

Supplementary 2 - wAUC analysis of Hepatocyte dataset with 3 states

March 31, 2020

1 Lists of TF in Simic and LASSO

```
common top in simic and no-simic: 22
{'Nr3c1', 'Prox1', 'Epas1', 'Tsc22d3', 'Ybx3', 'Pbrm1', 'Smarce1', 'Onecut2',
'Tcf25', 'Rxra', 'Tfdp2', 'Sfpq', 'Rora', 'Nr2f6', 'Junb', 'Stat1', 'Nfia',
'Nfic', 'Bcl3', 'Nr1i3', 'Tfam', 'Hes6'}
-----
common last in simic and no-simic: 5
{'Tshz1', 'Atf6', 'Atrx', 'Irf6', 'Elk4'}
-----

>>>>>>>>> simic >>>>>>>>
top only in simic: 15
{'Ahr', 'Tsc22d1', 'Smarca5', 'Zfp91', 'Mier1', 'Foxp1', 'Nr0b2', 'Foxy3',
'Peg3', 'Nono', 'Klf15', 'Klf13', 'Nfib', 'Foxn3', 'Bhlhe40'}
-----
last only in simic: 23
{'Sox5', 'Rlf', 'Atf1', 'Cebpa', 'Kdm2a', 'Tox4', 'Nfkbia', 'Sox9', 'Cux1',
'Gzf1', 'Stat5b', 'Tef', 'Zbtb7b', 'Foxo3', 'Nfe2l1', 'Tfdp1', 'Sp3', 'Zhx1',
'Nr1d2', 'Nr2f2', 'Sall1', 'Onecut1', 'Klf12'}
-----

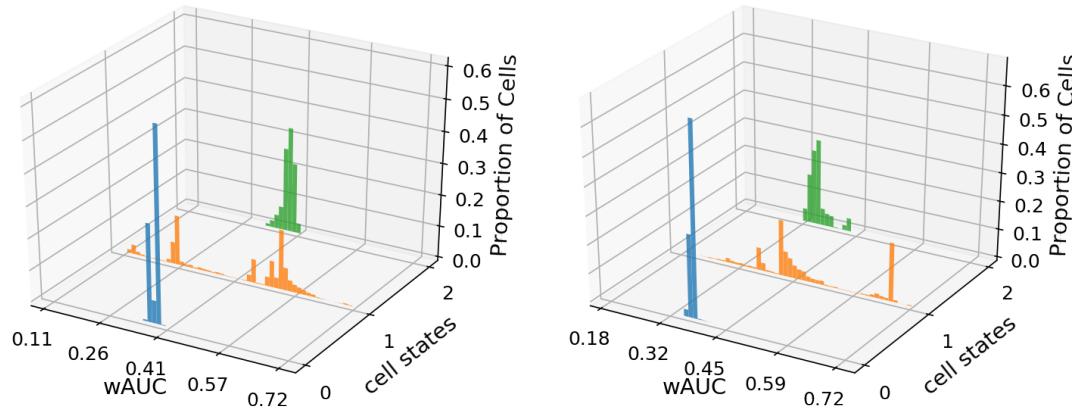
>>>>>>>> no-simic >>>>>>>>
top only in no-simic: 12
{'Id3', 'Tfdp1', 'Crem', 'Id1', 'Mlxipl', 'Id2', 'Nr1h3', 'Hif1a', 'Mlx',
'Klf9', 'Mafb', 'Nr1h4'}
-----
last only in no-simic: 23
{'Smarcc1', 'Elf1', 'Lrrkip2', 'Atf5', 'Cebpb', 'Hhex', 'Yy1', 'Jund', 'Bach1',
'Ctcf', 'Purb', 'Irf2', 'Maz', 'Ncoa2', 'Stat3', 'Hmg20b', 'Ssrp1', 'Creb3l2',
'Mef2a', 'Pura', 'Ets2', 'Mafg', 'Rc3h2'}
-----

>>>>>>>> contradicting cases >>>>>>>>
top in simic, but last in no-simic: 0
set()
```

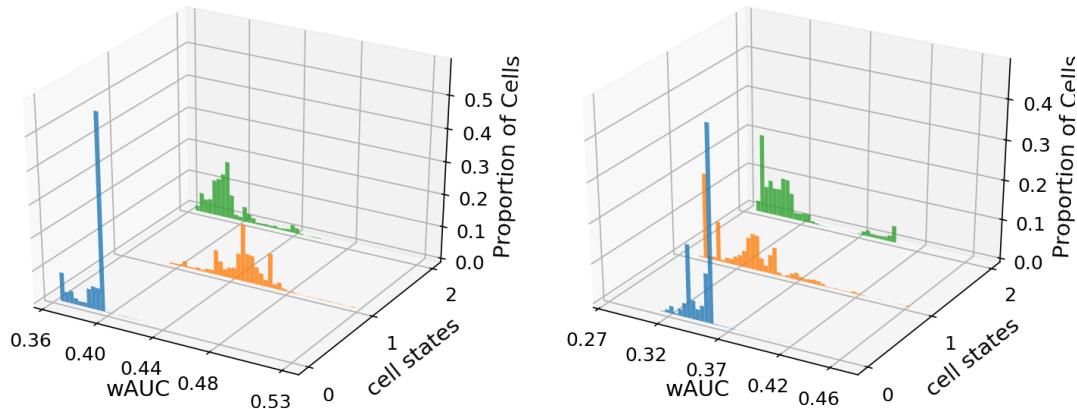
```
- - - - -
last in simic, but top in no-simic: 1
{'Tfdp1'}
- - - - -
```

