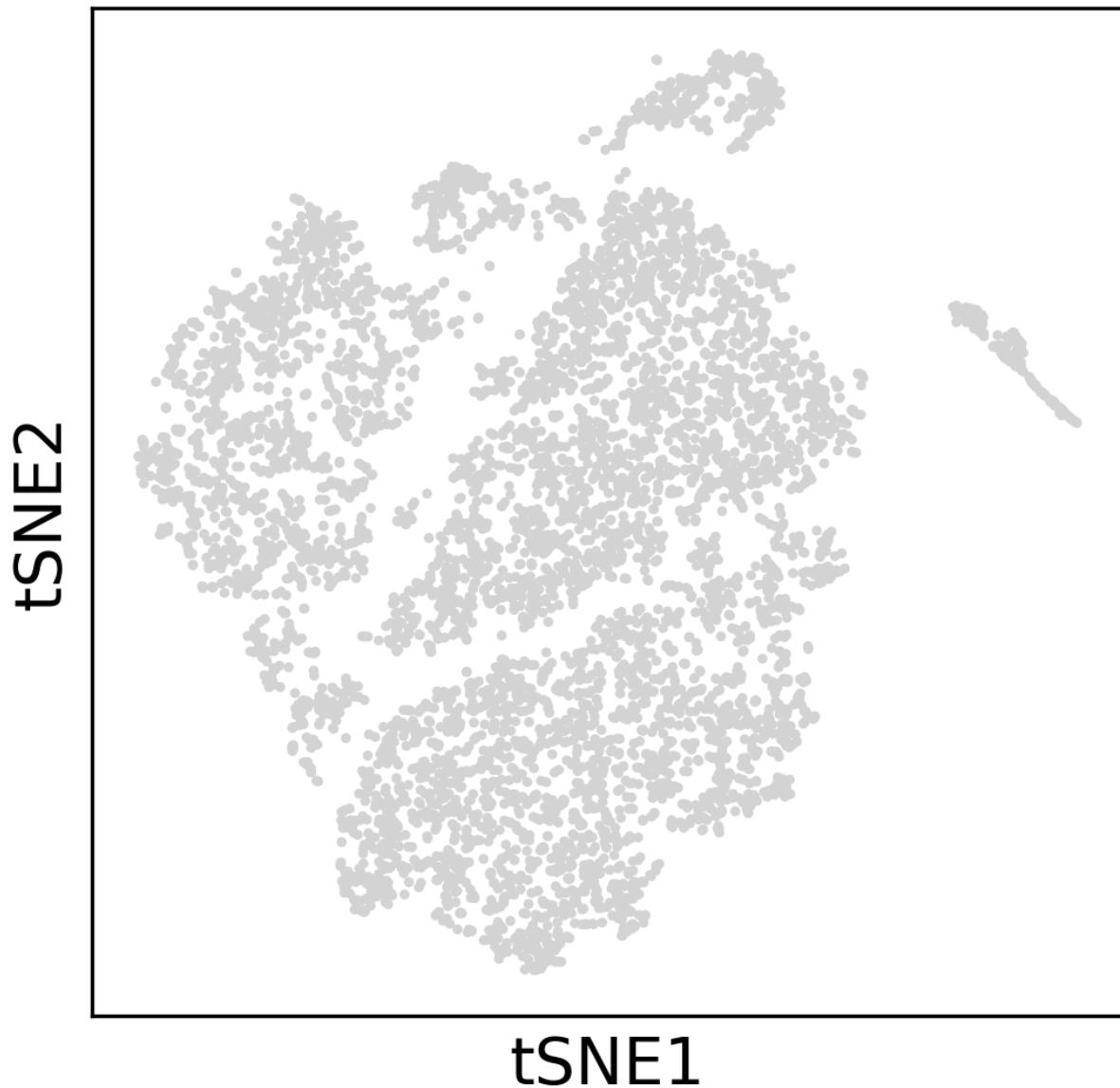


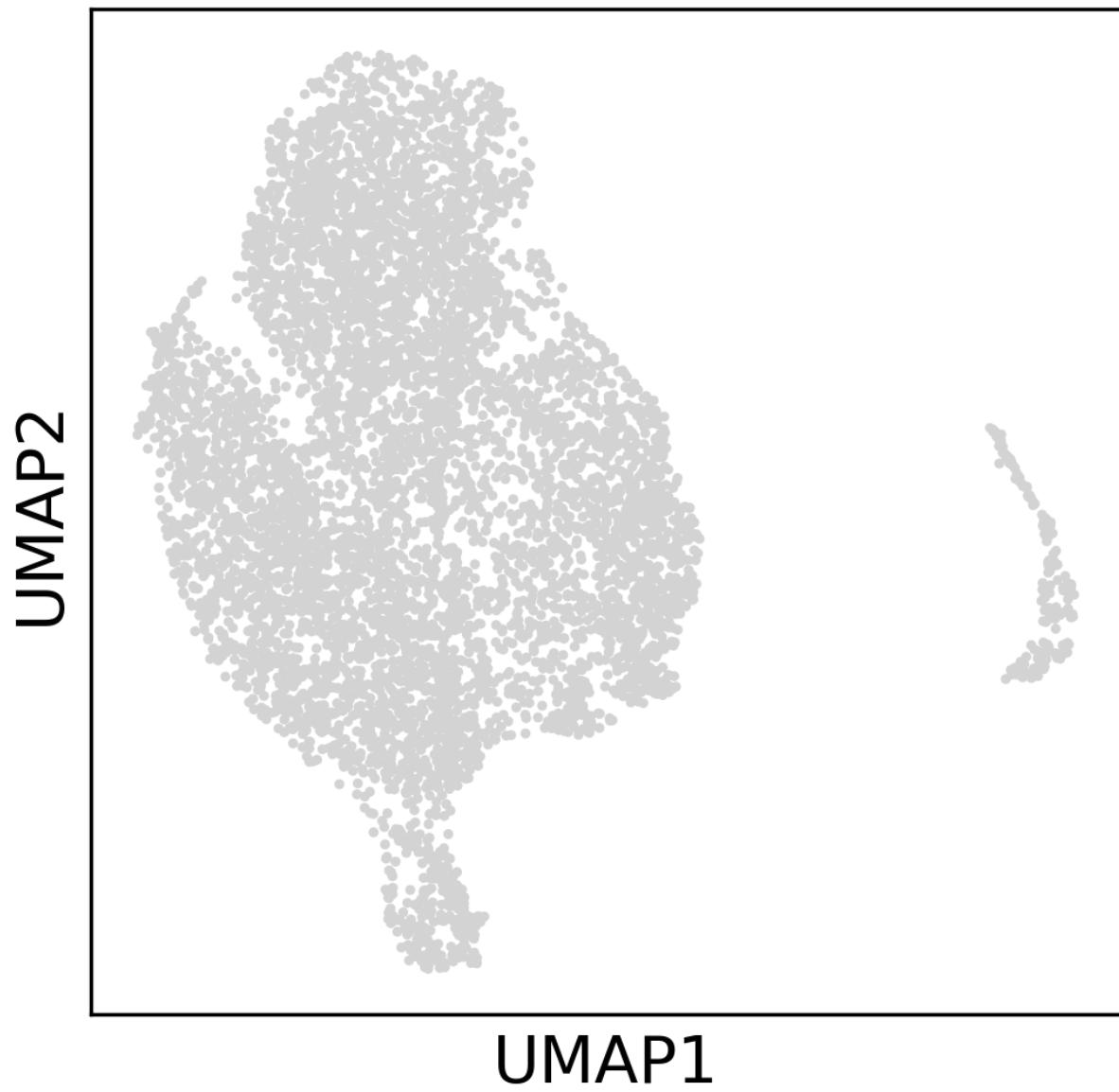
---

**emVE and exVE**

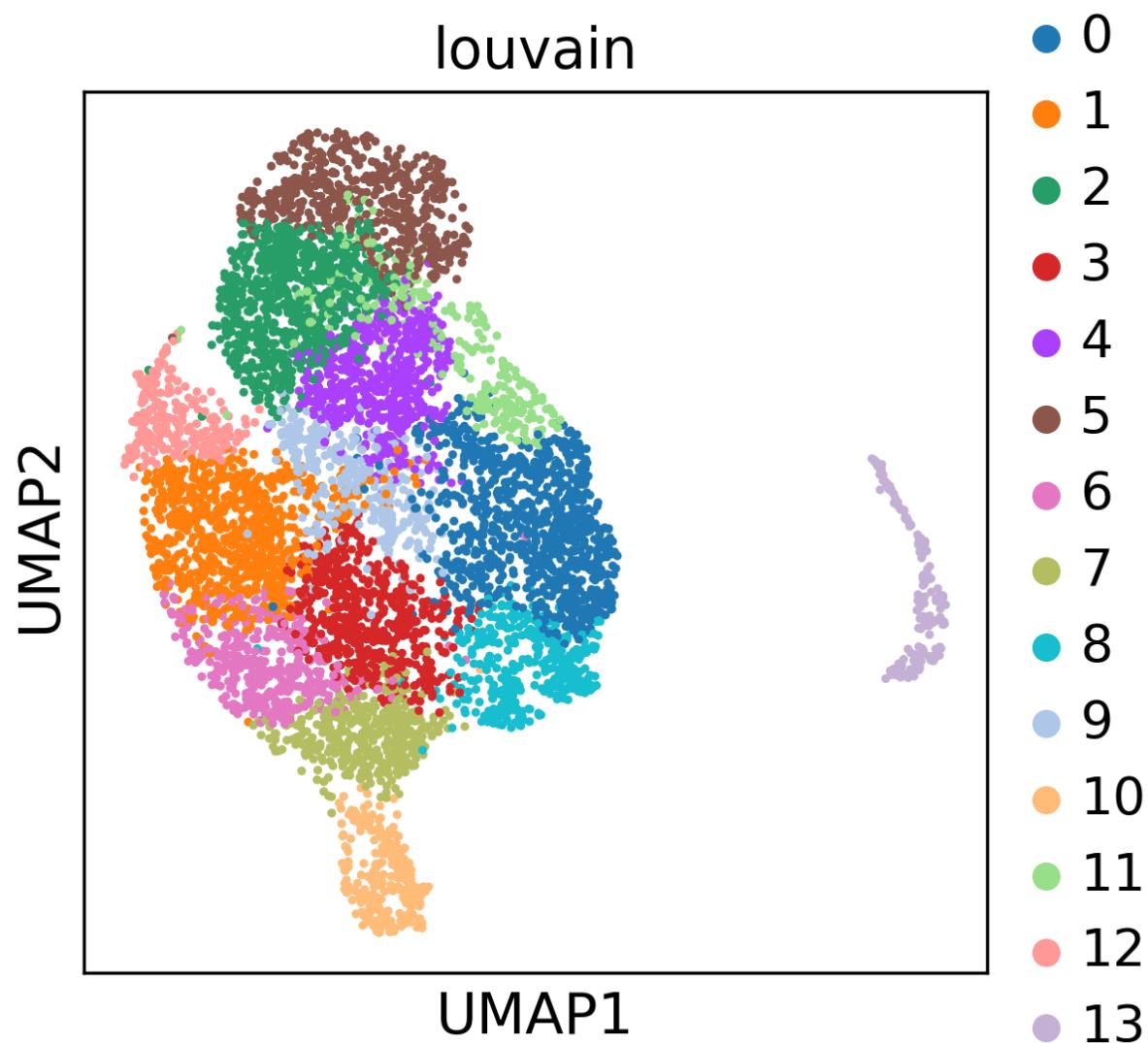
Note: 6339 emVE cells and 19584 exVE cells



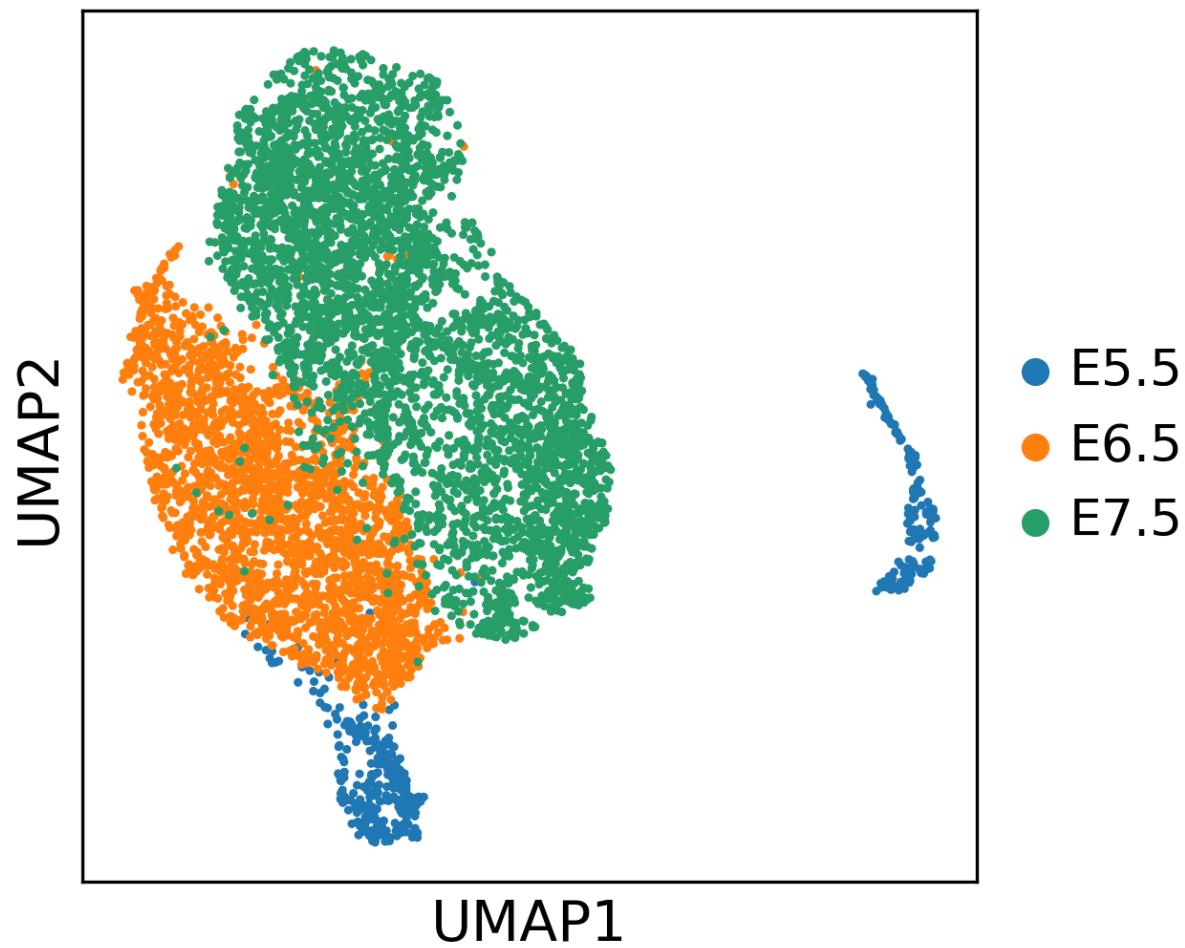
**Figure 1:** Embryonic visceral (emVE) endoderm cells tSNE plot categorized by time point, cluster, and cell type



