**Scenic Preparation**

1. Select cells and genes from single cell RNA seq to use as input for scenic.
2. Run scenic 50 times.

**Scenic clean up**

1. Select the targets from reg file. Save full regulons and only TF-TF interactions.
2. From TF-TF interaction keep only the ones that appear in 40 or more runs (80% of total runs).
3. For these interactions that pass so called frequency filter calculate NIS score.

**Scenic interactions confirmation**

Cistrome

1. Select relevant TFs from Cistrome database.
2. For each TF select top 6000 peaks.
3. Extend each peak by 1 kb.
4. Overlap peaks with human genome to discover target, that will be considered as confirmed by cistrome database.

ATAC seq

1. ATAC-seq data from patients to further confirm the interactions.

Dorothea

1. Use Dorothea as another reference database

Summary

1. Tell how many unique for each source, how many by all three

**Binarize activity for TFs**

1. Working with full regulons (not only TF-TF interactions, but also including other genes)
2. Keep only regulons that pass frequency filter
3. For these regulons conduct new AUCell
4. Heatmap: new\_aucell\_not\_norm.pdf
5. Random Forest to pick 100 TFs that explain the most our cell states
6. Binarize AUCell score for each cell (depending on the cell state) in those 100 TFs. Percentage of cells that are active in each cell state.
7. Heatmap: aucell\_scores\_norm\_top100\_cell\_type\_binarized\_percentage
8. Assign cell state to each TF

**Network of 100 RF TFs**

1. 90% filter on interactions
2. Network: 82\_RF\_TFs.png

**Overlap our network with Bolouri paper Network**

1. 9 overlapping nodes
2. Network: 41\_paper\_overlap\_TFs.png

**Fusion of our network and Bolouri paper network using common nodes**

1. Adapt the nomenclature and format Bolouri paper interactions
2. Fuse networks
3. Network: 66\_bolouri\_RF\_fusion.png

**Reduce the network to relevant nodes**

1. Explain why
2. Network: 66\_bolouri\_RF\_fusion\_curated
3. Network: 66\_bolouri\_RF\_fusion\_curated\_2

**Further reduce the network to only**

1. Explain why
2. Network: 13\_Bonesis\_toy