2 TFs that are only rank top variant in simic

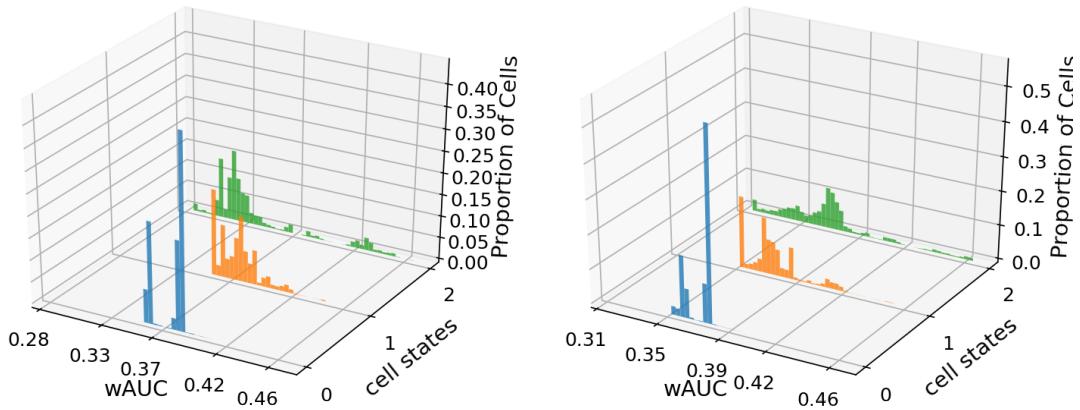
Ahr



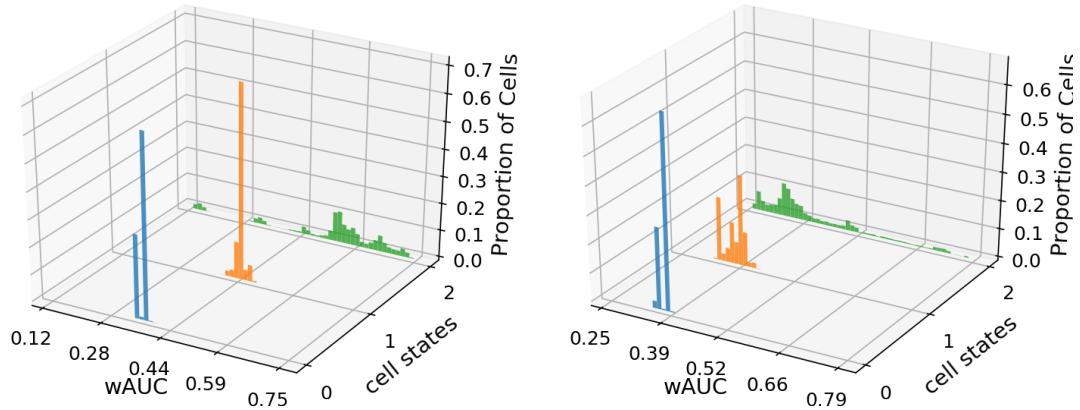
Tsc22d1



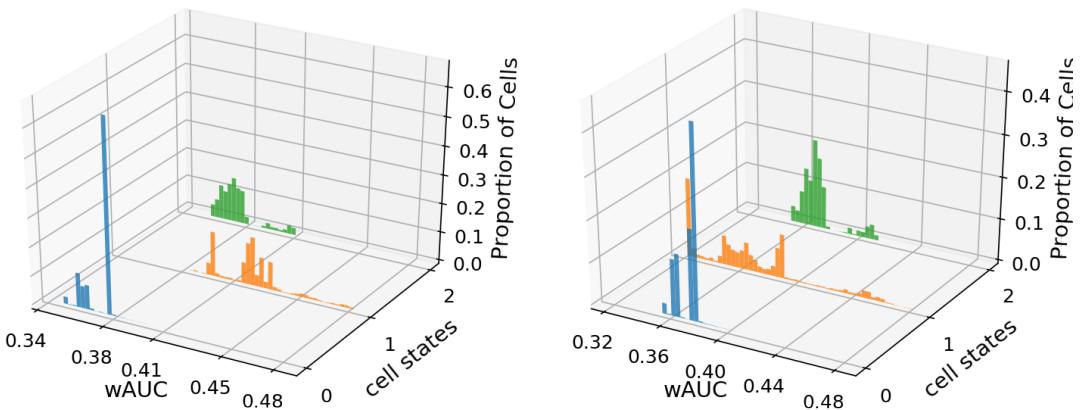
Smarca5



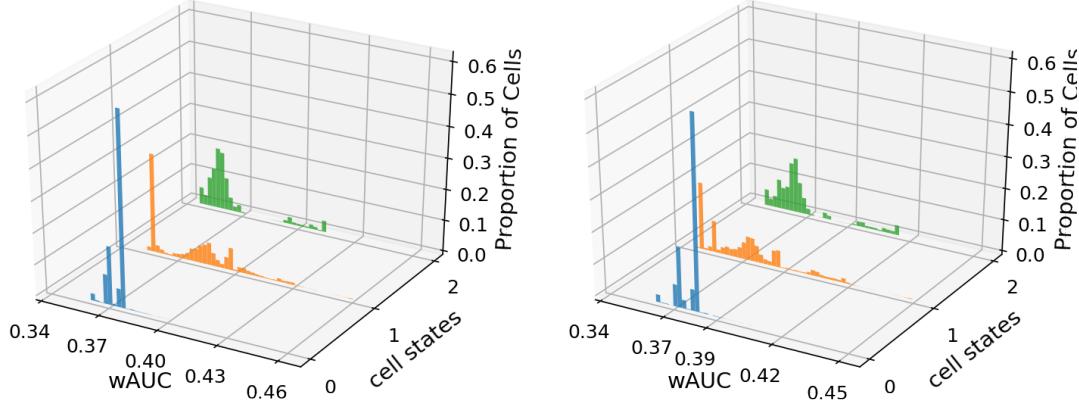
Zfp91



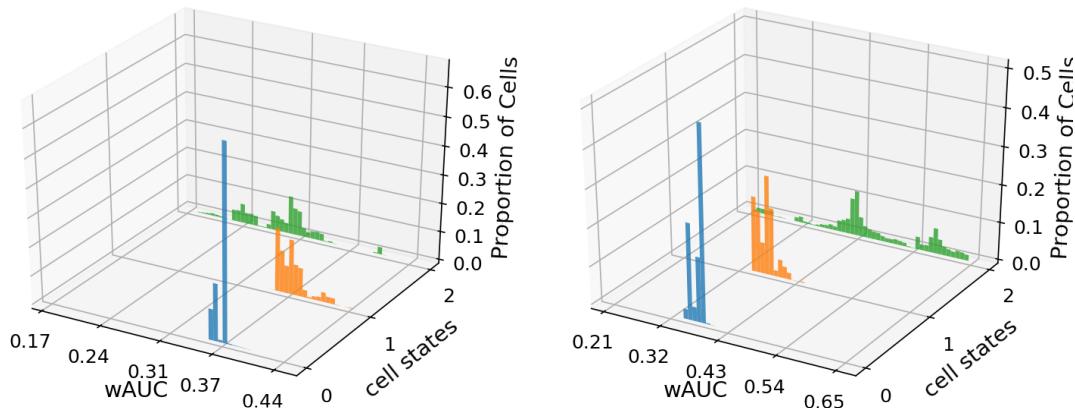
Mier1



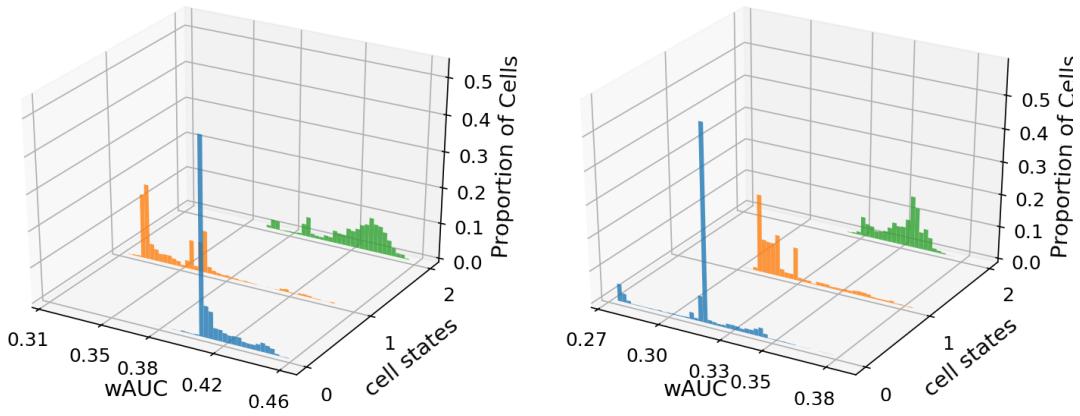
Foxp1



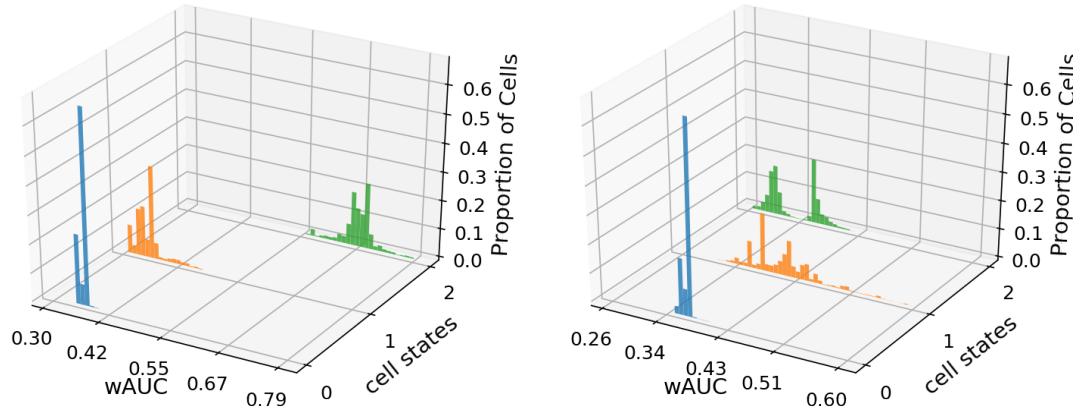
Nr0b2



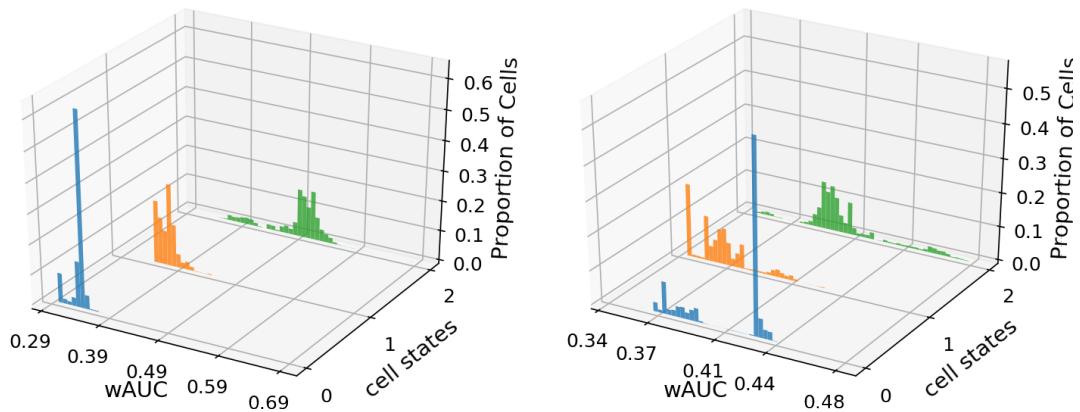
Foxa3



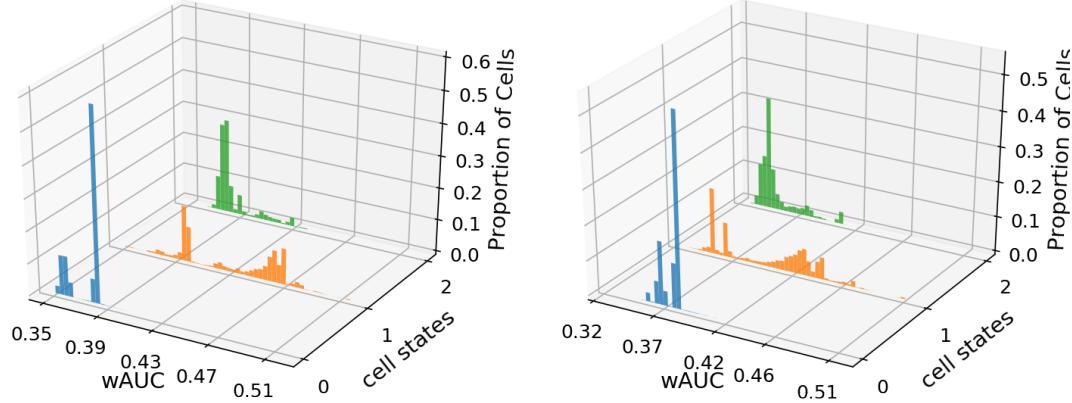
Peg3



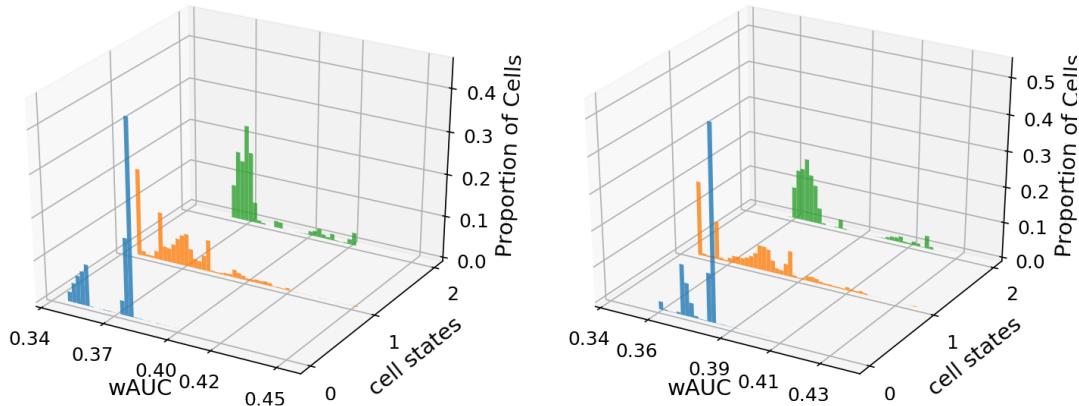
Nono



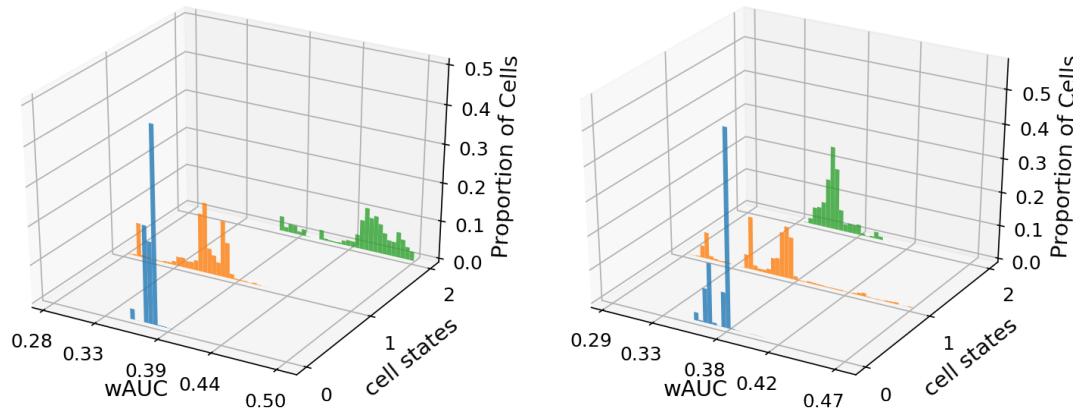
Klf15



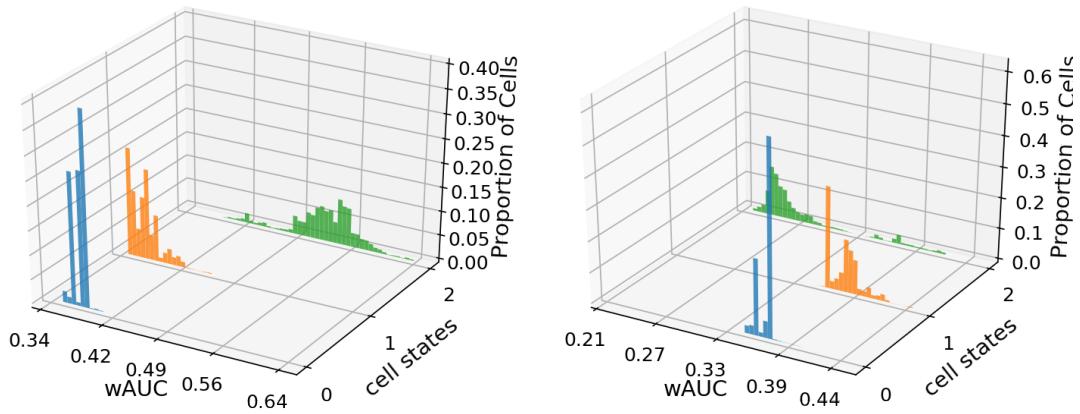
Klf13



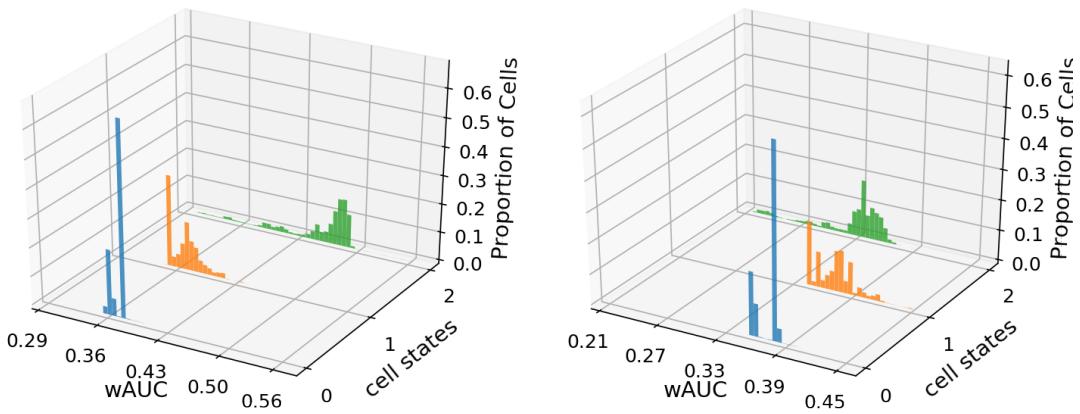
Nfib



Foxn3

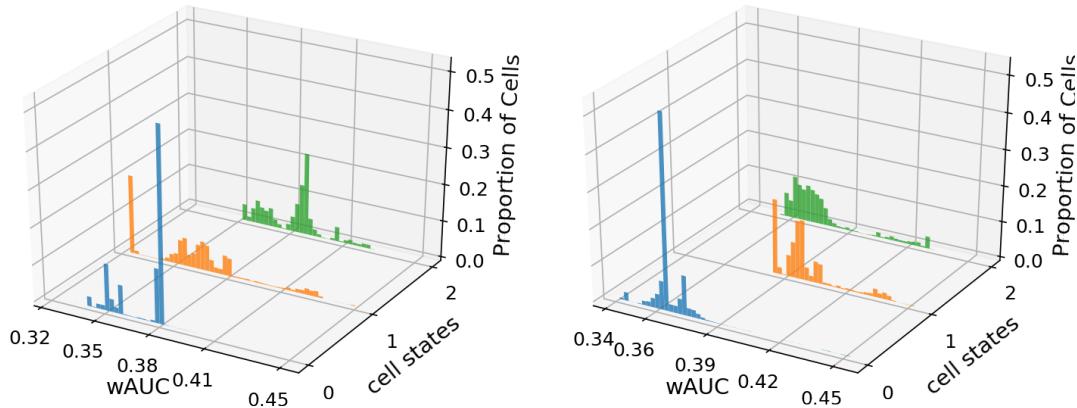


Bhlhe40

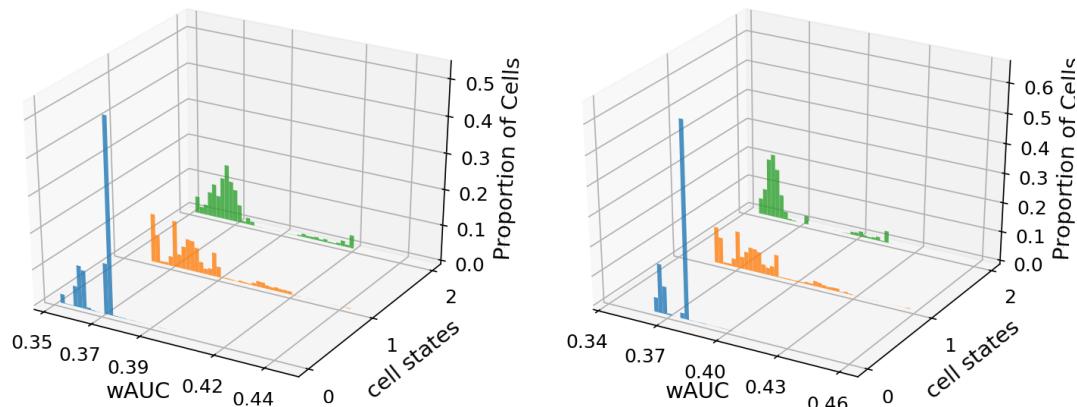


3 TFs that are only rank top varint in LASSO

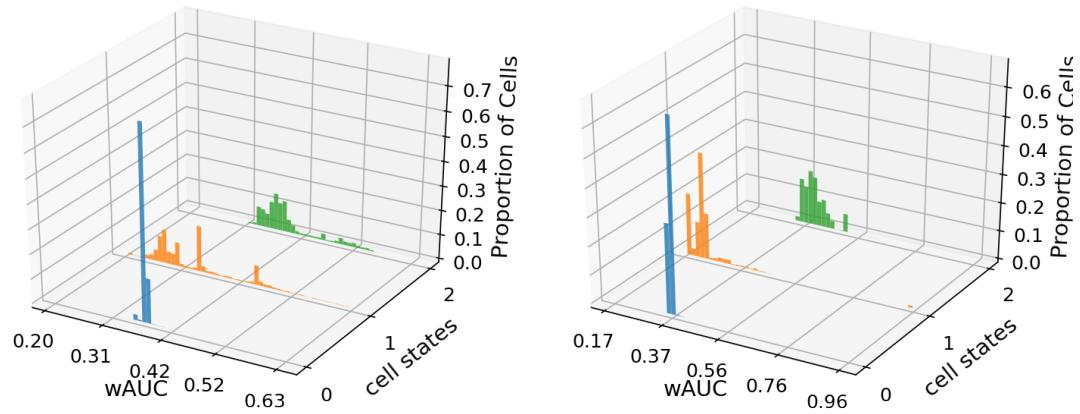
Id3



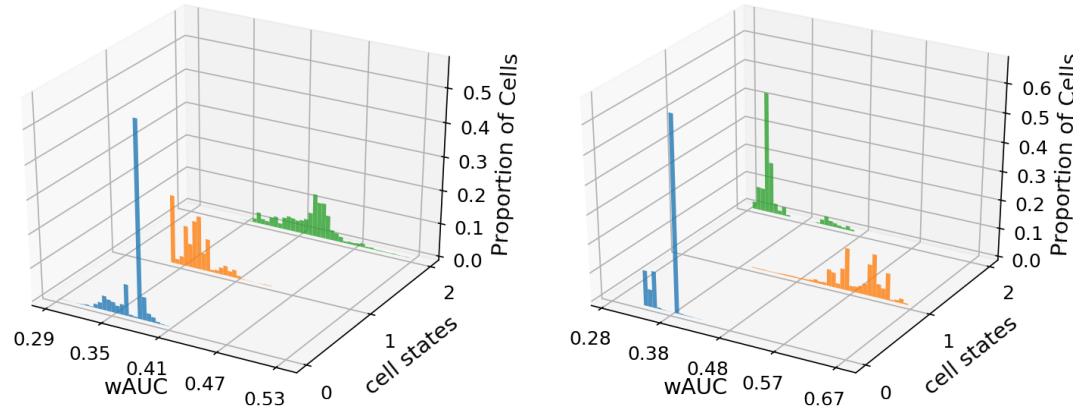
Tf dp1



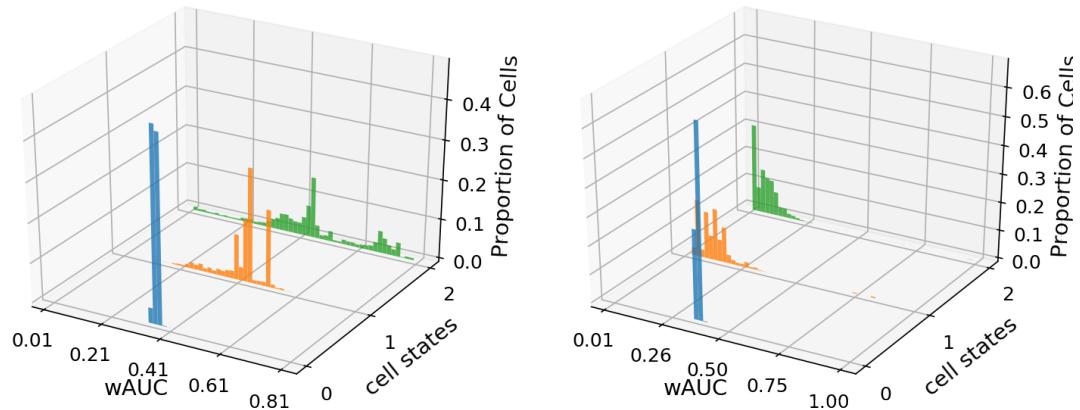
Crem



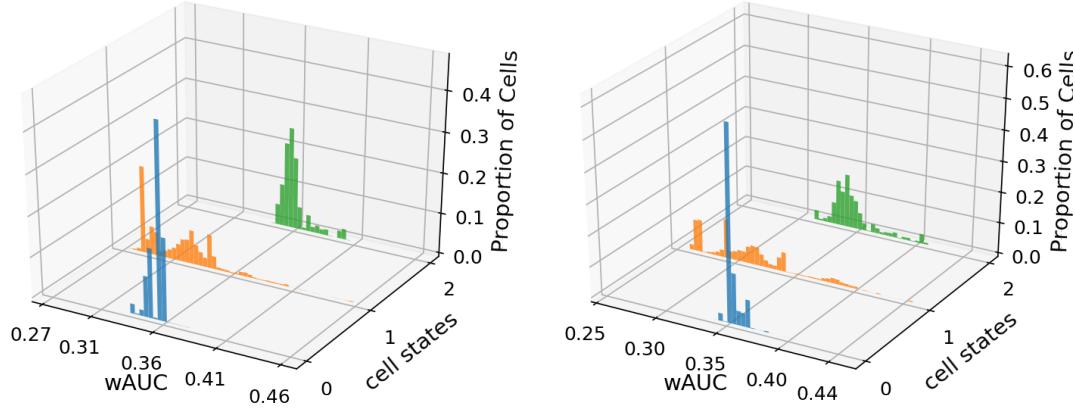
Id1



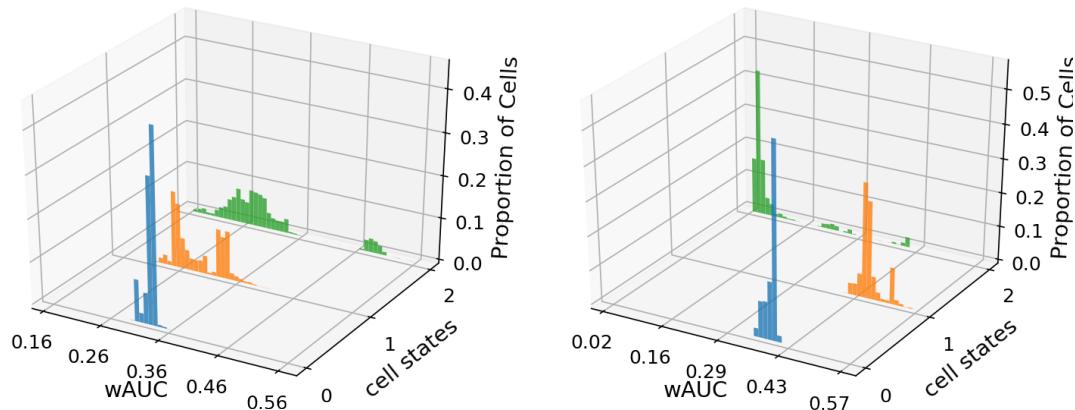
Mlxip1



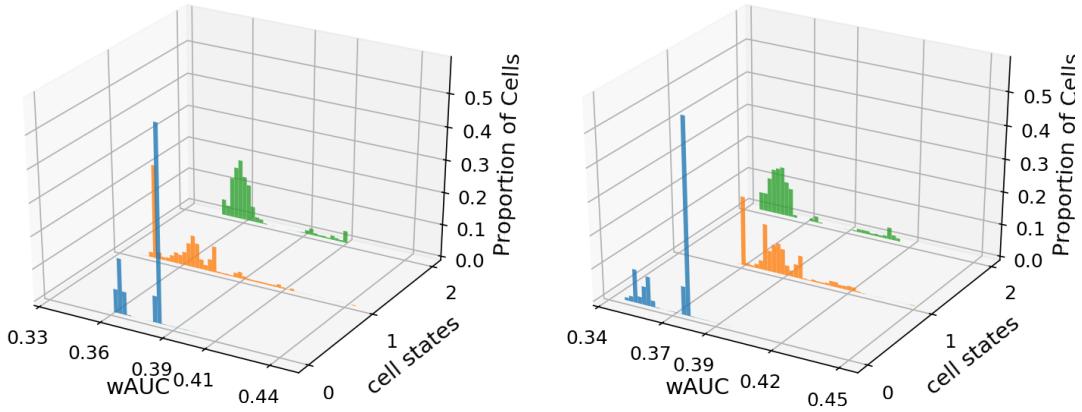
Id2



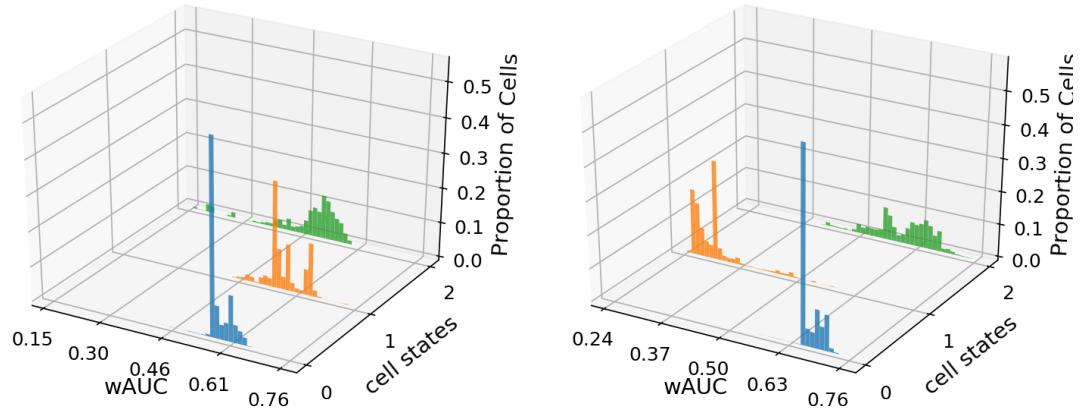
Nr1h3



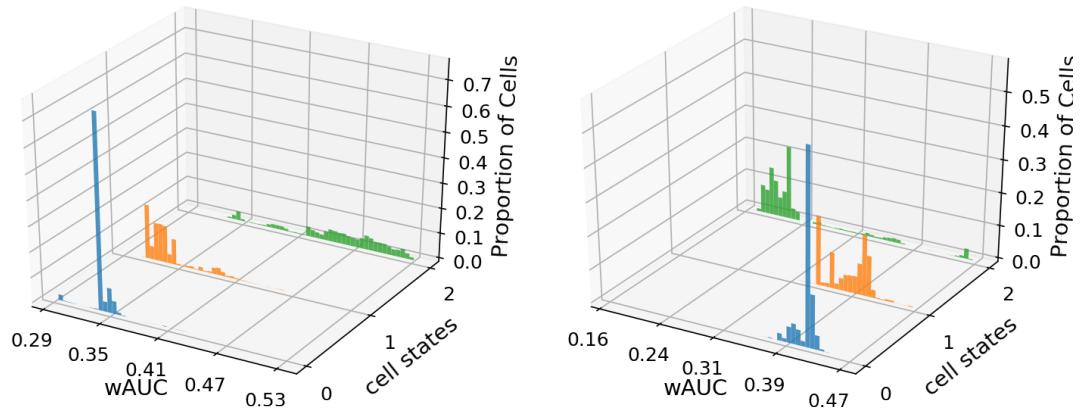
Hif1a



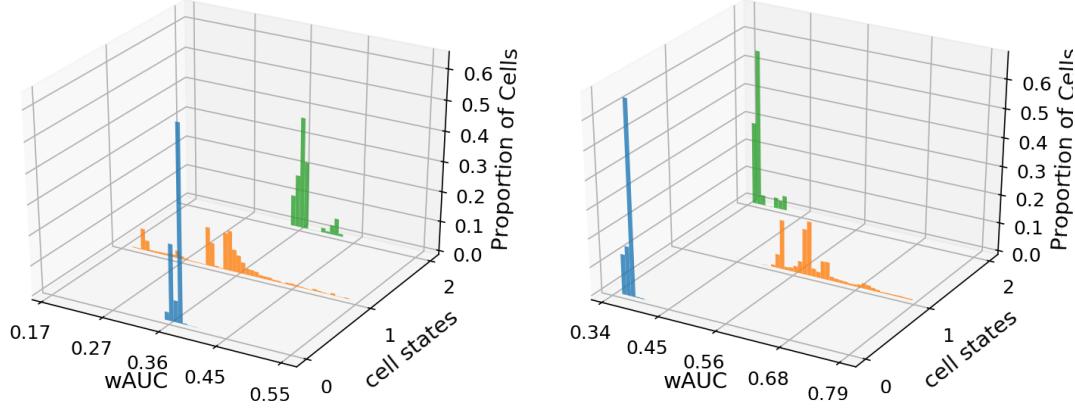
Mlx



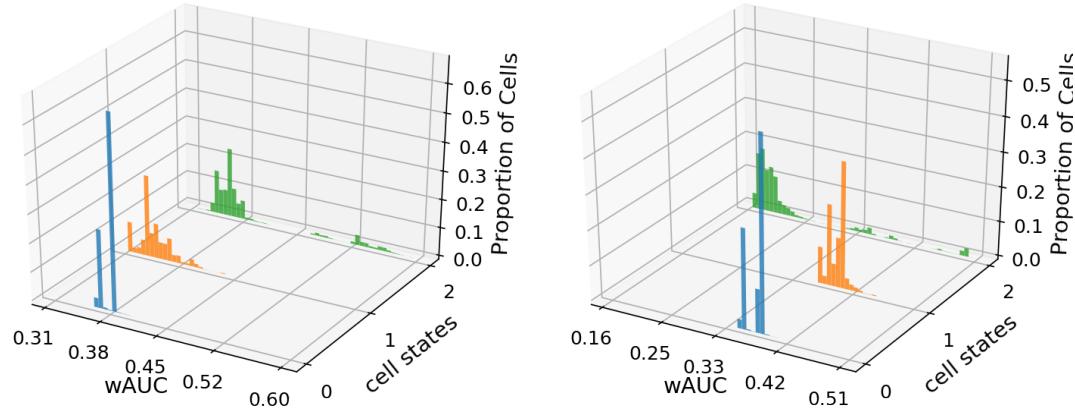
Klf9



Mafb

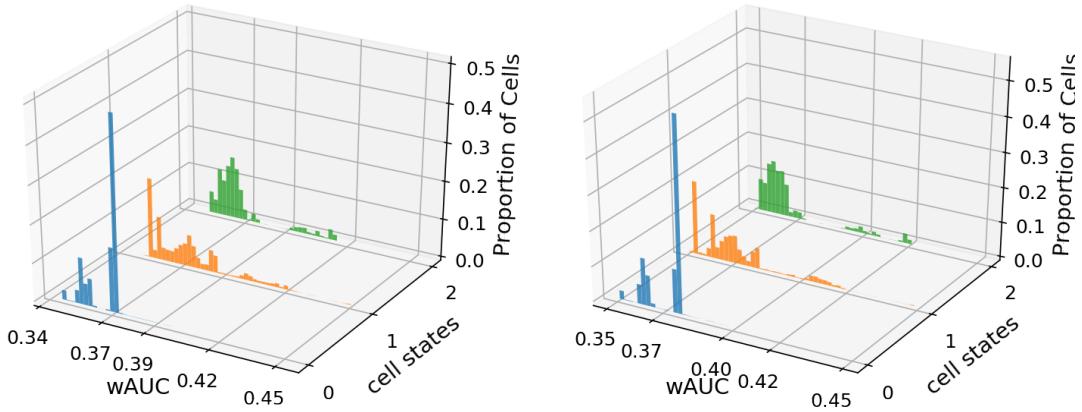


Nr1h4

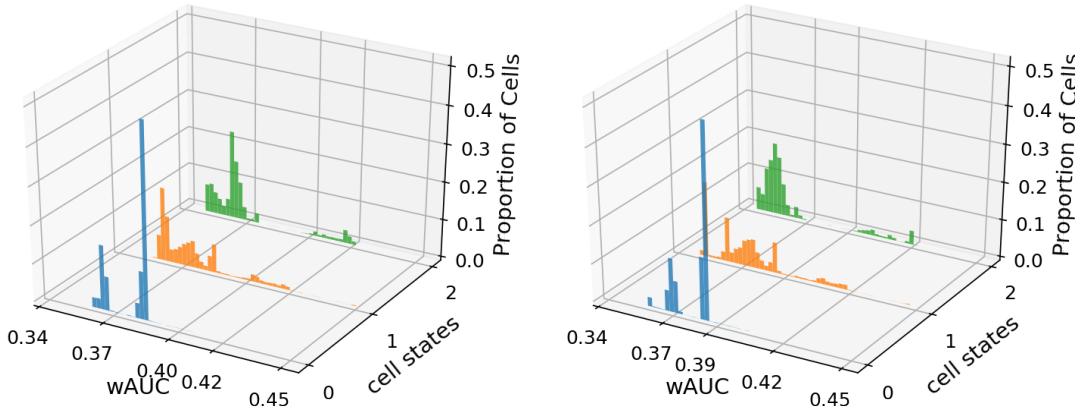


4 TFs that are only rank last variant in simic

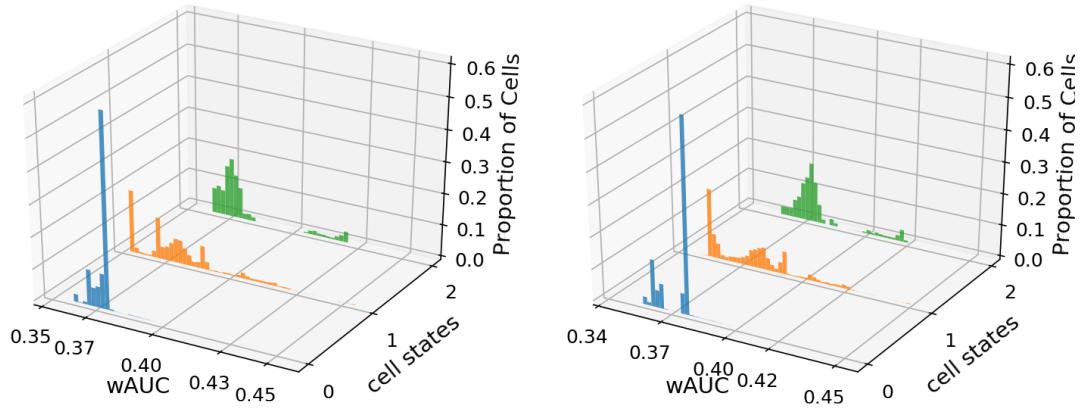
Sox5



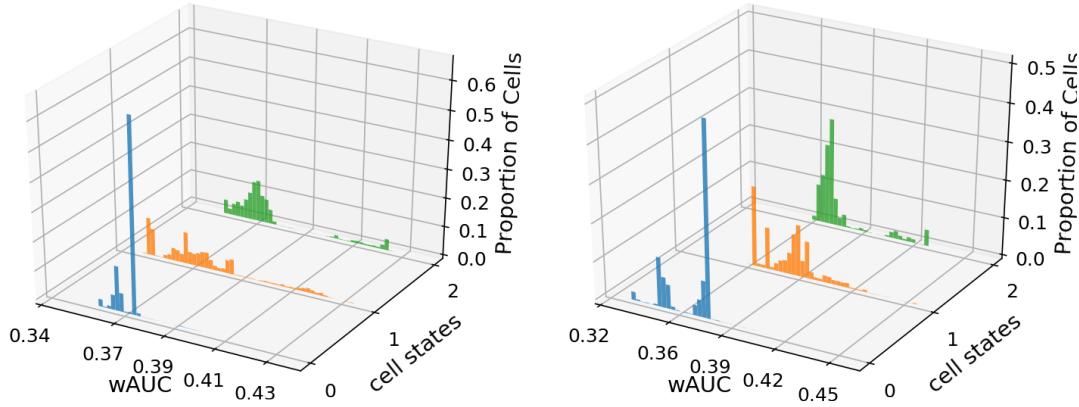
R1f



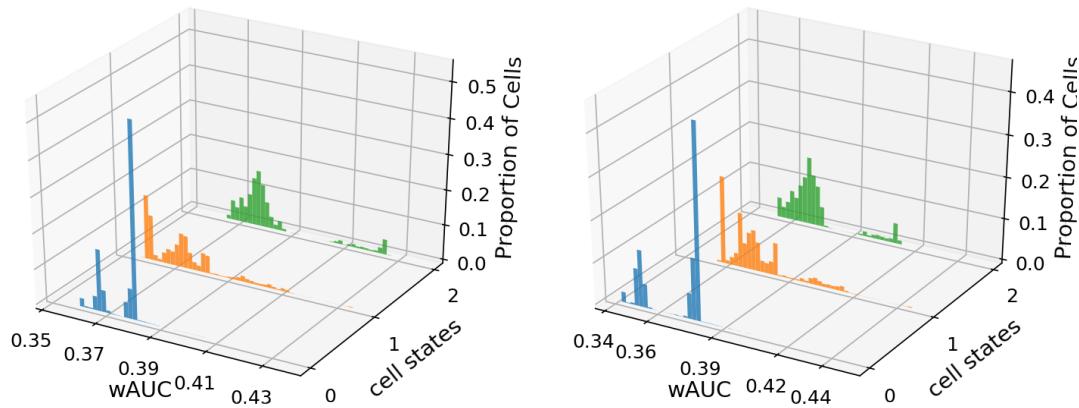
Atf1



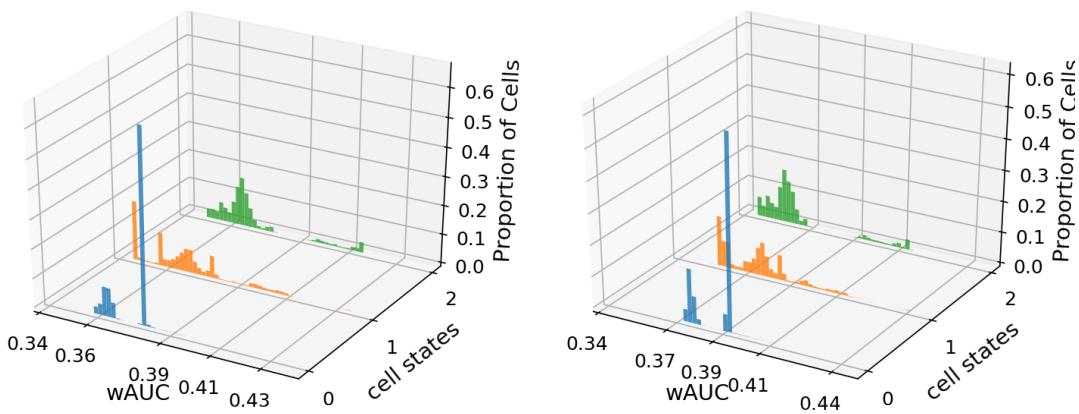
Cebpa



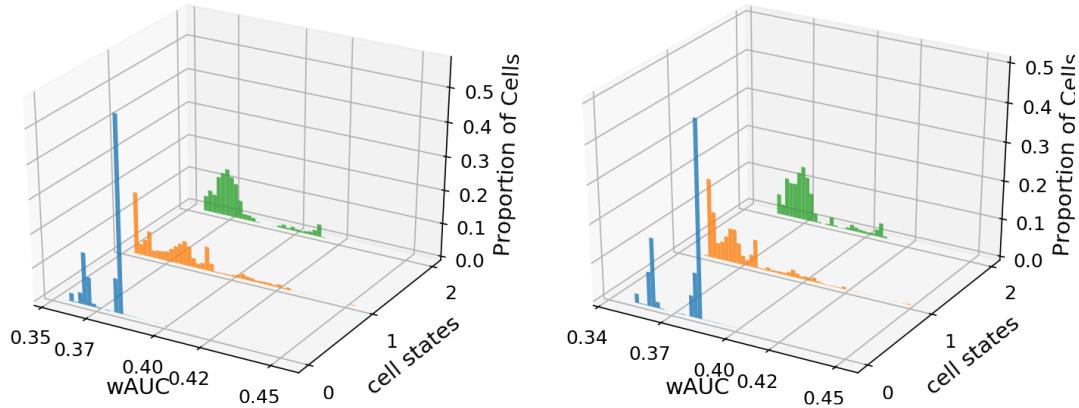
Kdm2a



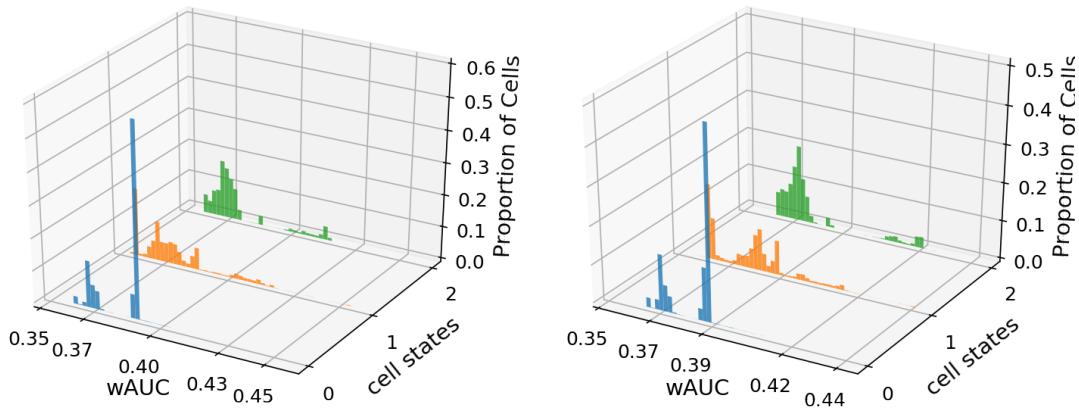
Tox4



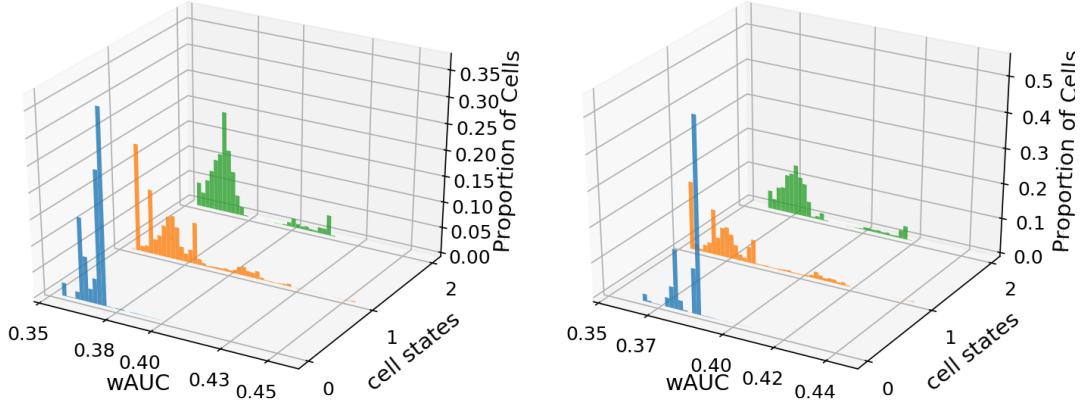
Nfkbia



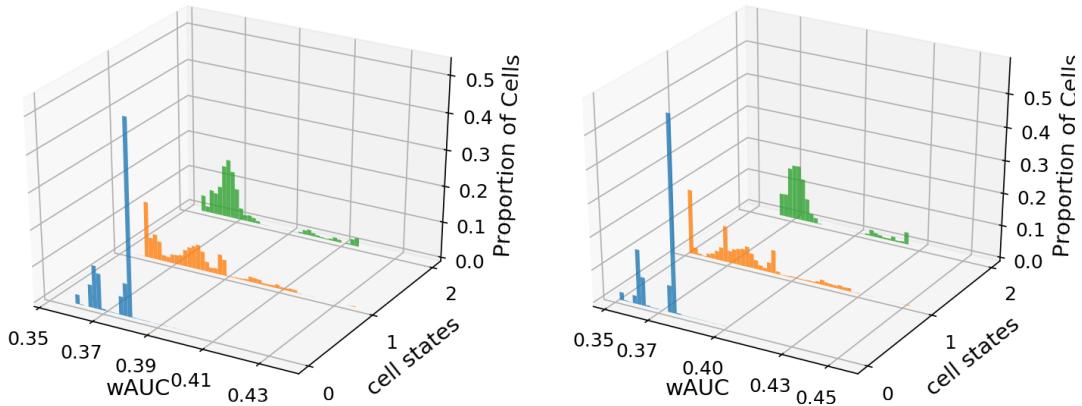
Sox9



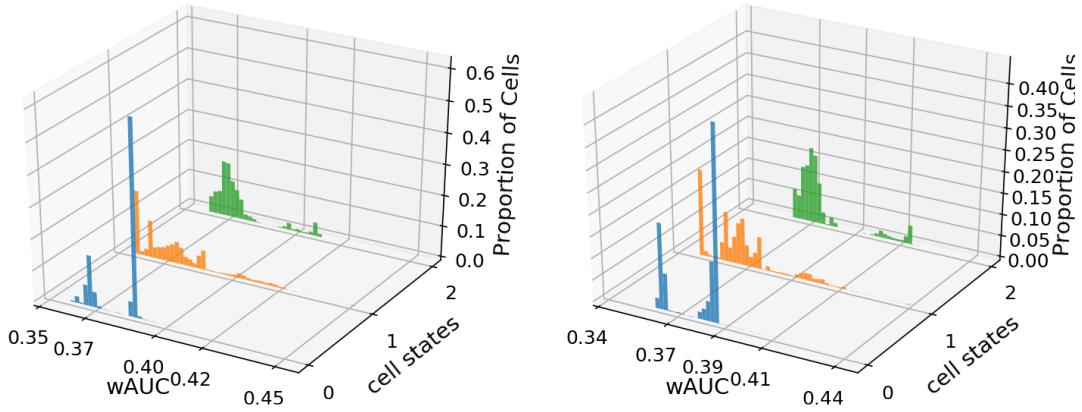
Cux1



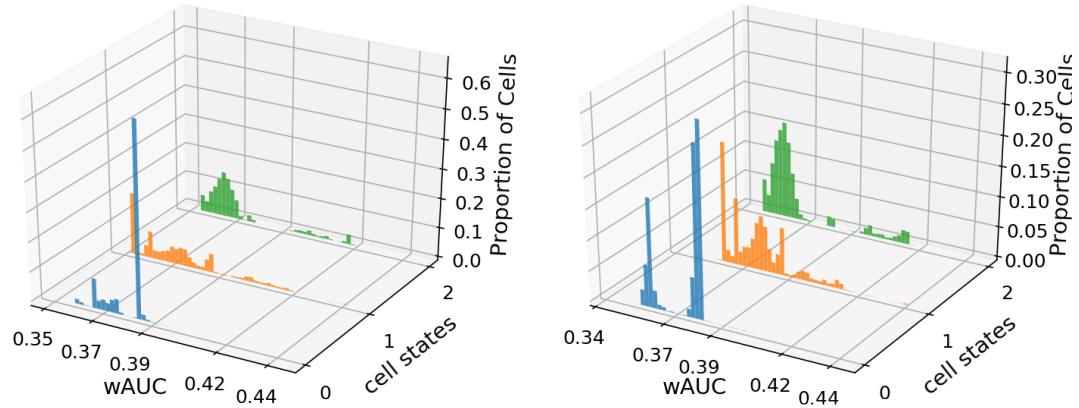