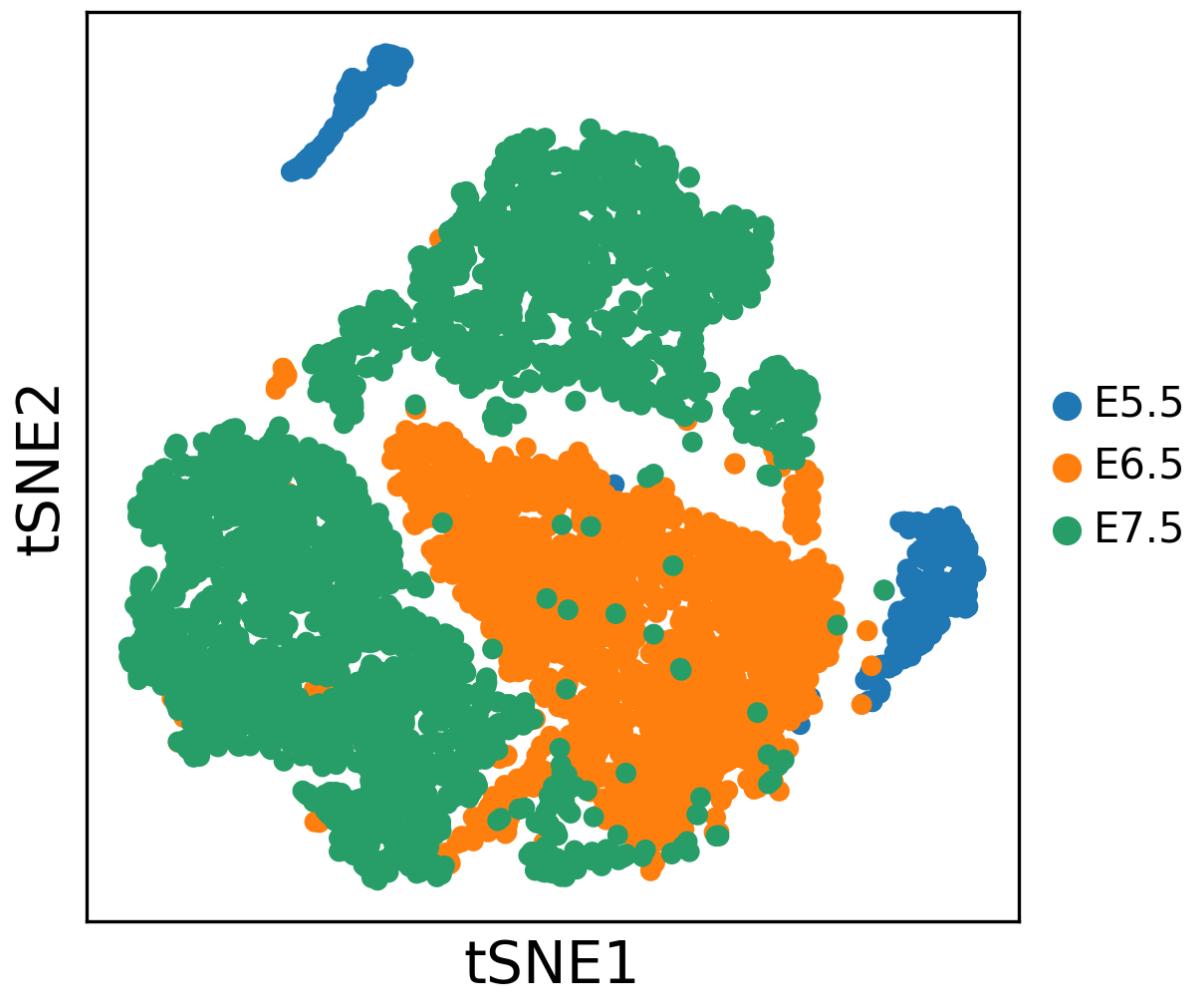
**Figure 2:** UMAP for emVE



**Figure 3:** UMAP embedding with Louvain clustering



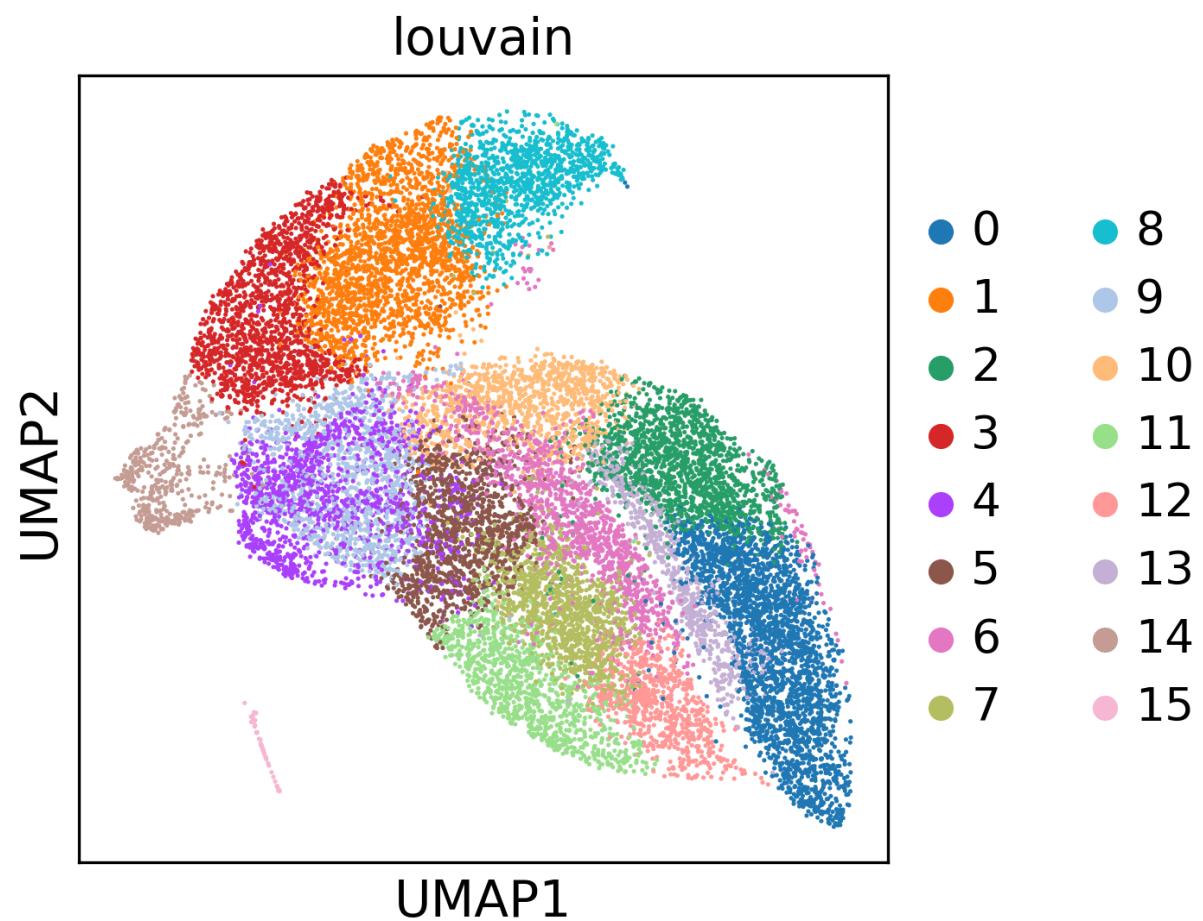
**Figure 4:** emVE UMAP embedding with timepoint



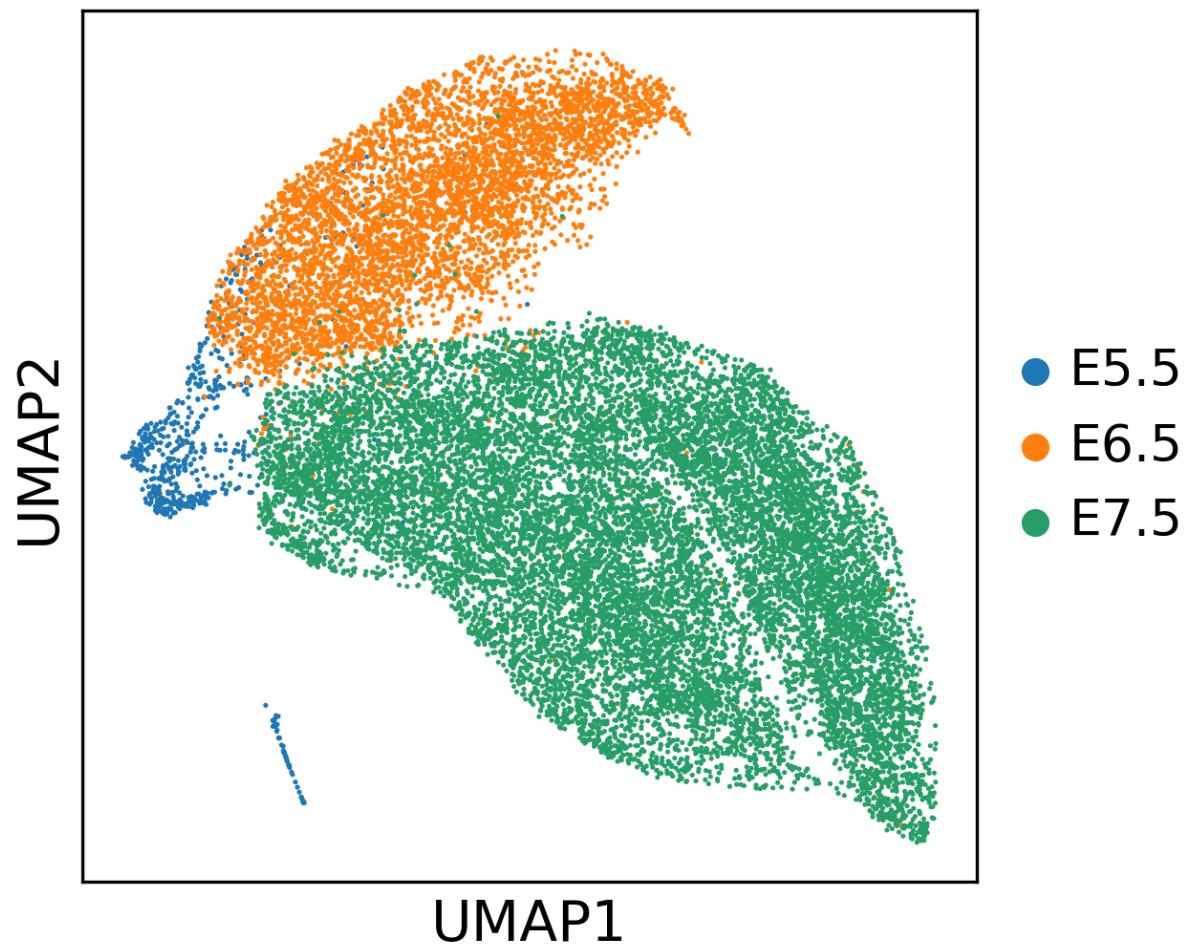
**Figure 5:** emVE tSNE visualization colored by time points

	E5.5	E6.5	E7.5
<b>0</b>	Dppa5a	Gstp1	Eef1a1
<b>1</b>	Irs4	Taf10	mt-Atp6
<b>2</b>	Aplp2	Gm10020	Krt18
<b>3</b>	Eomes	Gm10076	mt-Co3
<b>4</b>	Scd2	Slc25a33	mt-Cytb
<b>5</b>	Foxq1	Cyp26a1	mt-Nd4
<b>6</b>	Sfrp1	Fgf5	Bex1
<b>7</b>	Fzd5	Erh	Slc2a1
<b>8</b>	Fgf5	Gclm	Bsg
<b>9</b>	Cdh2	Gm10131	Emb
<b>10</b>	Lrp2	Mixl1	Selenop
<b>11</b>	Gm10837	Eomes	Wbp5
<b>12</b>	Sox3	Pgk1	Cox7a2l
<b>13</b>	Atp8a1	Gm8186	H3f3a
<b>14</b>	Ntn1	Timm8a1	mt-Nd2
<b>15</b>	Dppa3	Fgf8	mt-Co2
<b>16</b>	Gm42418	Nodal	Cldn6
<b>17</b>	Nid1	Zbed5	Gm11808
<b>18</b>	Pmepa1	1810009A15Rik	Rpl14
<b>19</b>	Cyp26a1	Rpl29	Krt8

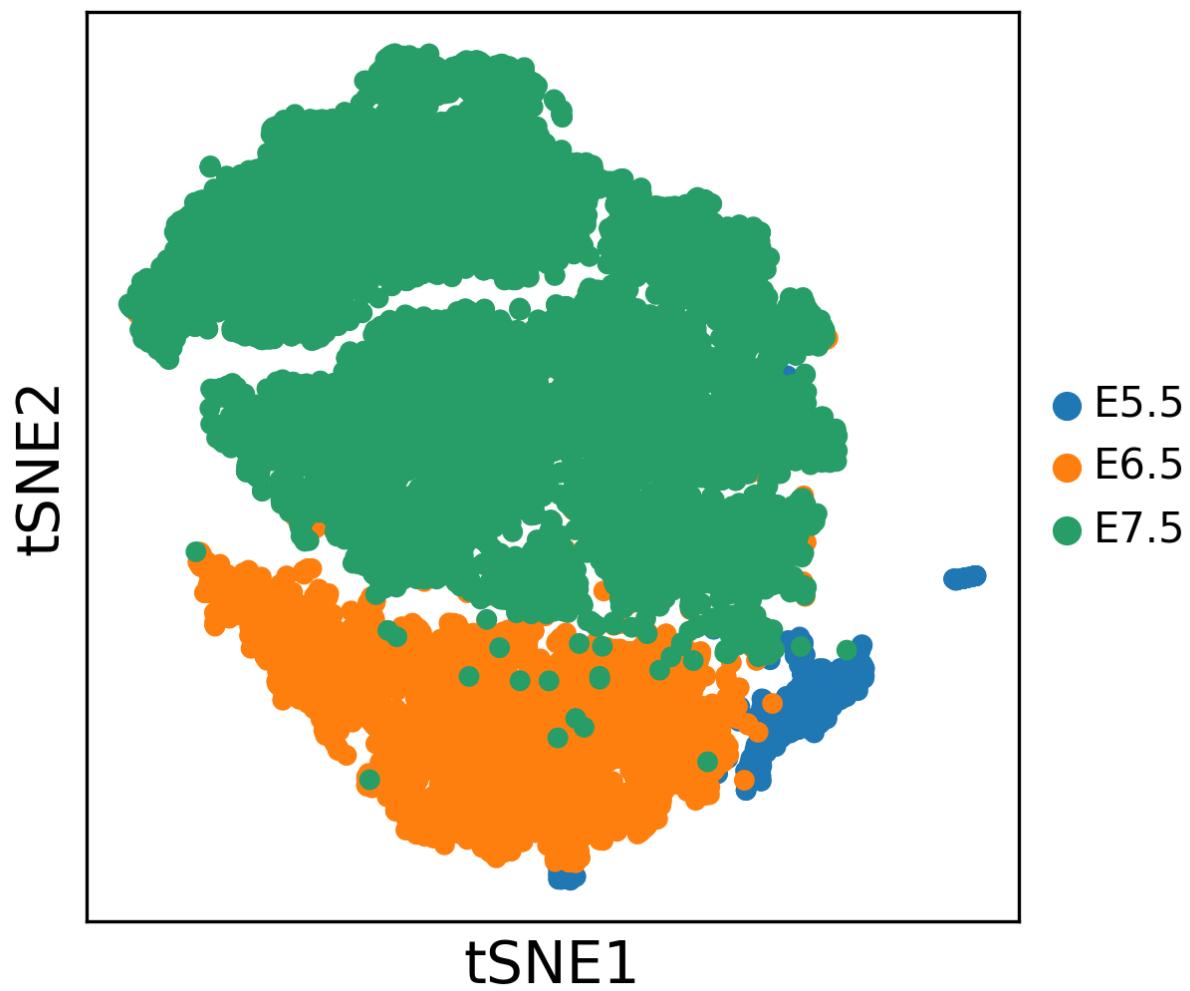
**Figure 6:** Table showing ranked expression of top 20 genes in emVE cells, where the columns are organized by time point. The top row represents the highest ranked gene.