Gzrf1



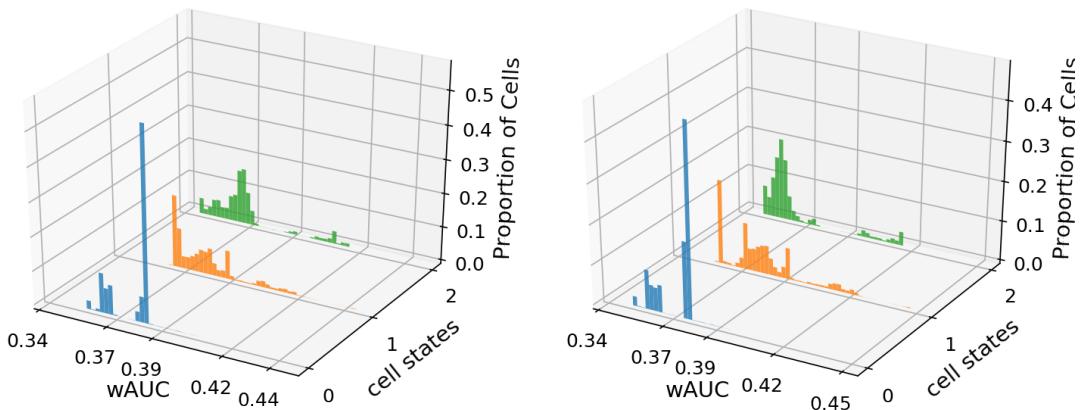
Stat5b



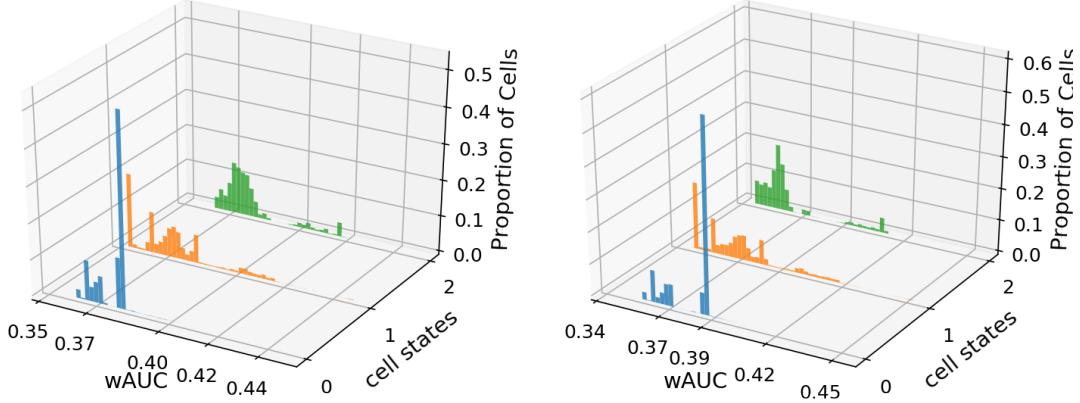
Tef



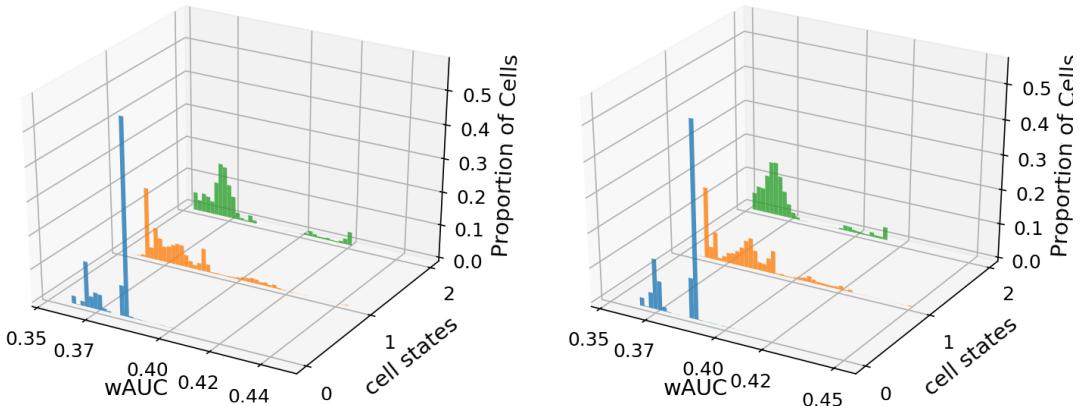
Zbtb7b



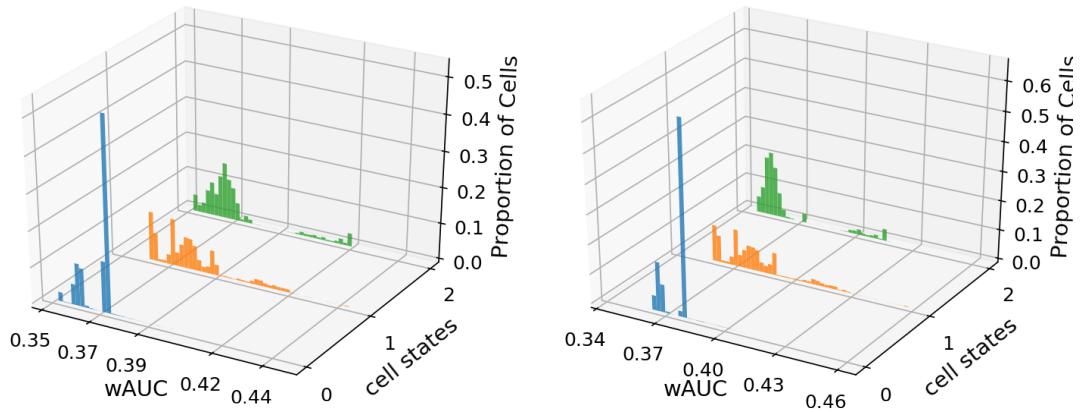
Foxo3



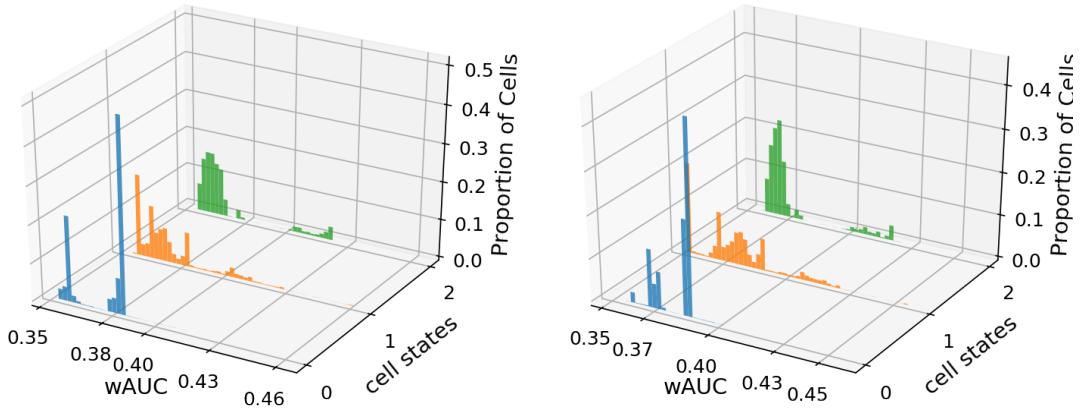
Nfe2l1



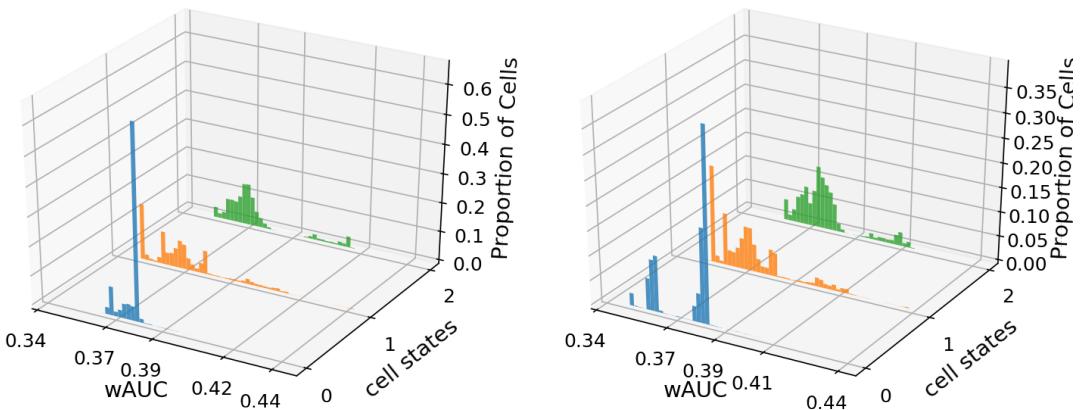
Tfdp1



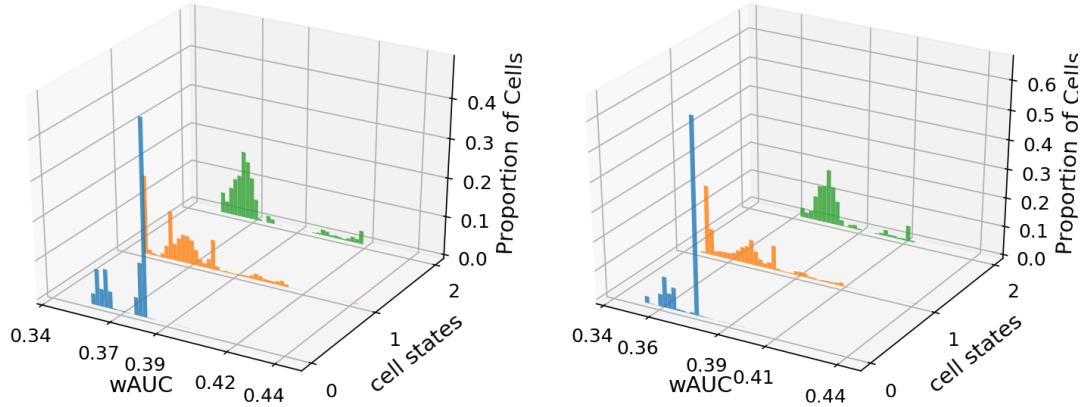
Sp3



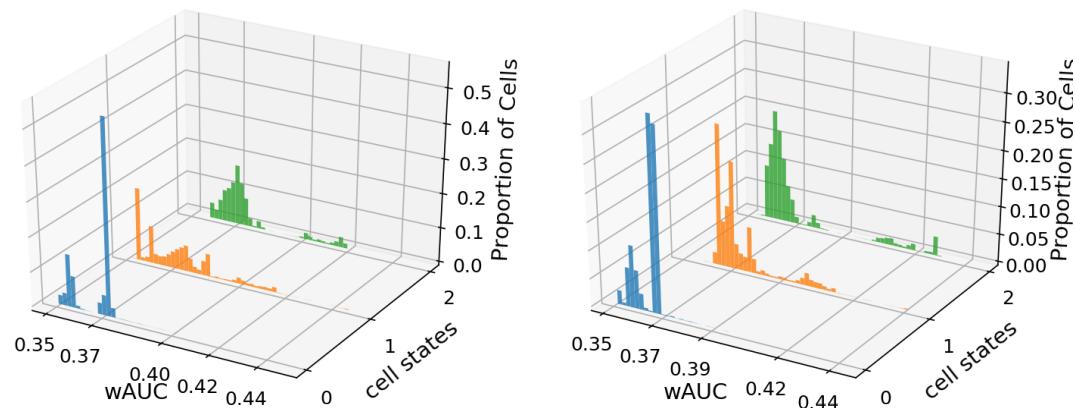
Zhx1



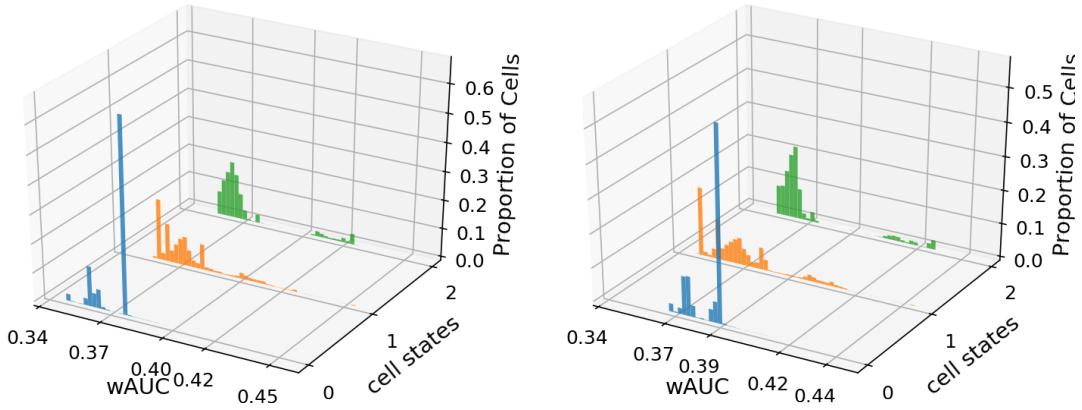
Nr1d2



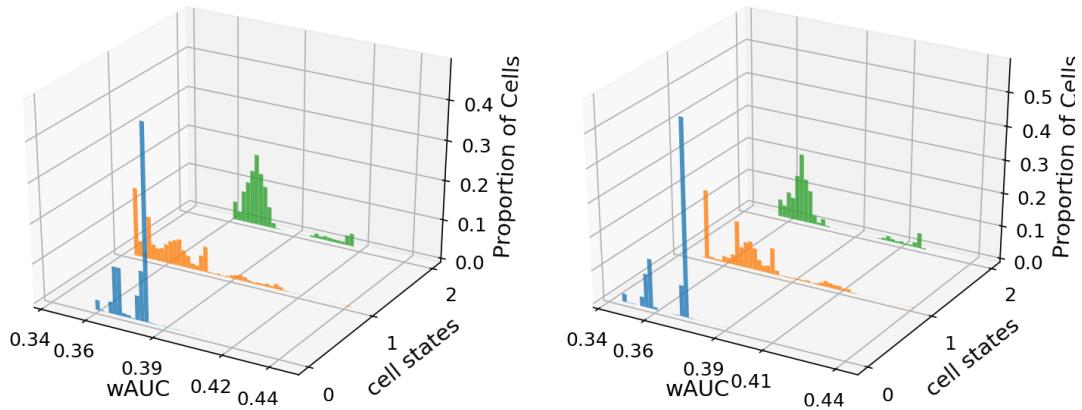
Nr2f2



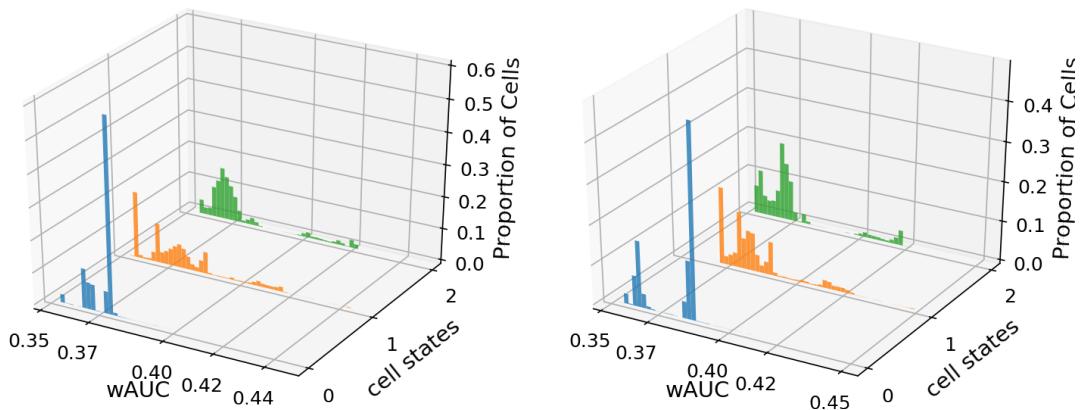
Sall1



Onecut1

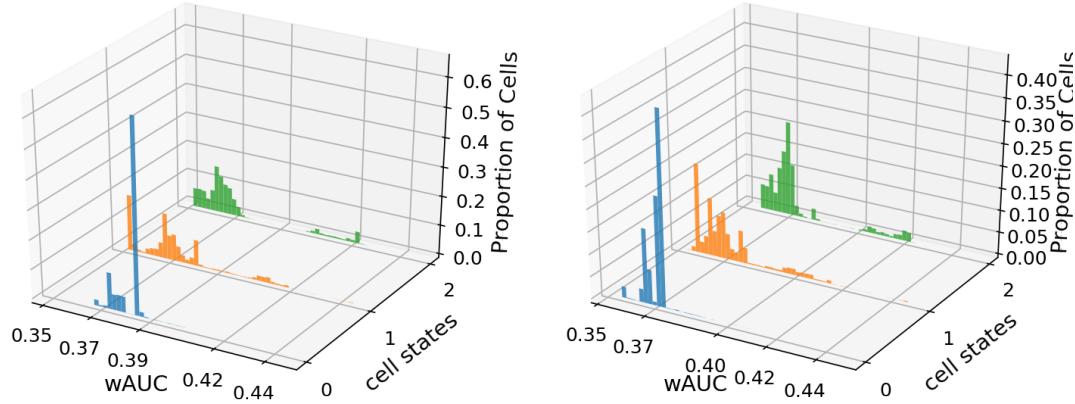


Klf12

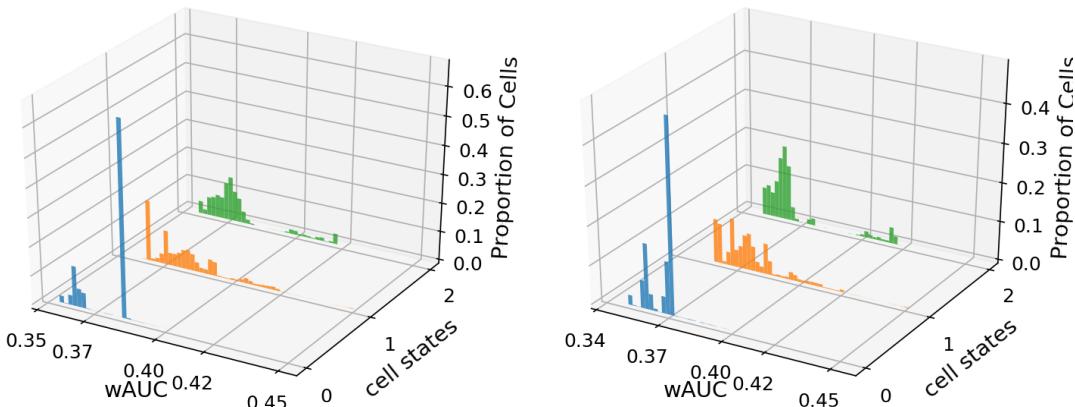


5 TFs that are only rank last variant in LASSO

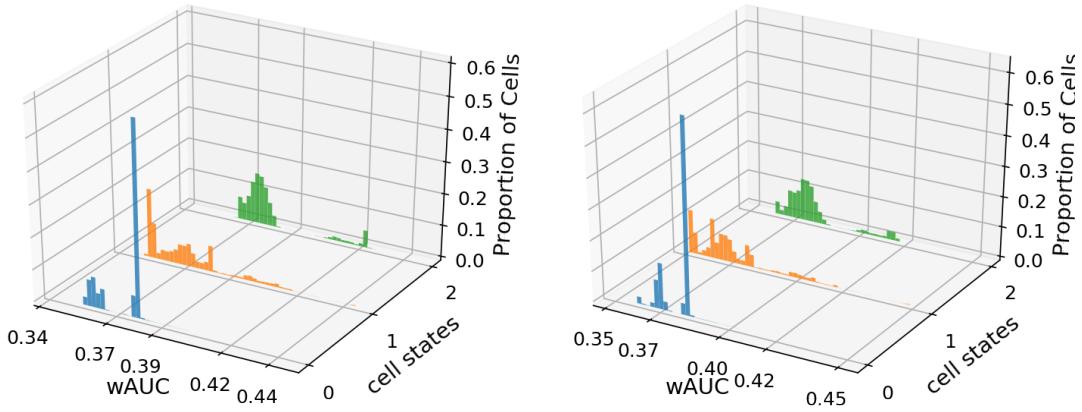
Smarcc1



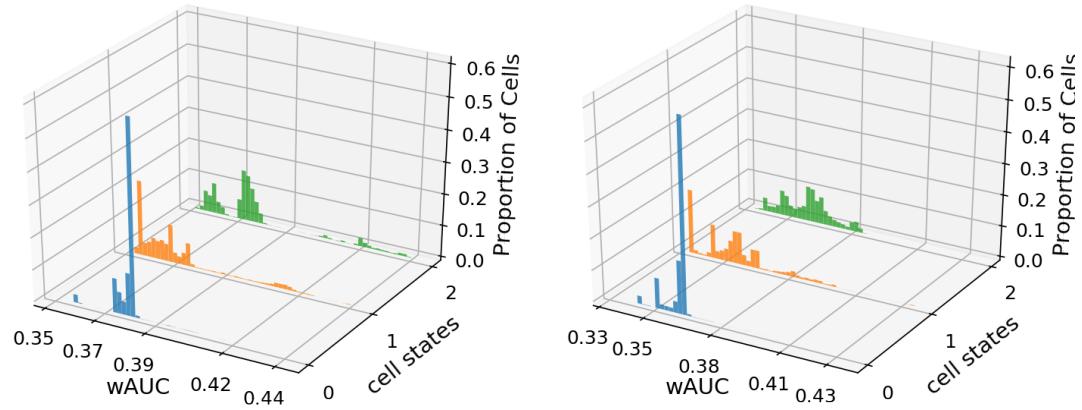
Elf1



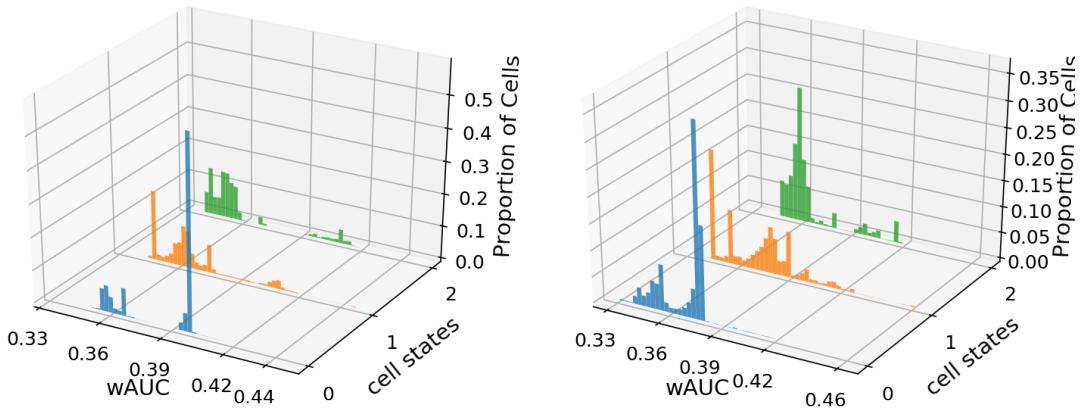
Lrrkip2



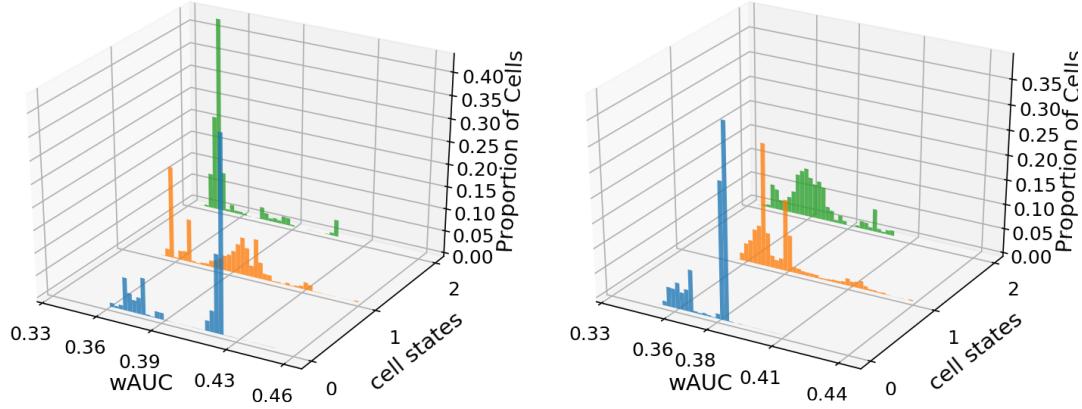
Atf5



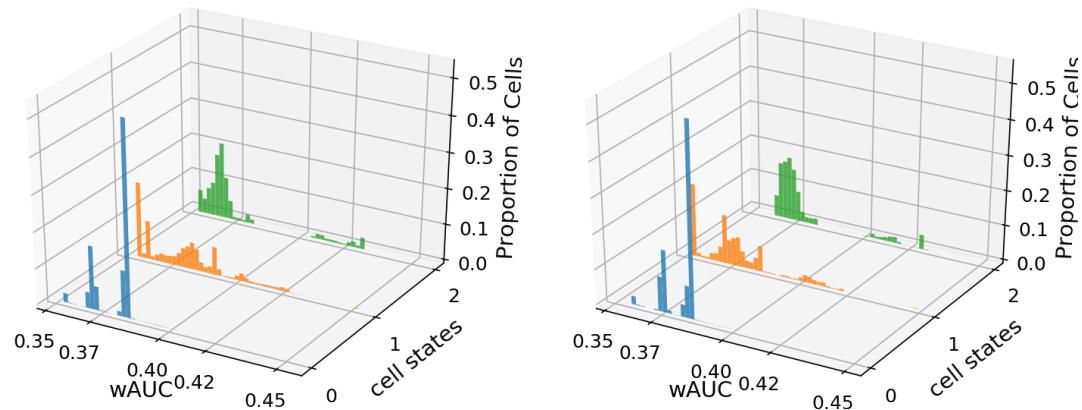
Cebpb



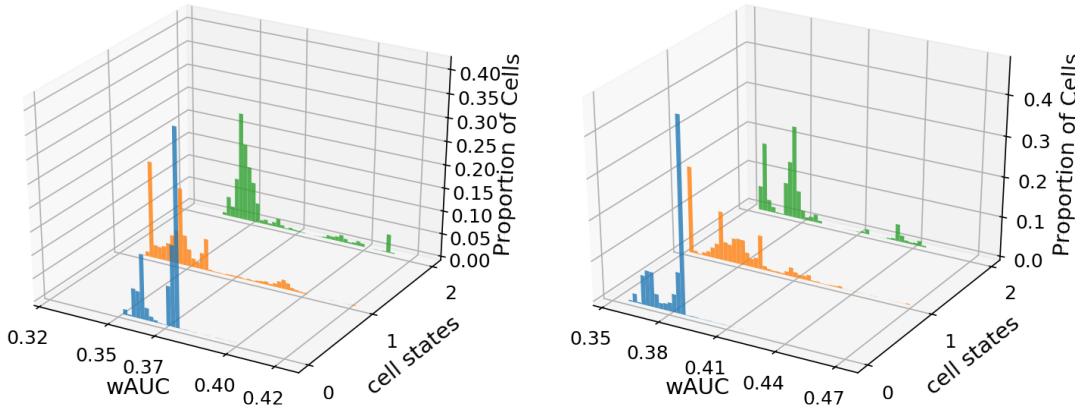
Hhex



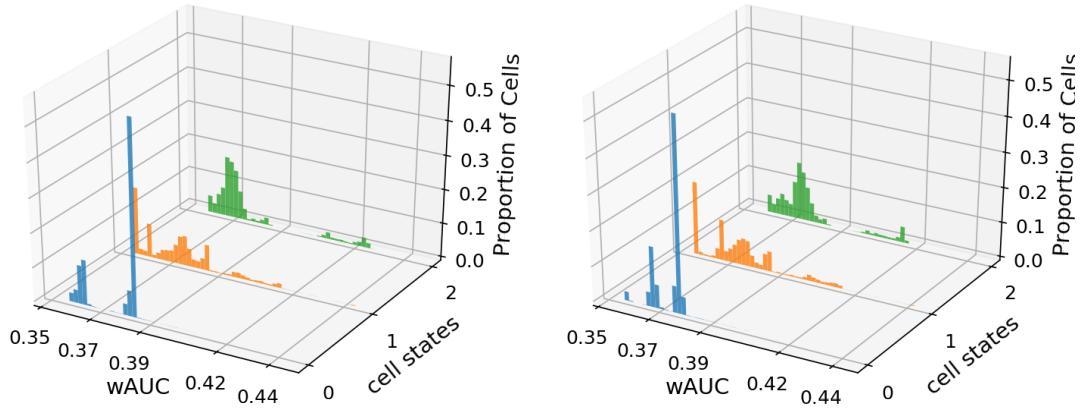
Yy1



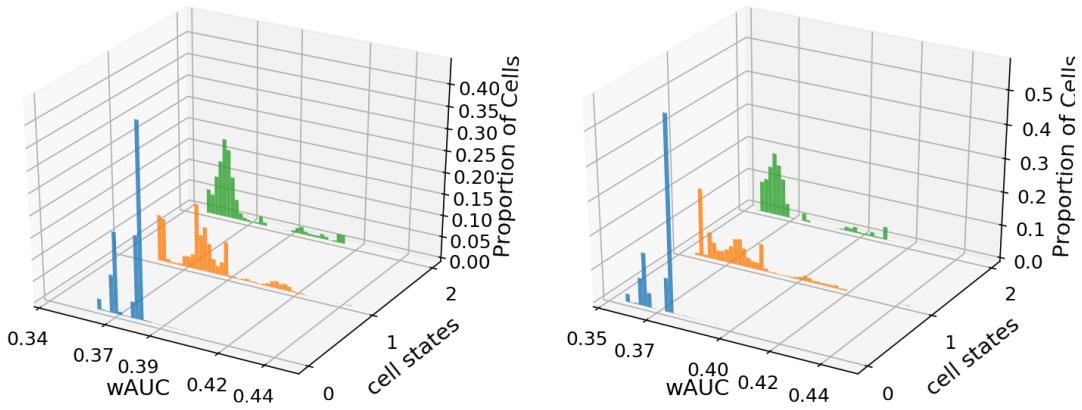
Jund



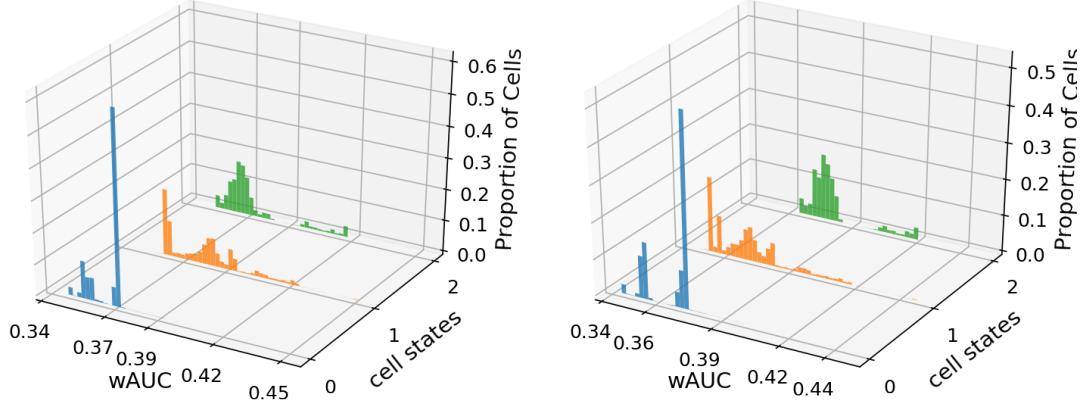
Bach1



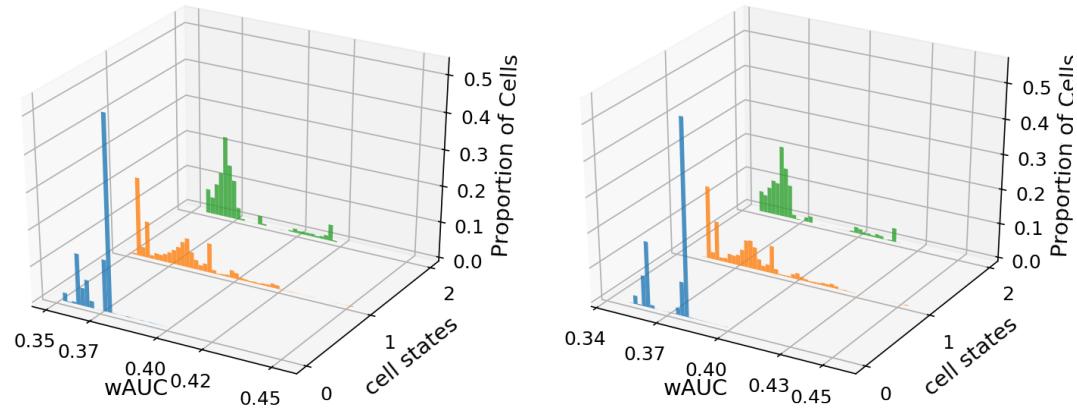
Ctcf



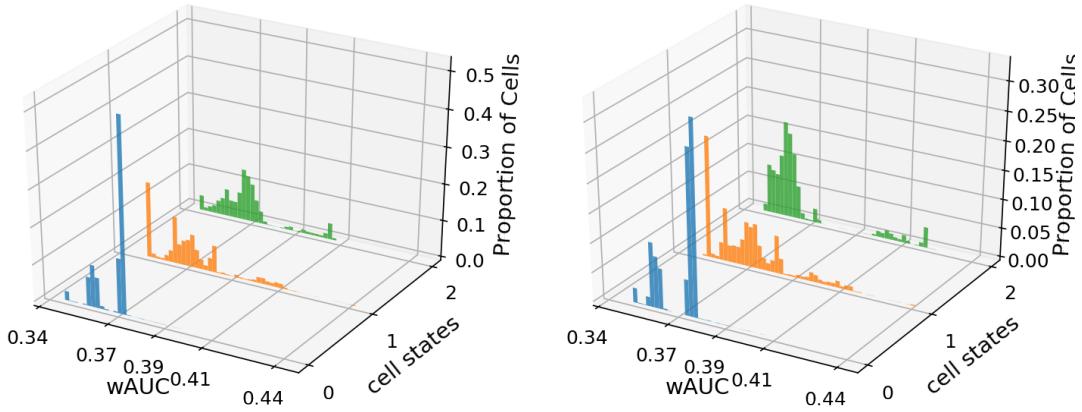
Purb



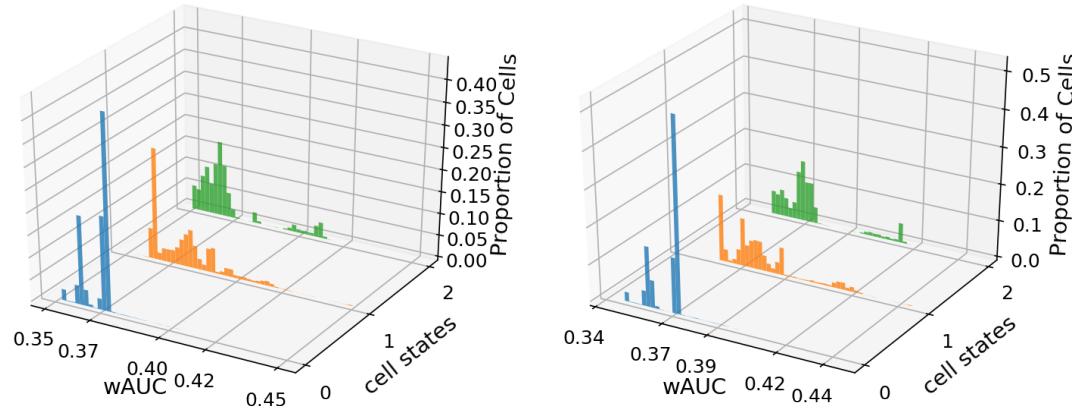
Irf2



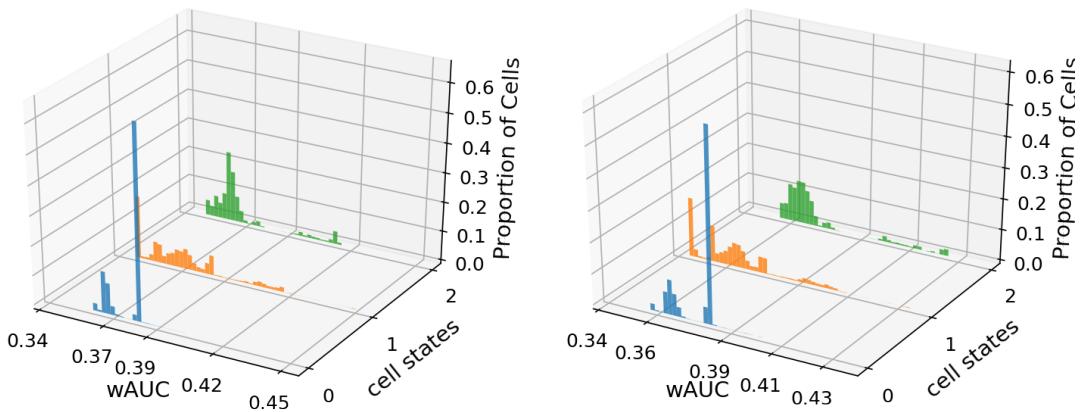
Maz



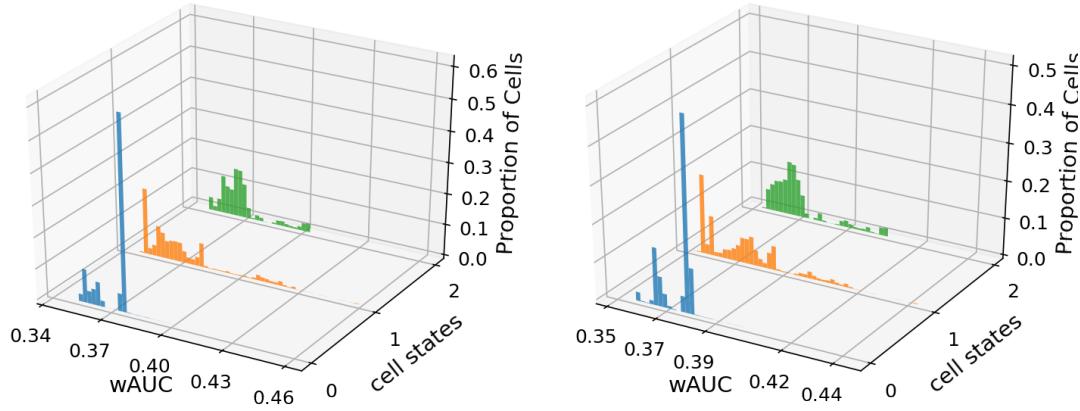
Ncoa2



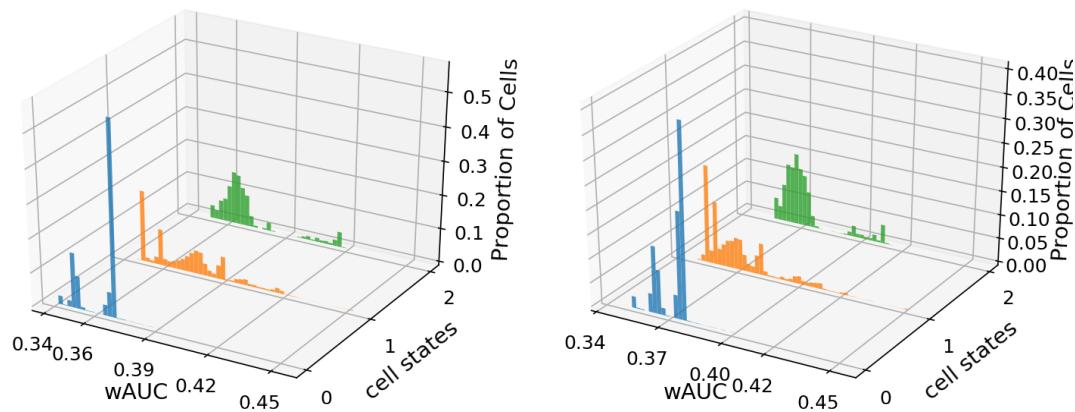
Stat3



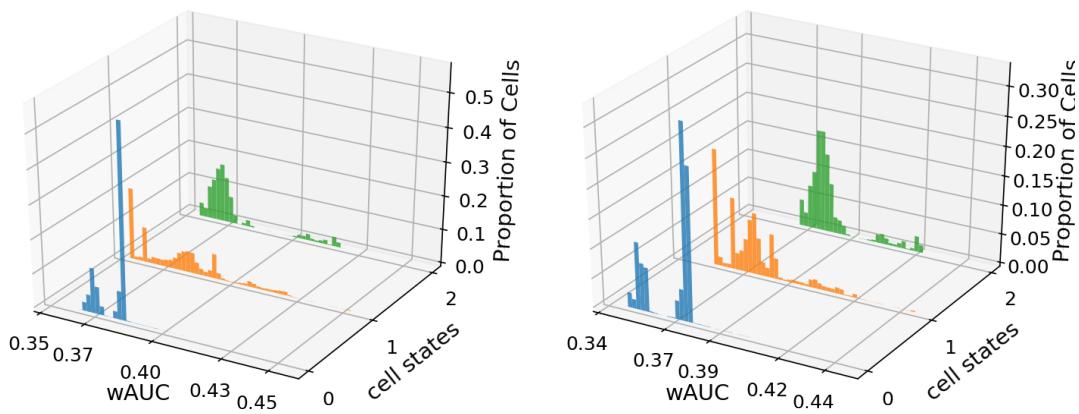
Hmg20b



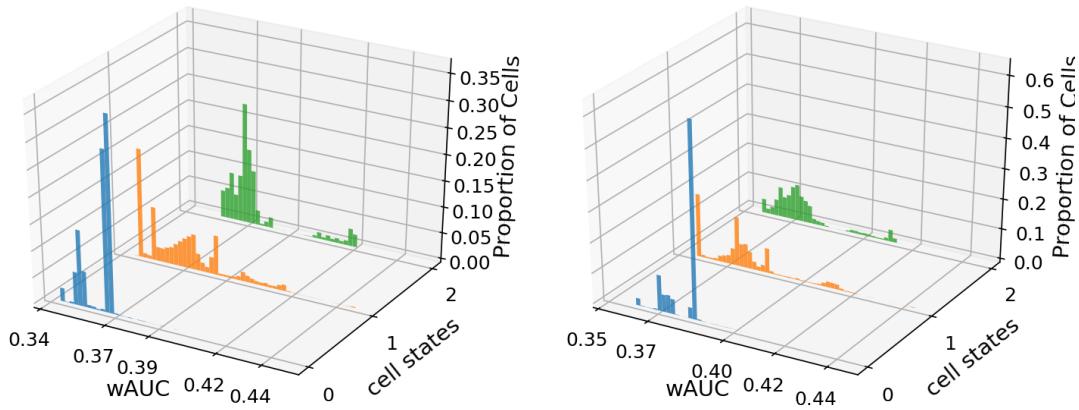
Ssrp1



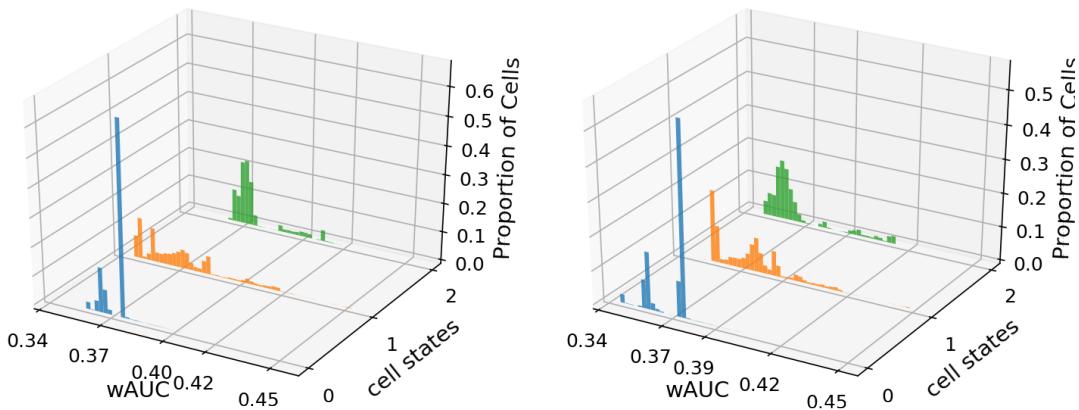
Creb3l2



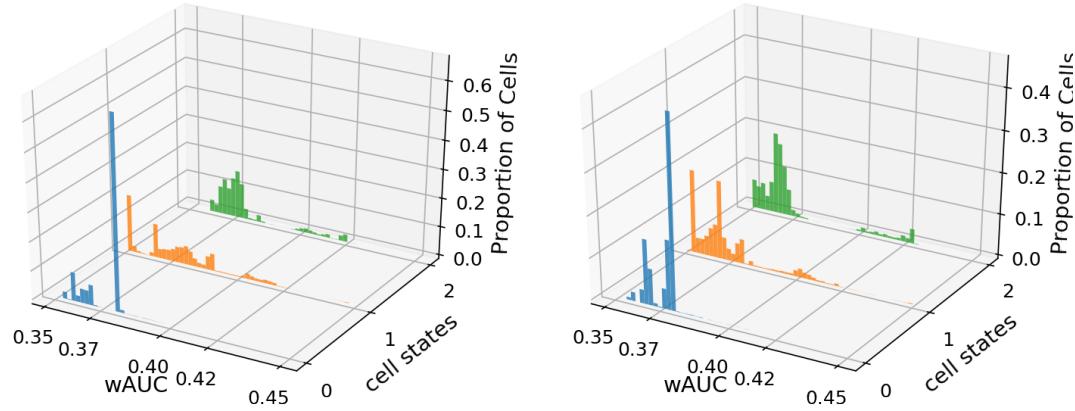
Mef2a



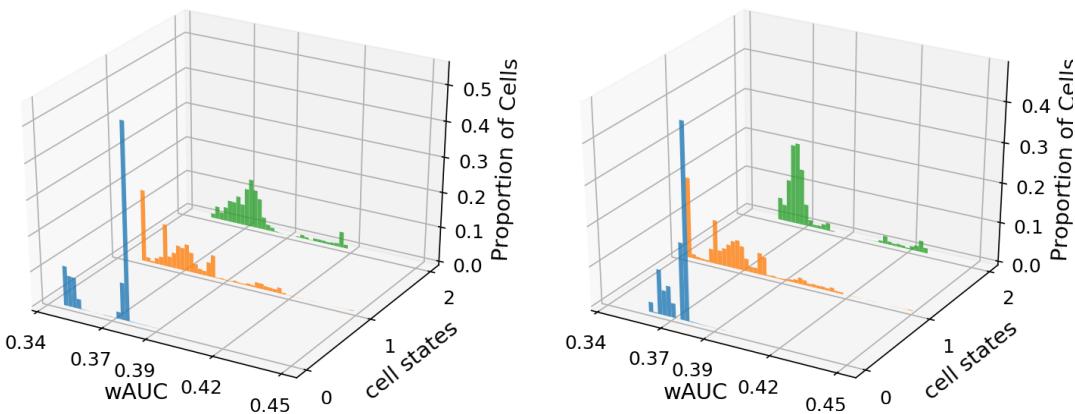
Pura



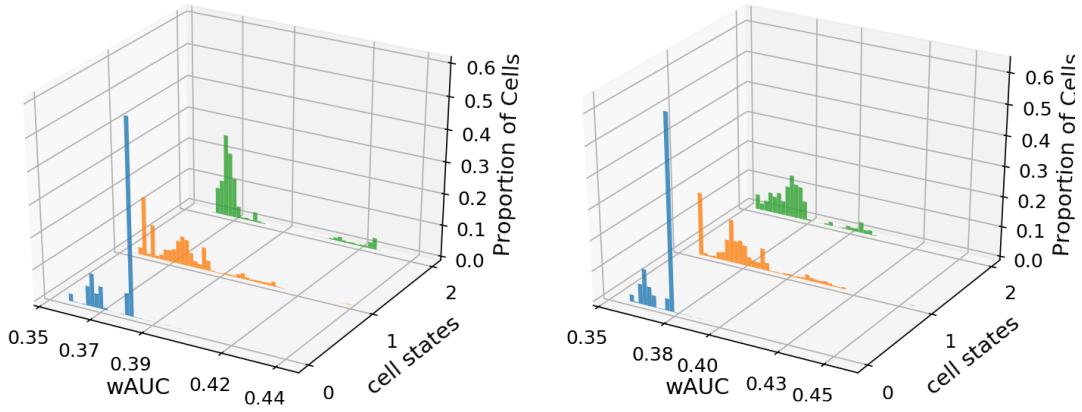
Ets2



Mafg



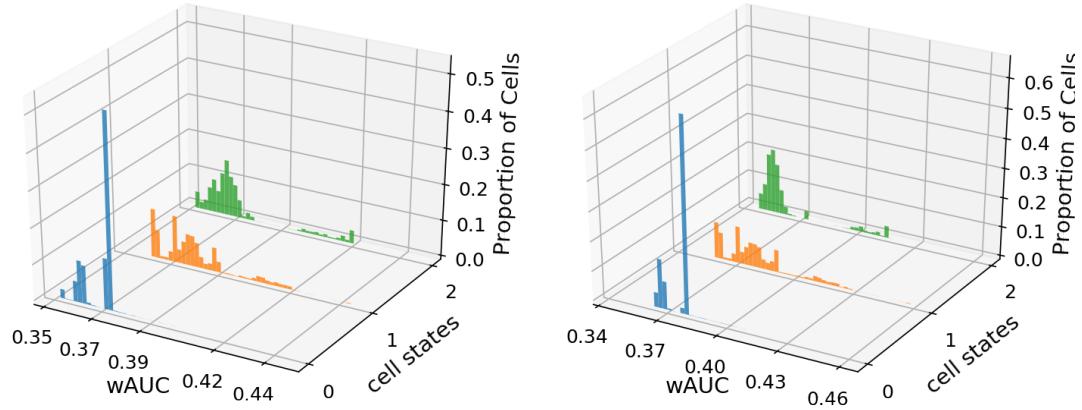
Rc3h2



6 TFs that are rank top in simic, but last in LASSO

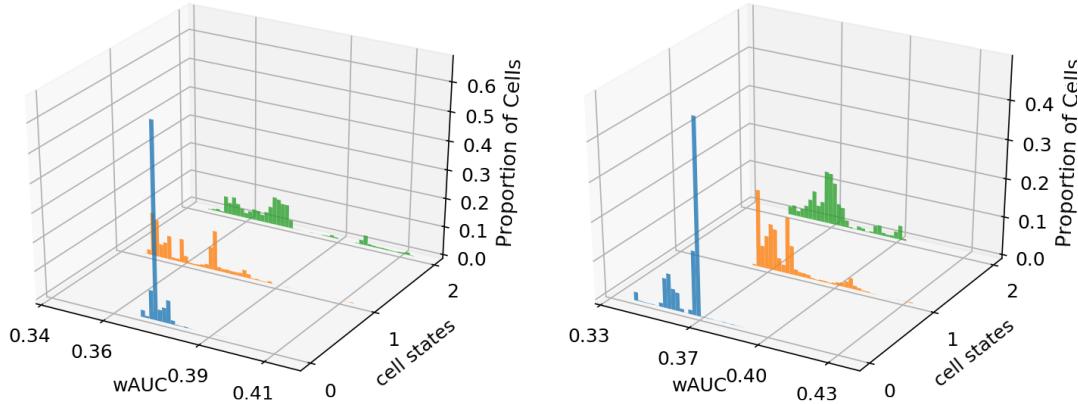
7 TFs that are rank last in simic, but top in LASSO

Tfdp1

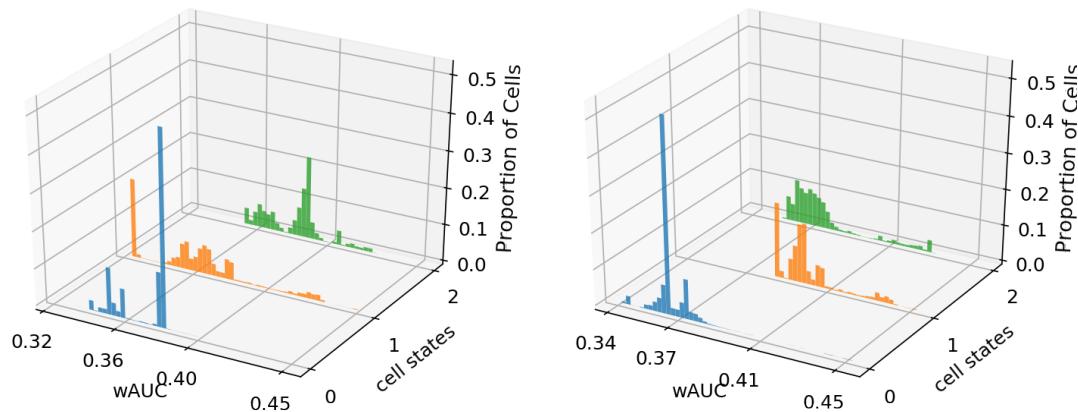


8 List of gene of interests

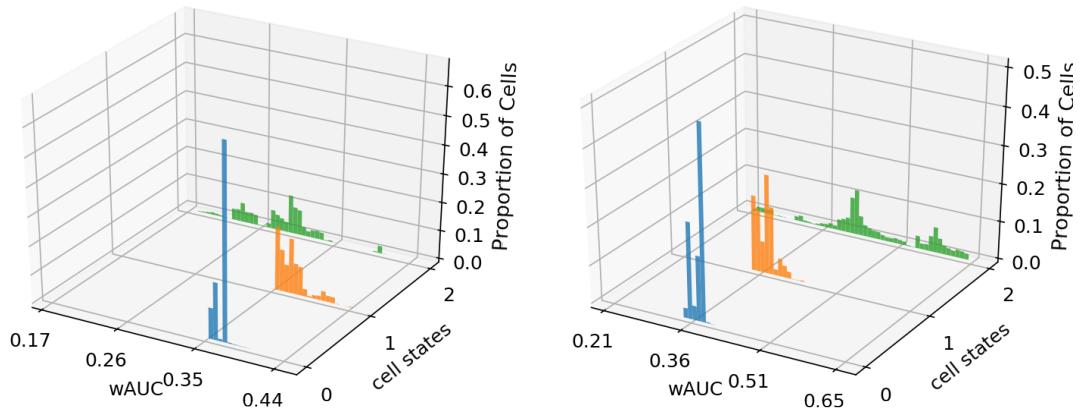
Ybx1



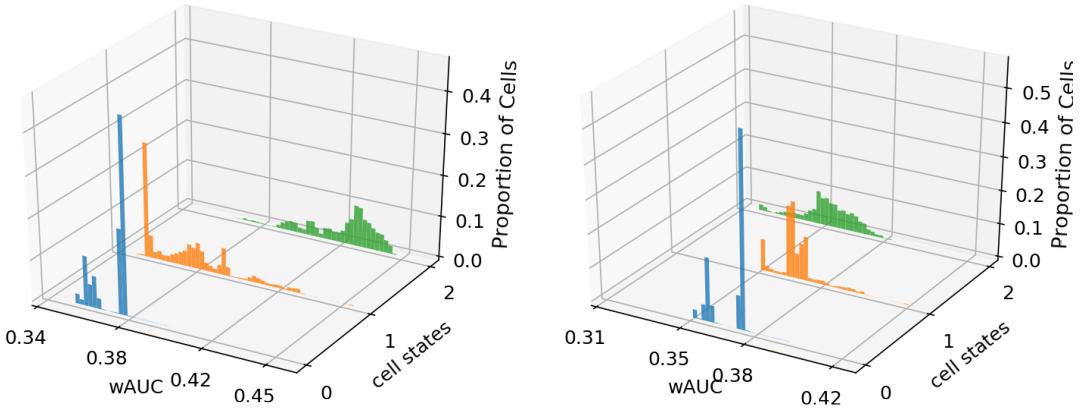
Id3



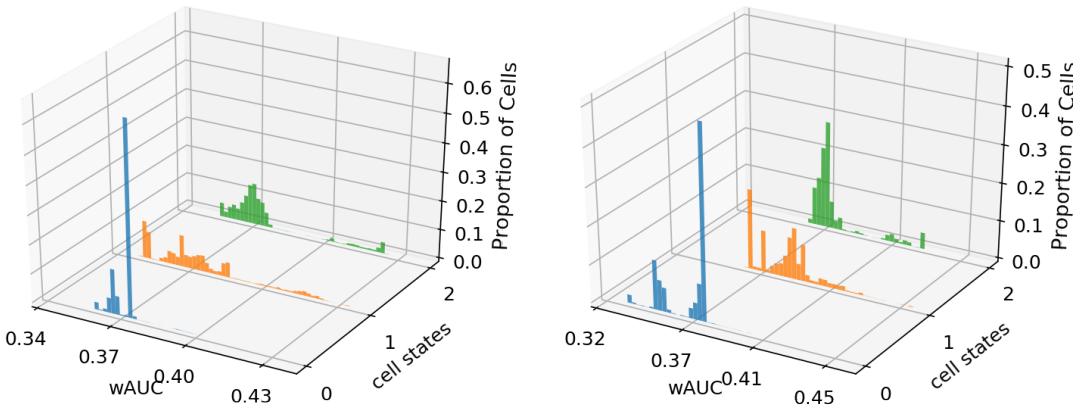
Nr0b2



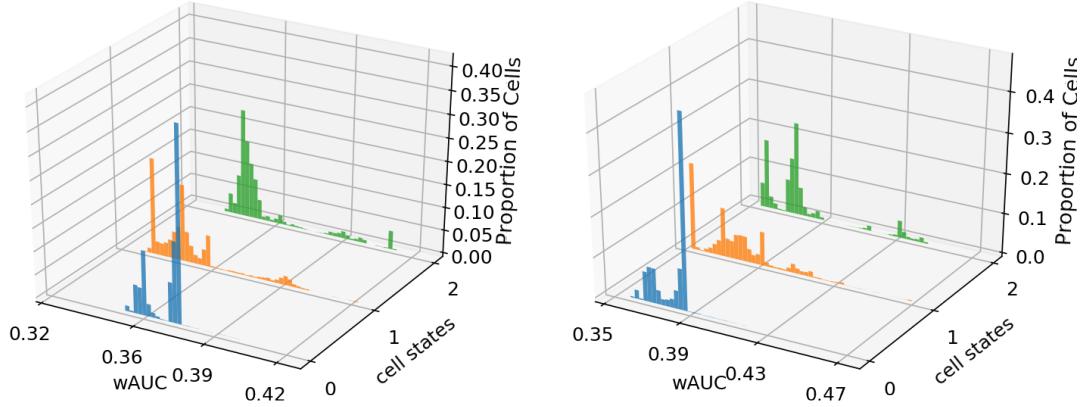
Ncor1



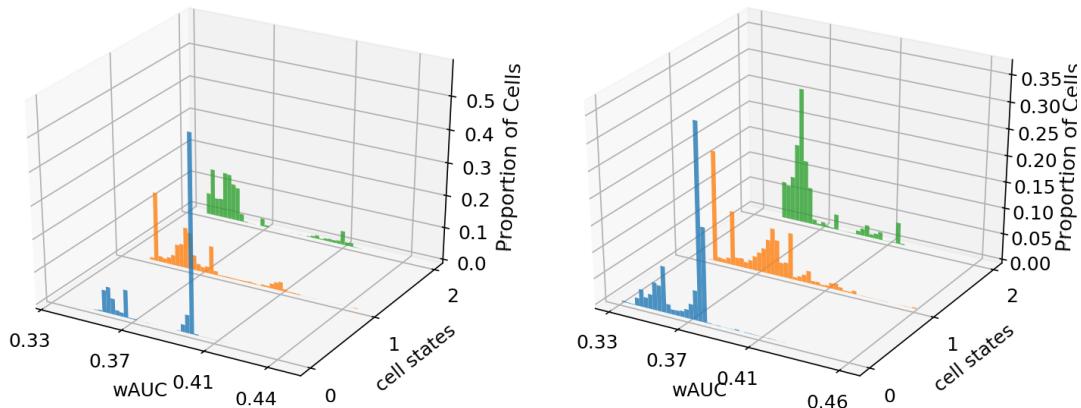
Cebpa



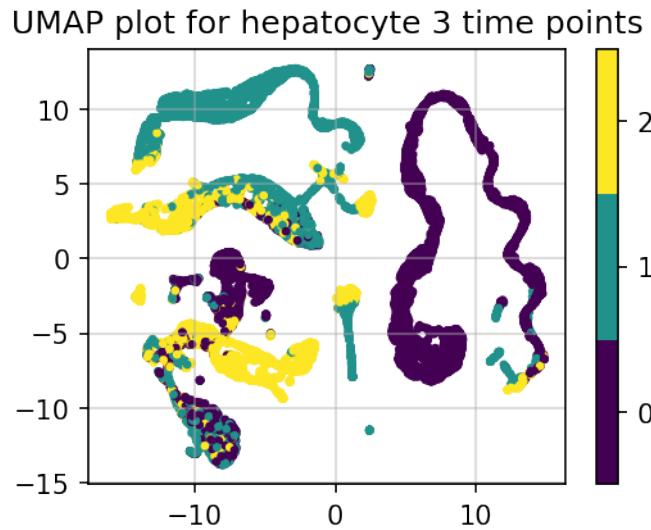
Jund



Cebpb

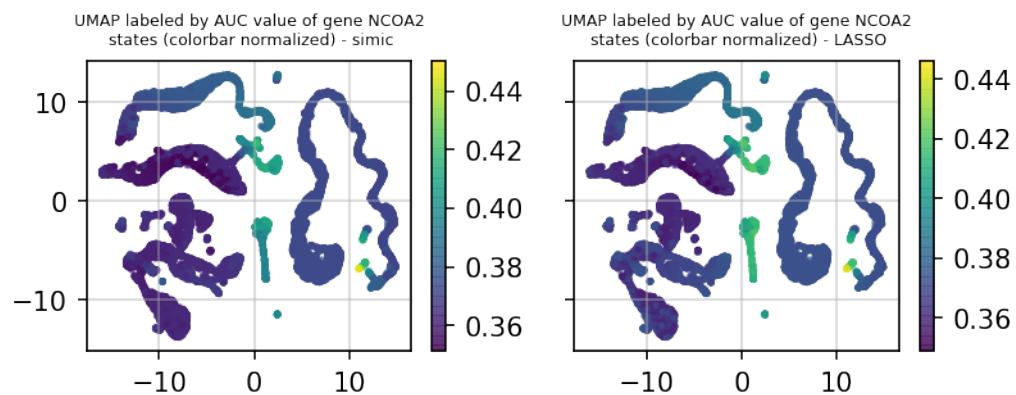


9 True label of 3-states

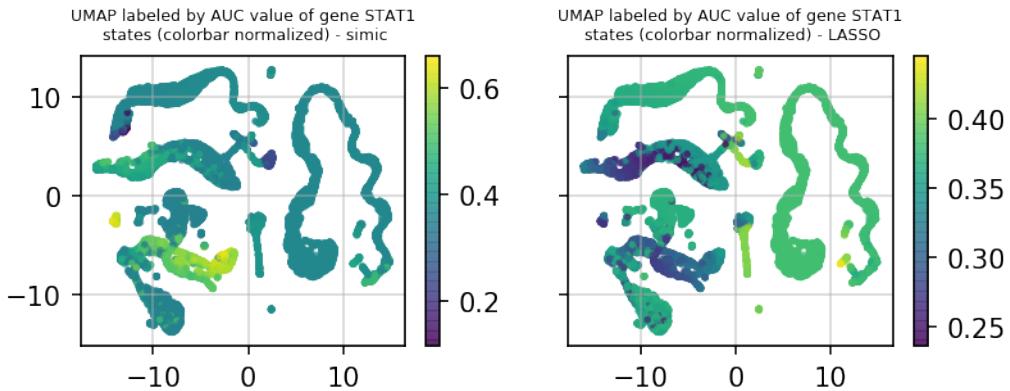


10 UMAP plots for all TFs

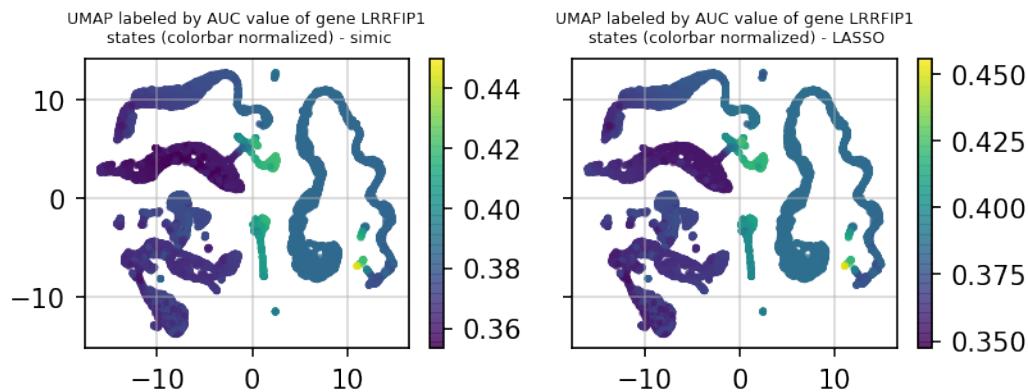
NCOA2



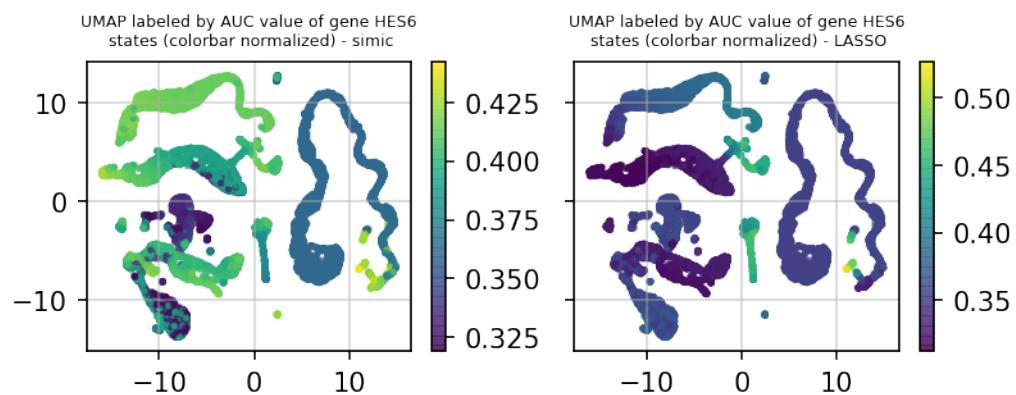
STAT1



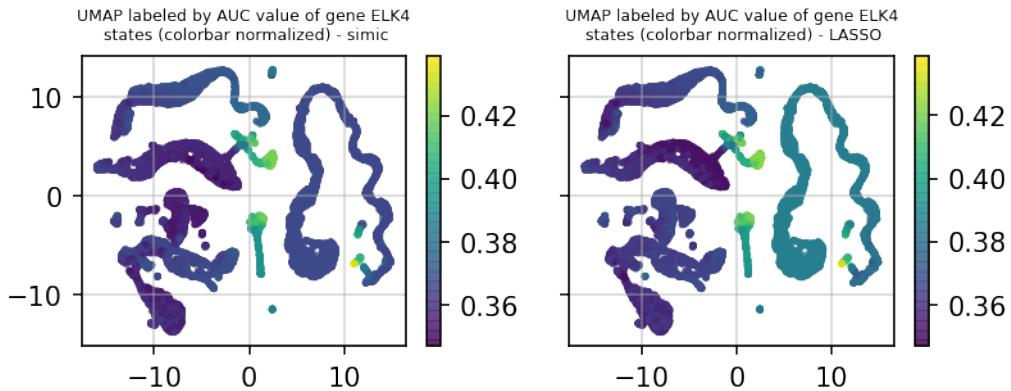
LRRFIP1



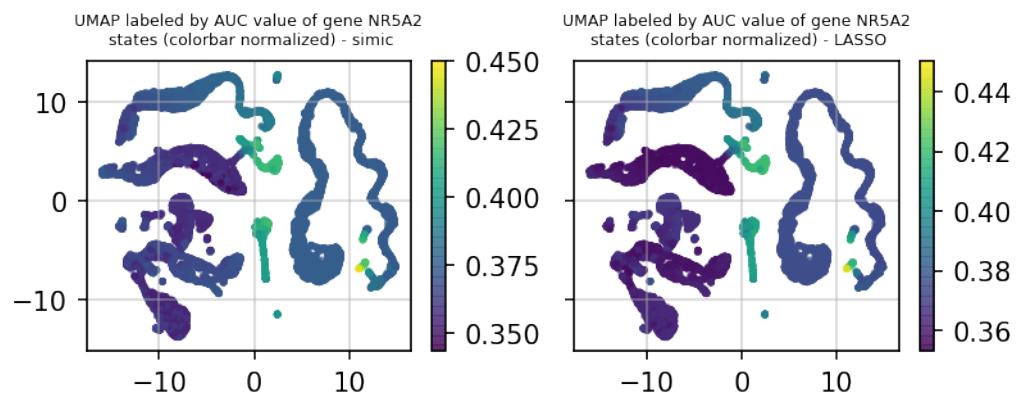
HES6



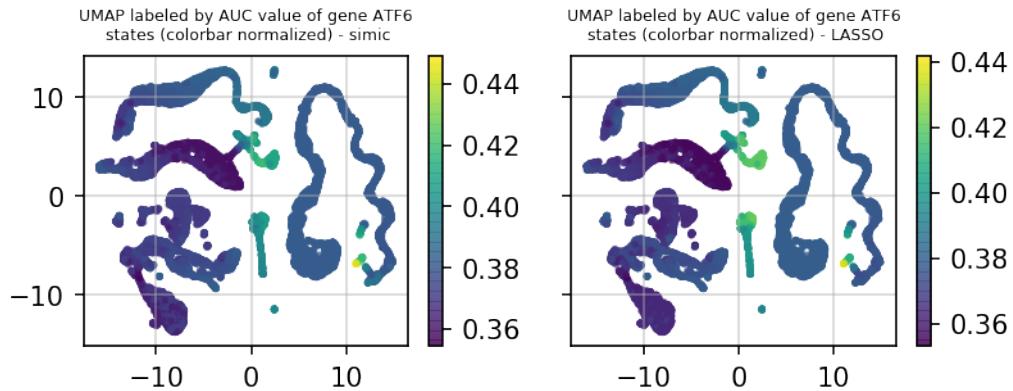
ELK4



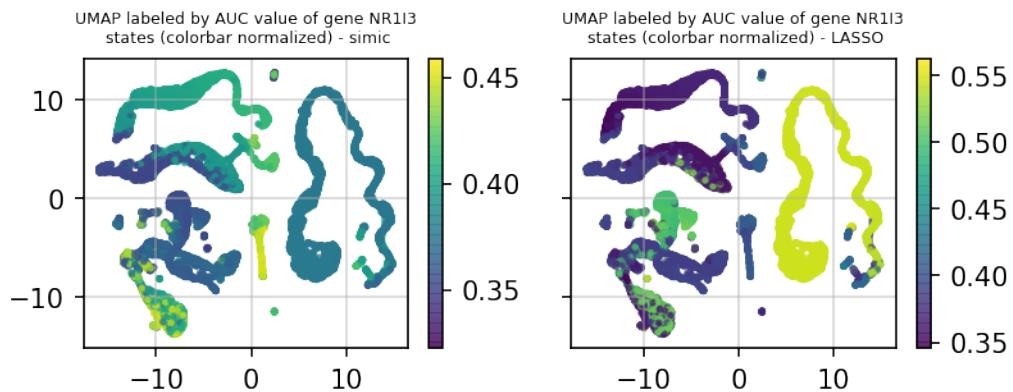
NR5A2



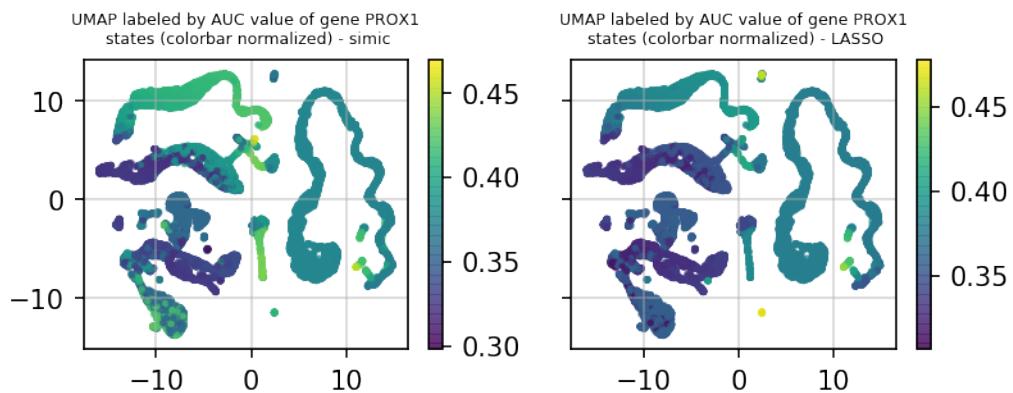
ATF6



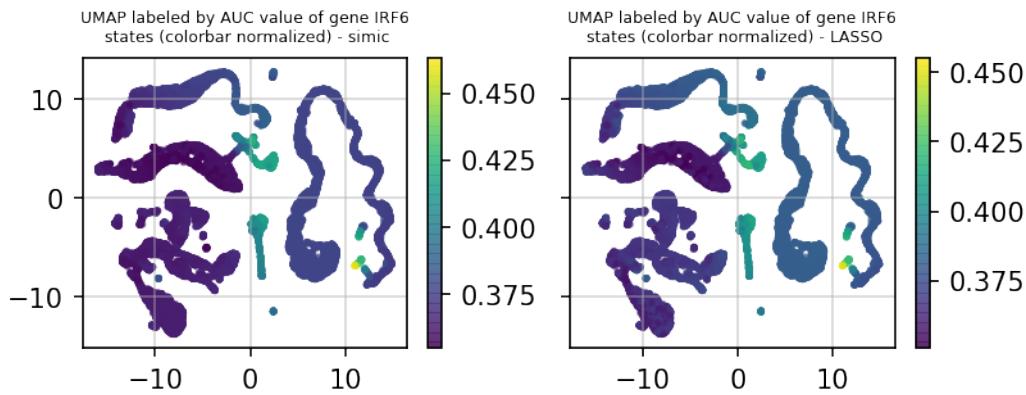
NR1I3



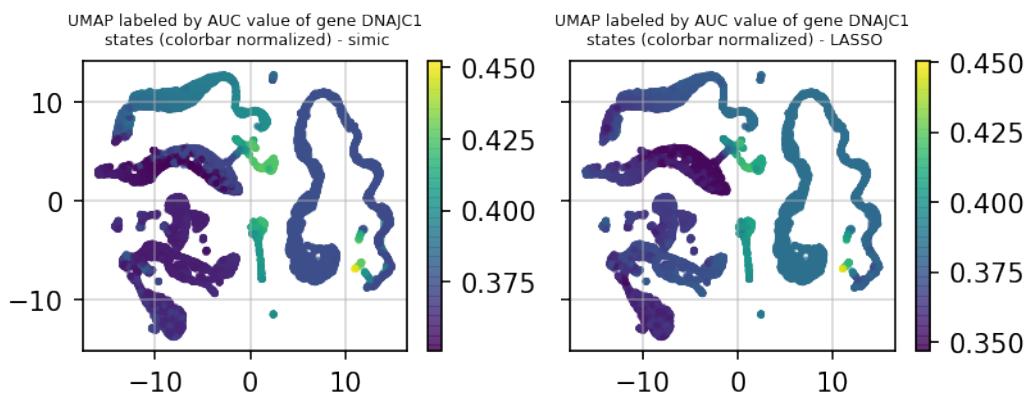
PROX1



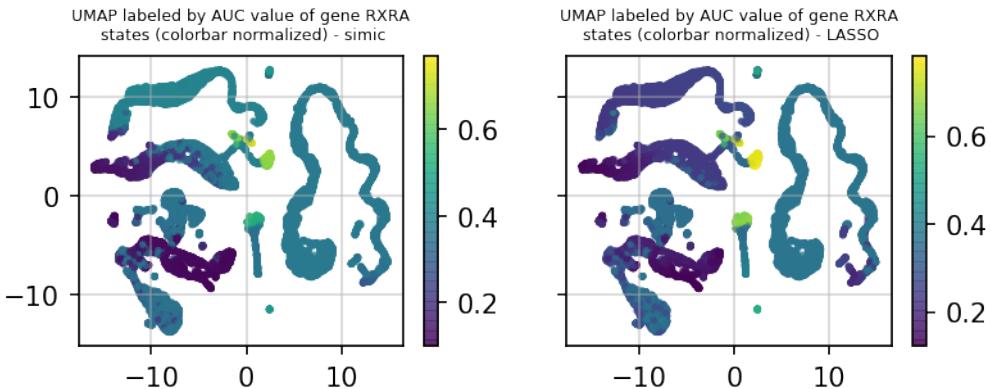
IRF6



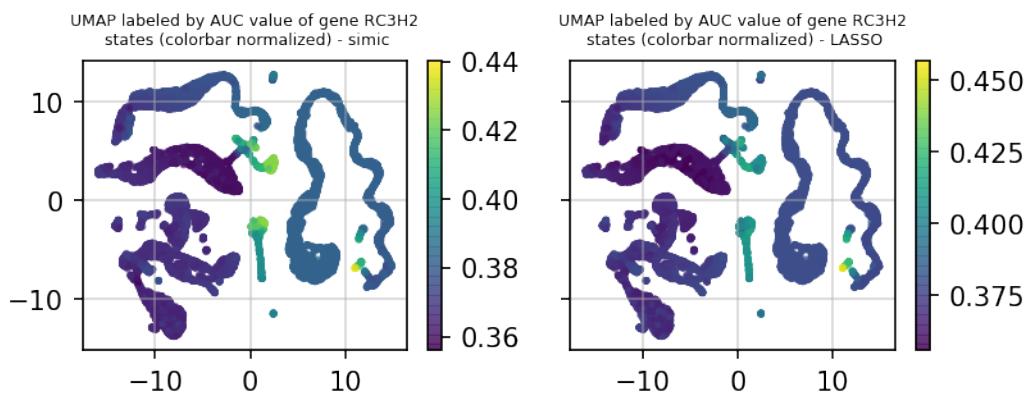
DNAJC1



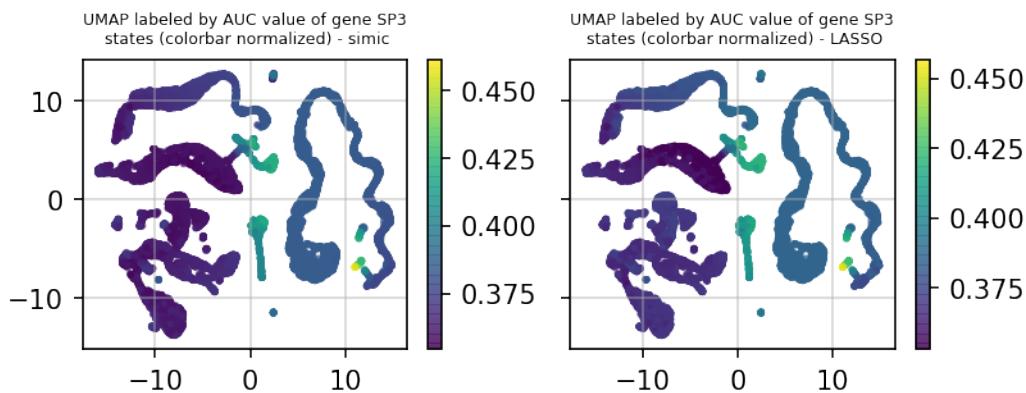
RXRA



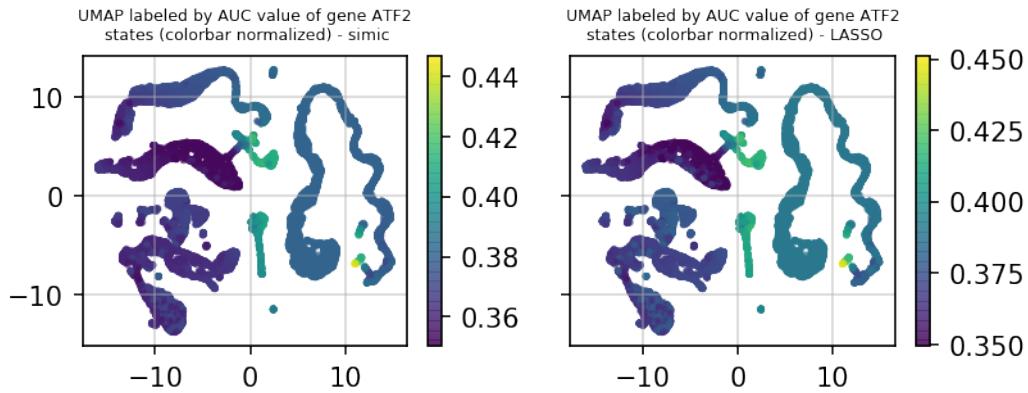
RC3H2



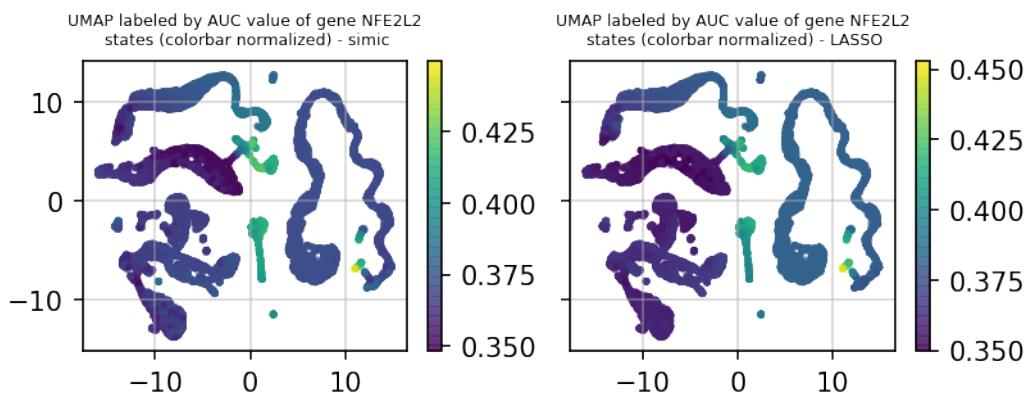
SP3



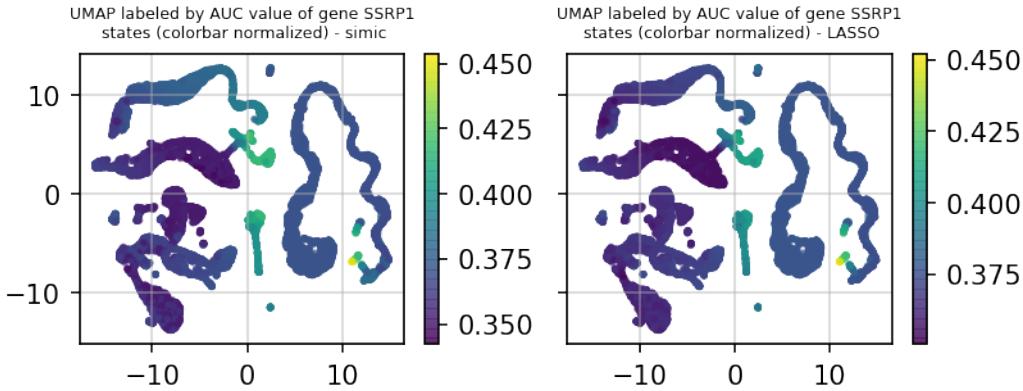
ATF2



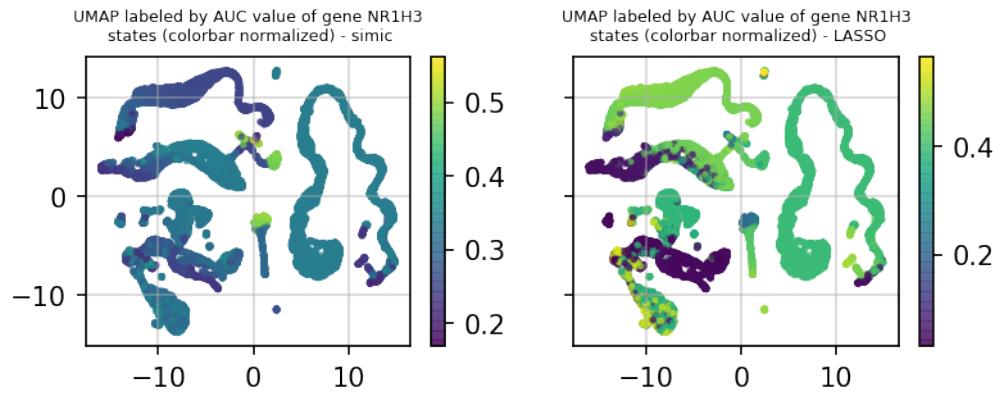
NFE2L2



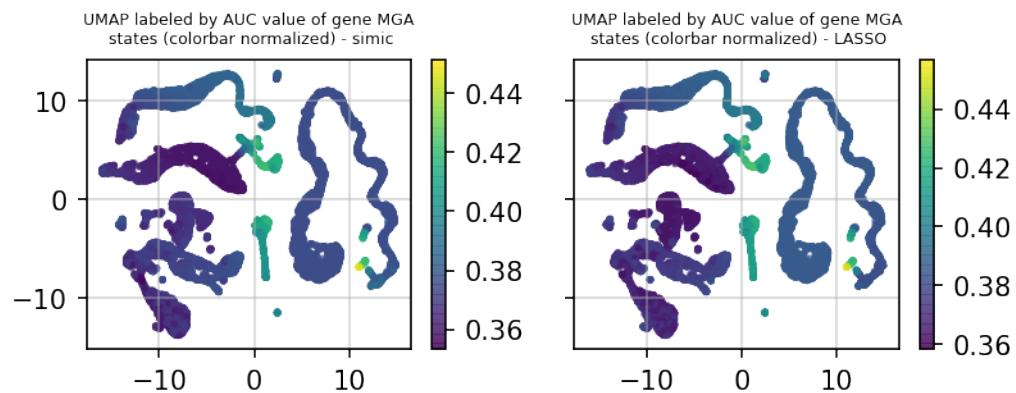
SSRP1



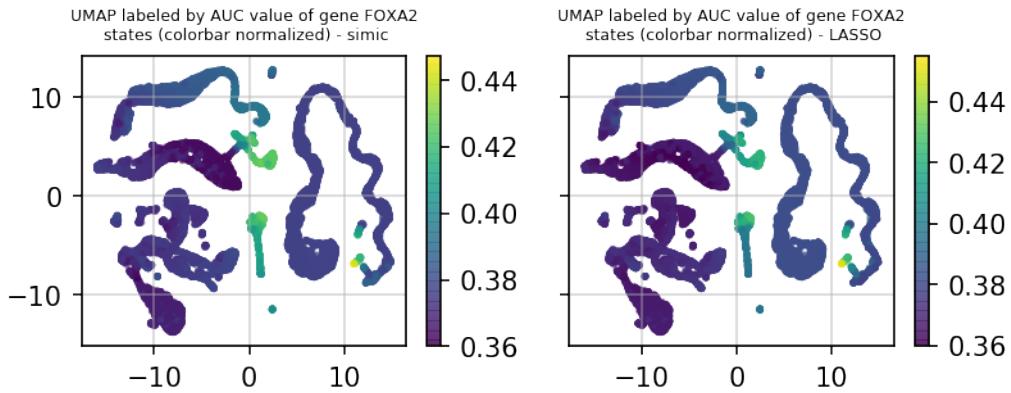
NR1H3



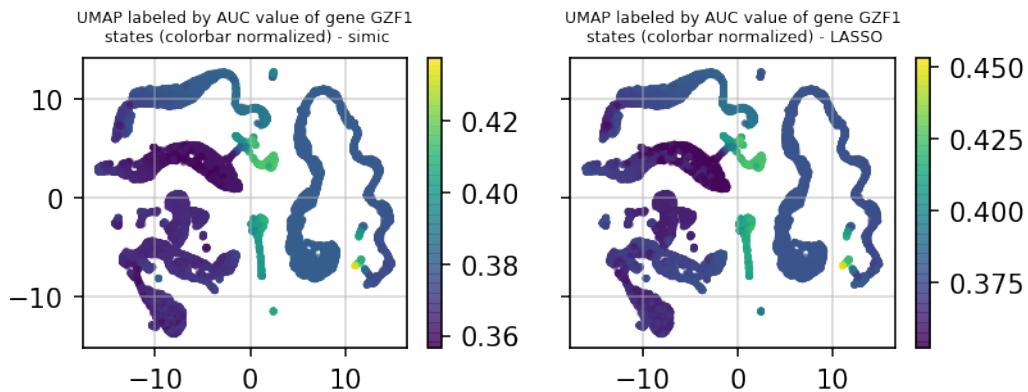
MGA



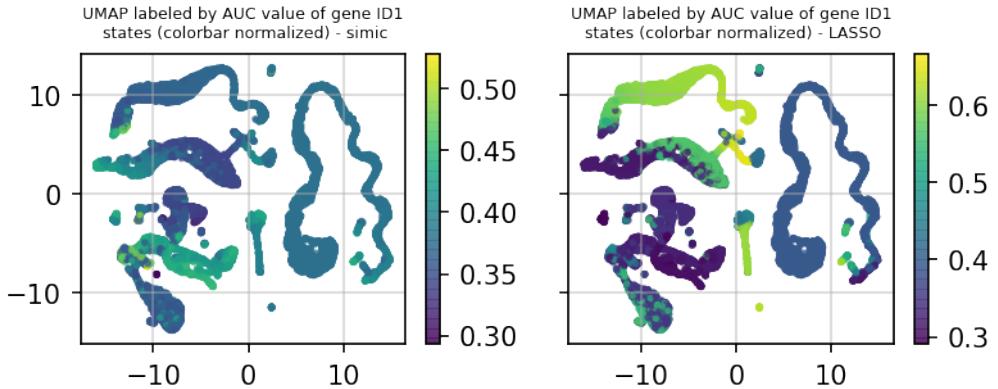
FOXA2



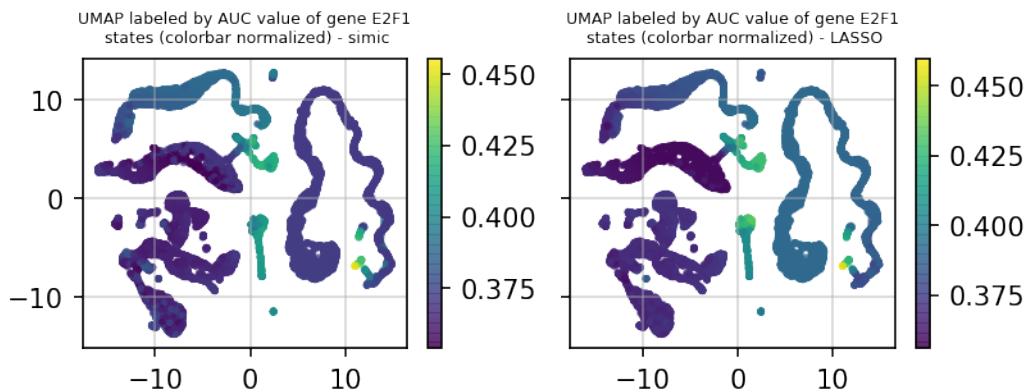
GZF1



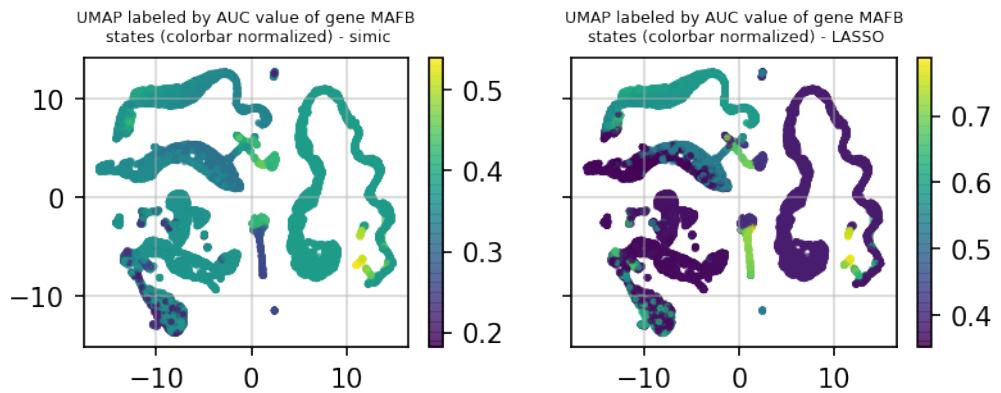
ID1



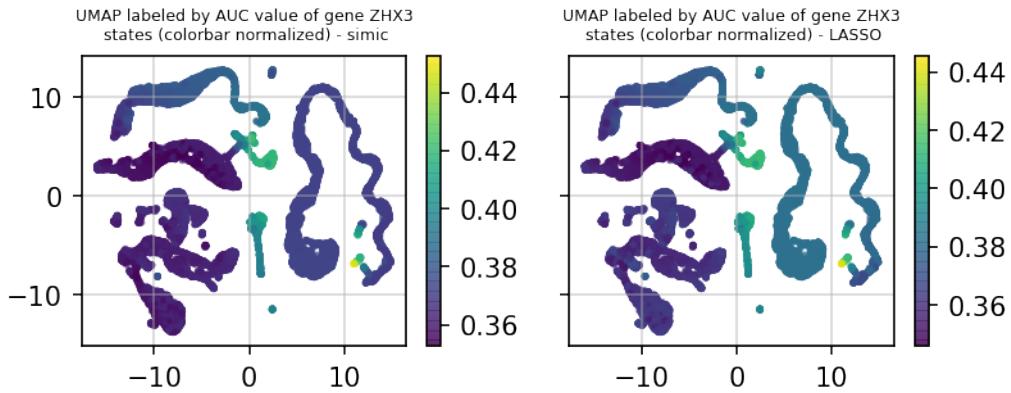
E2F1



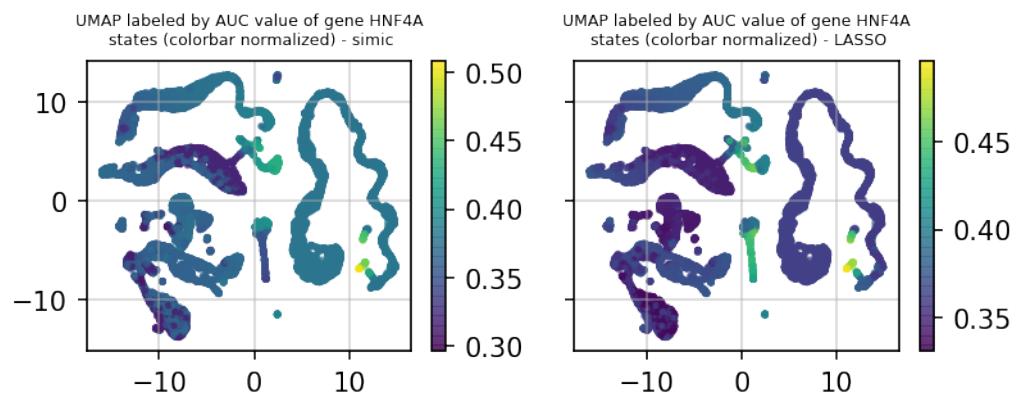
MAFB



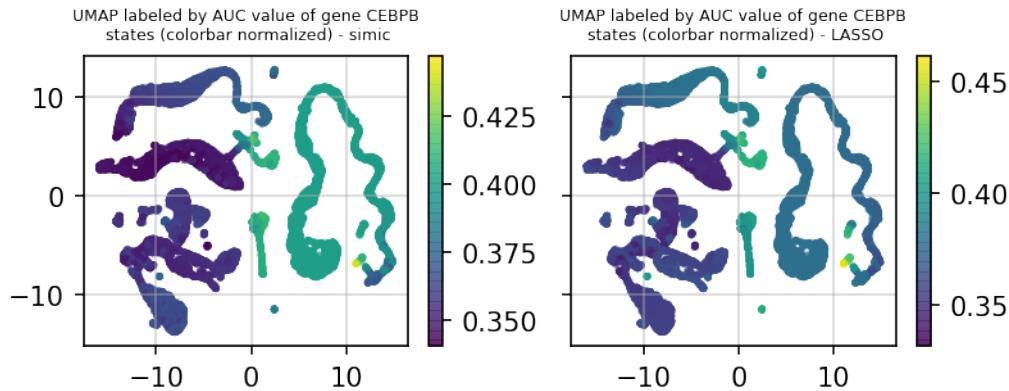
ZHX3



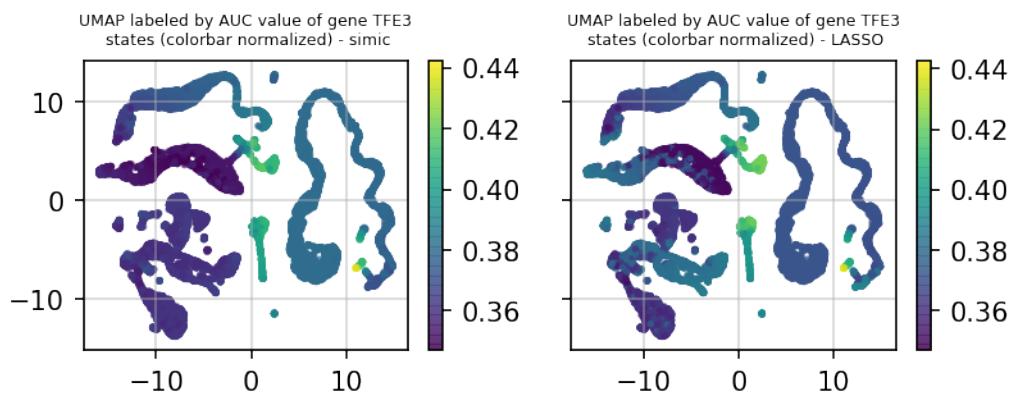
HNF4A



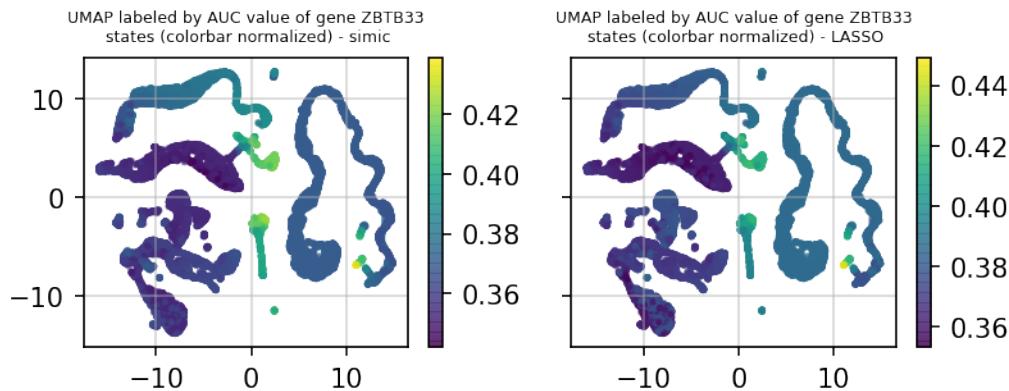