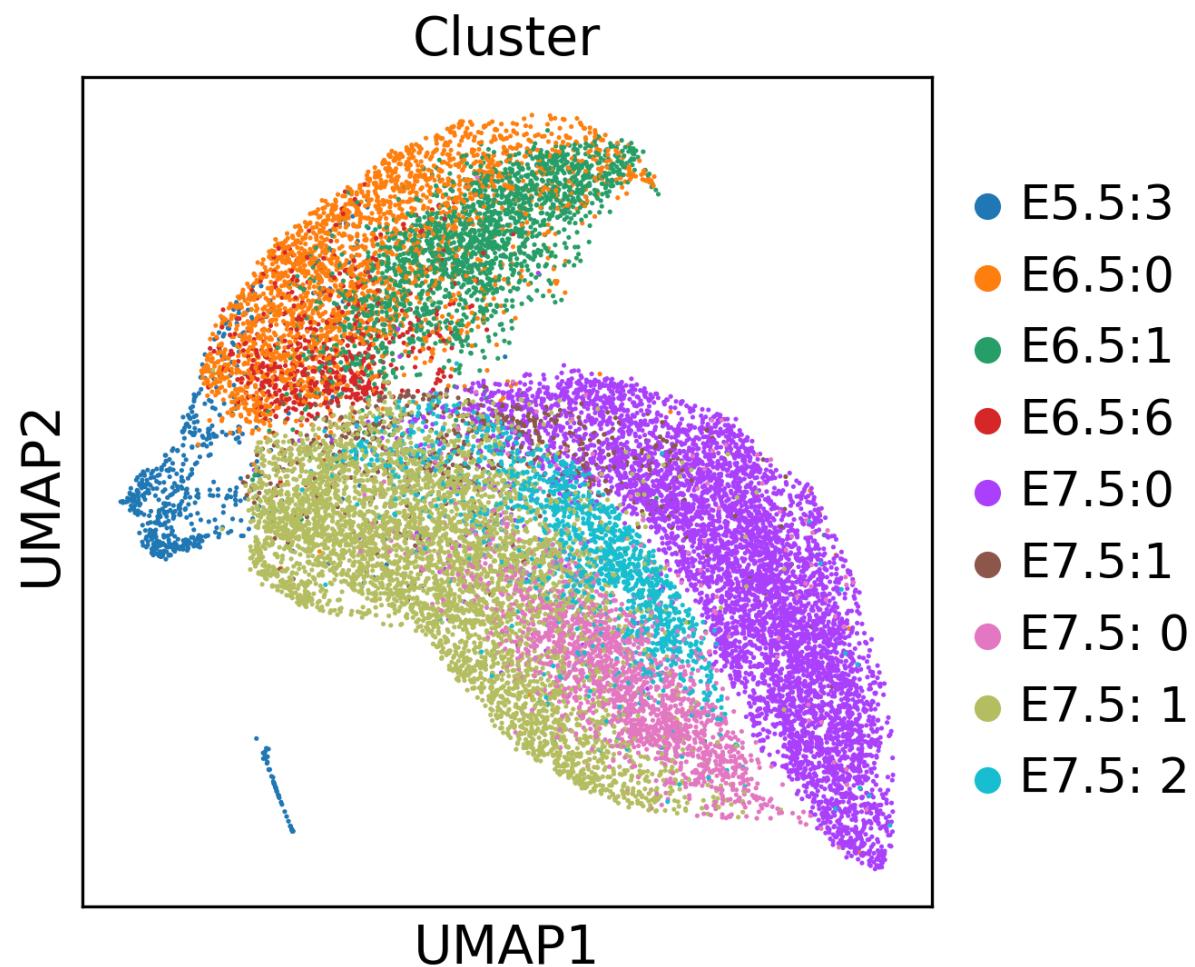
**Figure 7:** UMAP embedding Louvain clustering with exVE cells



**Figure 8:** UMAP embedding with timepoint, exVE cells



**Figure 9:** exVE tSNE visualization colored by time point



**Figure 10:** UMAP embedding by clusters, exVE cells

	E5.5	E6.5	E7.5
<b>0</b>	Dppa5a	Gm10076	mt-Nd4
<b>1</b>	Scd2	Pgk1	mt-Atp6
<b>2</b>	Srgn	Gm10020	mt-Cytb
<b>3</b>	Ldlr	Taf10	mt-Nd2
<b>4</b>	Gm10837	Gm8186	mt-Co3
<b>5</b>	Pou5f1	Gm10131	mt-Co2
<b>6</b>	Lrp2	Timm8a1	Apob
<b>7</b>	Zic3	Gclm	Rps3a1
<b>8</b>	Insig1	Pgk1-rs7	Wdr89
<b>9</b>	Fgf5	Tmem238	Emb
<b>10</b>	Has2	Gm10269	Rdx
<b>11</b>	Foxq1	Gstp1	Rpl23a-ps3
<b>12</b>	Pmepa1	Bloc1s1	Degs1
<b>13</b>	Cdh2	Zbed5	Hspa5
<b>14</b>	Utf1	1810009A15Rik	Slc2a3
<b>15</b>	Sqle	Dynlt1a	Slc13a4
<b>16</b>	Eomes	Aqp8	Eef1a1
<b>17</b>	Fads1	Gm4737	Calr
<b>18</b>	Irs4	Platr15	mt-Nd1
<b>19</b>	Dnmt3b	Chic2	Atp5b

**Figure 11:** Table showing ranked expression of top 20 genes in exVE cells, where the columns are organized by time point. The top row represents the highest ranked gene.

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**TIMEPOINT DATA:**

The number of cells at each timepoint:

E8.75\_ap: 5423

E8.75: 42599

E4.5: 232

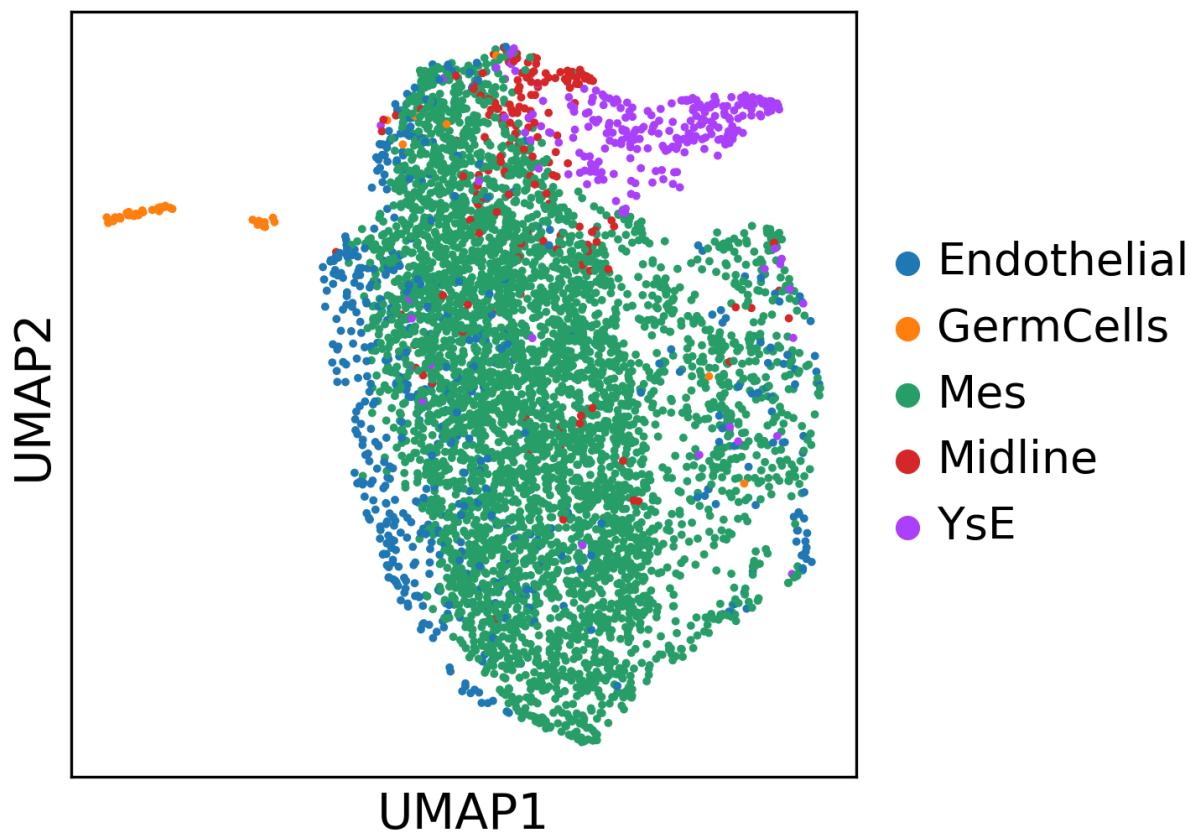
E3.5: 774

E8.75\_gfp: 9379

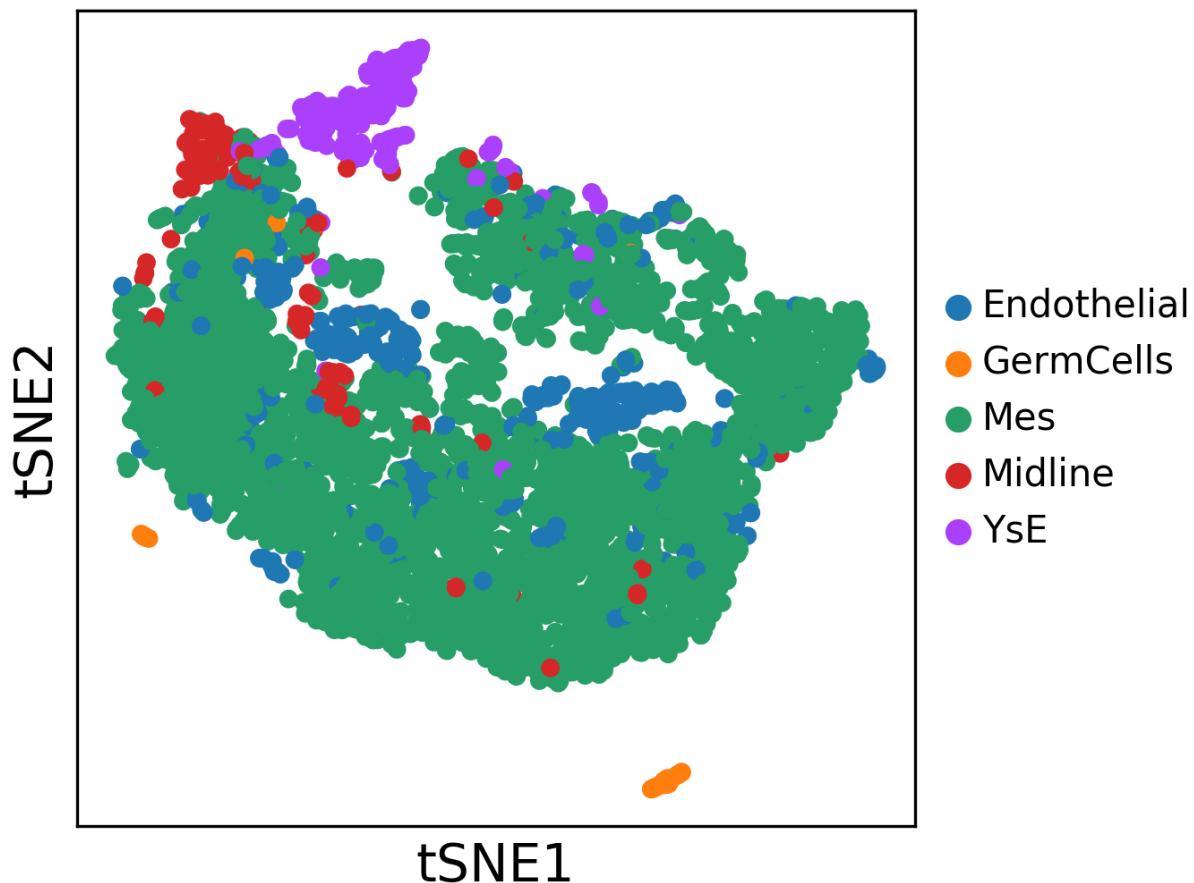
E5.5: 11550

E6.5: 9244

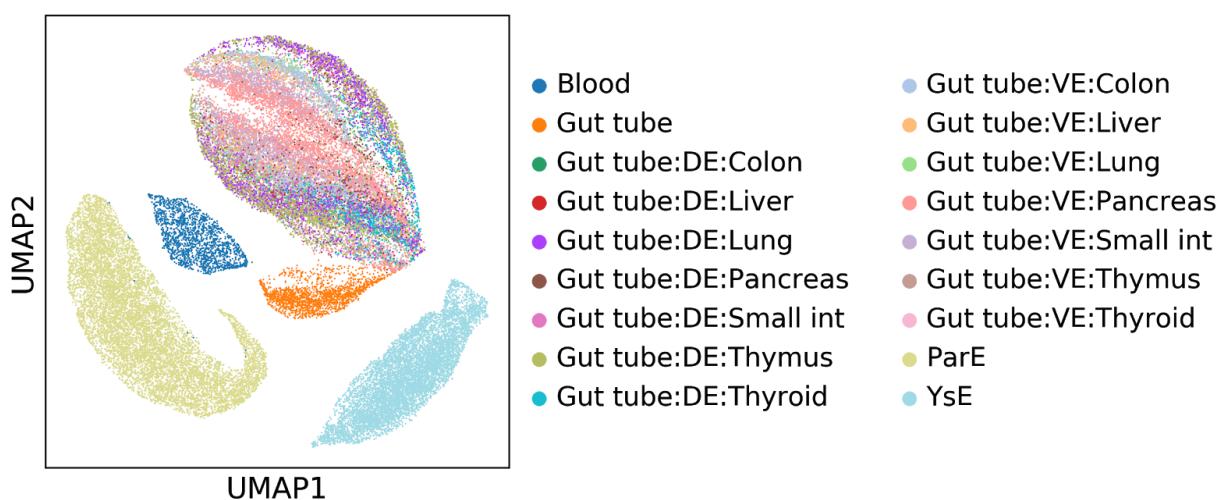
E7.5: 33850



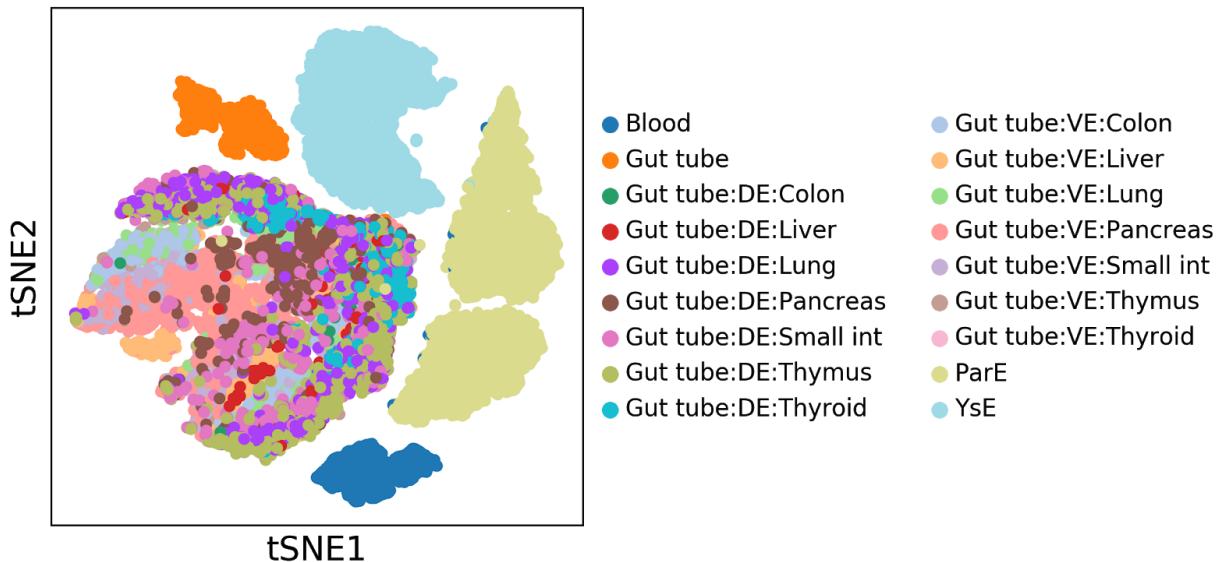
**Figure 12:** UMAP embedding by cell type, time point E8.75 anterior/posterior gut tube



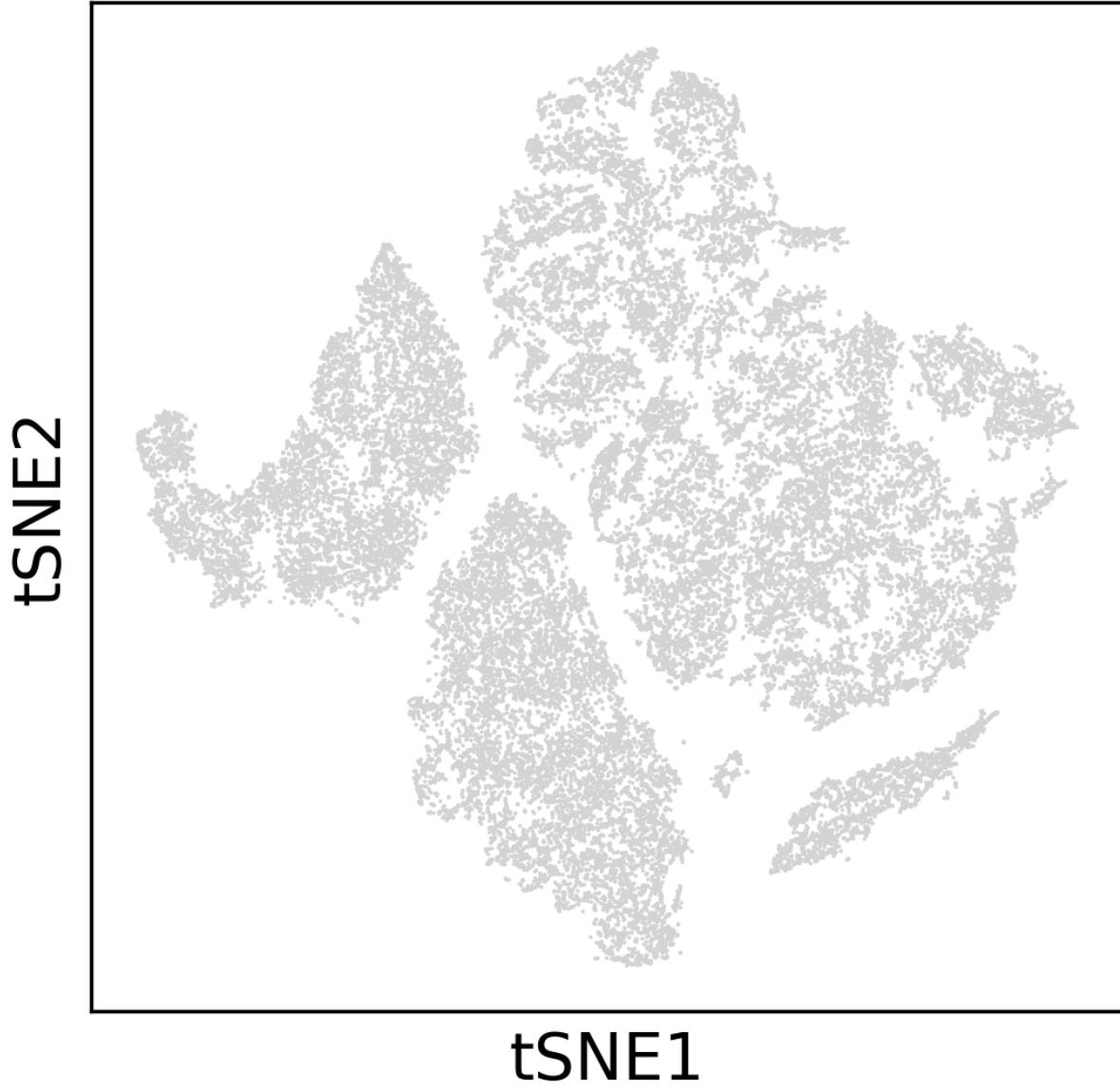
**Figure 13:** tSNE plot colored by cell type, timepoint E8.75 anterior/posterior