CEBPB



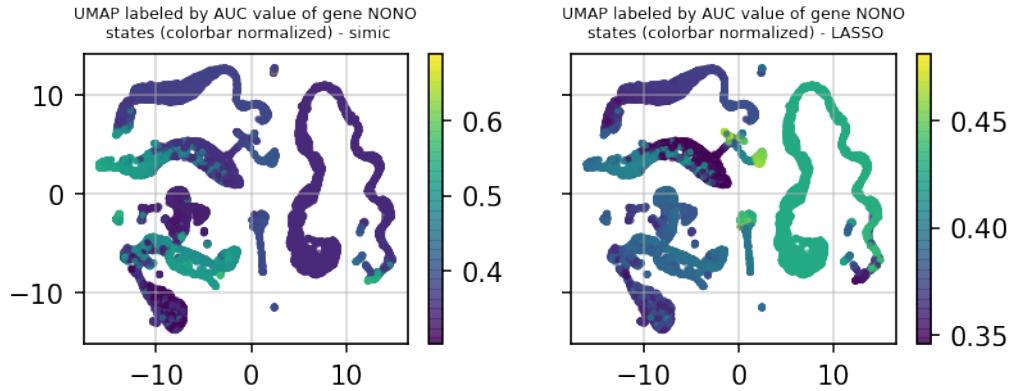
TFE3



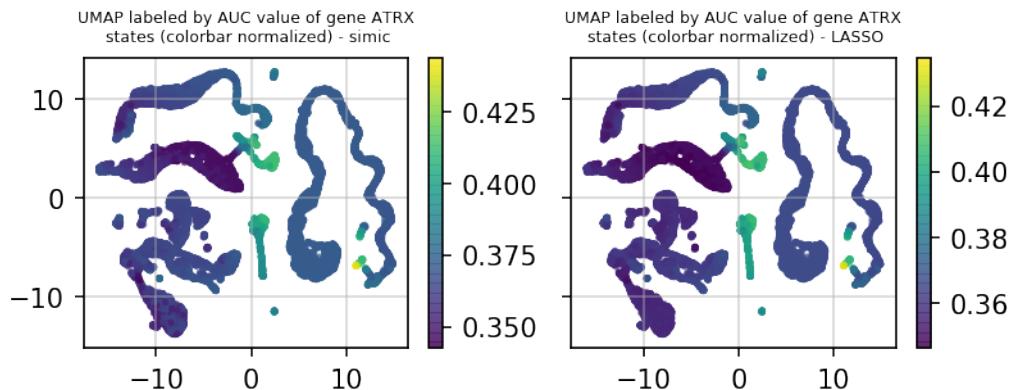
ZBTB33



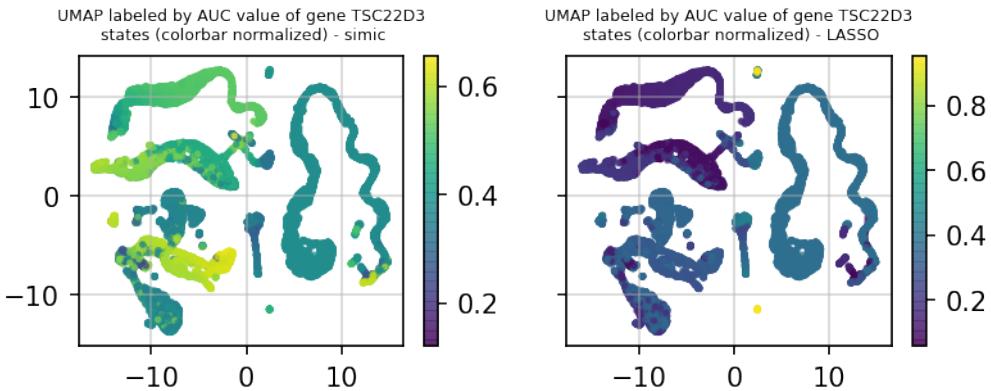
NONO



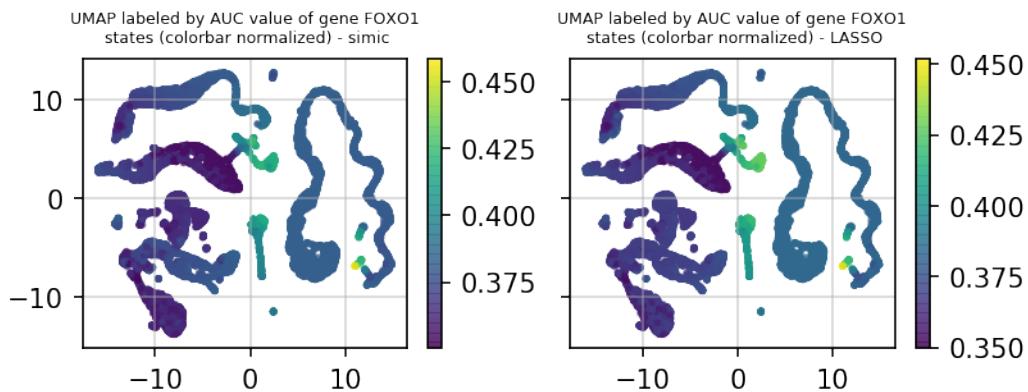
ATRX



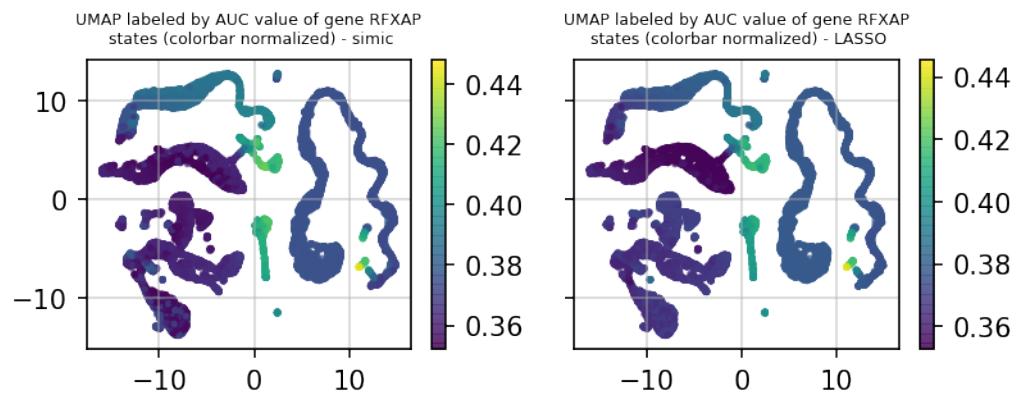
TSC22D3



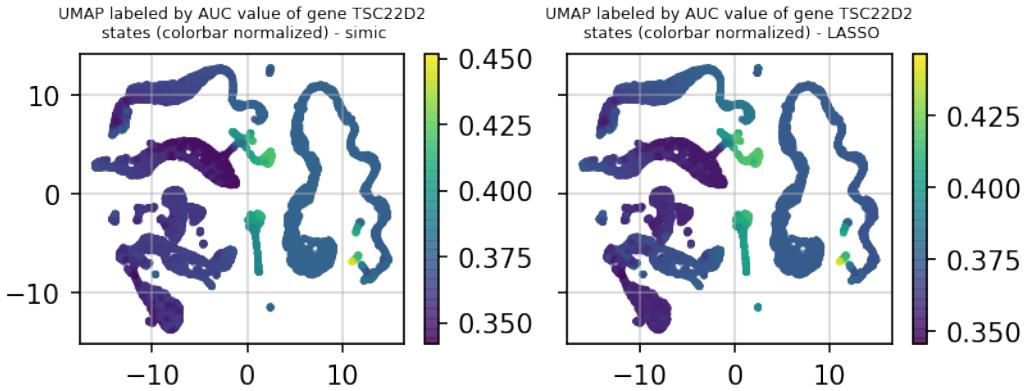
FOX01



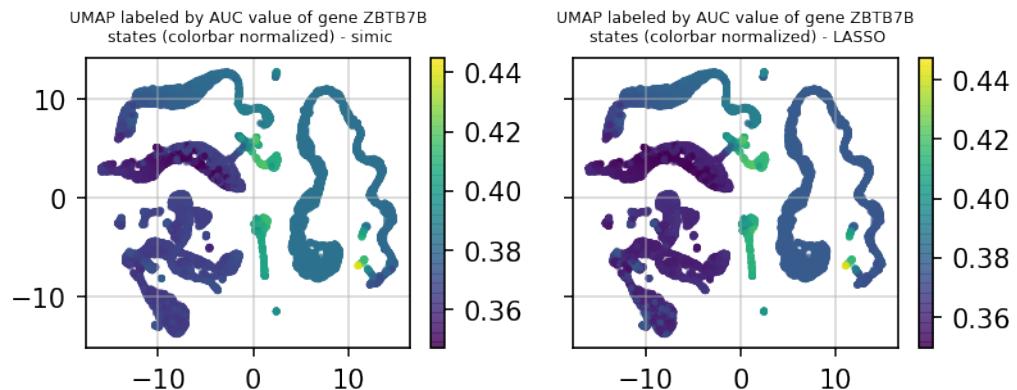
RFXAP



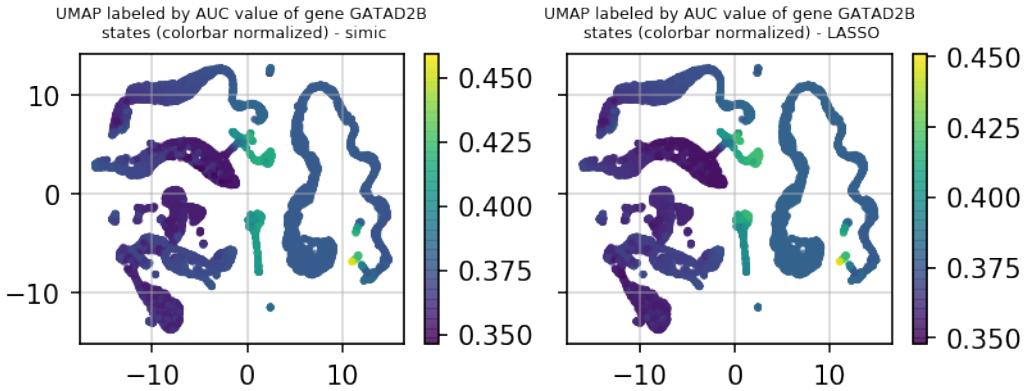
TSC22D2



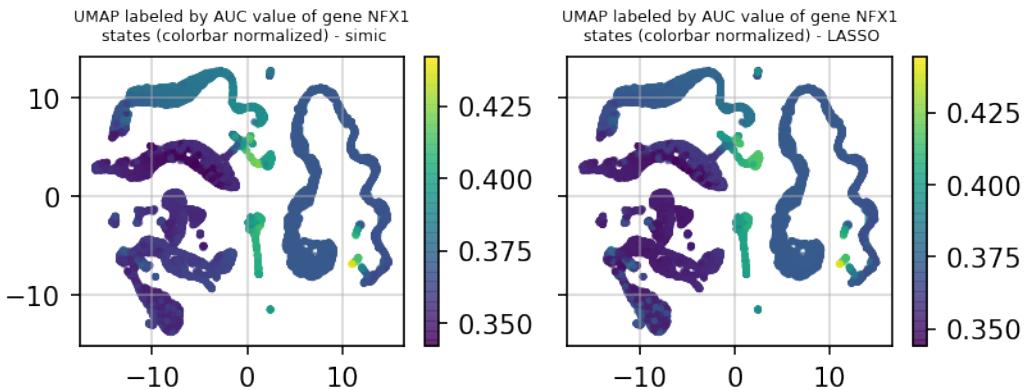
ZBTB7B



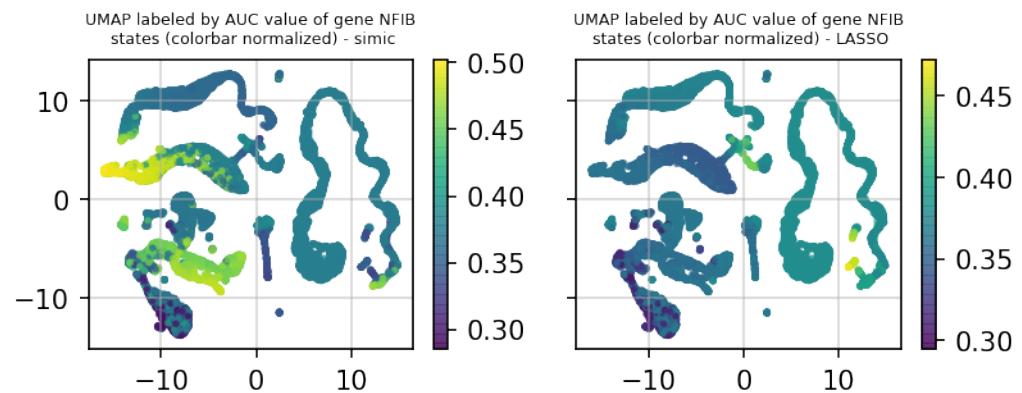
GATAD2B



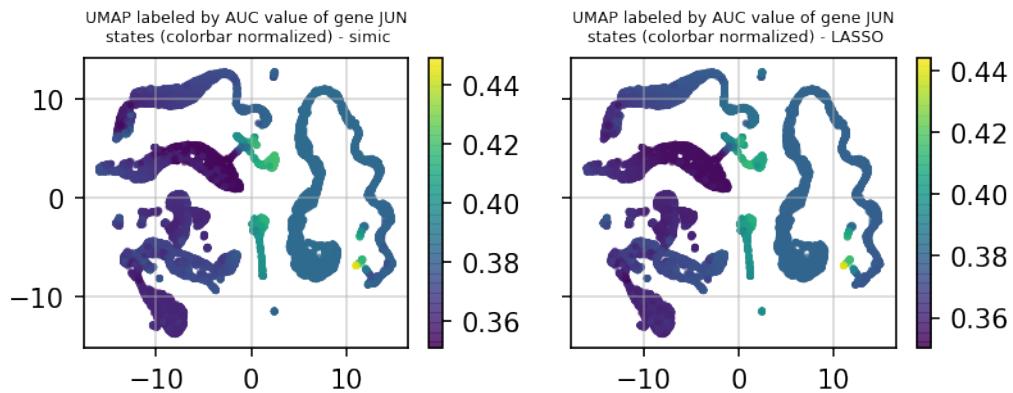
NFX1



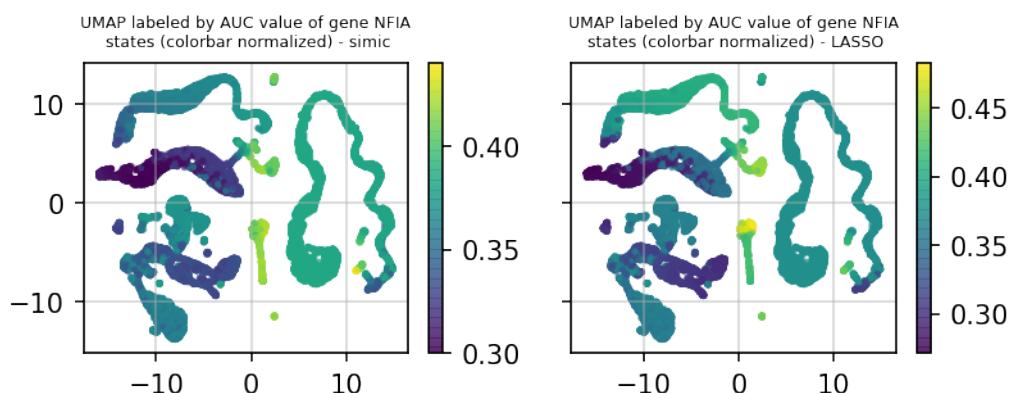
NFIB



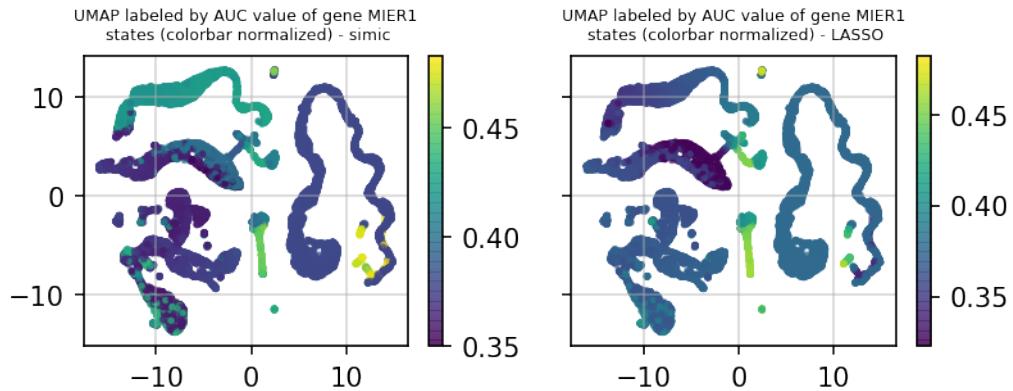
JUN



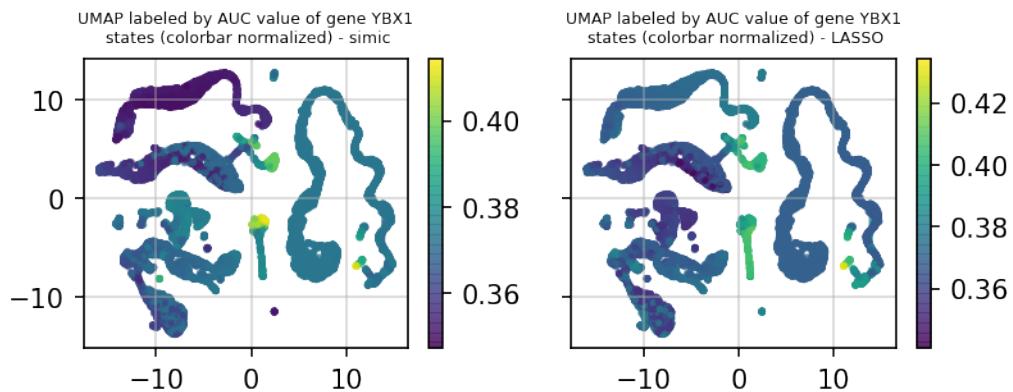
NFIA



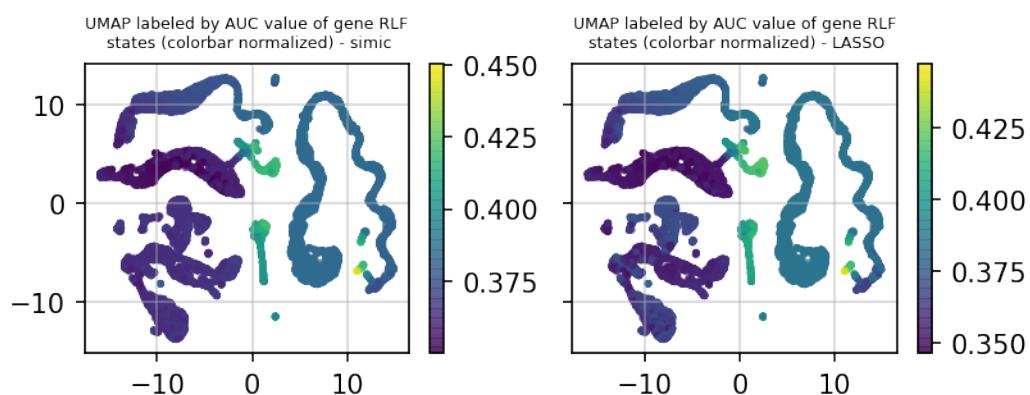
MIER1



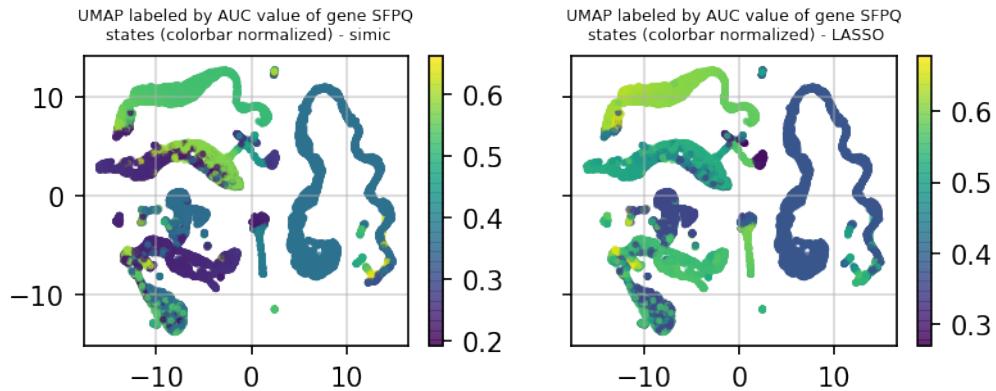
YBX1



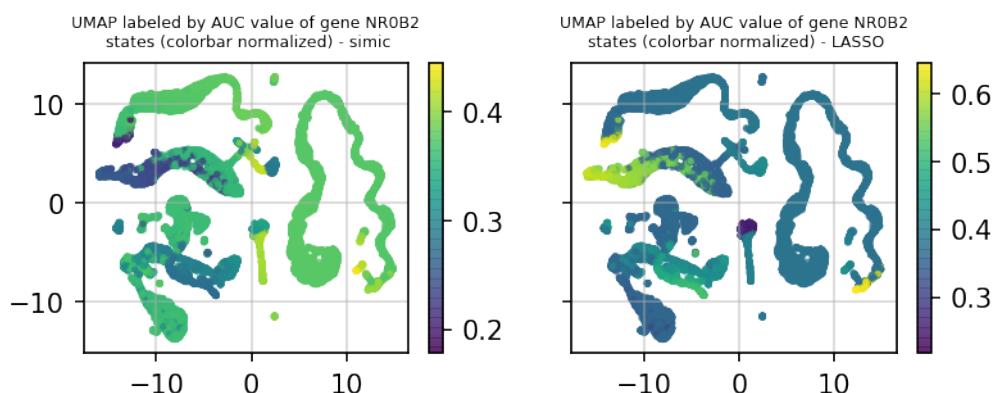
RLF



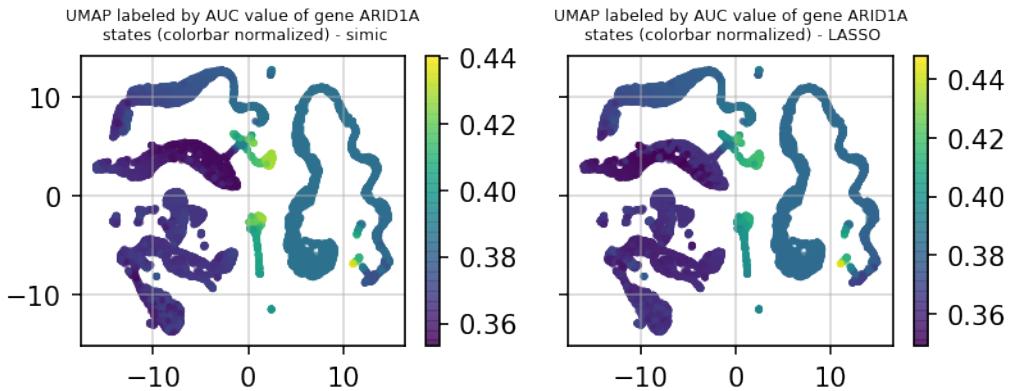
SFPQ



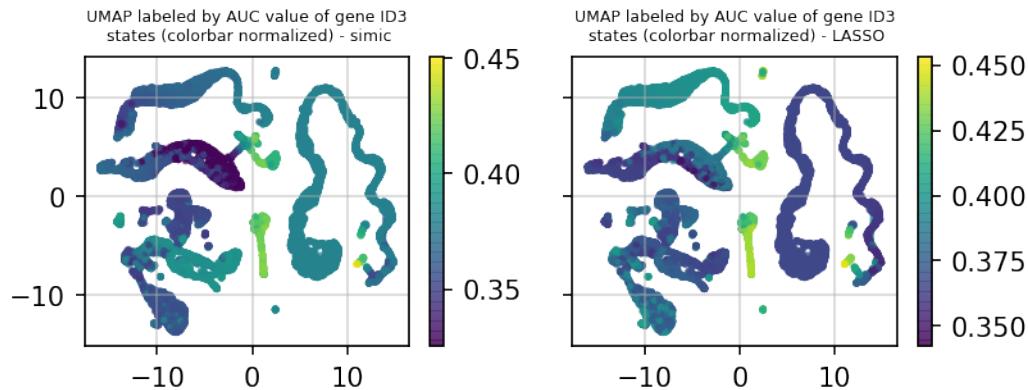
NR0B2



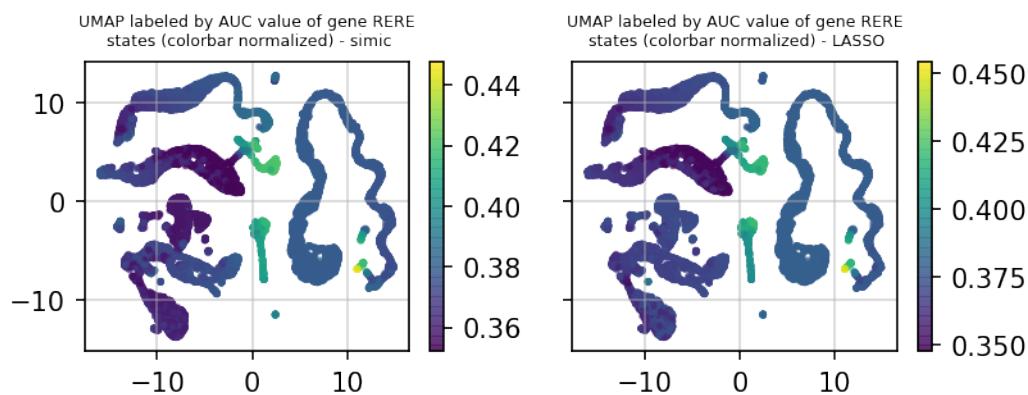
ARID1A



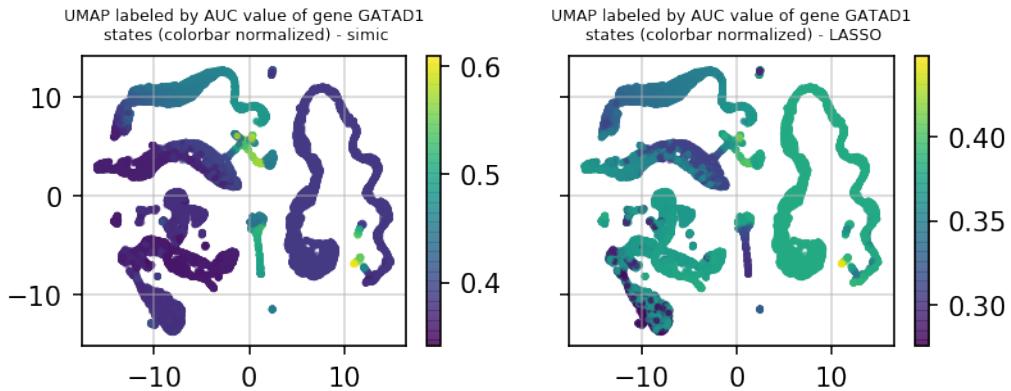
ID3



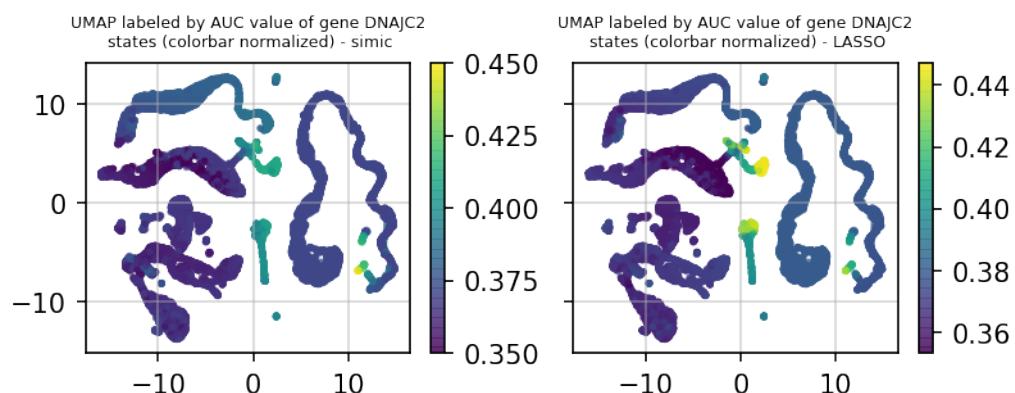
RERE



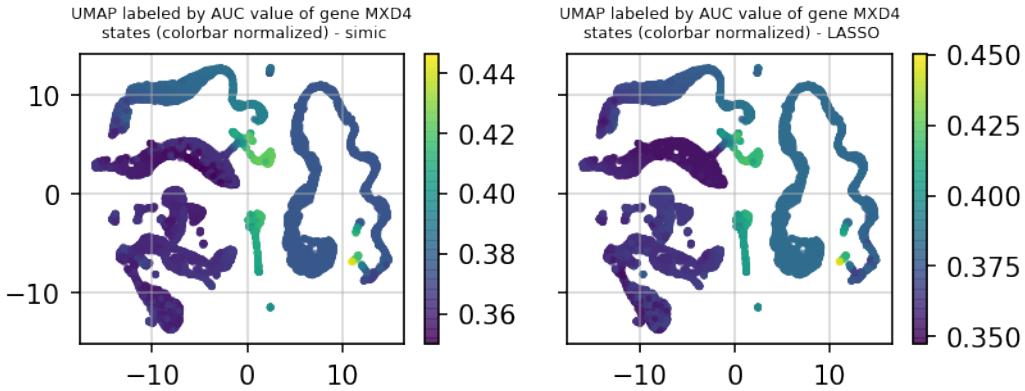
GATAD1



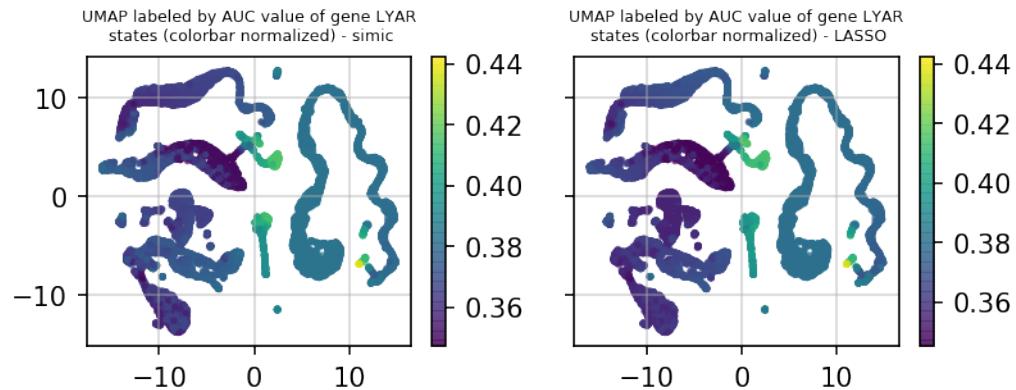
DNAJC2



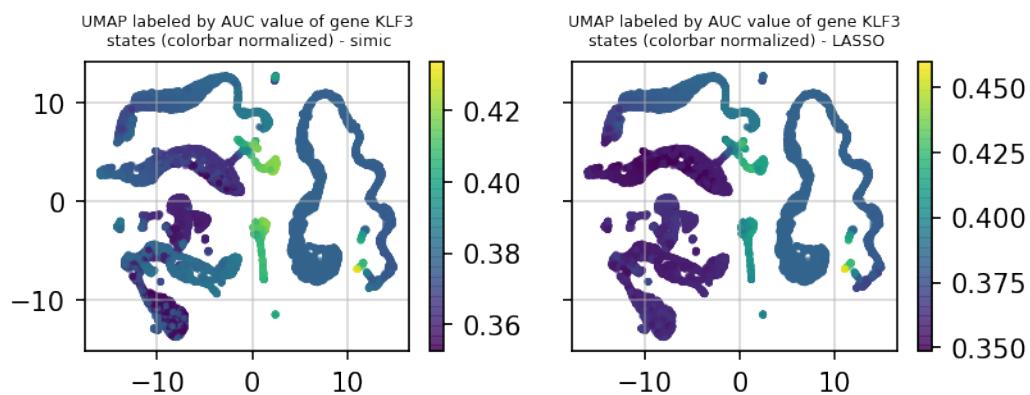
MXD4



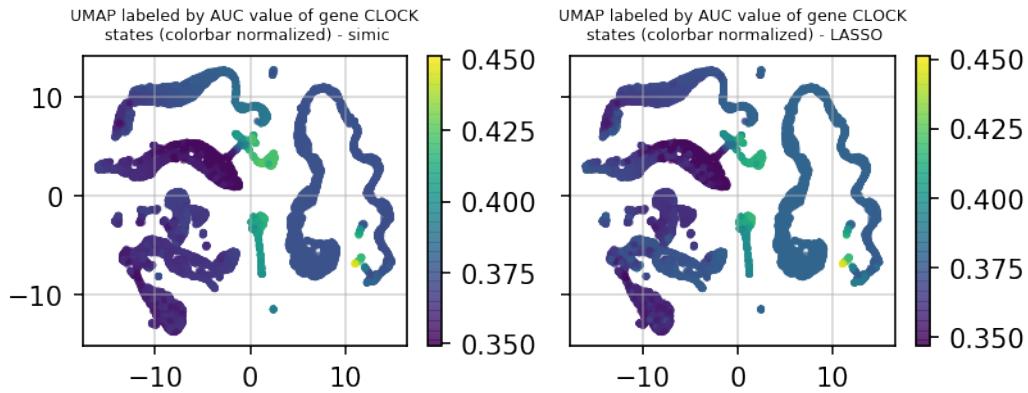
LYAR



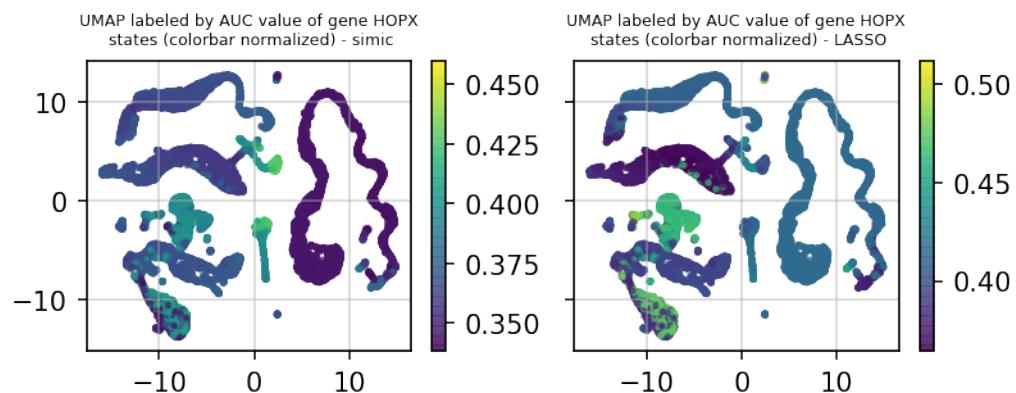
KLF3



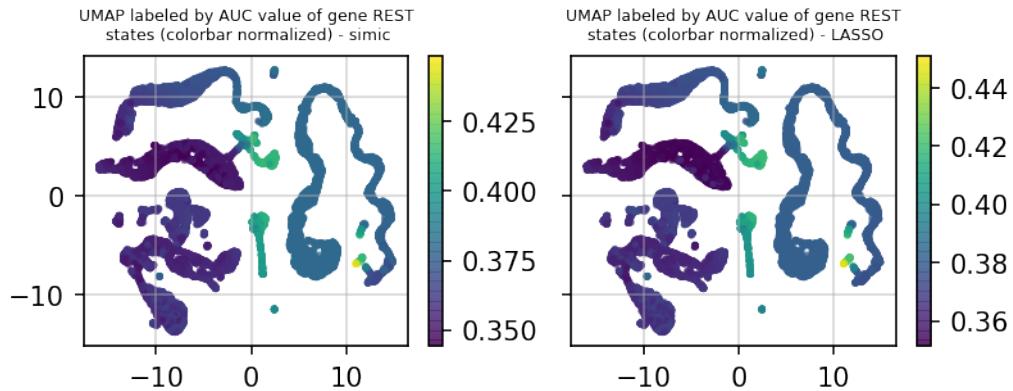
CLOCK



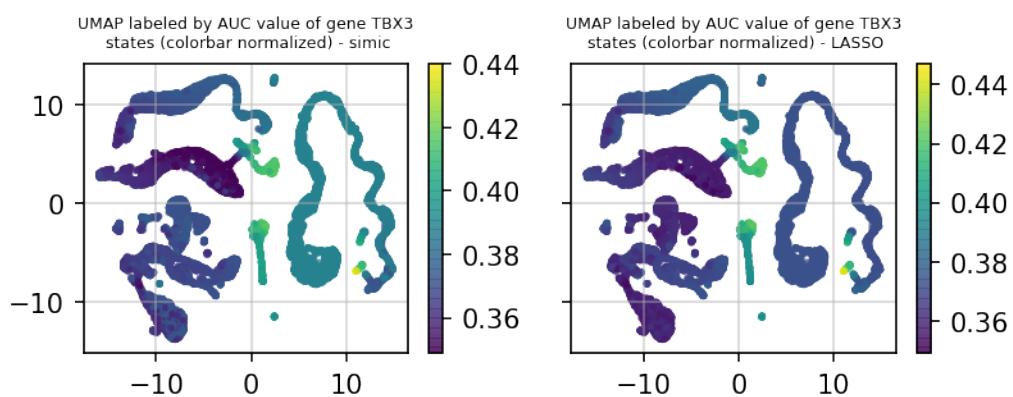
HOPX



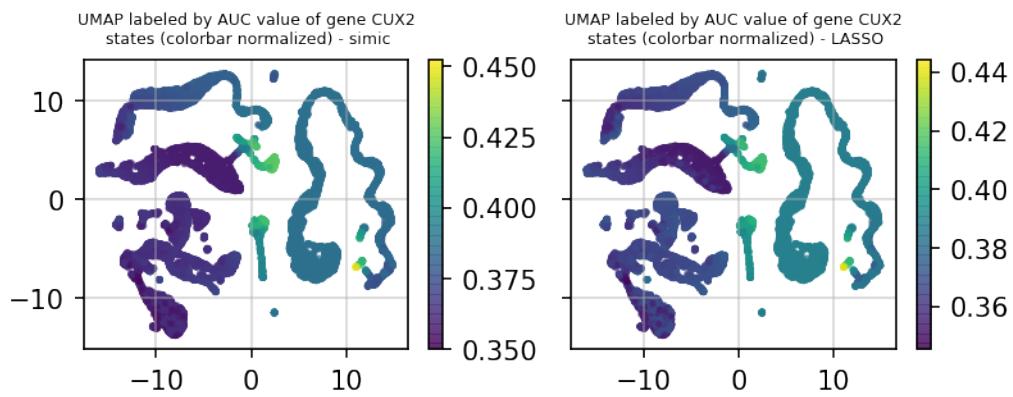
REST



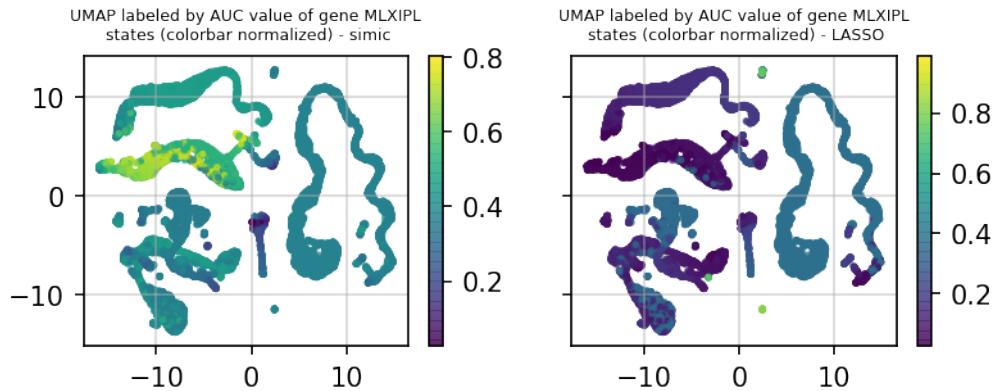
TBX3



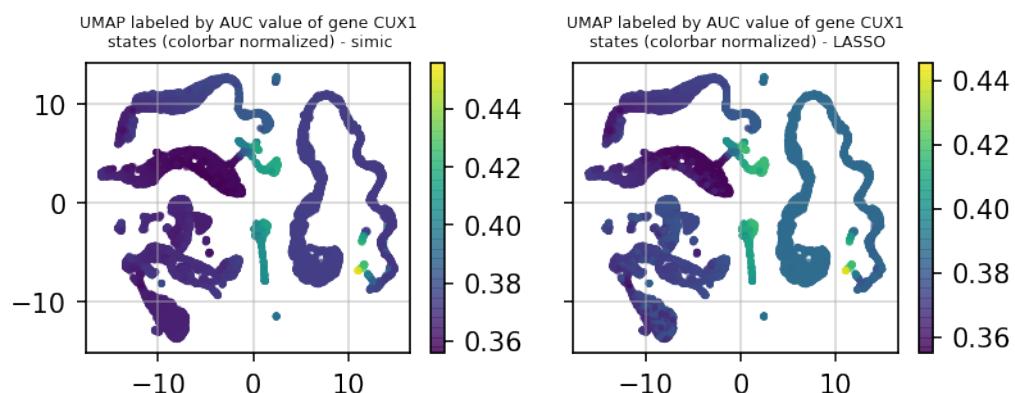
CUX2



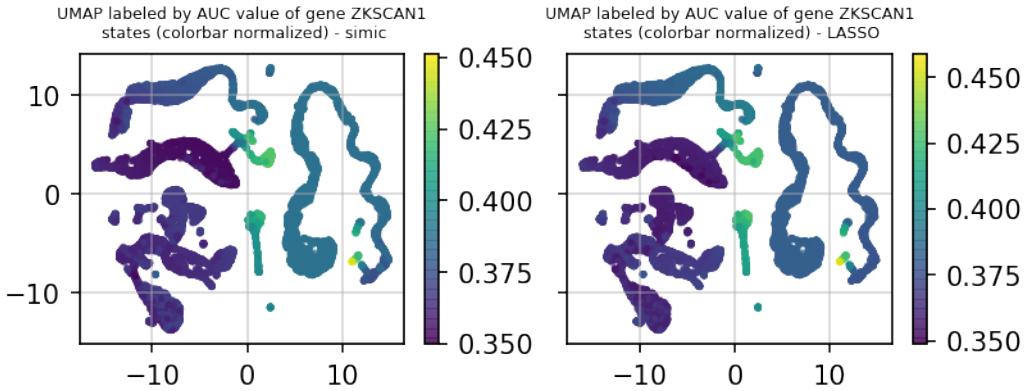
MLXIPL



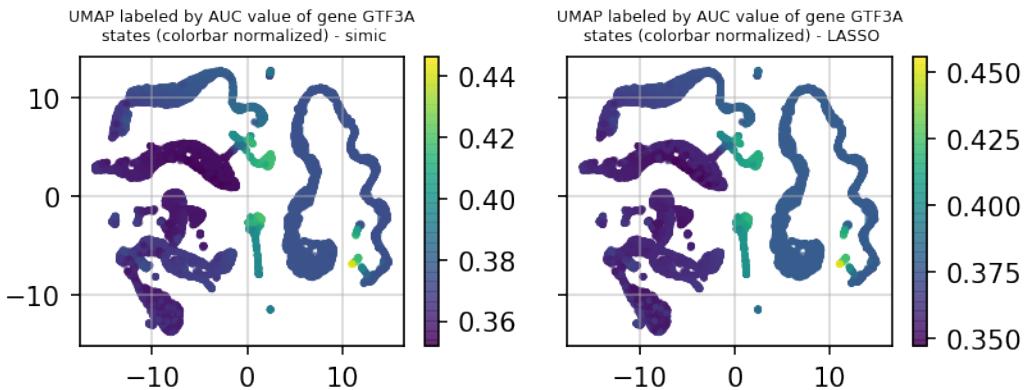
CUX1



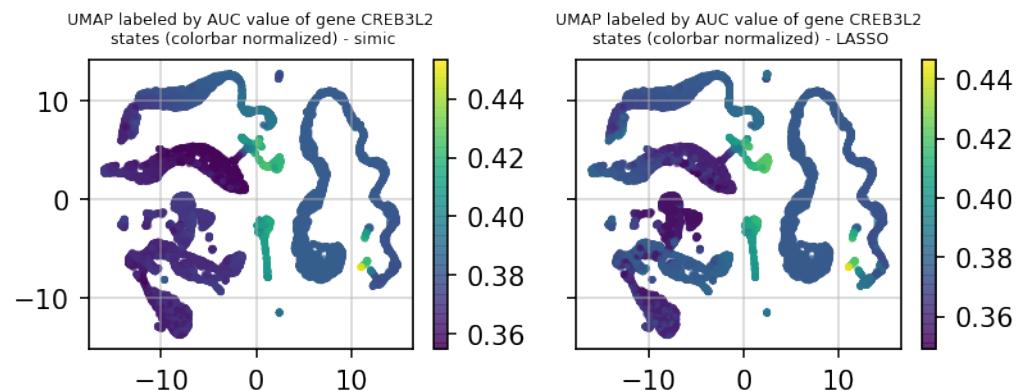
ZKSCAN1



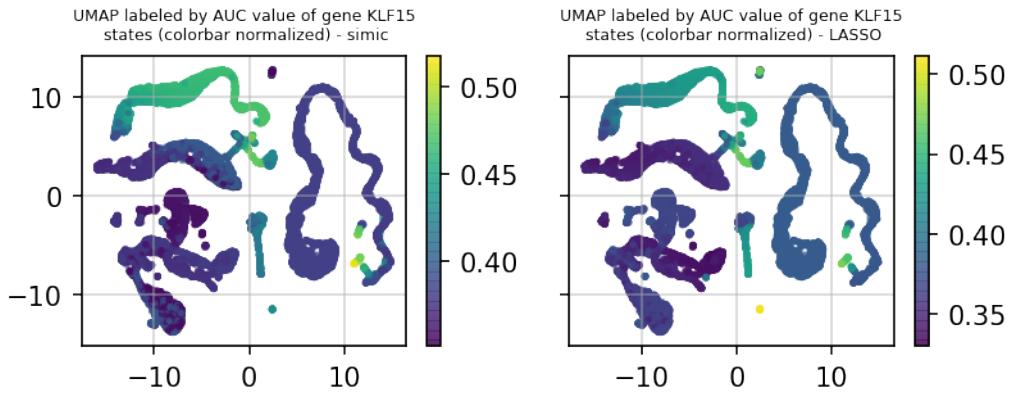
GTF3A



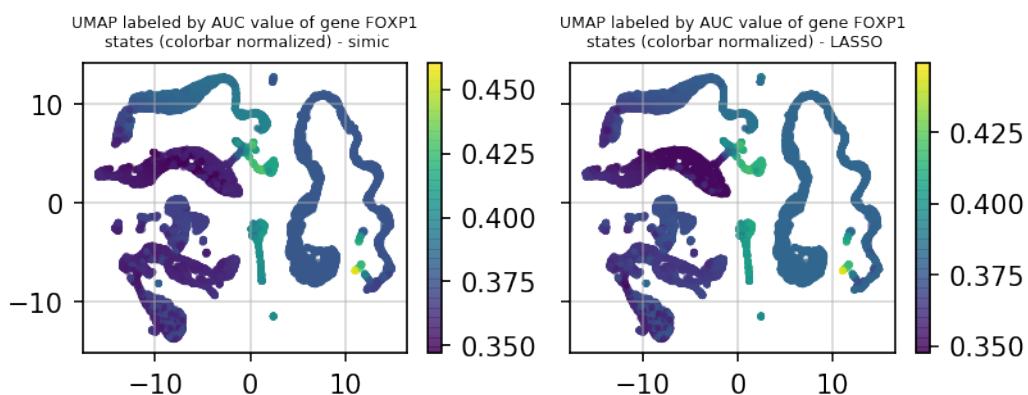