**Figure 14:** UMAP embedding by cell type, time point E8.75

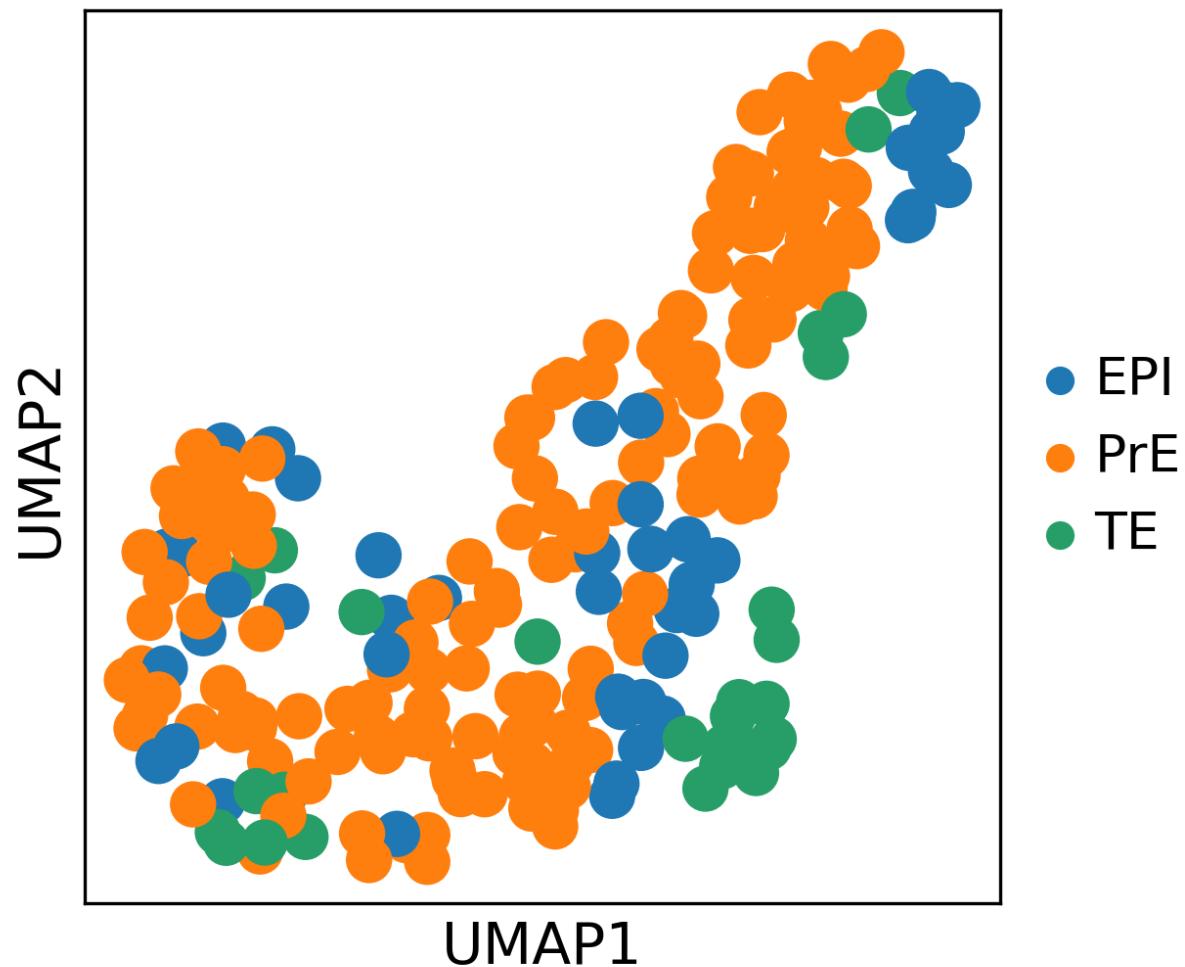


**Figure 15:** tSNE plot colored by cell type, E8.75

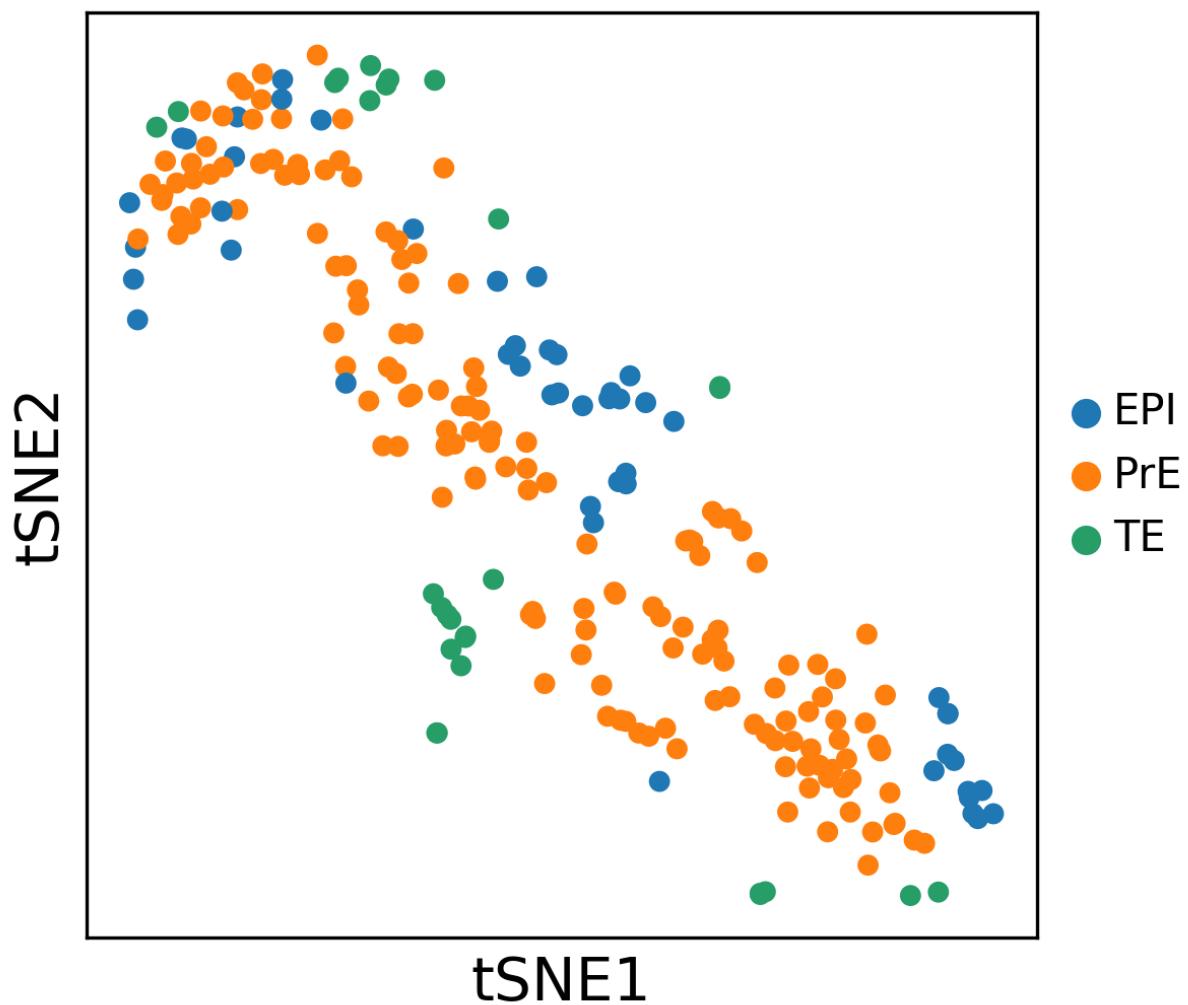


**Figure 16:** tSNE plot, cells at E8.75 timepoint

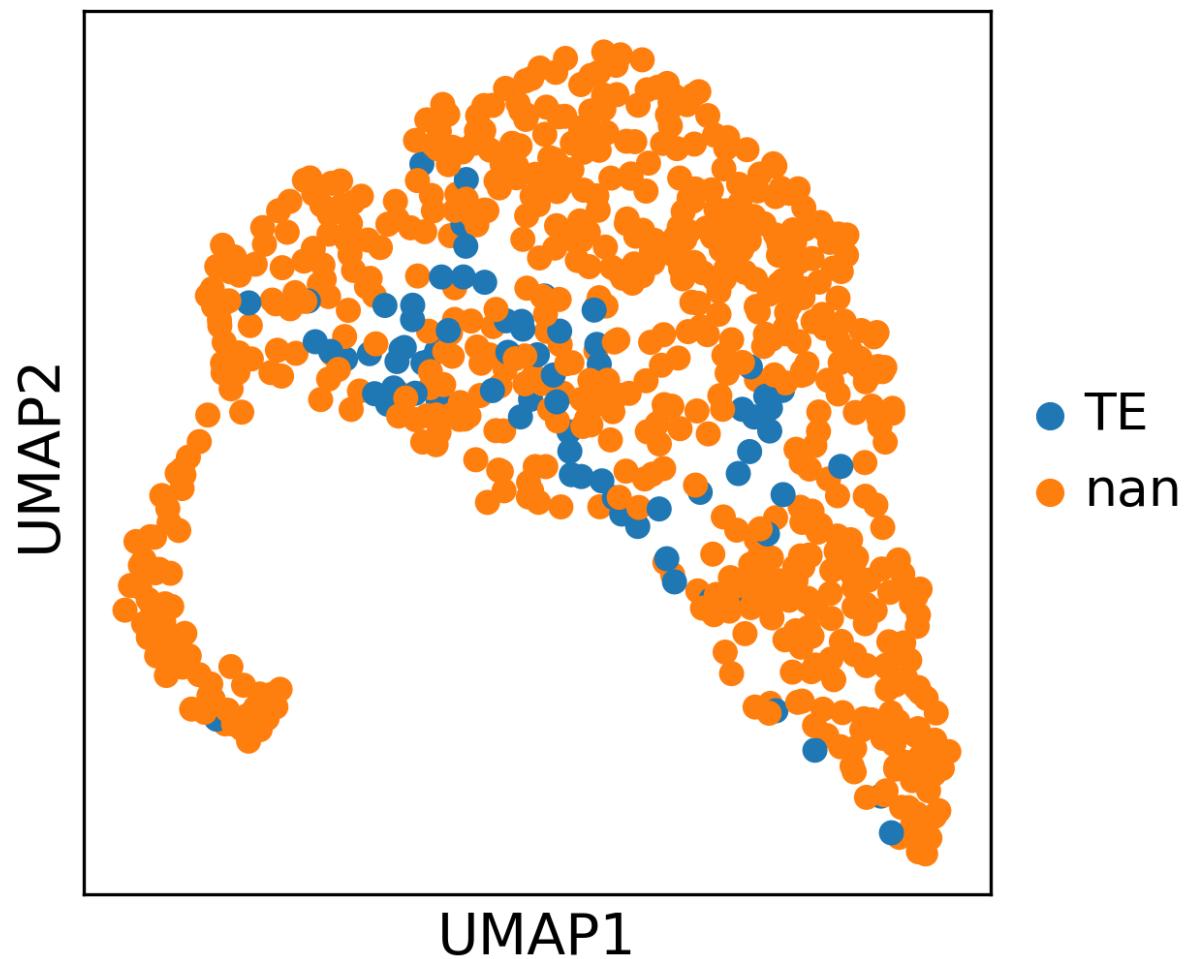
Note: Above plot took very long to generate, so we've omitted them for the other time points



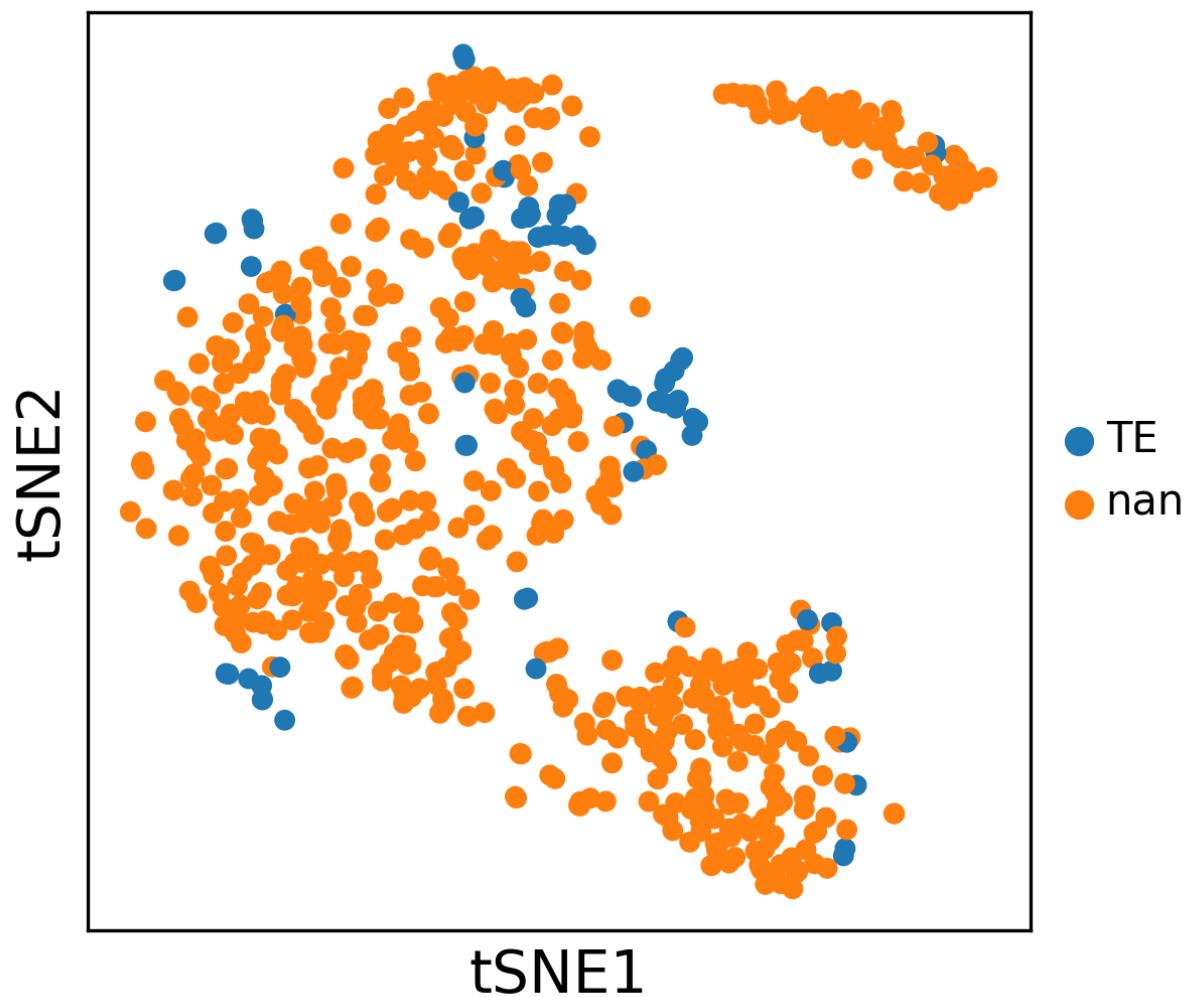
**Figure 17:** UMAP embedding by cell type, time point E4.5



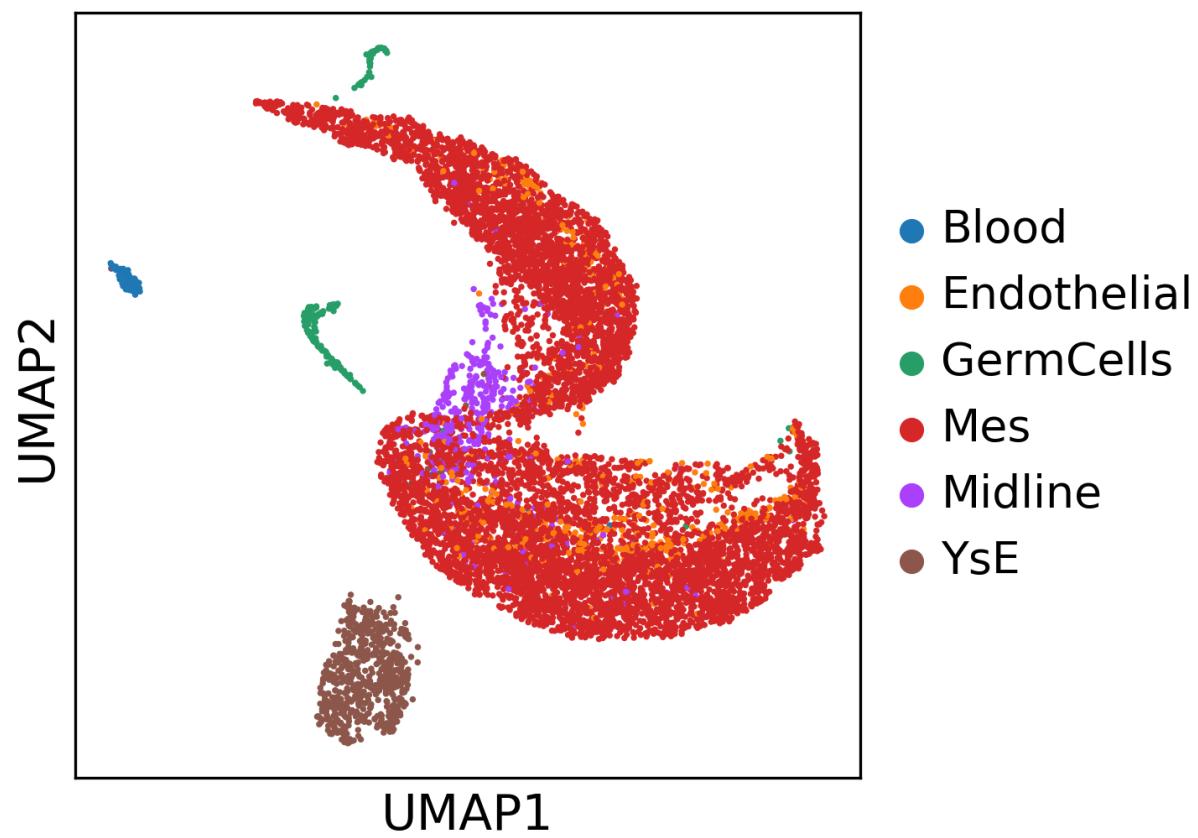
**Figure 18:** tSNE plot colored by cell type, E4.5



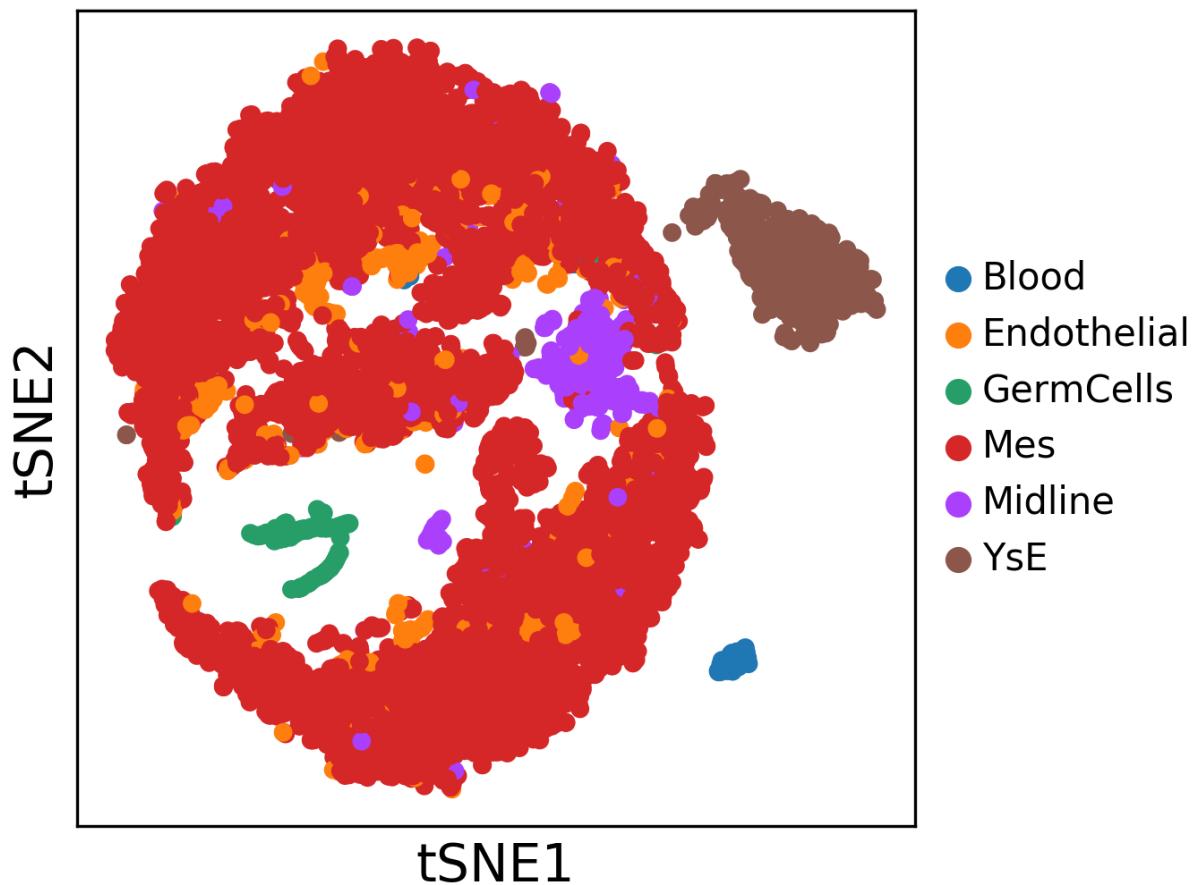
**Figure 19:** UMAP embedding by cell type, time point E3.5