CREB3L2



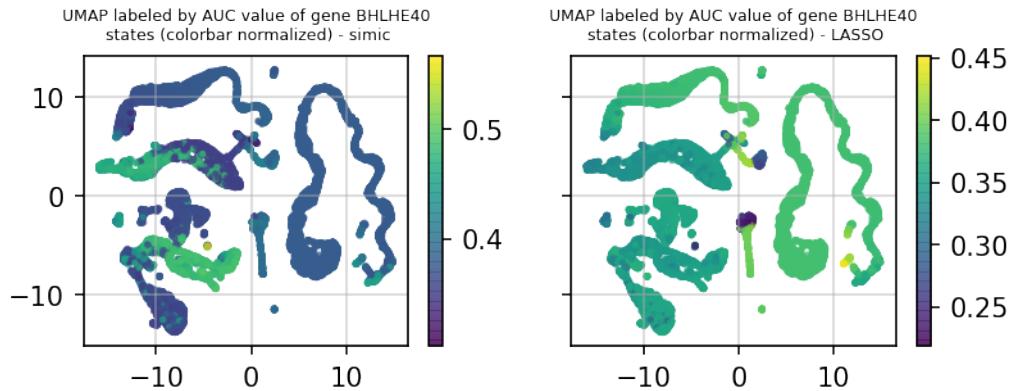
KLF15



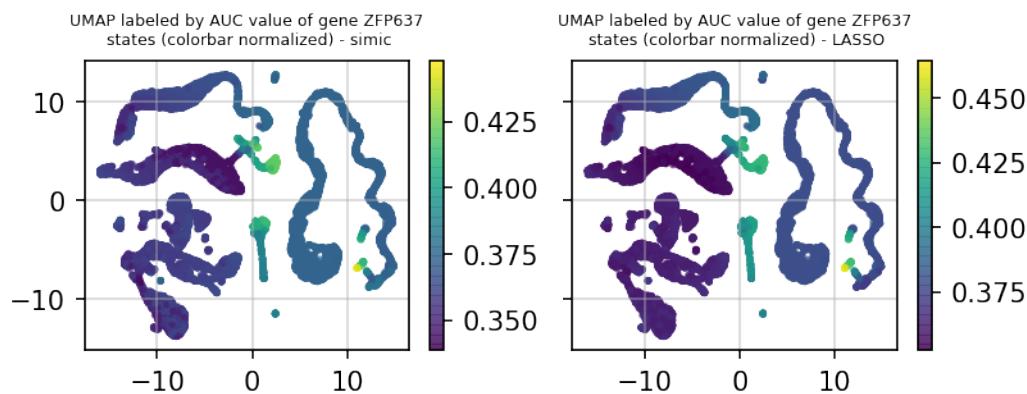
FOXP1



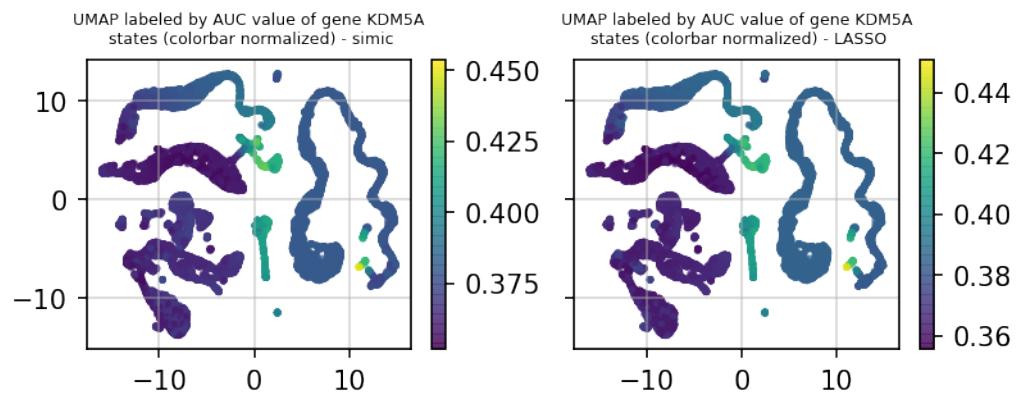
BHLHE40



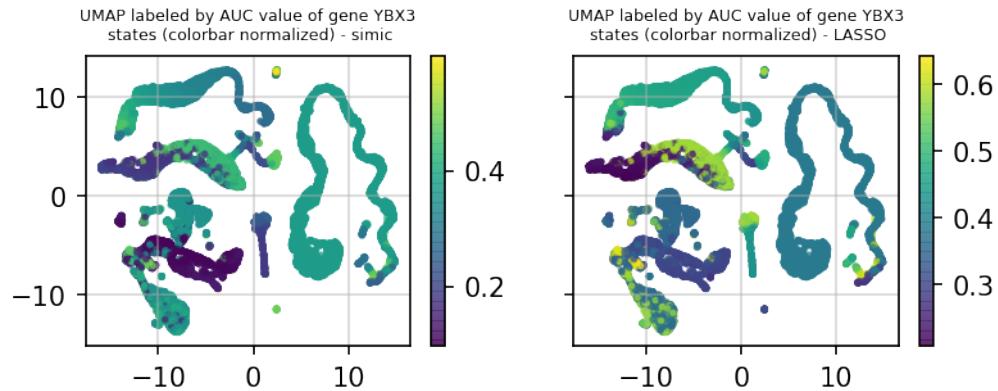
ZFP637



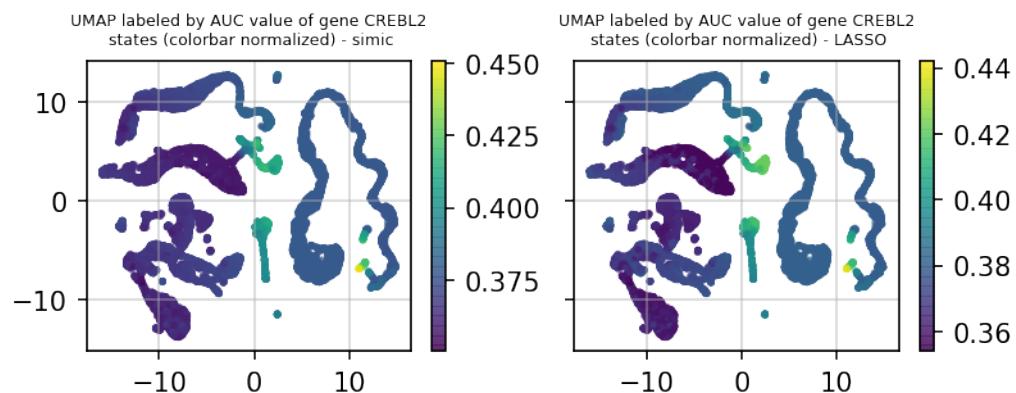
KDM5A



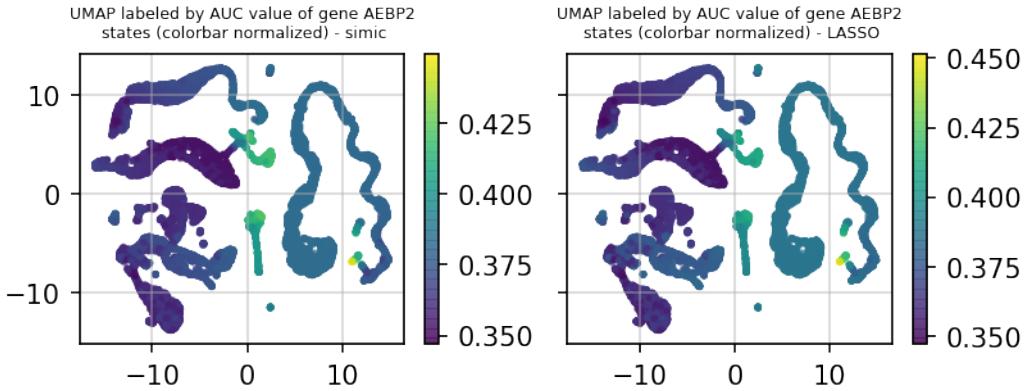
YBX3



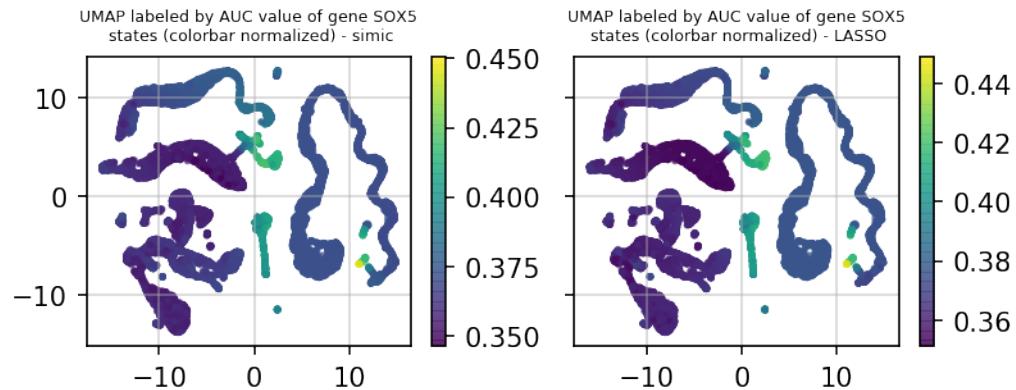
CREBL2



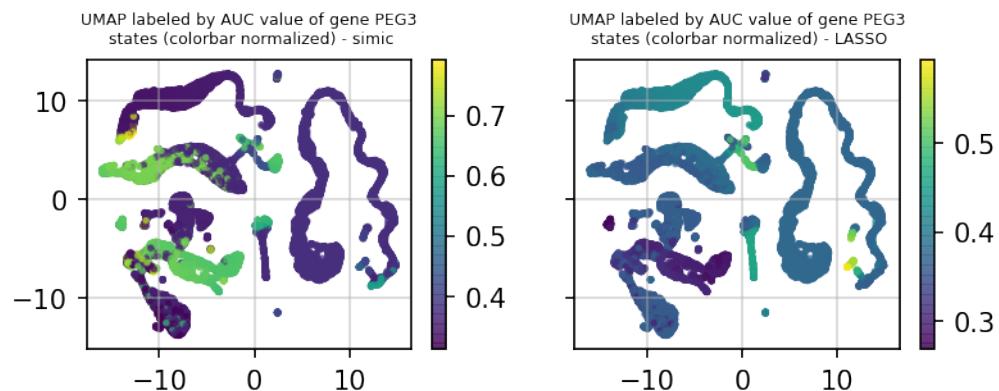
AEBP2



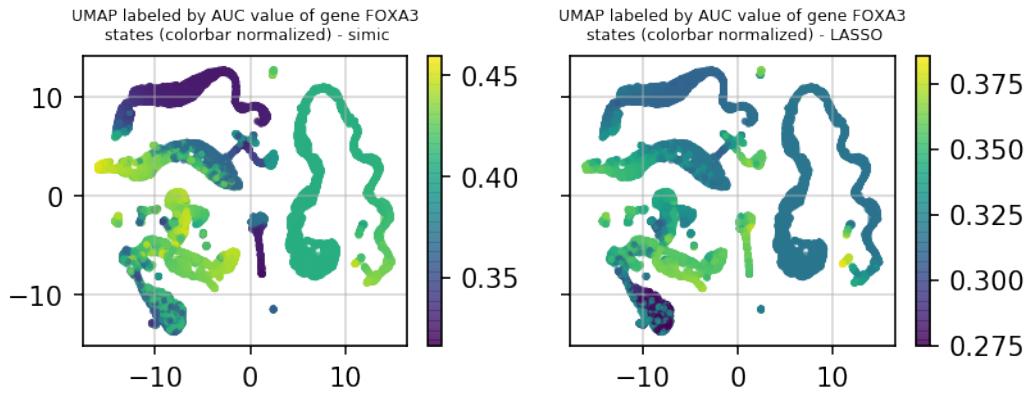
SOX5



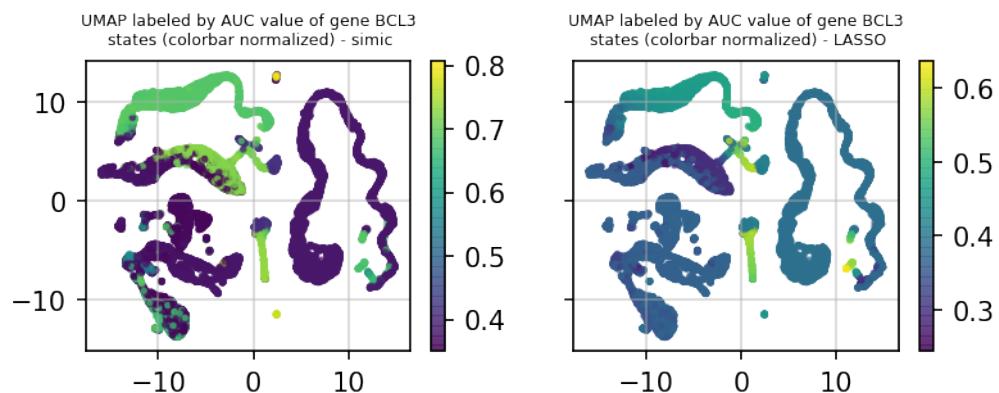
PEG3



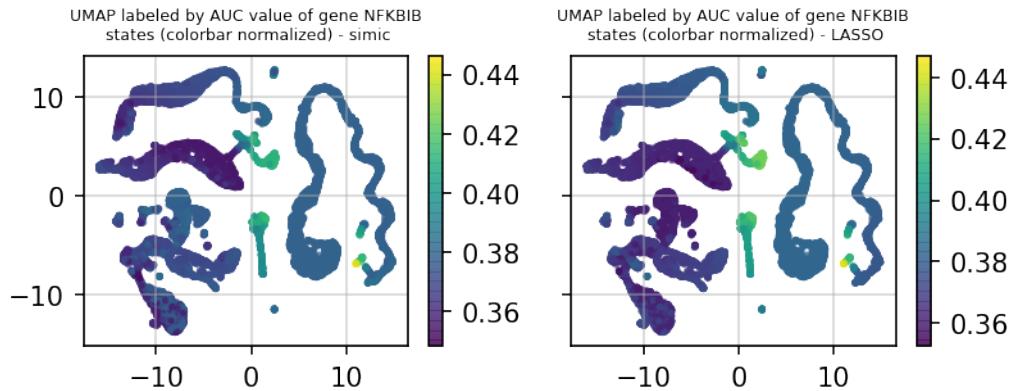
FOXA3



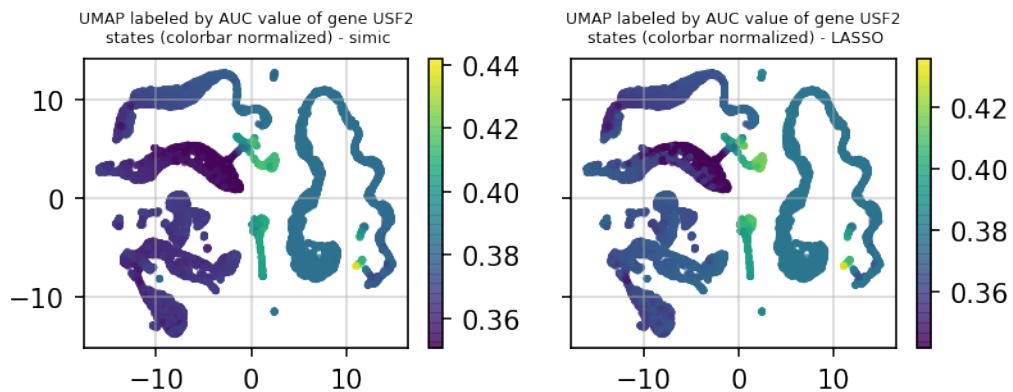
BCL3



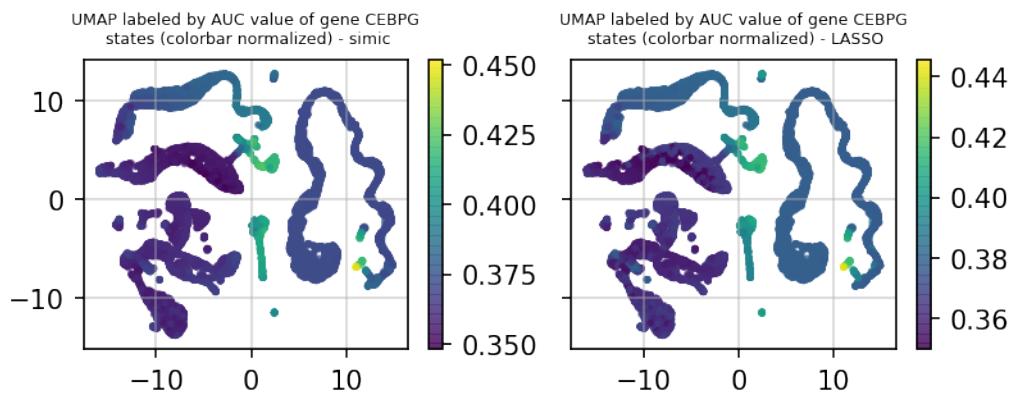
NFkBIB



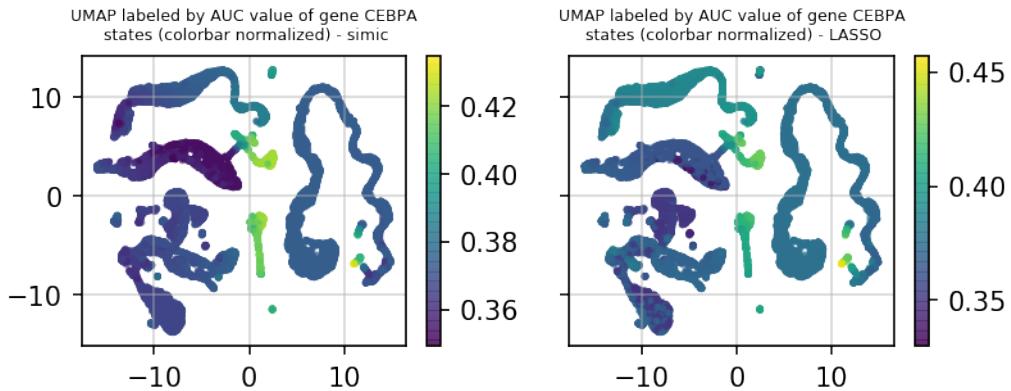
USF2



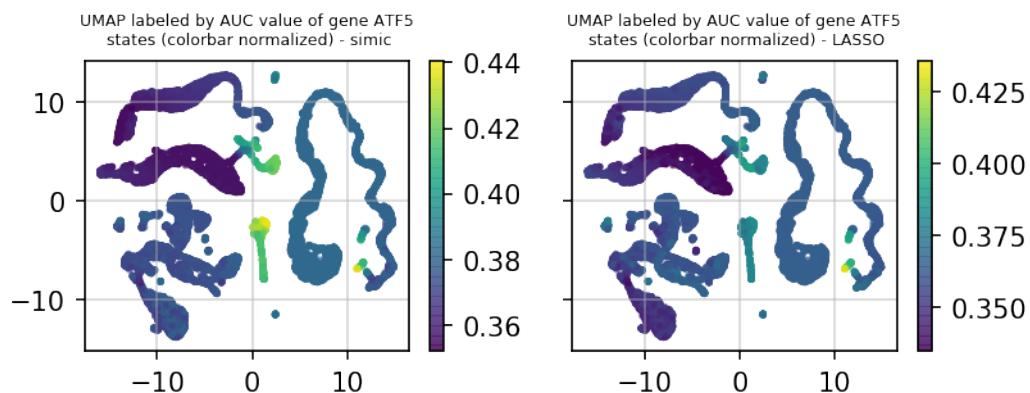
CEBPG



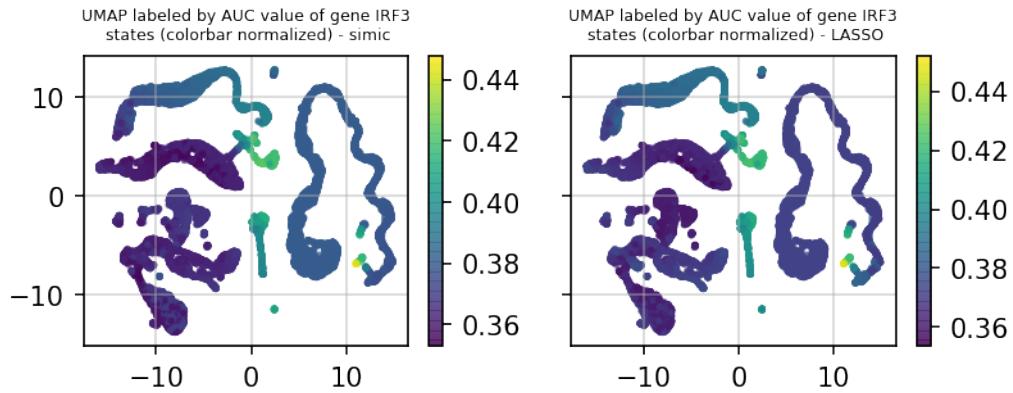
CEBPA



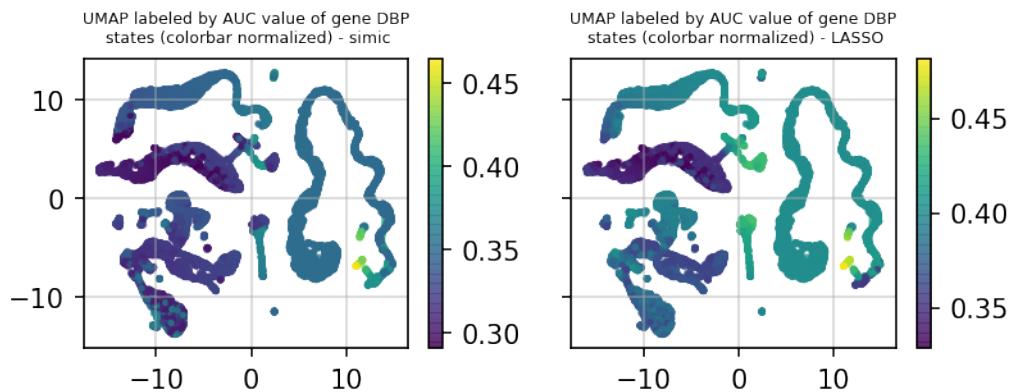
ATF5



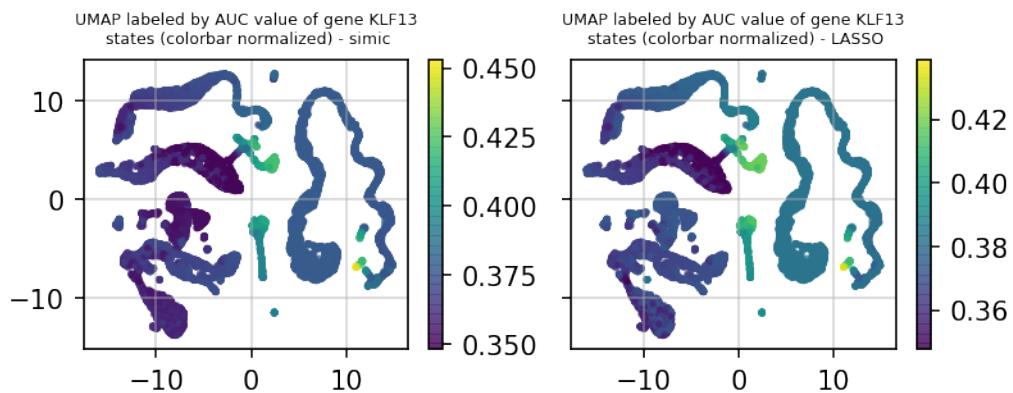
IRF3



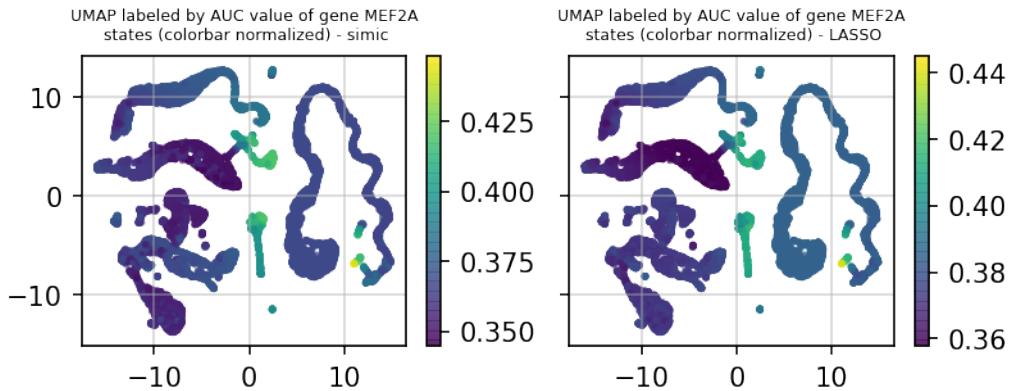
DBP



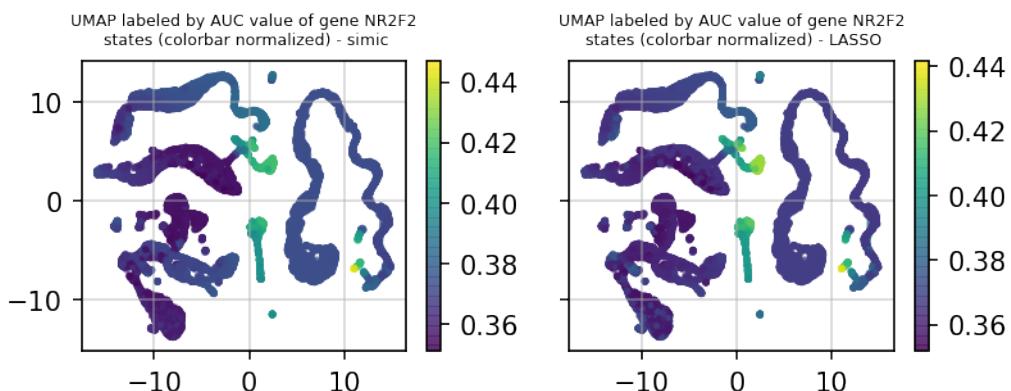
KLF13



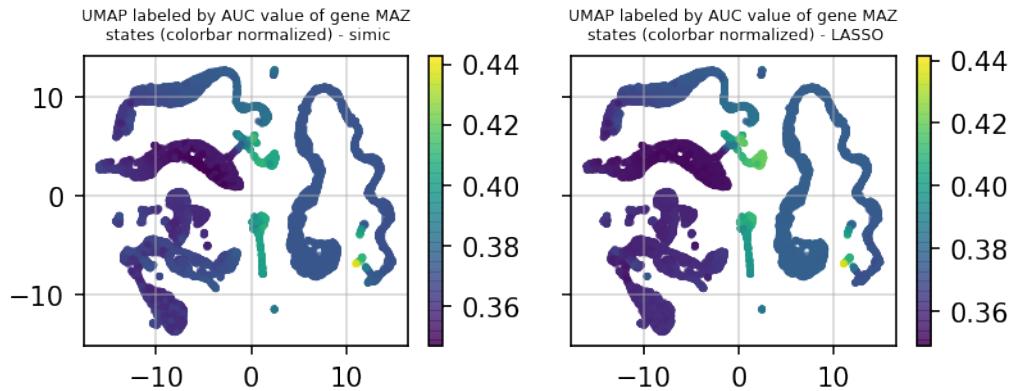
MEF2A



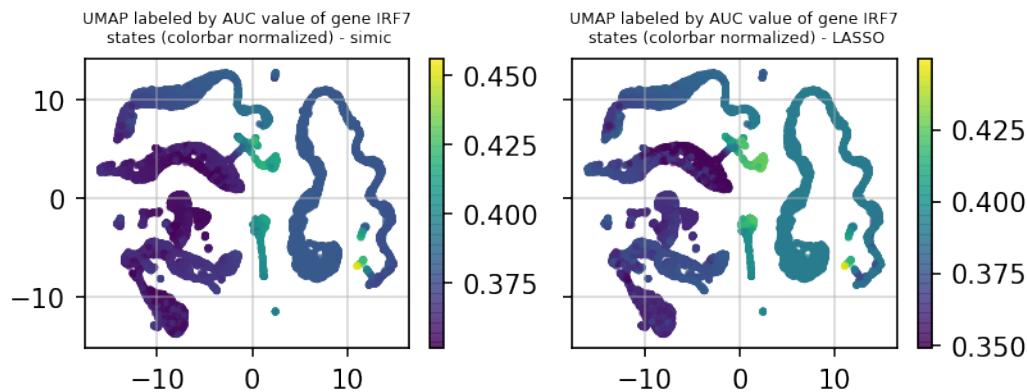
NR2F2



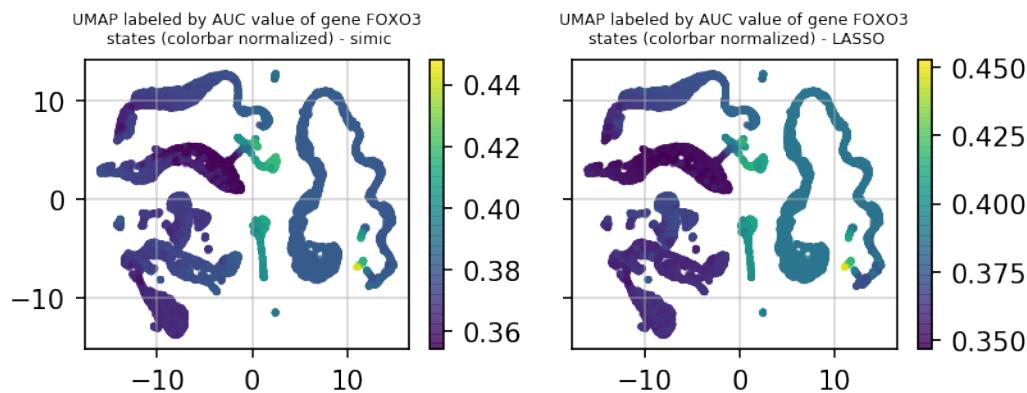
MAZ



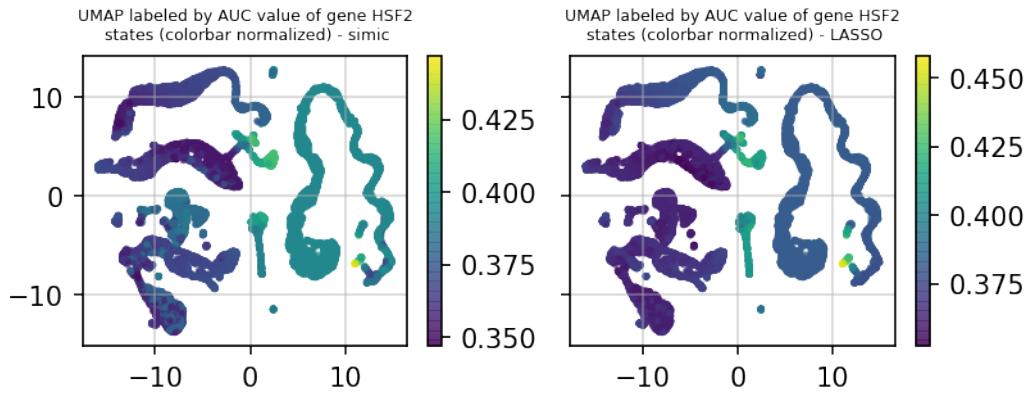
IRF7



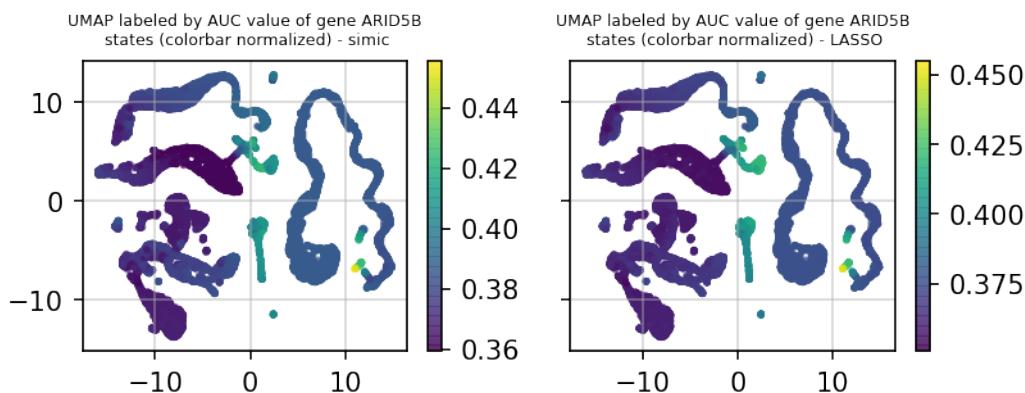
FOX03



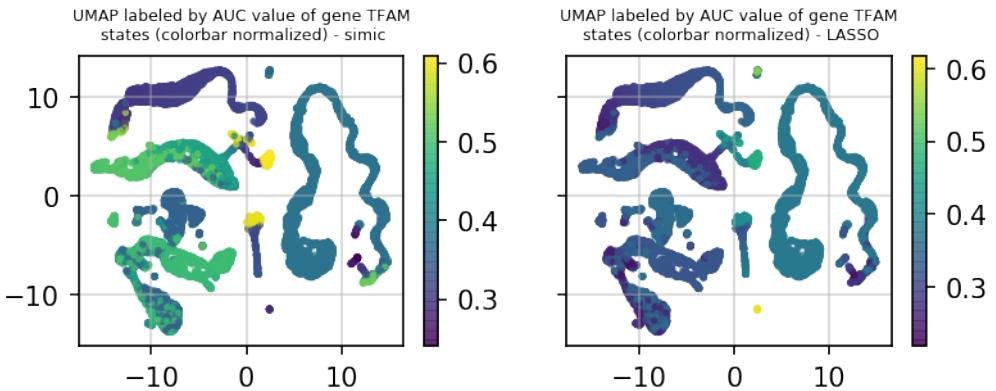
HSF2



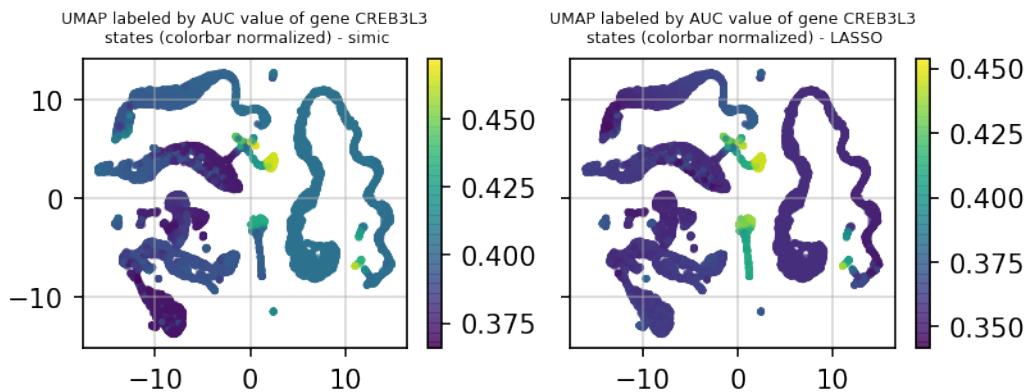
ARID5B



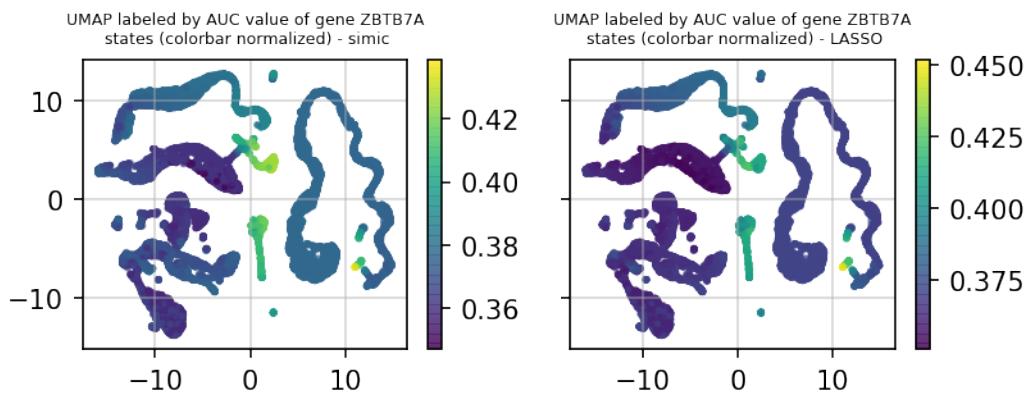
TFAM



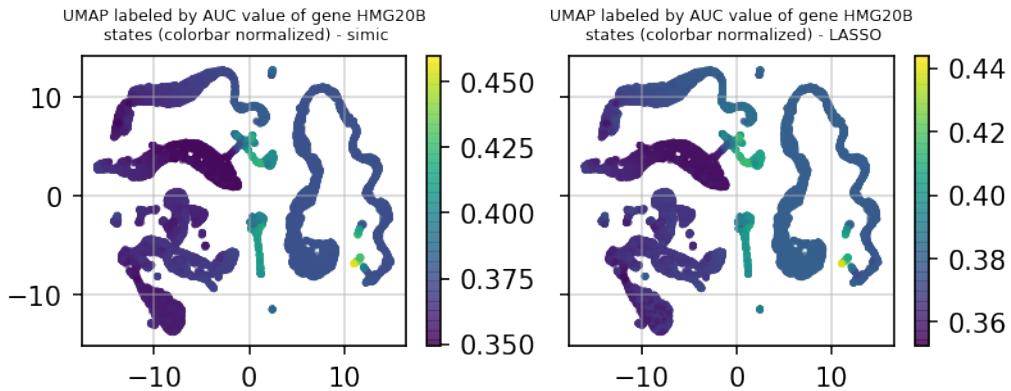
CREB3L3



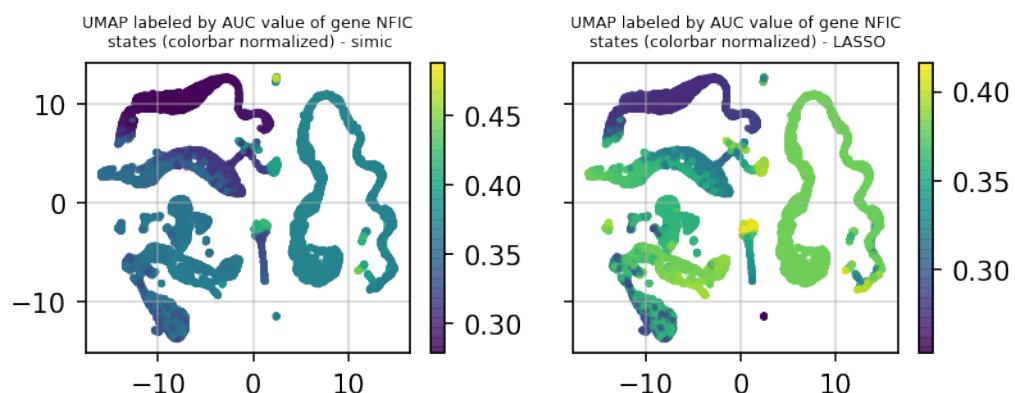
ZBTB7A



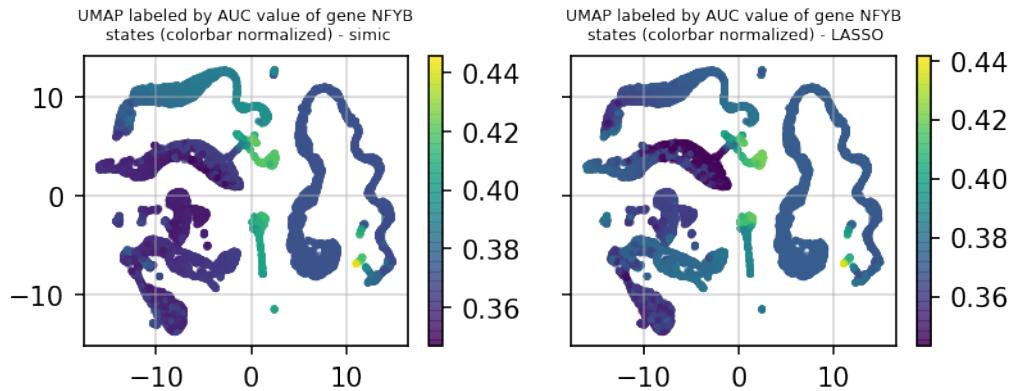
HMG20B



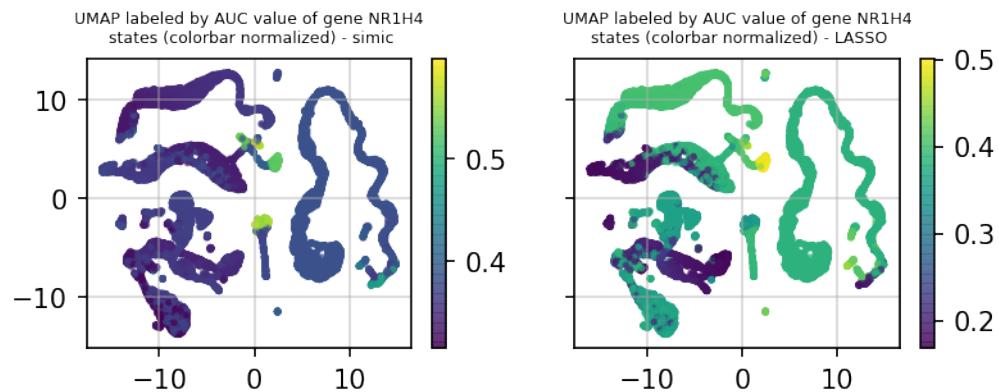
NFIC



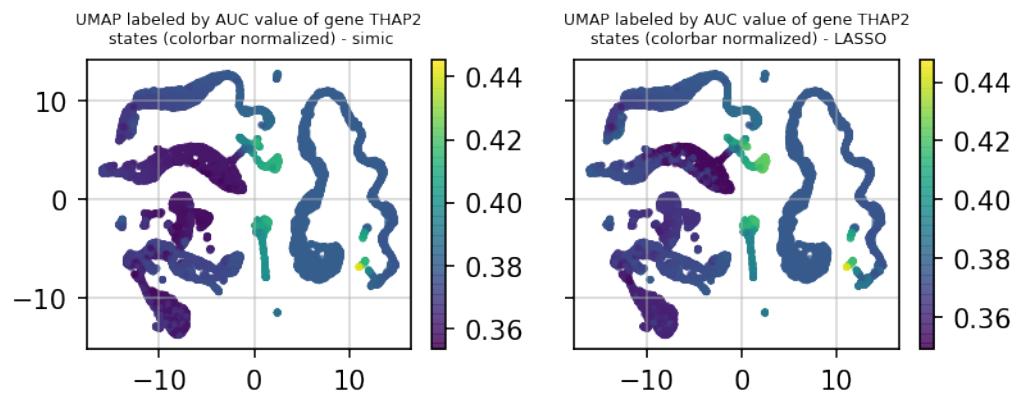
NFYB



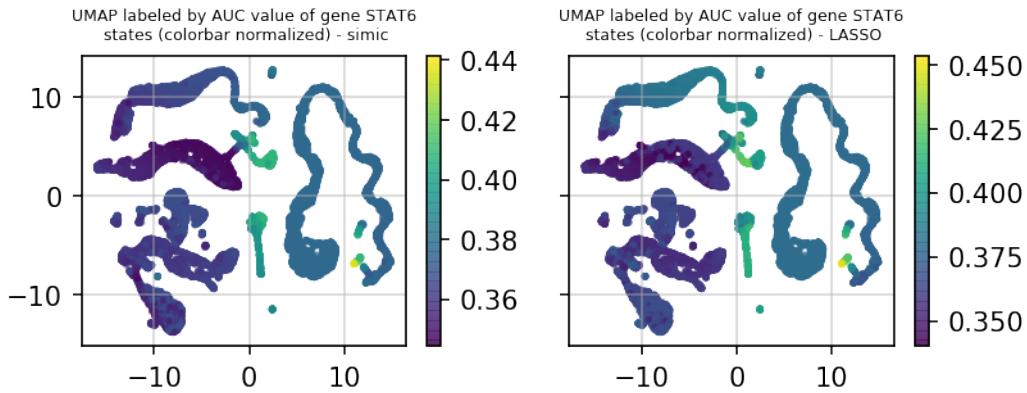
NR1H4



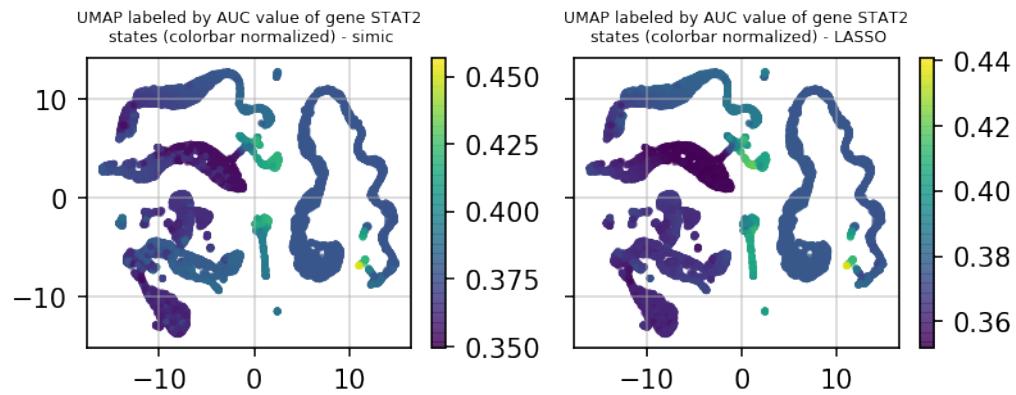
THAP2



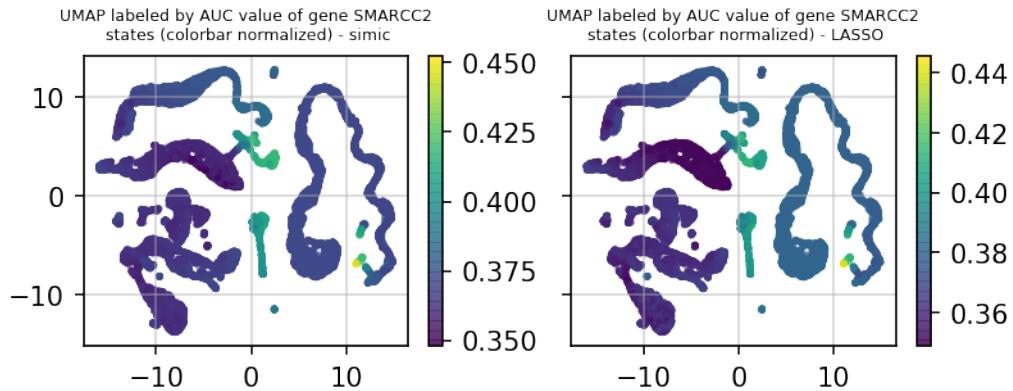
STAT6