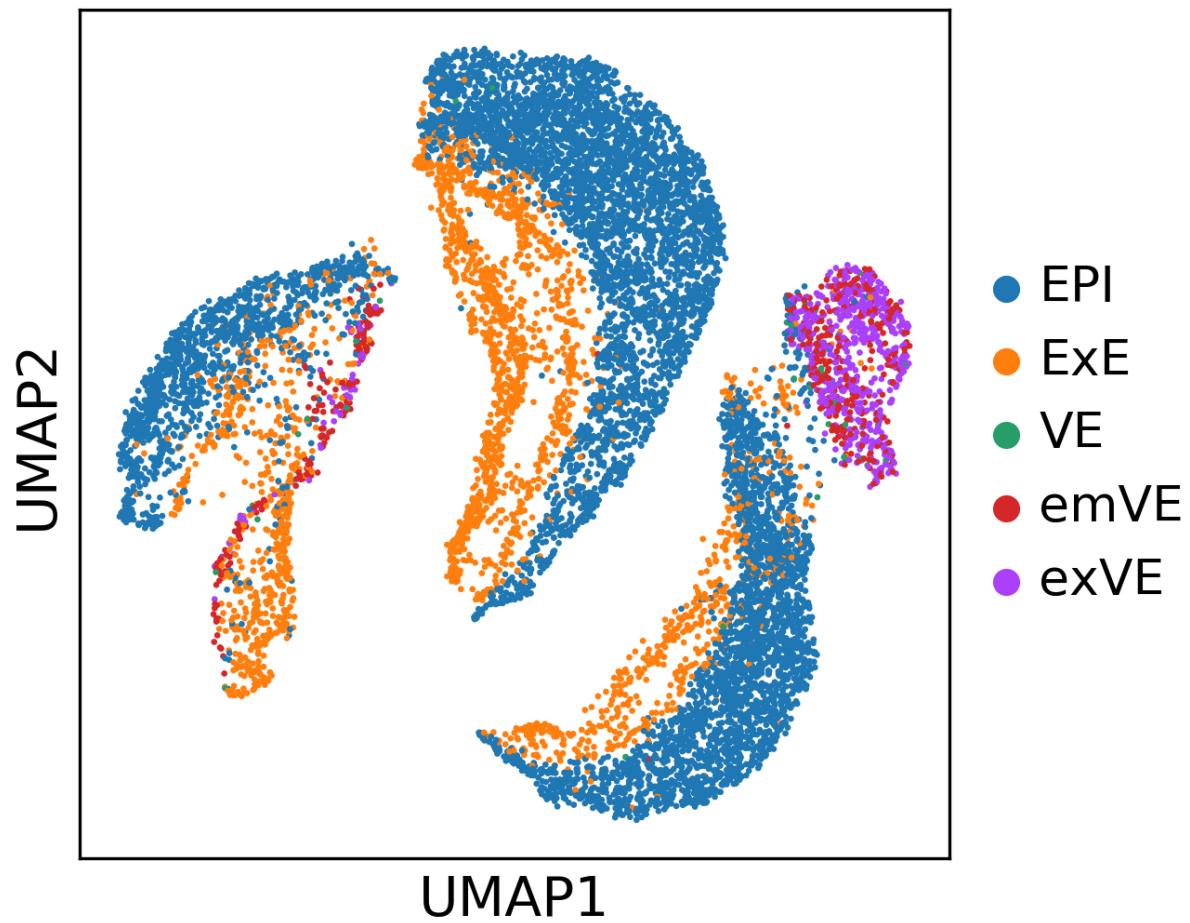
**Figure 20:** tSNE plot colored by cell type, E3.5



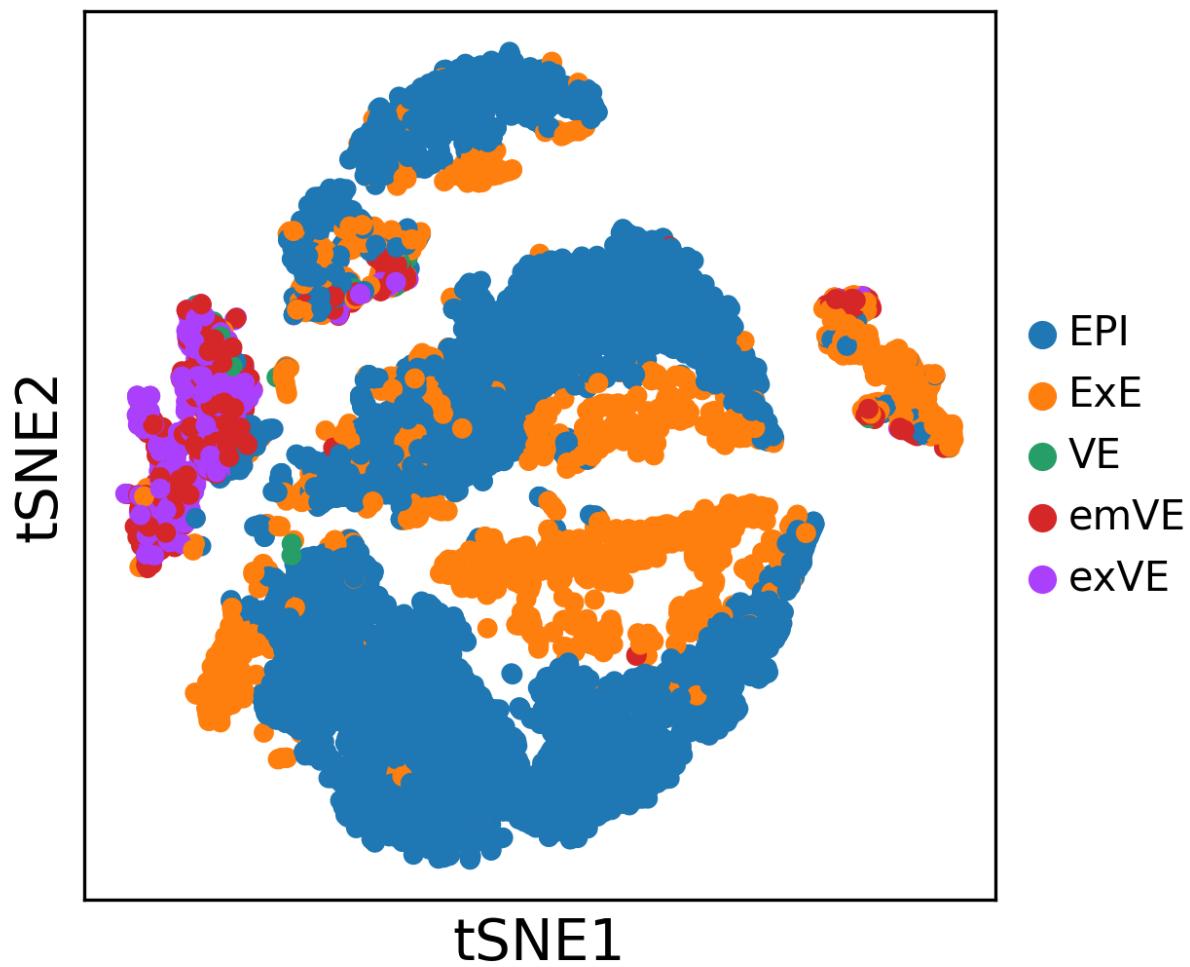
**Figure 21:** UMAP embedding by cell type, time point E8.75\_GFP



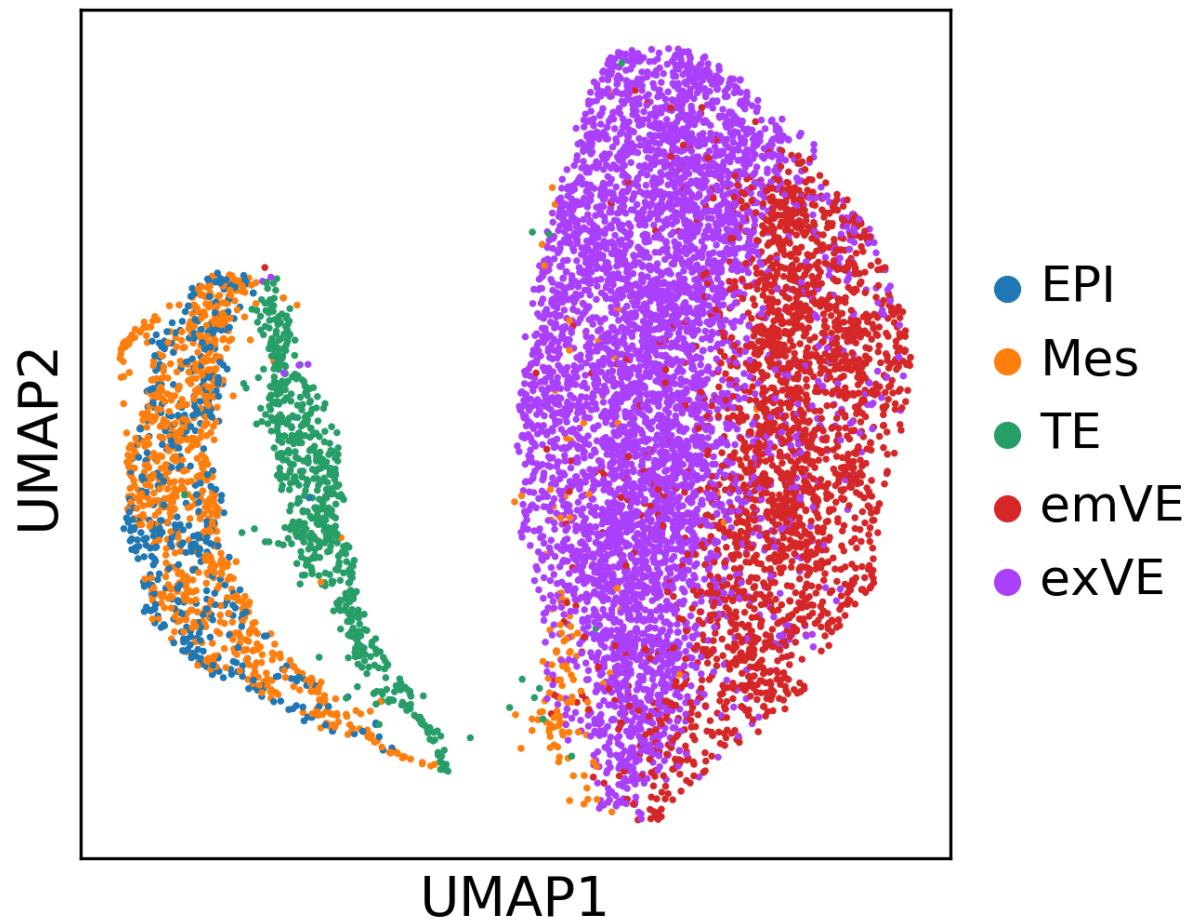
**Figure 22:** tSNE plot colored by cell type, E8.75\_gfp



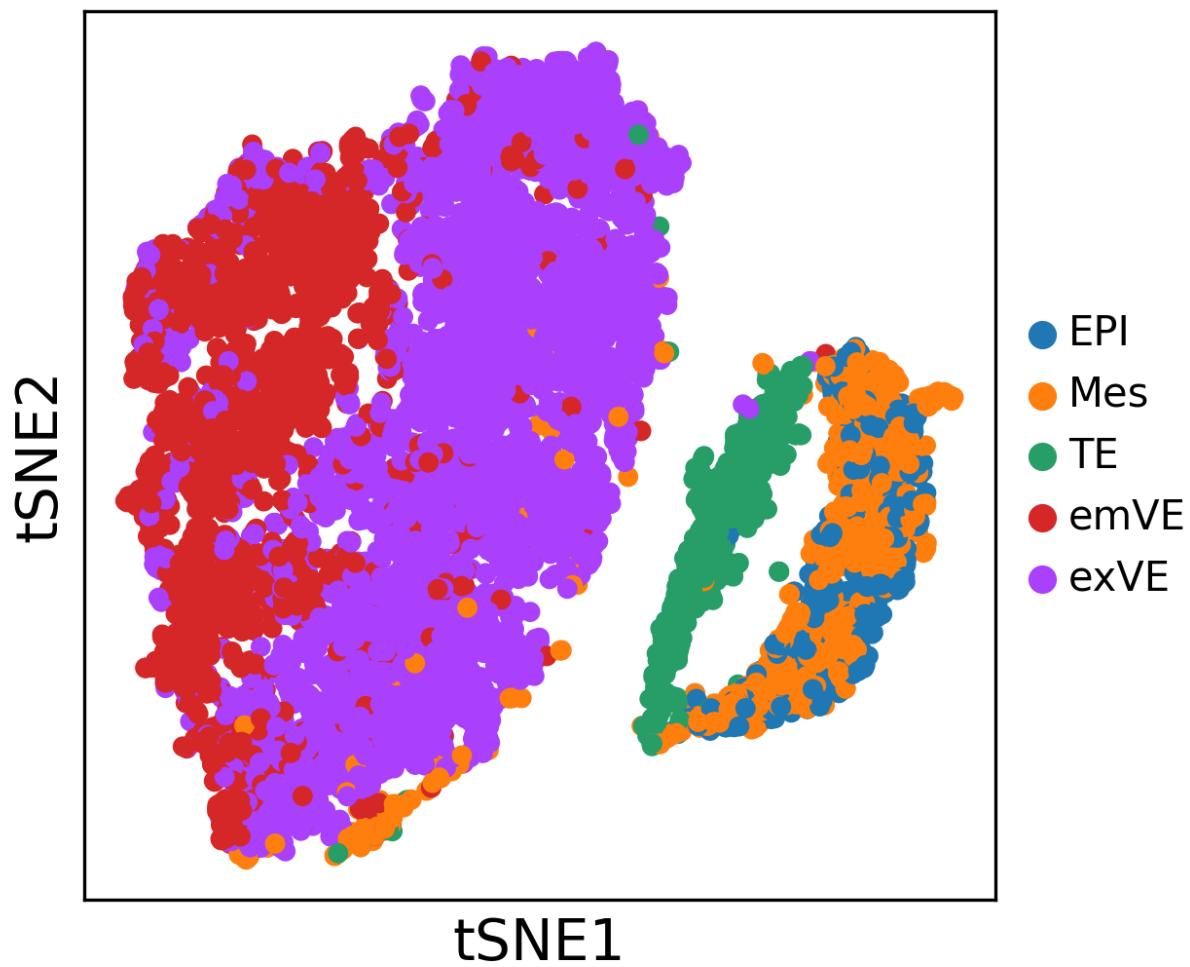
**Figure 23:** UMAP embedding by cell type, time point E5.5.



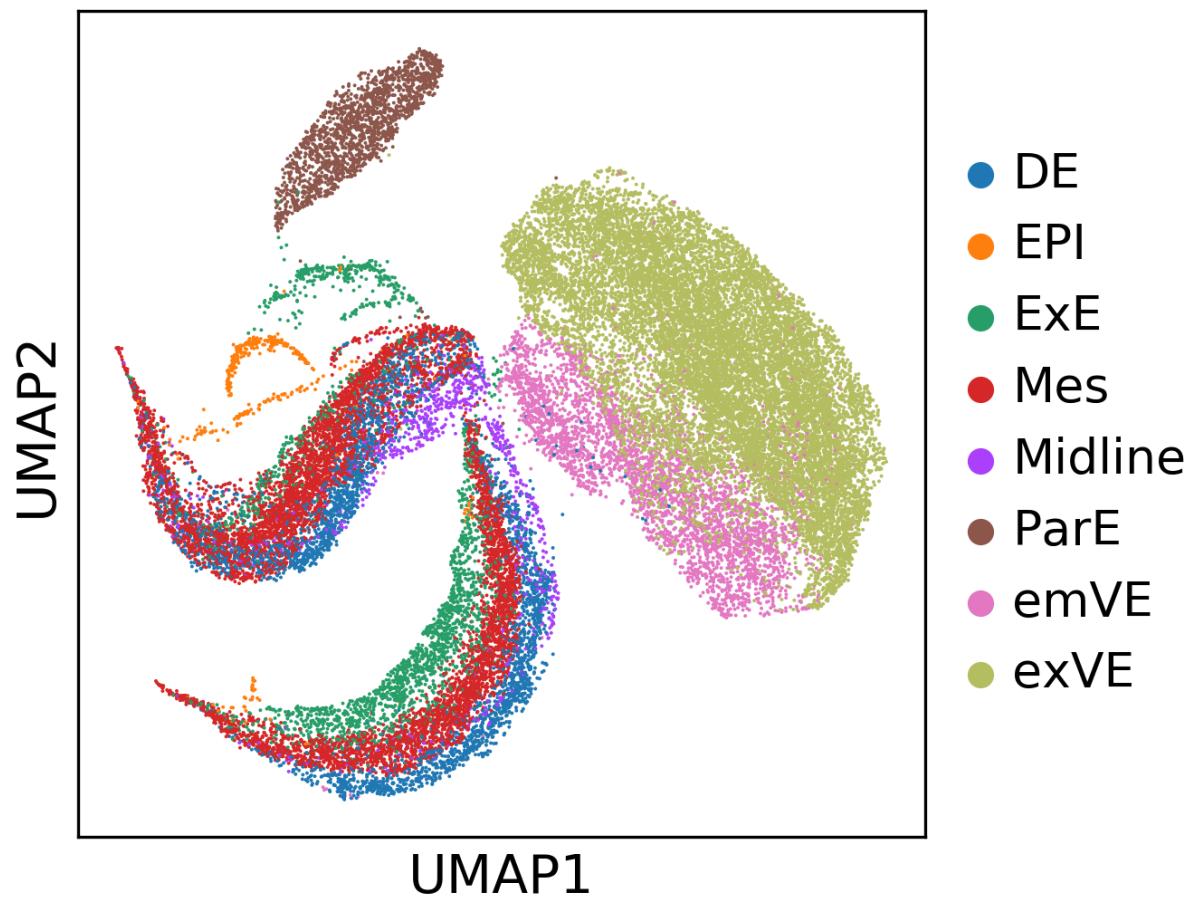
**Figure 24:** tSNE plot colored by cell type, E5.5



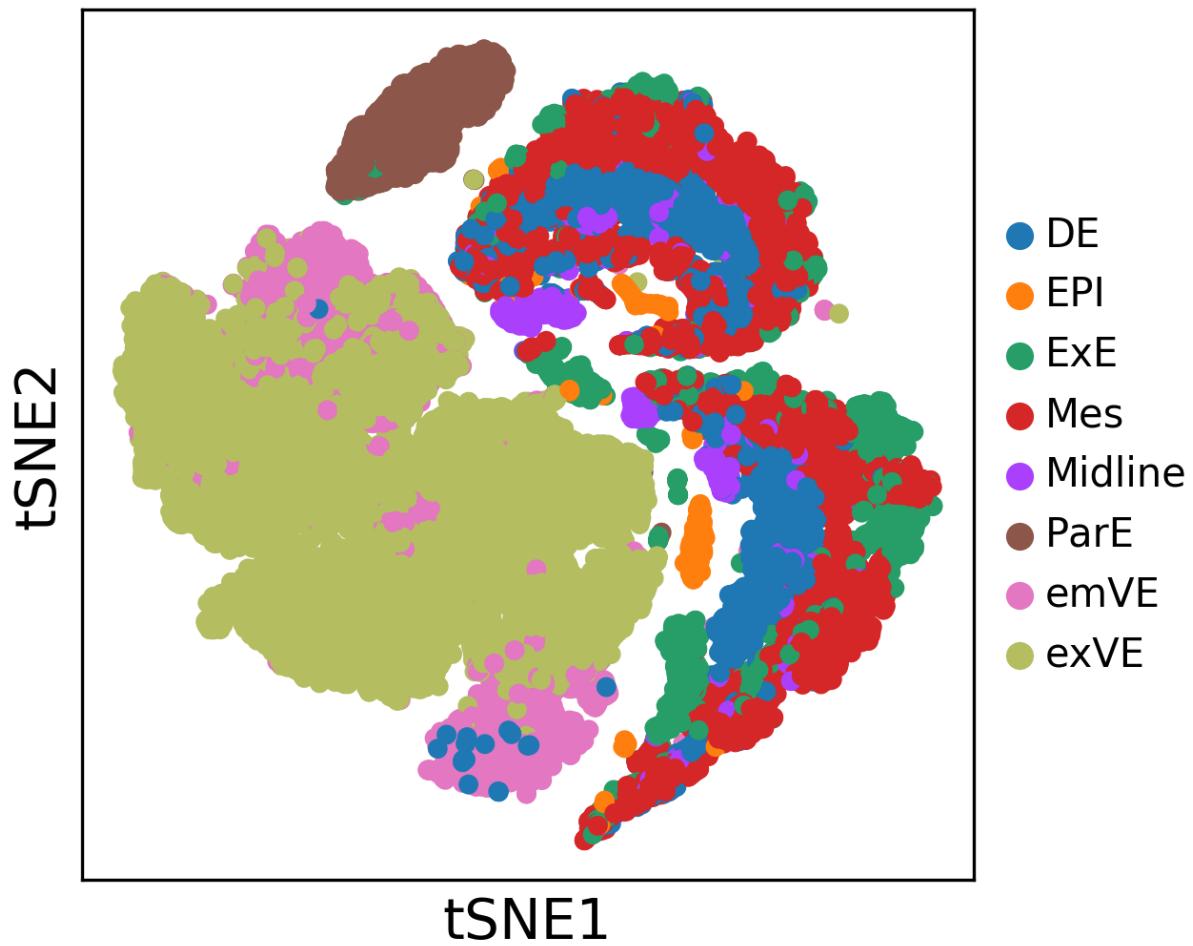
**Figure 25:** UMAP embedding by cell type, time point E6.5



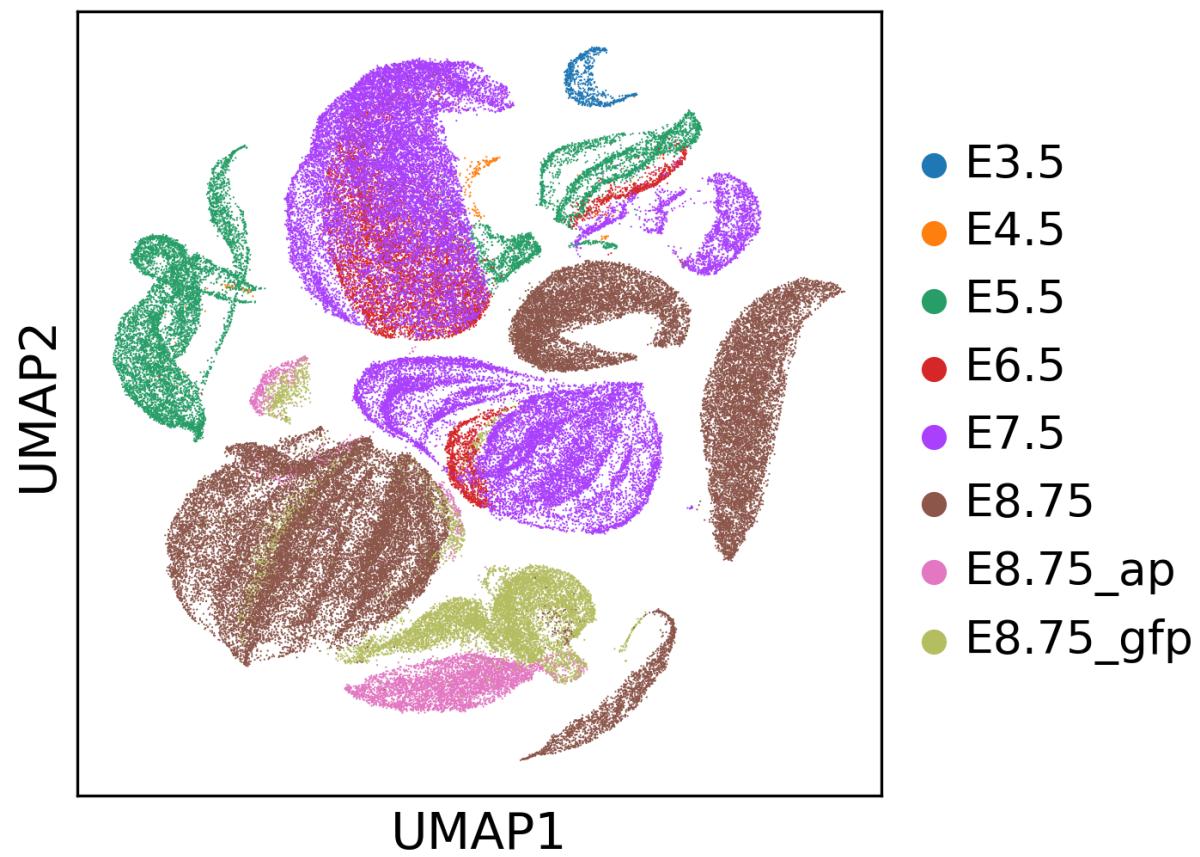
**Figure 26:** tSNE plot colored by cell type, E6.5



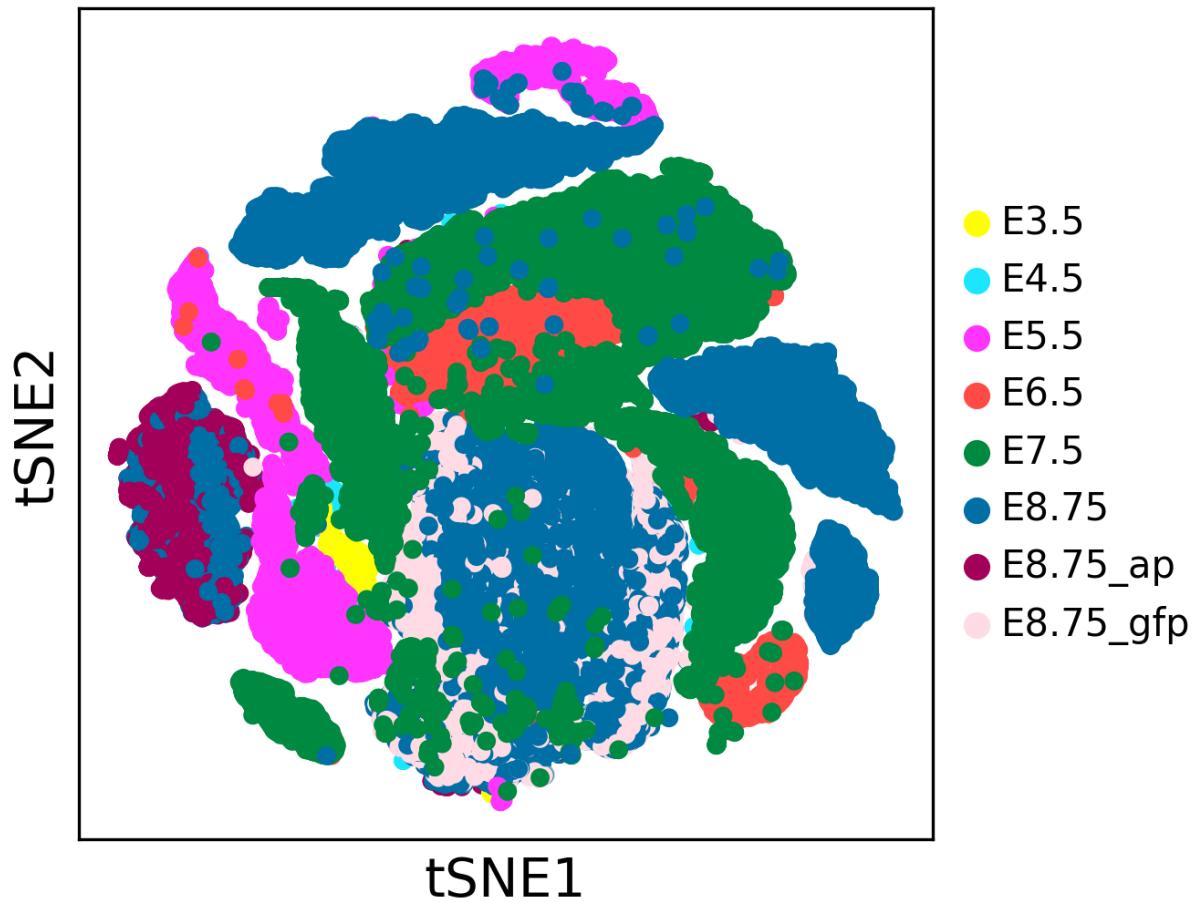
**Figure 27:** UMAP embedding by cell type, time point E7.5



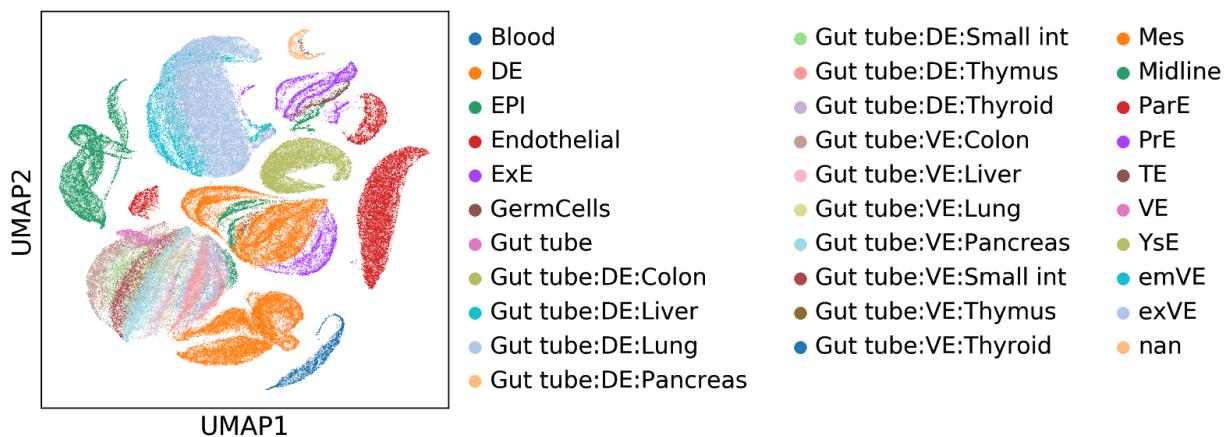
**Figure 28:** tSNE plot colored by cell type, E7.5