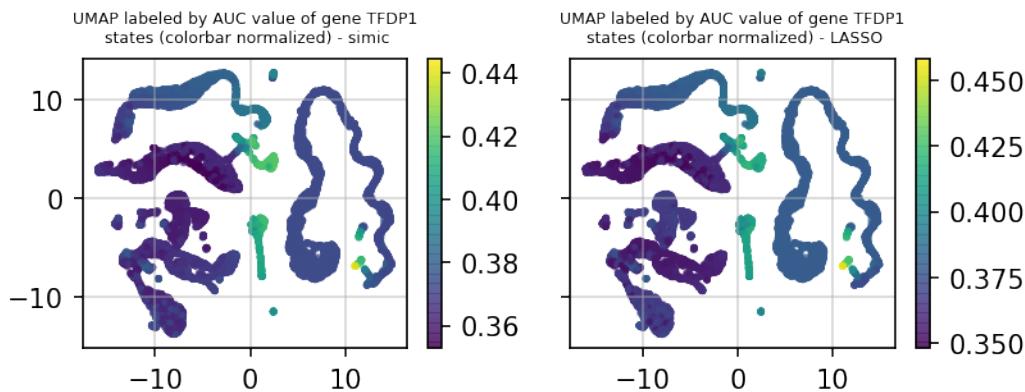
STAT2



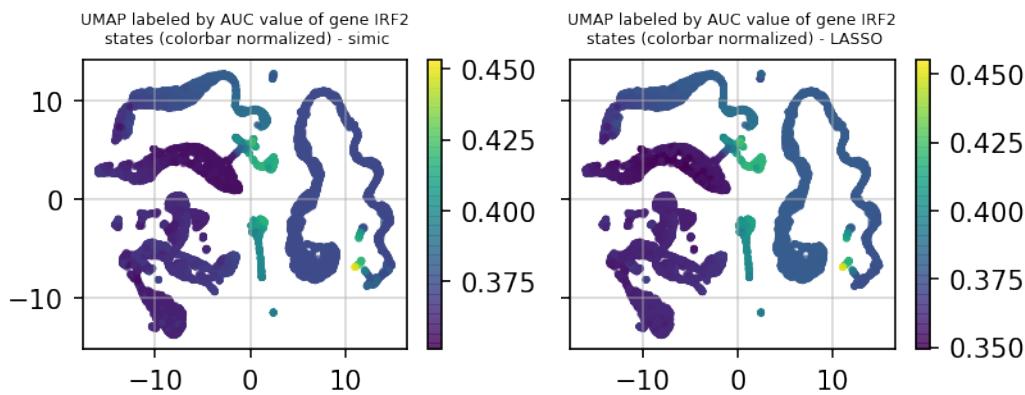
SMARCC2



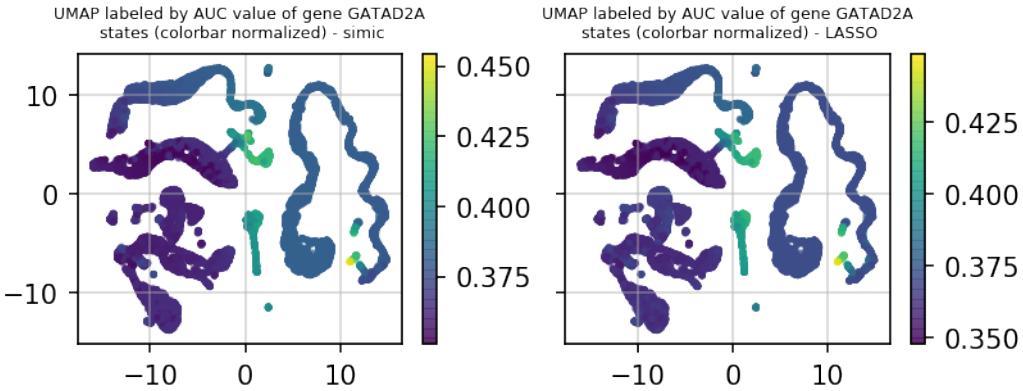
TFDP1



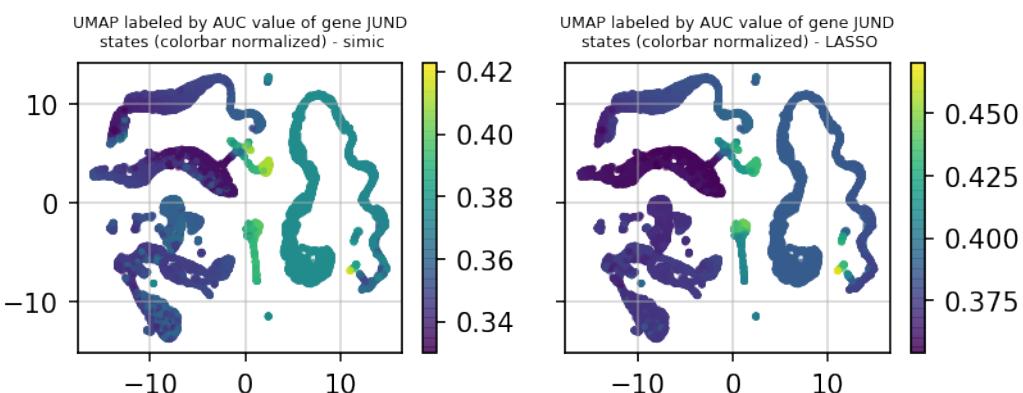
IRF2



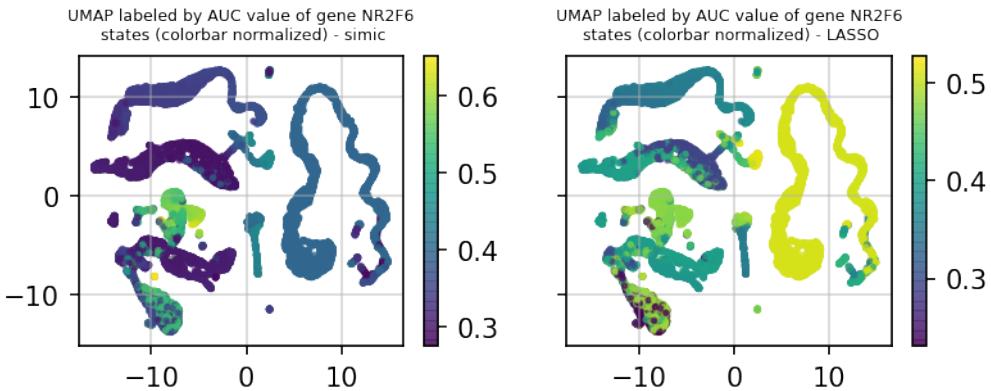
GATA2A



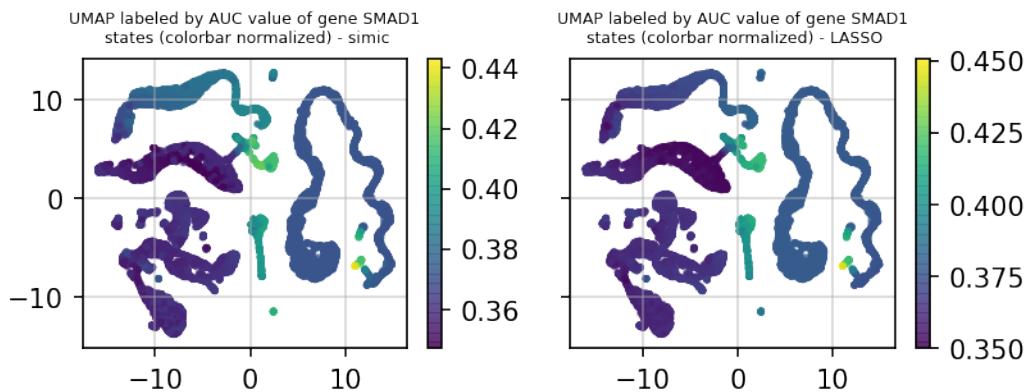
JUND



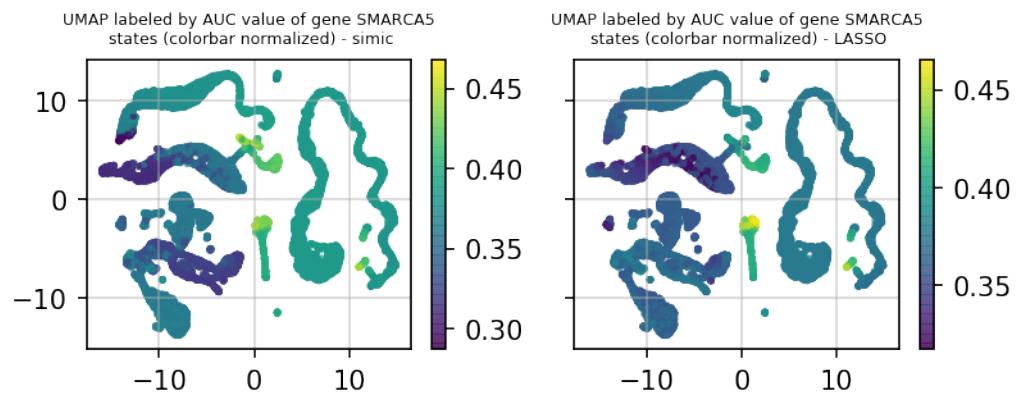
NR2F6



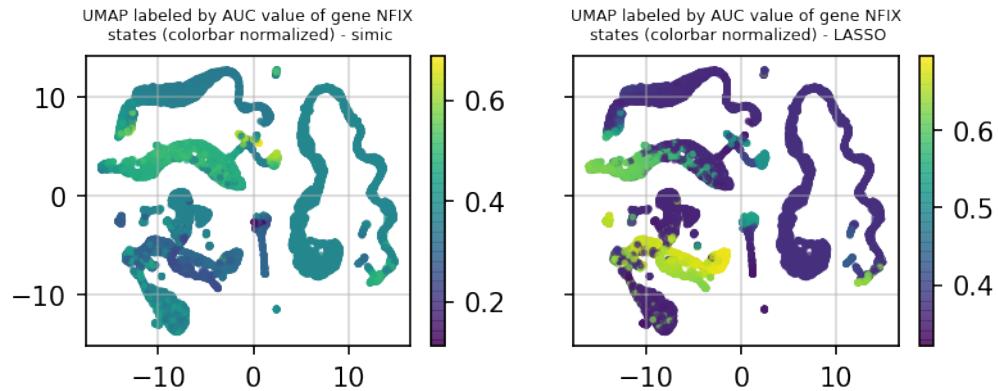
SMAD1



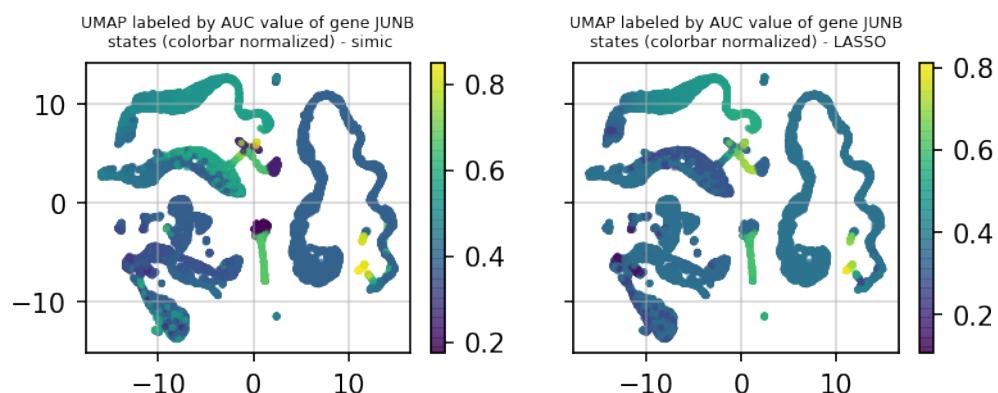
SMARCA5



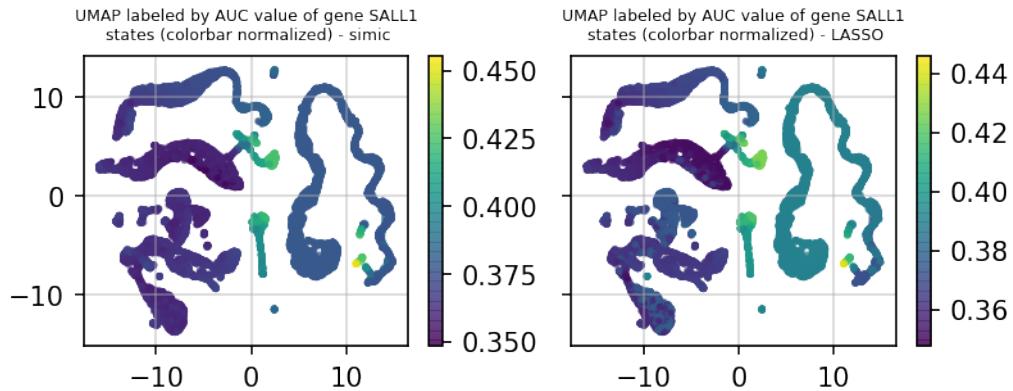
NFIK



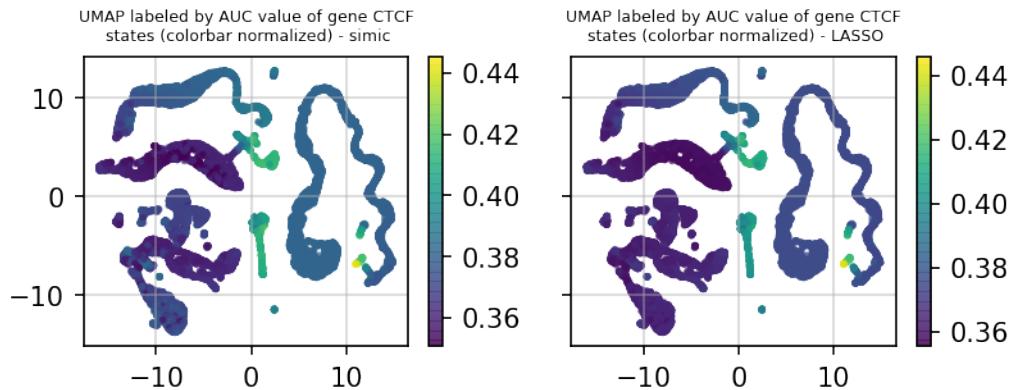
JUNB



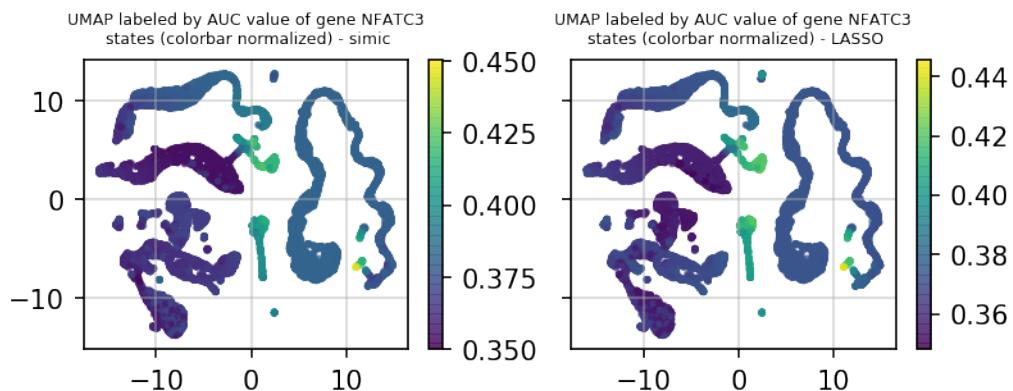
SALL1



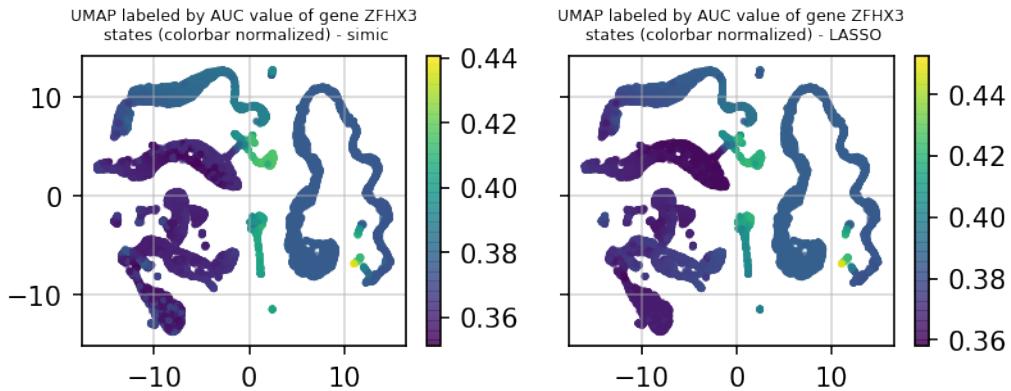
CTCF



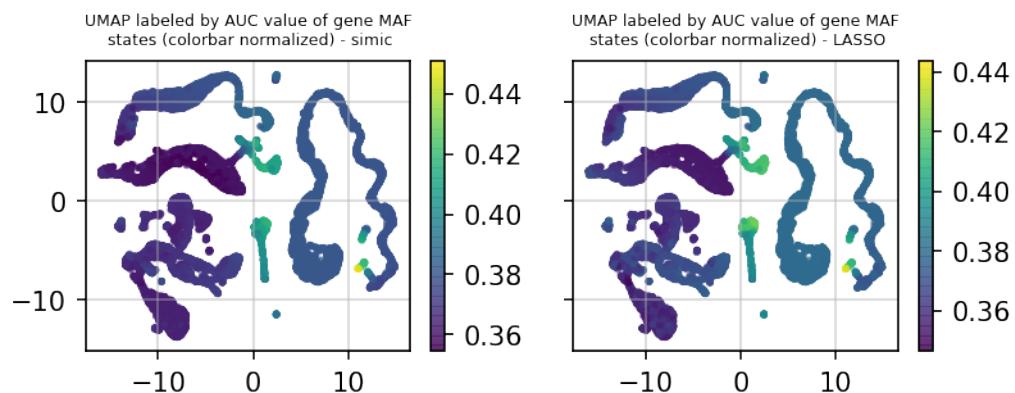
NFATC3



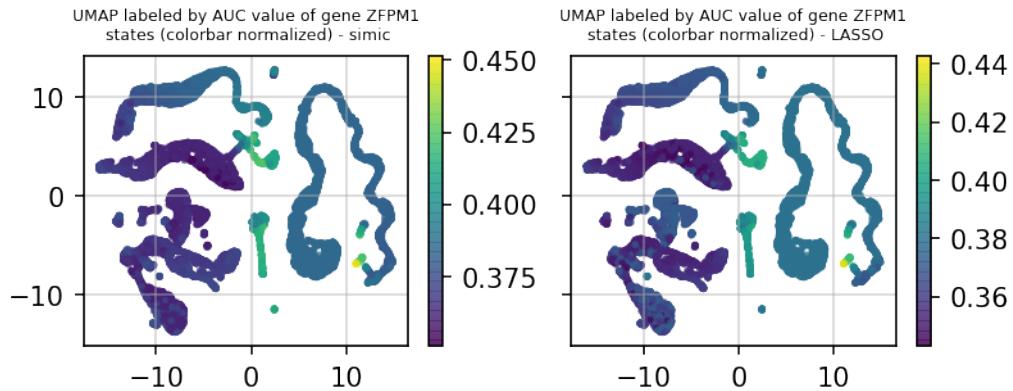
ZFHX3



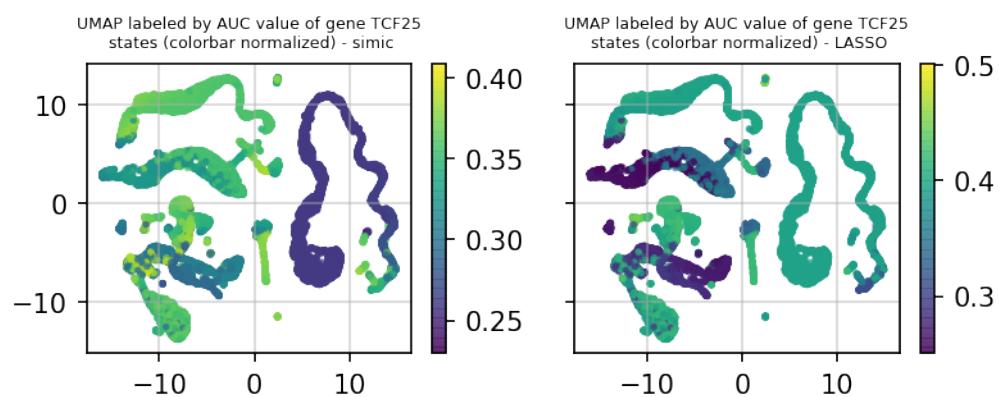
MAF



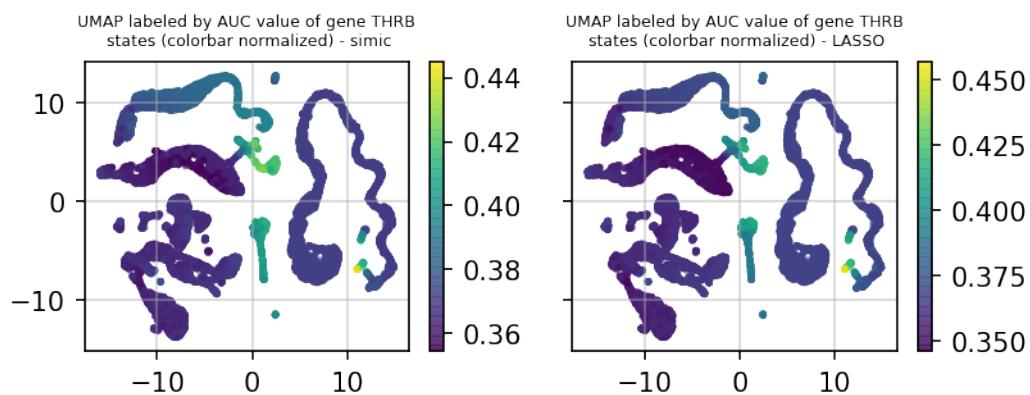
ZFPM1



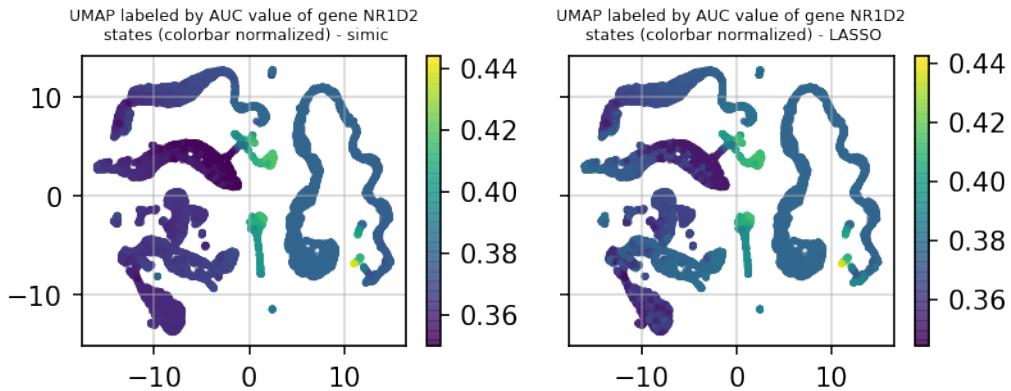
TCF25



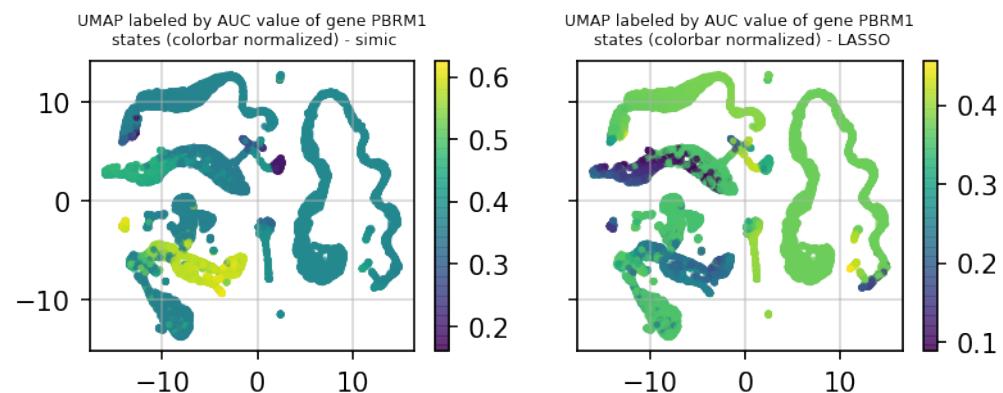
THRB



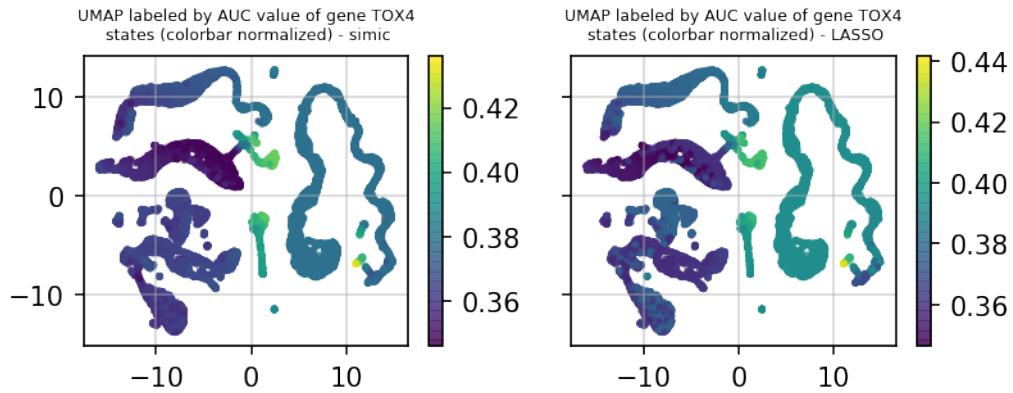
NR1D2



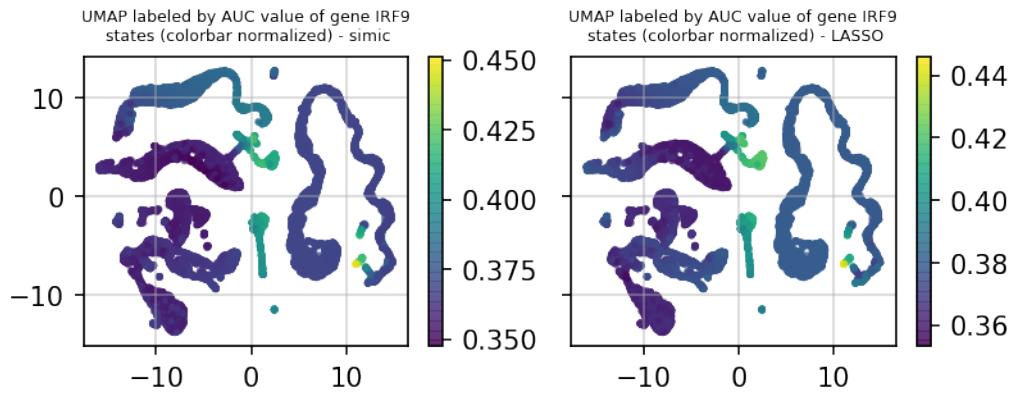
PBRM1



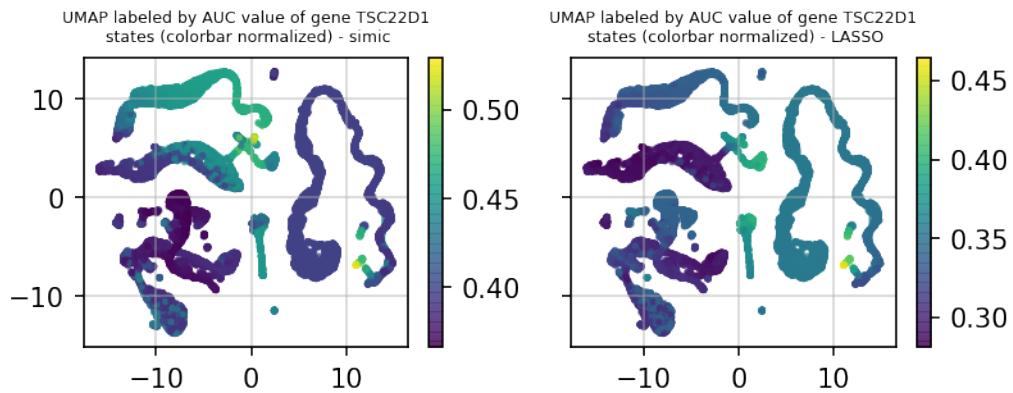
TOX4



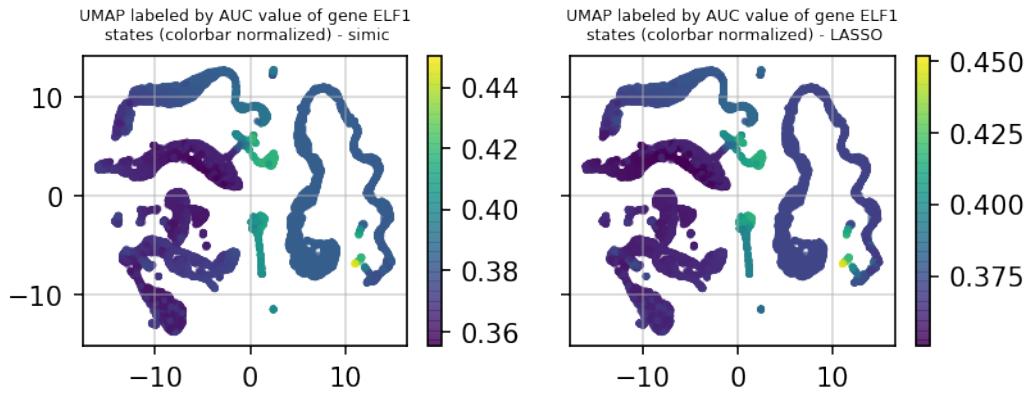
IRF9



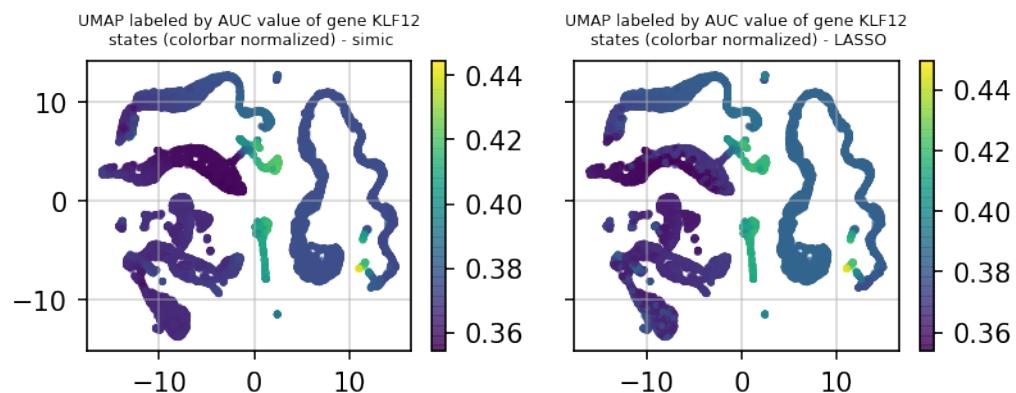
TSC22D1



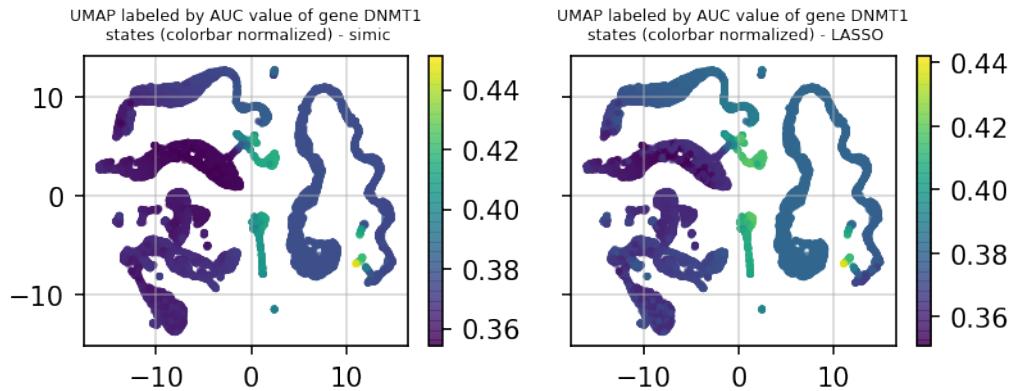
ELF1



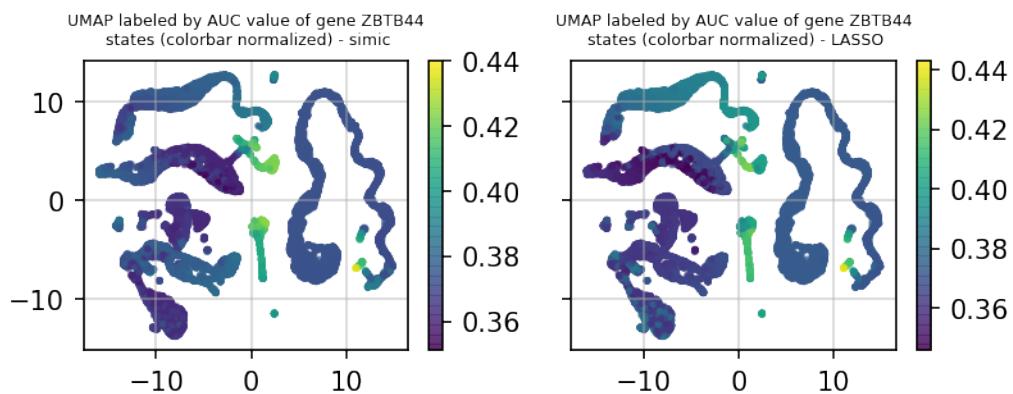
KLF12



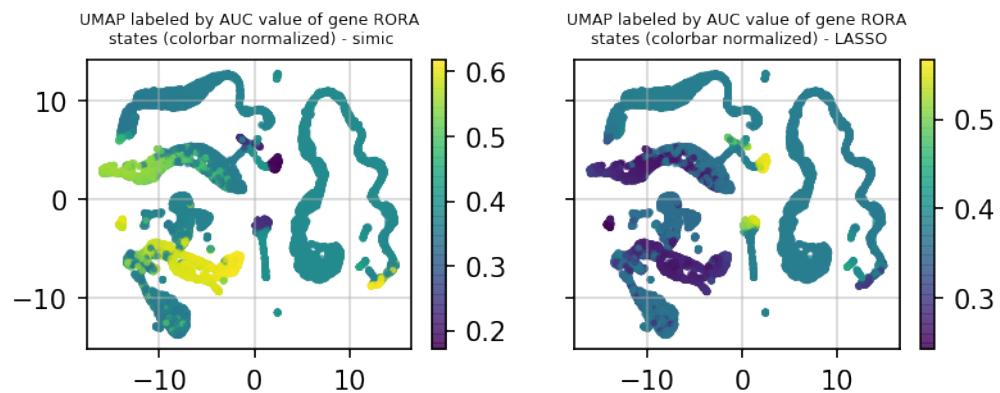
DNMT1



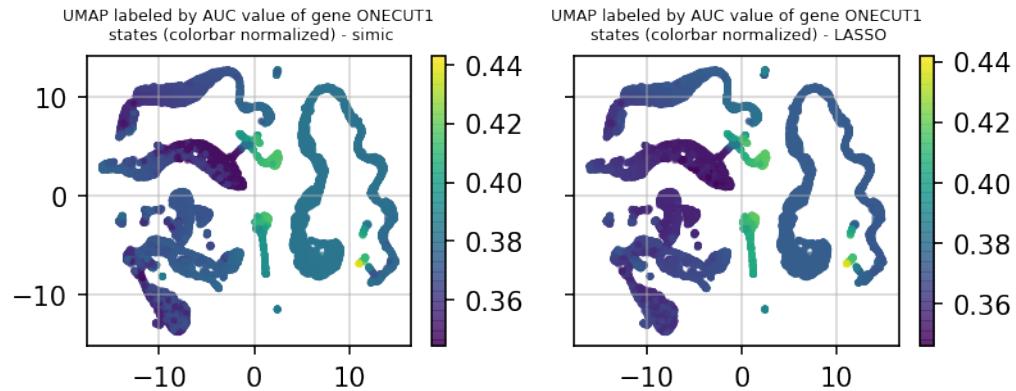
ZBTB44



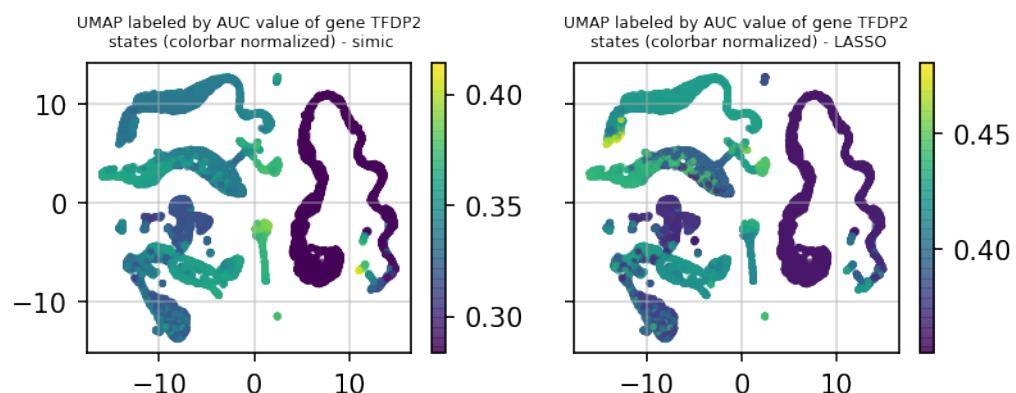
RORA



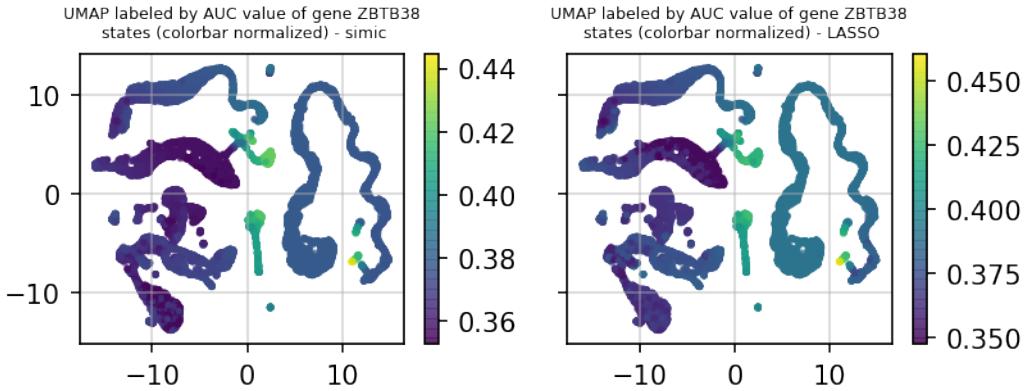
ONECUT1



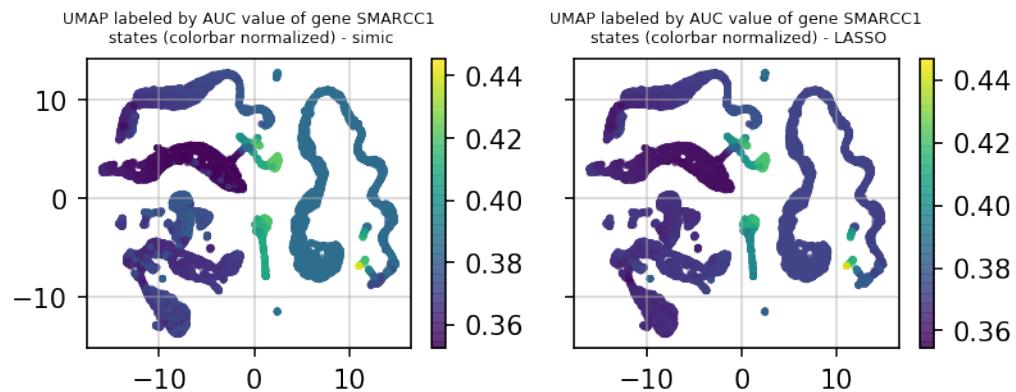
TFDP2



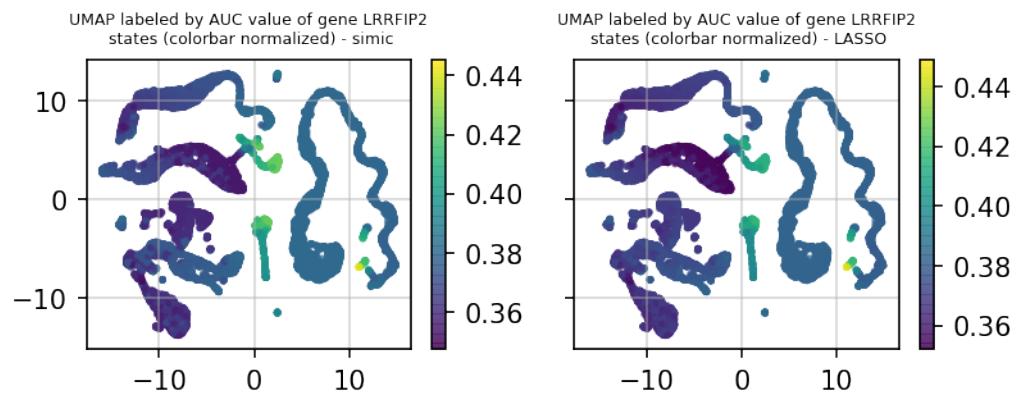
ZBTB38



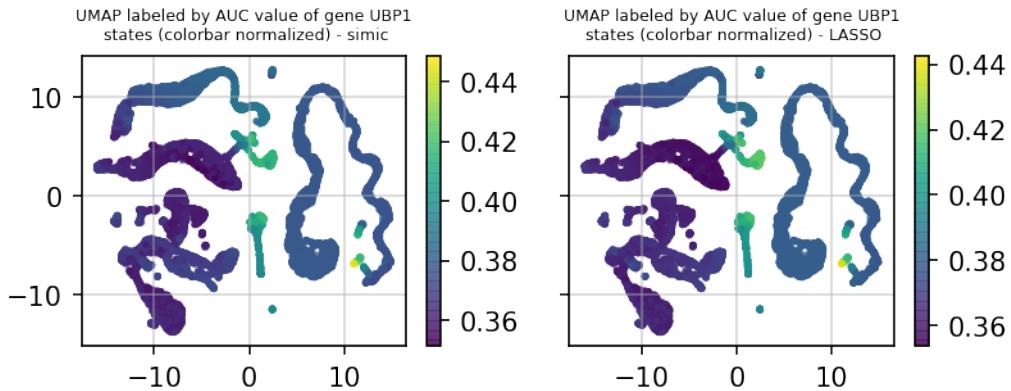
SMARCC1



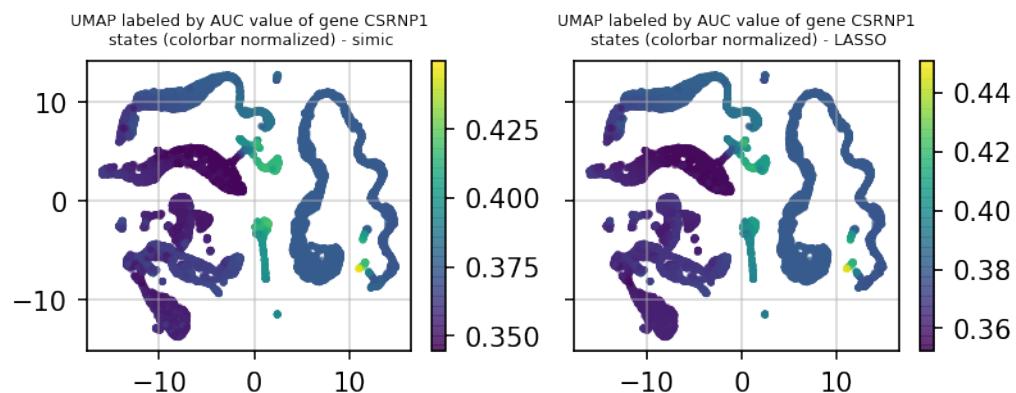
LRRFIP2



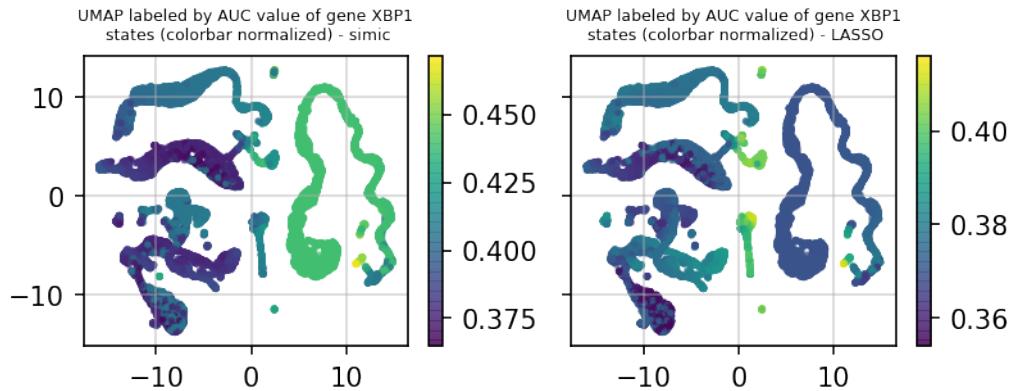
UBP1



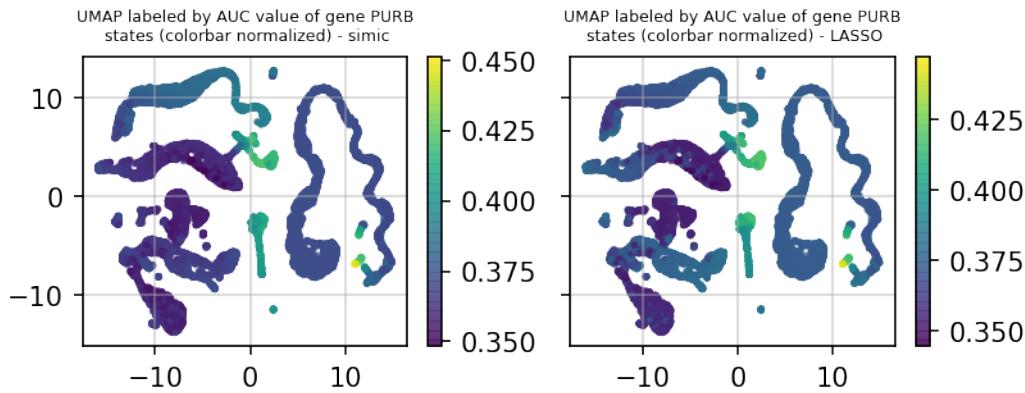
CSRNP1



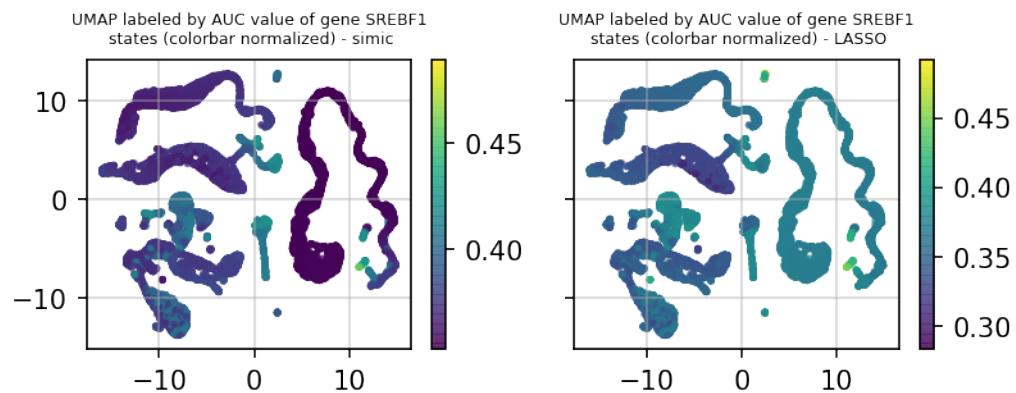
XBP1