**Figure 29:** UMAP visualization on entire dataset colored by timepoint (default settings)

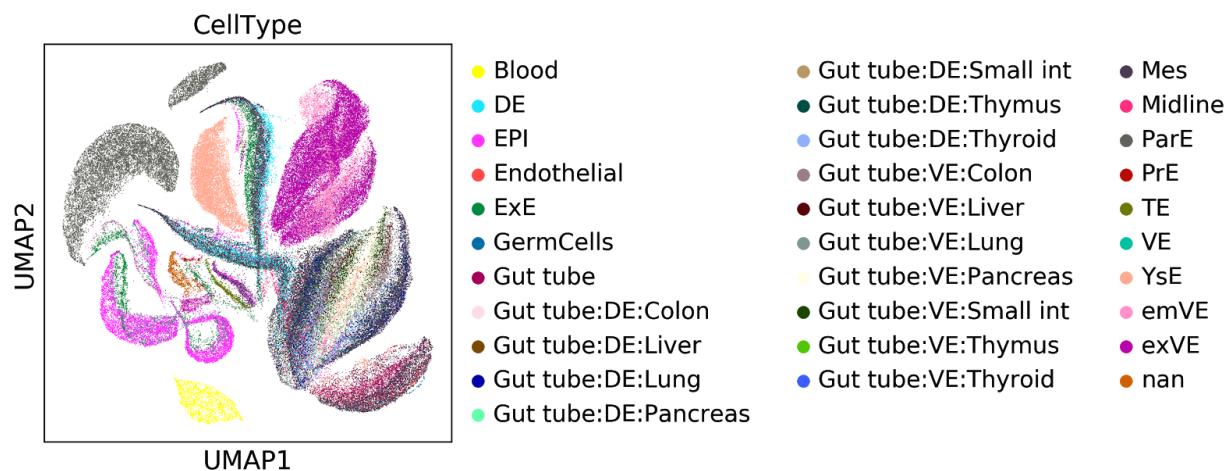
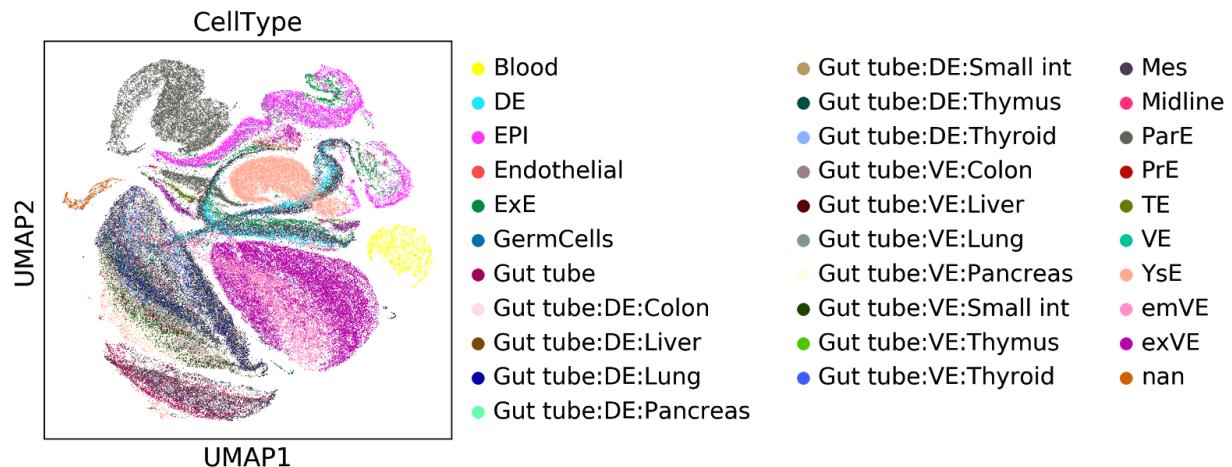


**Figure 30:** tSNE visualization on entire dataset colored by time point

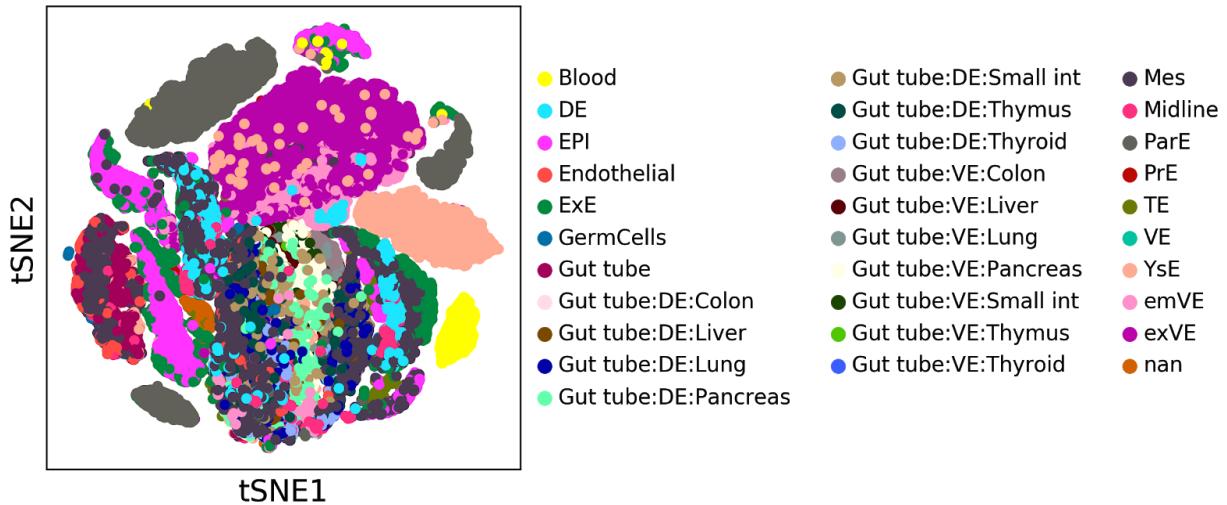


**Figure 31:** UMAP visualization colored by cell type on entire dataset (default settings)

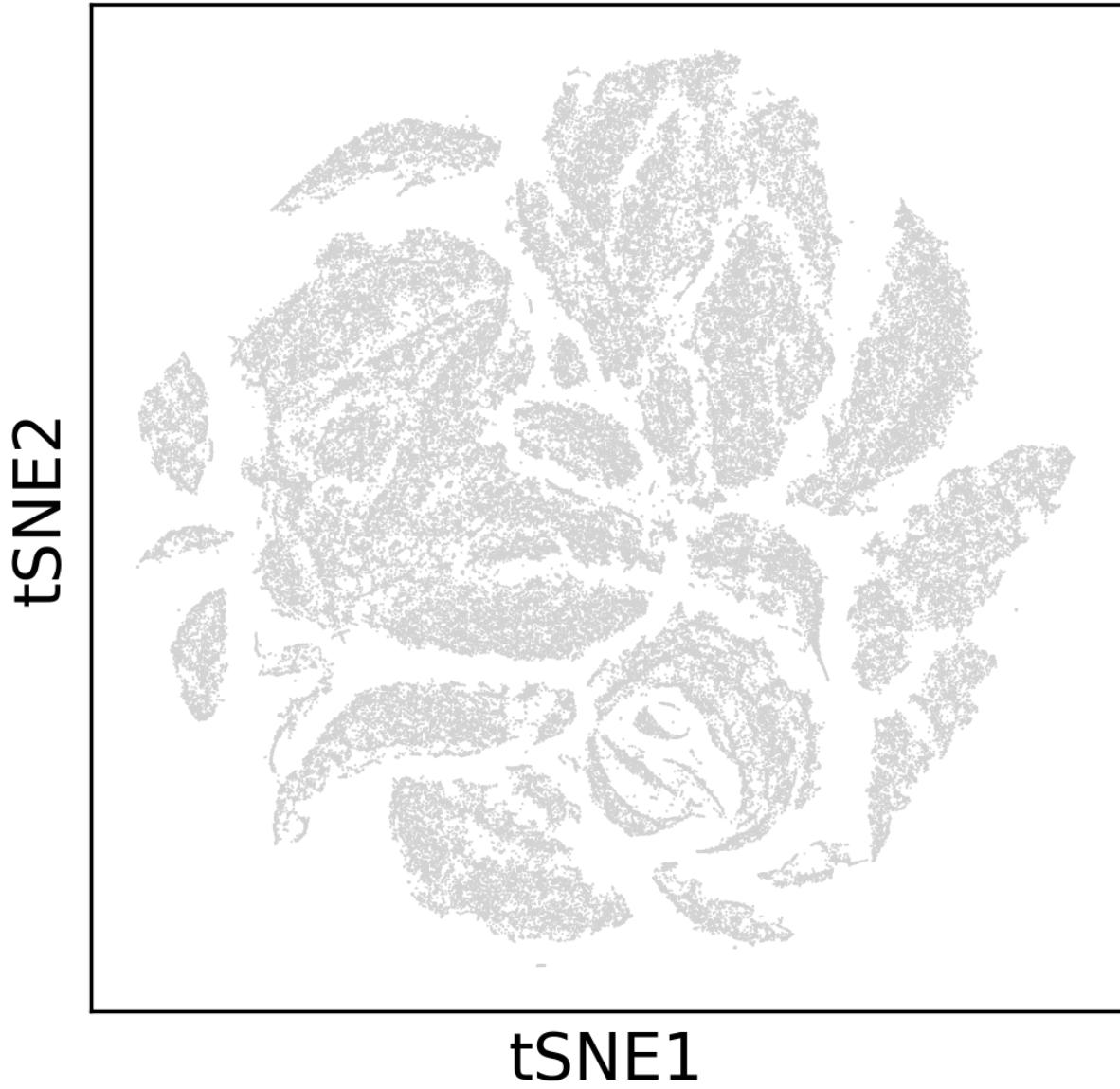
Clustering by cell type with full dataset (PCA analysis, n=5 neighbors) (done twice)



**Figure 32:** UMAP visualization colored by cell type on entire dataset (less number of neighbors). Procedure to create figure was repeated twice to yield two figures.



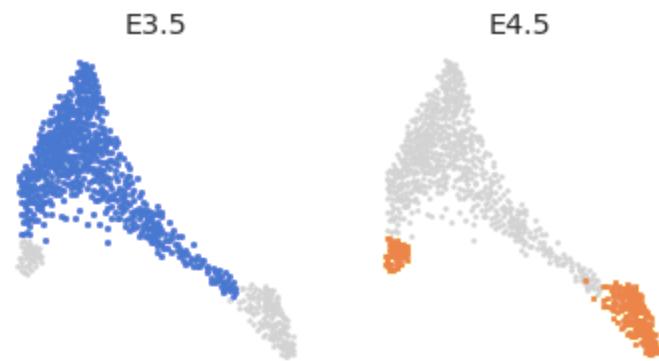
**Figure 33:** tSNE visualization colored by cell type on entire dataset



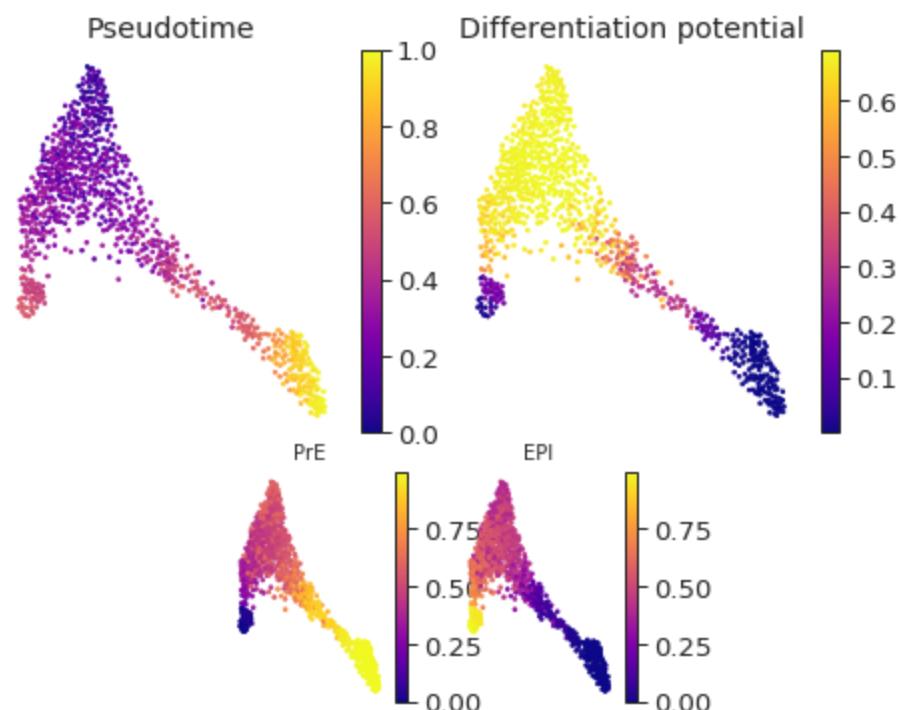
**Figure 34:** tSNE on entire data, categorized by cell type, time point, and clusters

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**Data from Harmony sample data (E3.5 and E4.5 time points)**



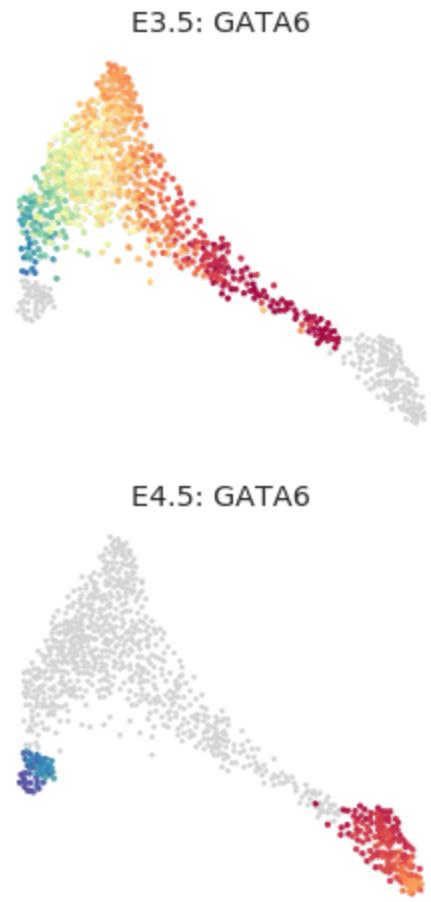
**Figure 35:** Force directed layout visualization between different time points



**Figure 36:** Palantir trajectory detection in Primitive embryonic endoderm (PrE) and epiblast (EPI)



**Figure 37:** Expression of PrE gene GATA6 on force directed layout using Palantir algorithm



**Figure 38:** Gata6 gene expression visualized on force directed layout timepoint wise