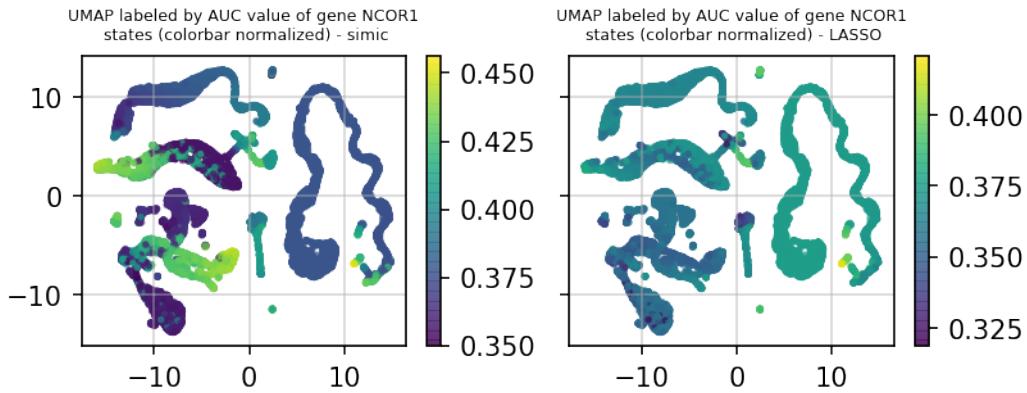
PURB



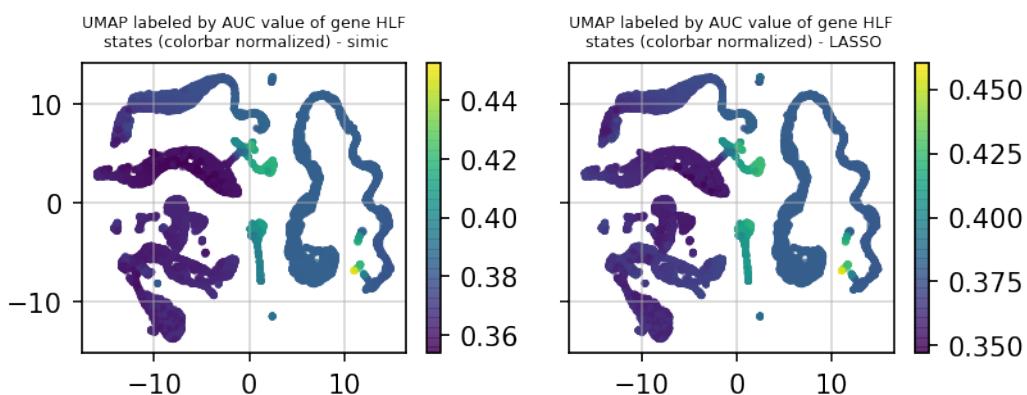
SREBF1



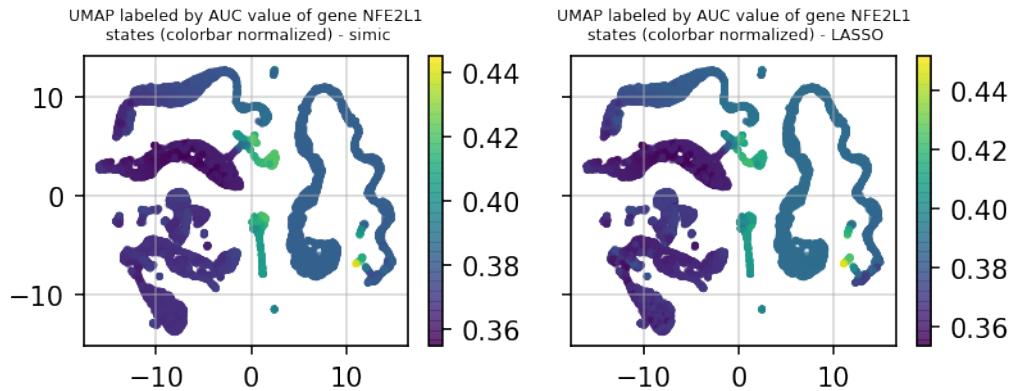
NCOR1



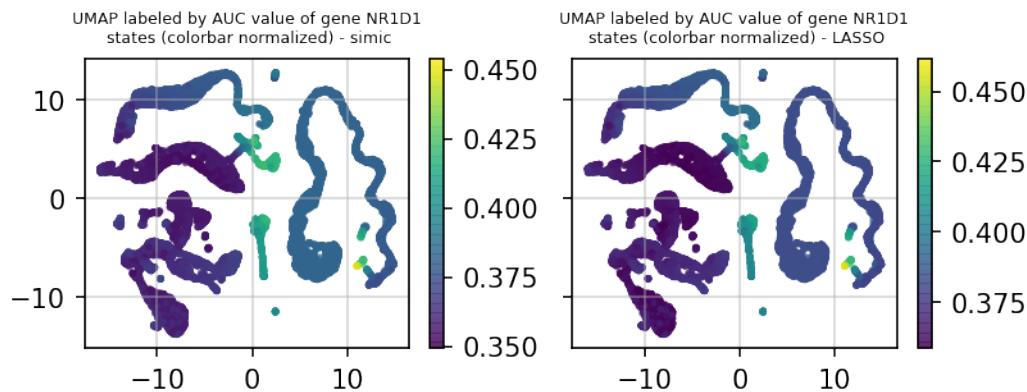
HLF



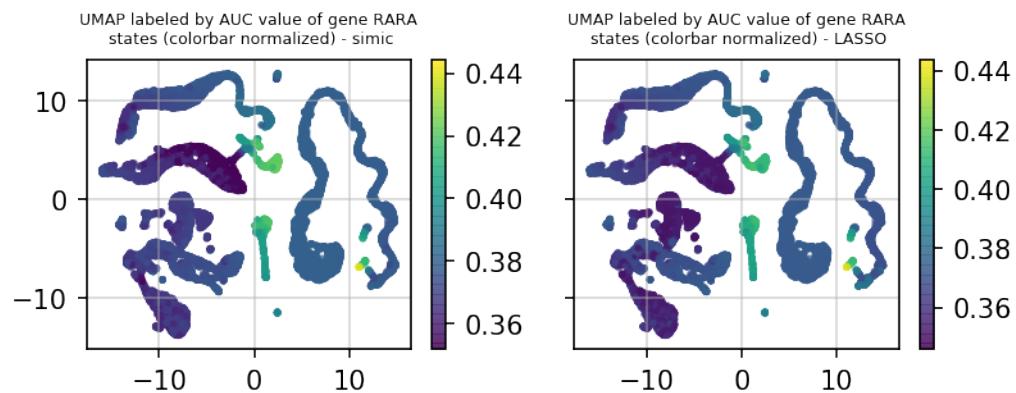
NFE2L1



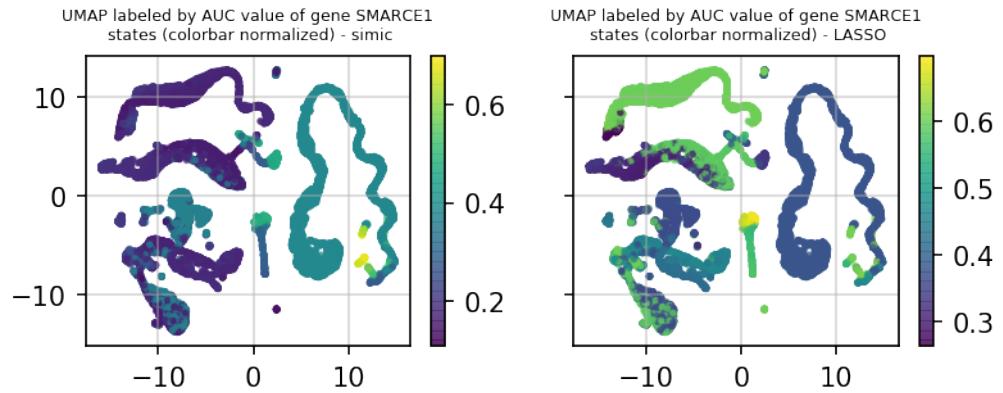
NR1D1



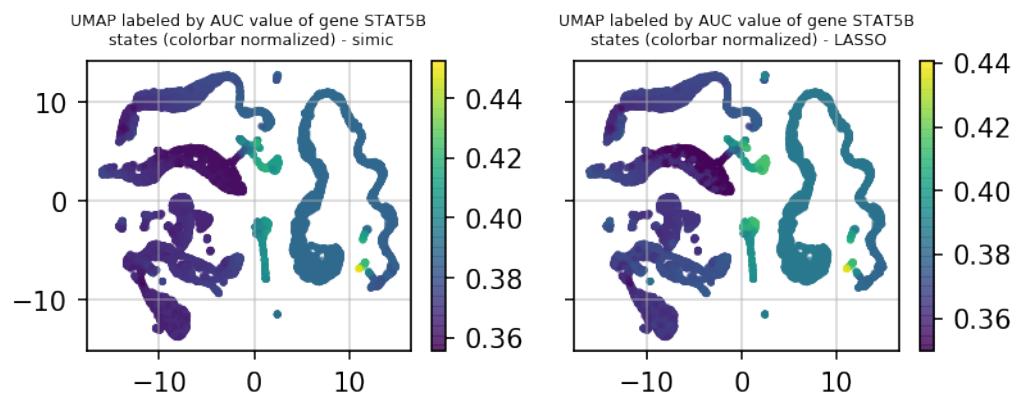
RARA



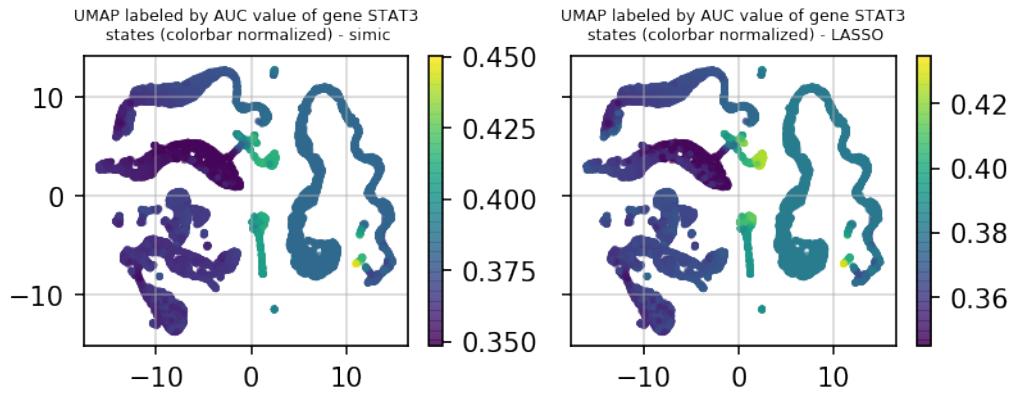
SMARCE1



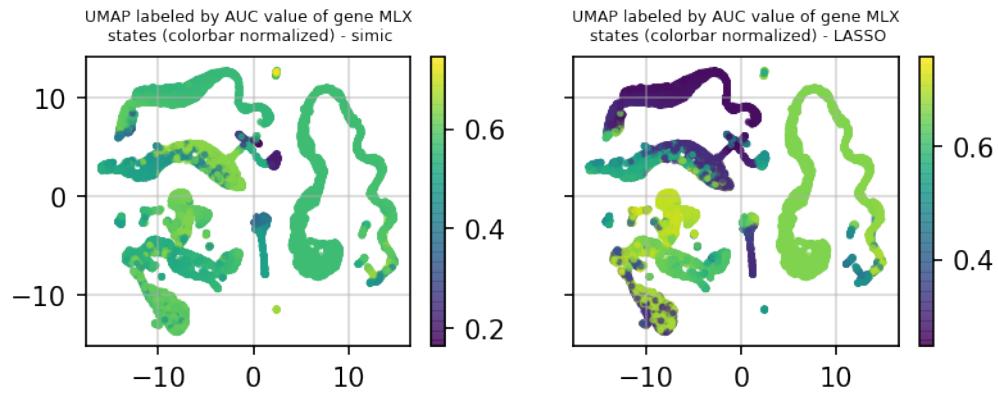
STAT5B



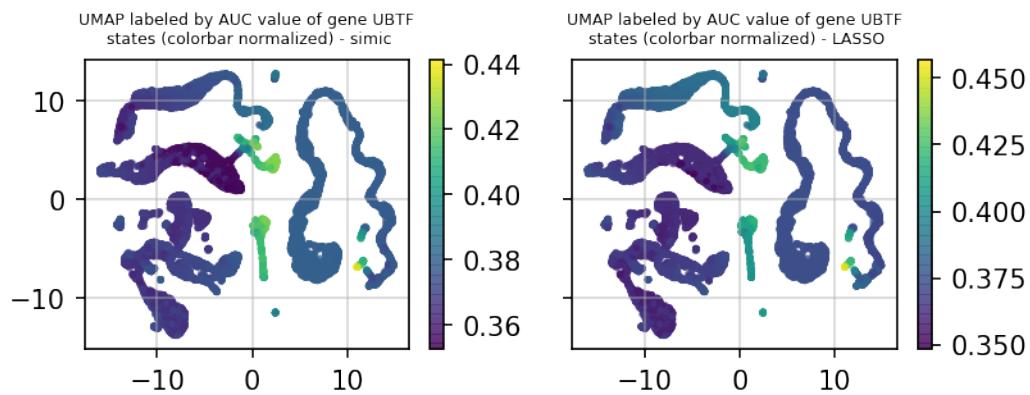
STAT3



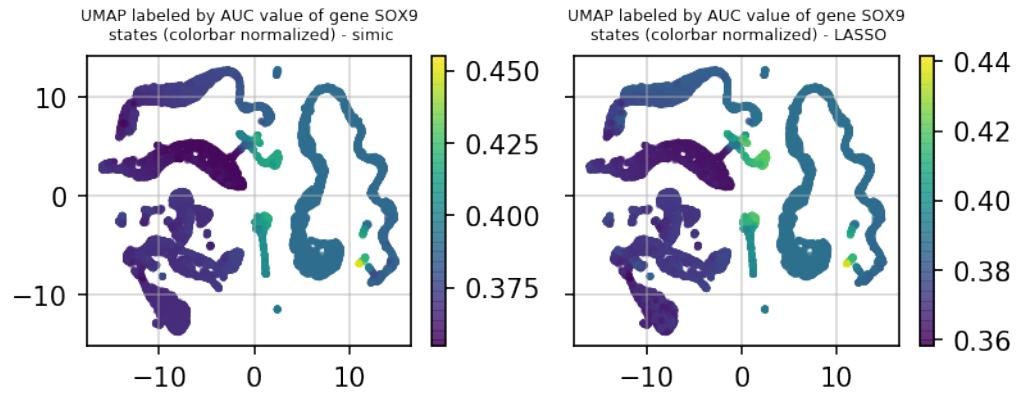
MLX



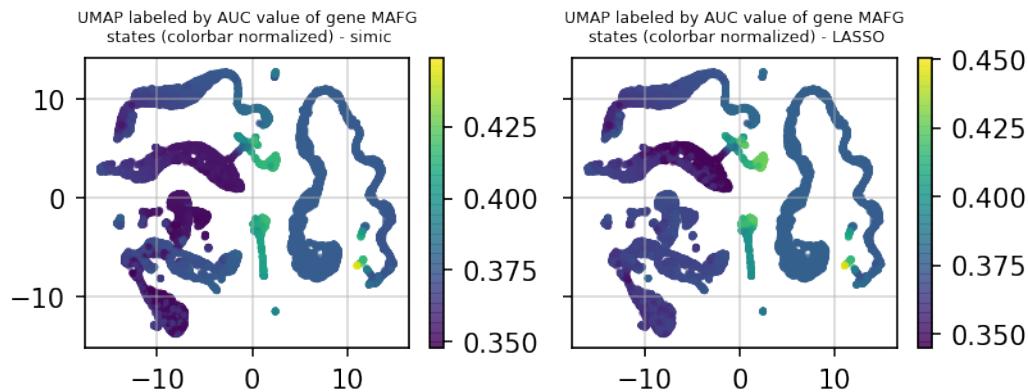
UBTF



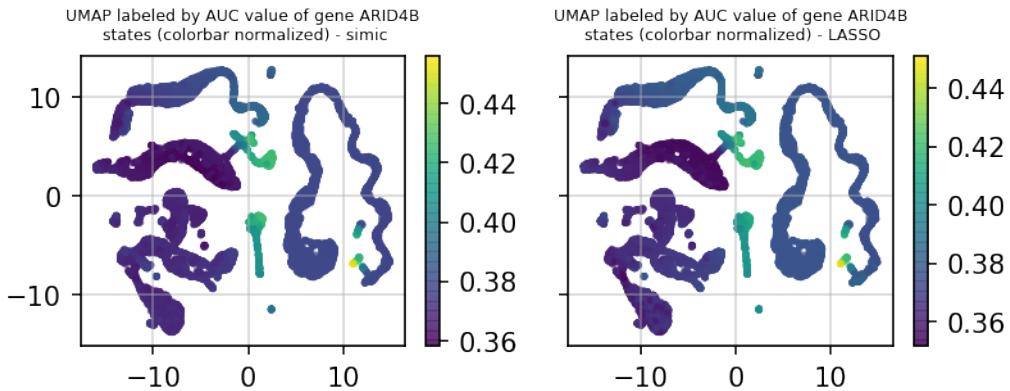
SOX9



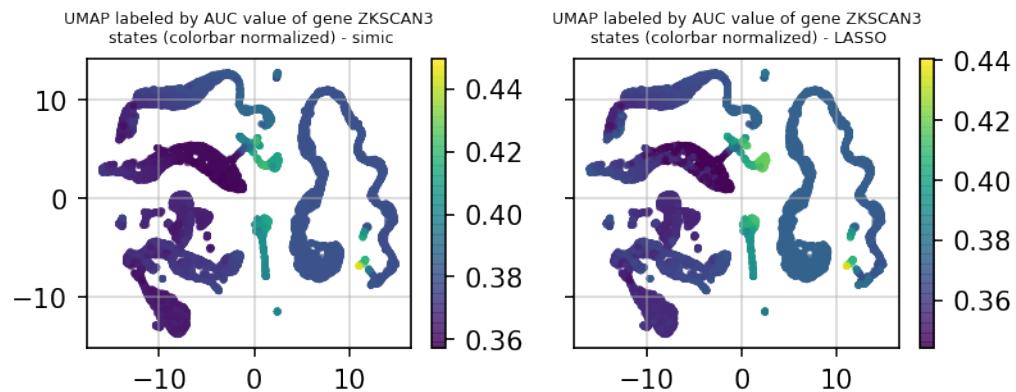
MAFG



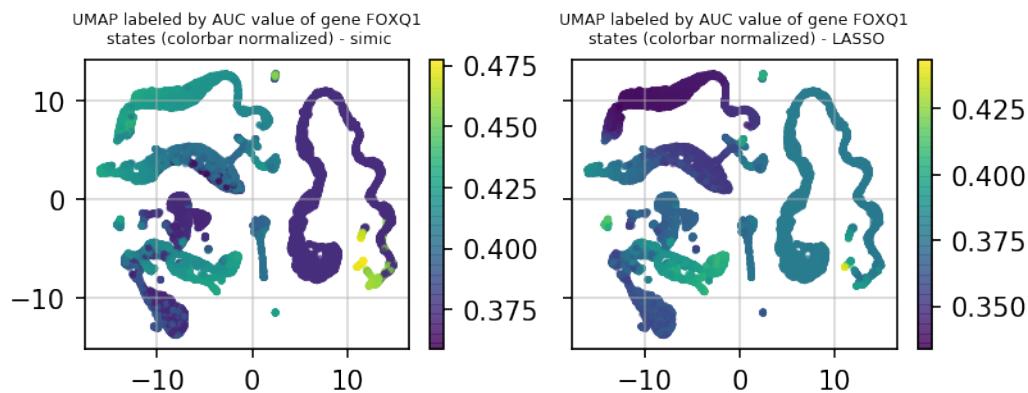
ARID4B



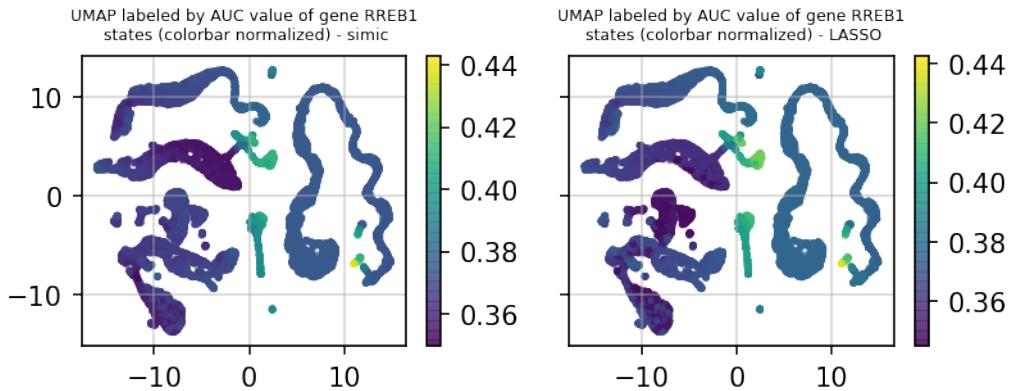
ZKSCAN3



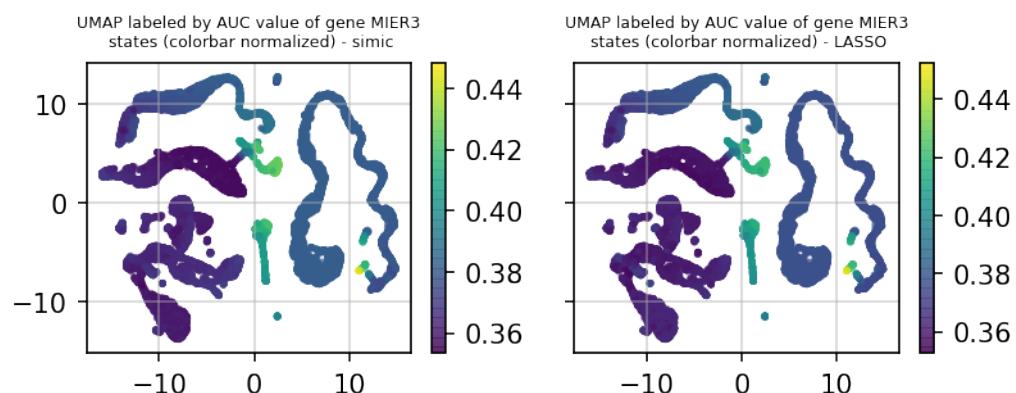
FOXQ1



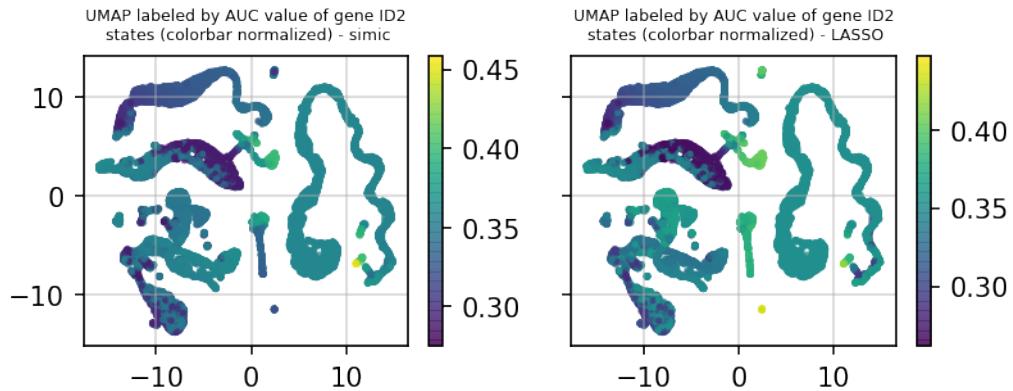
RREB1



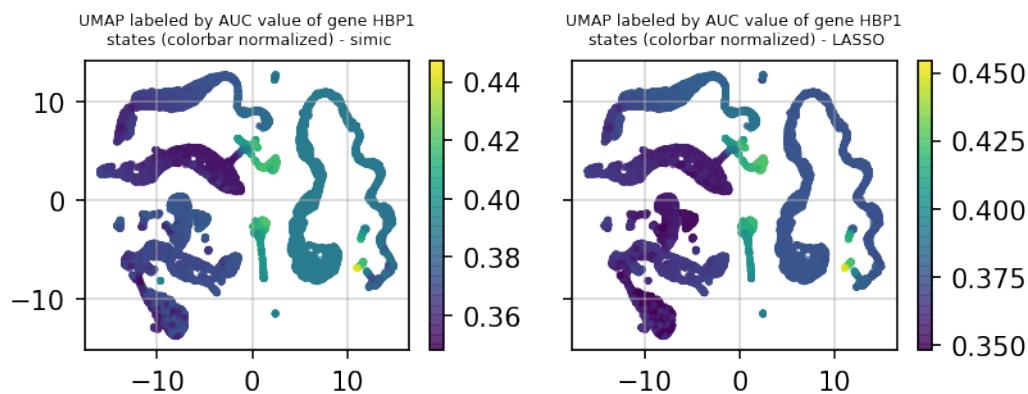
MIER3



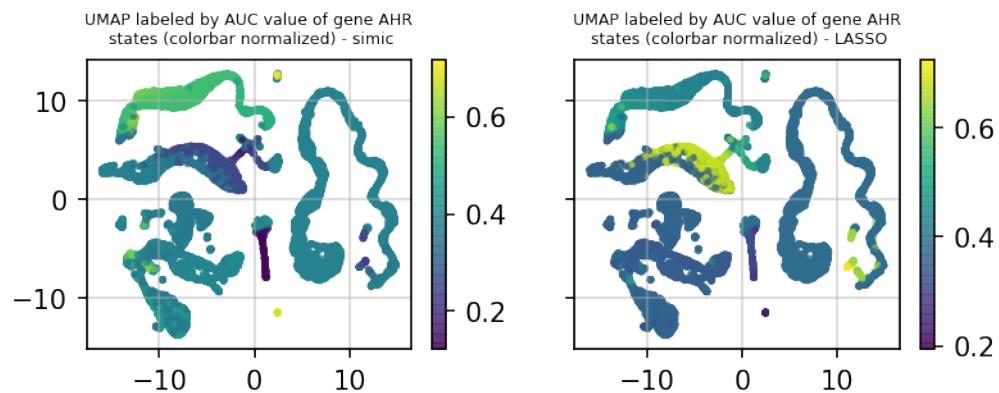
ID2



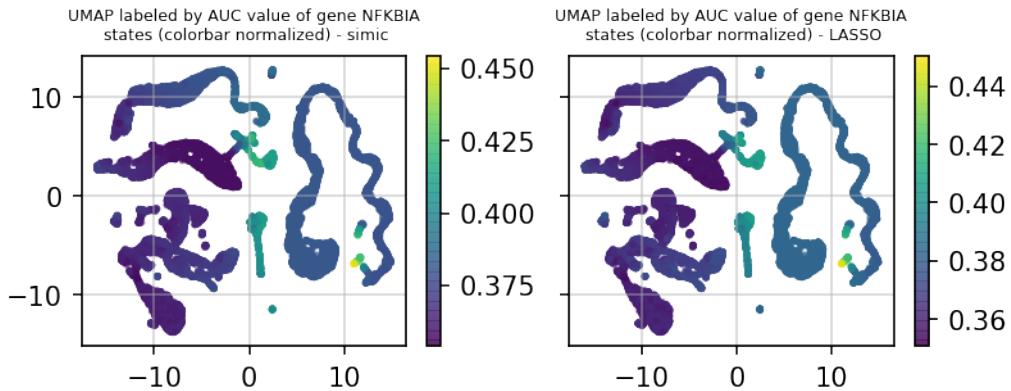
HBP1



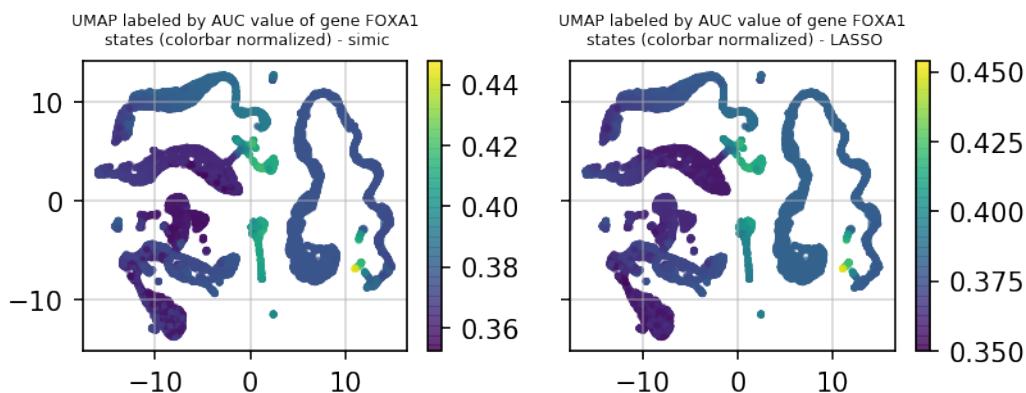
AHR



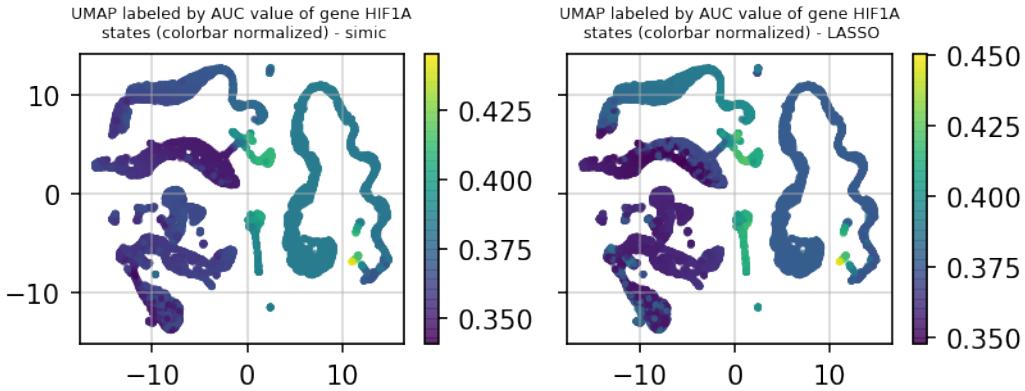
NFKBIA



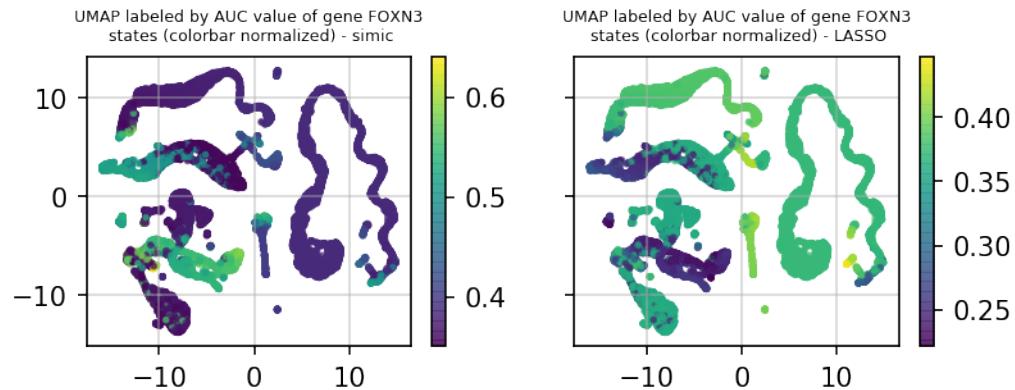
FOXA1



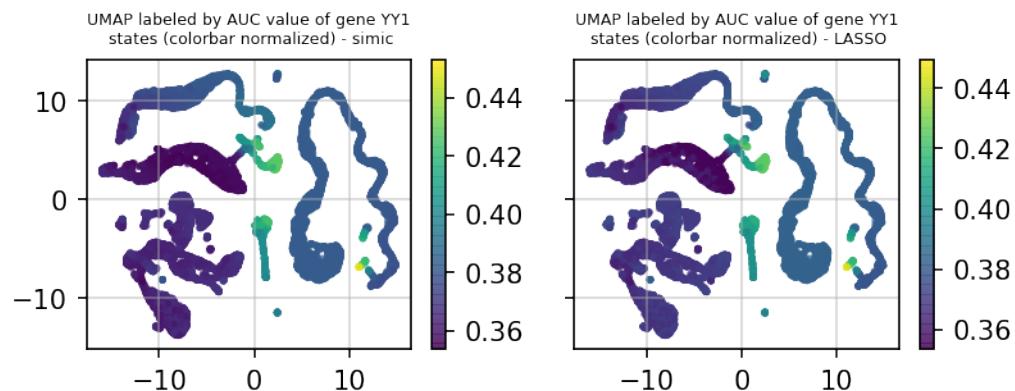
HIF1A



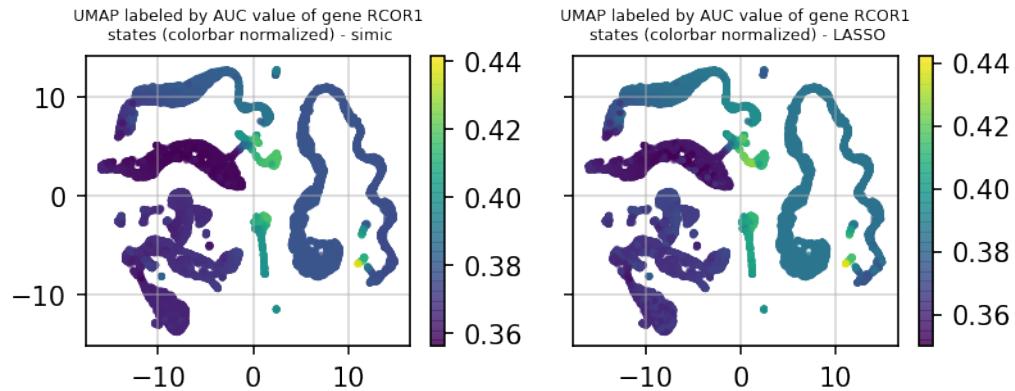
FOXN3



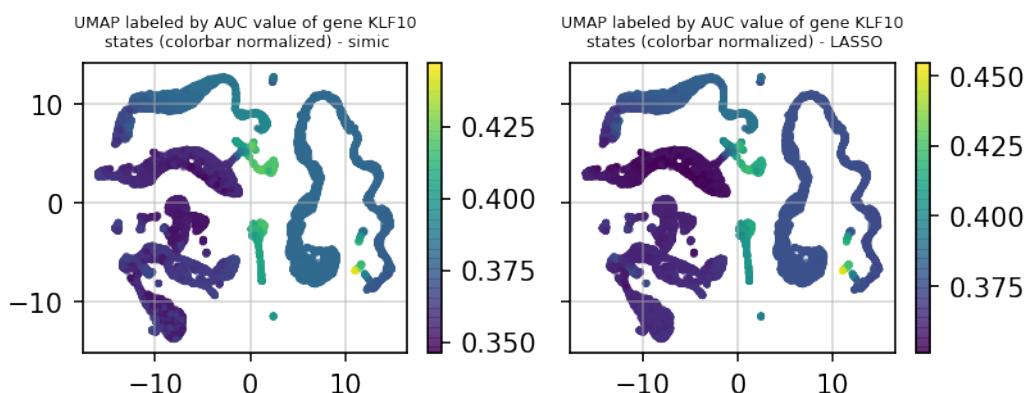
YY1



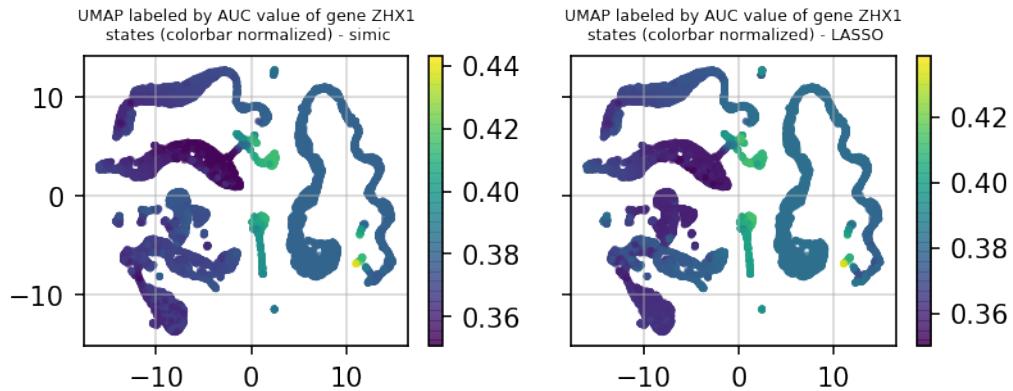
RCOR1



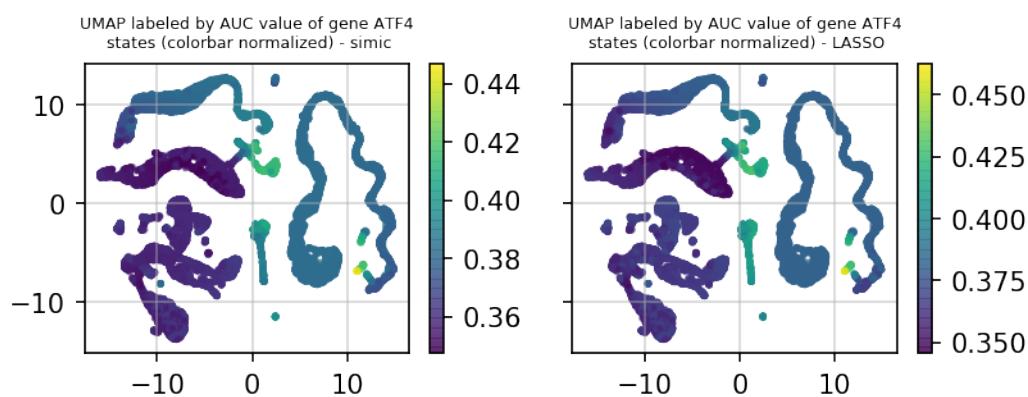
KLF10



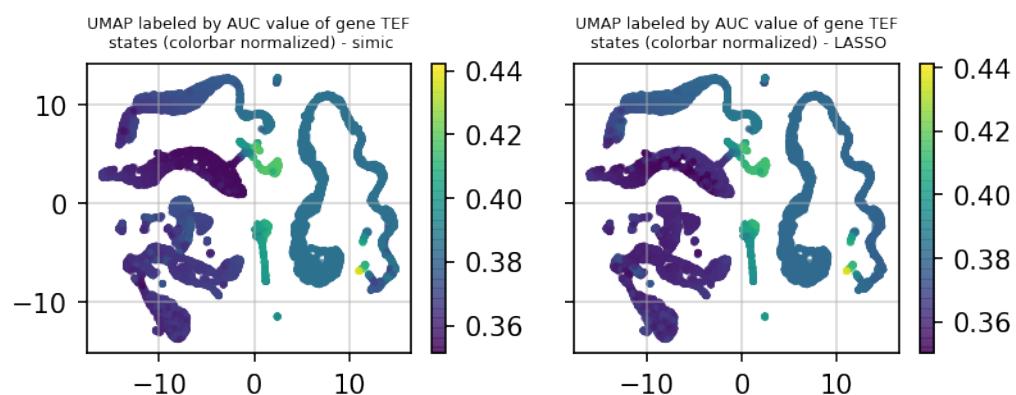
ZHX1



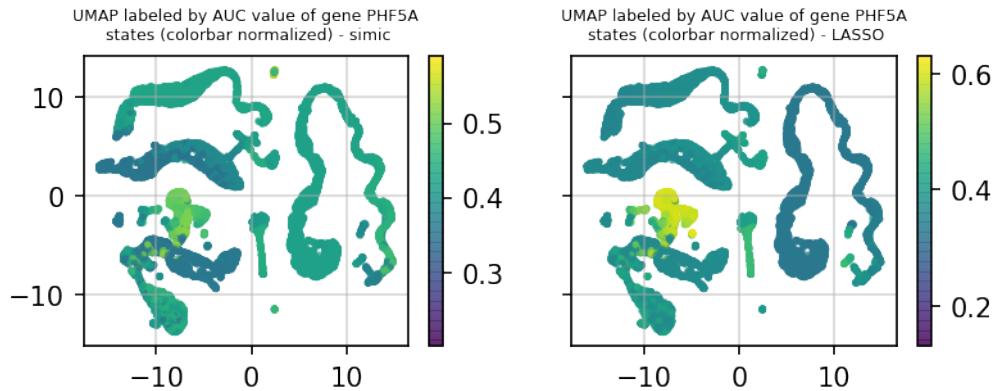
ATF4



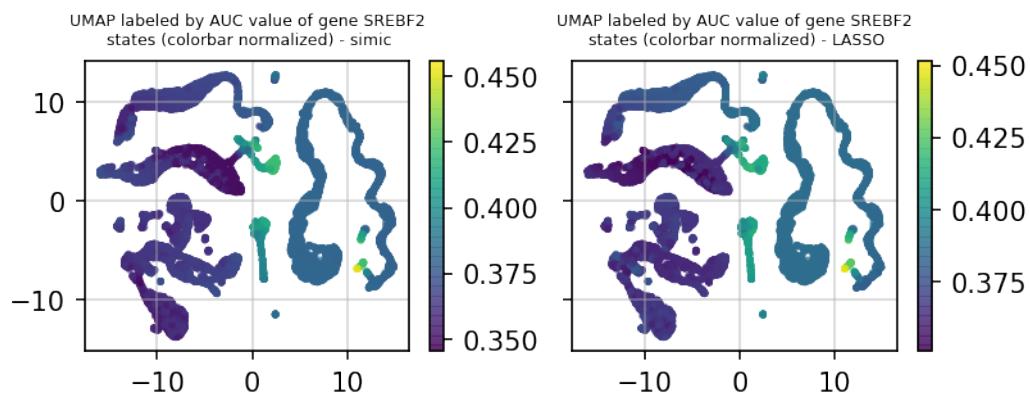
TEF



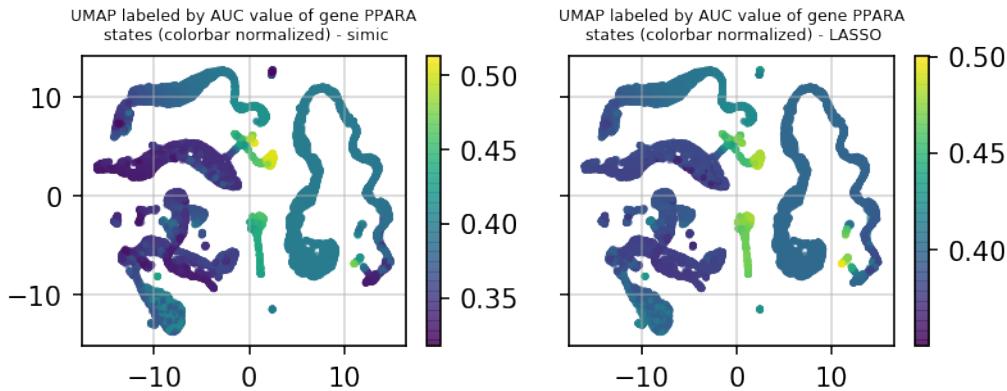
PHF5A



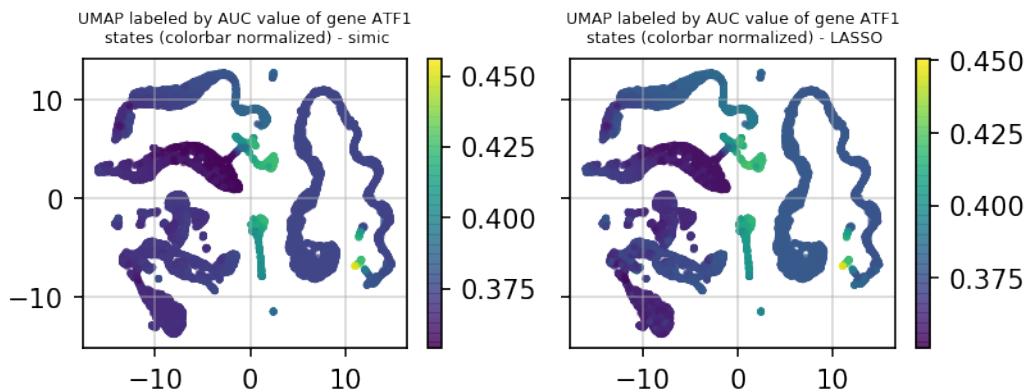
SREBF2



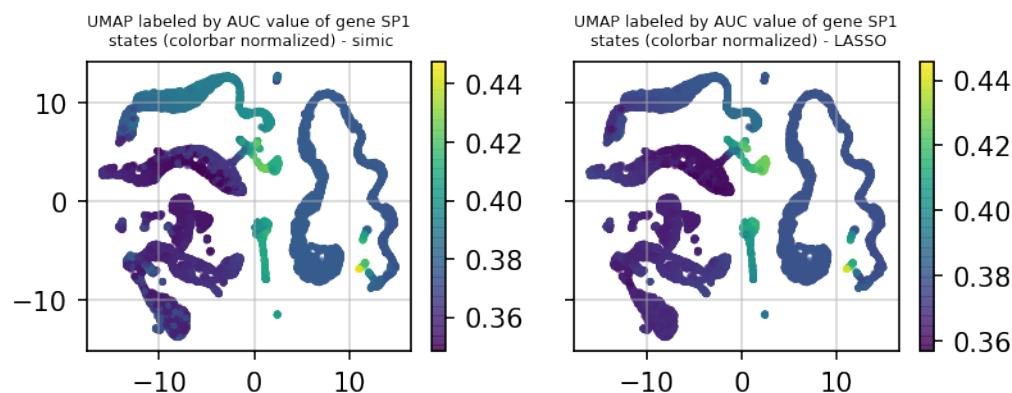
PPARA



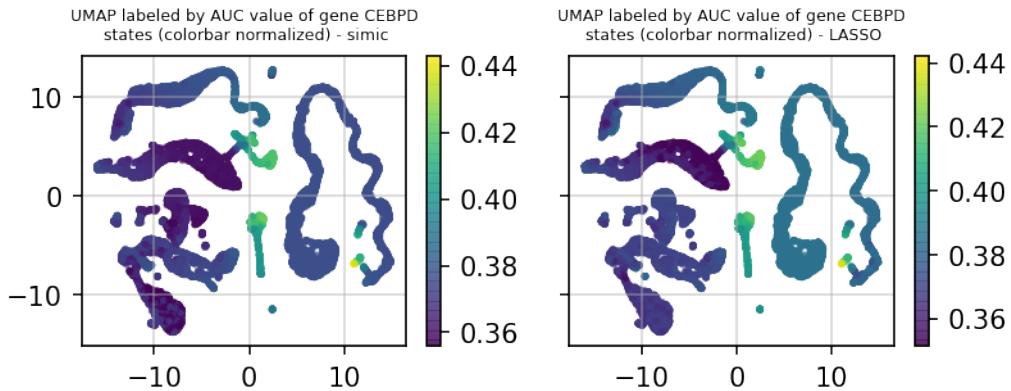
ATF1



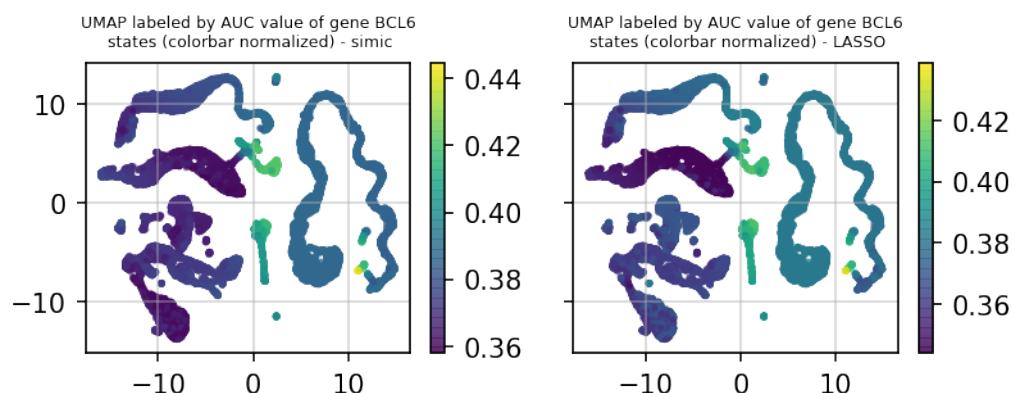
SP1



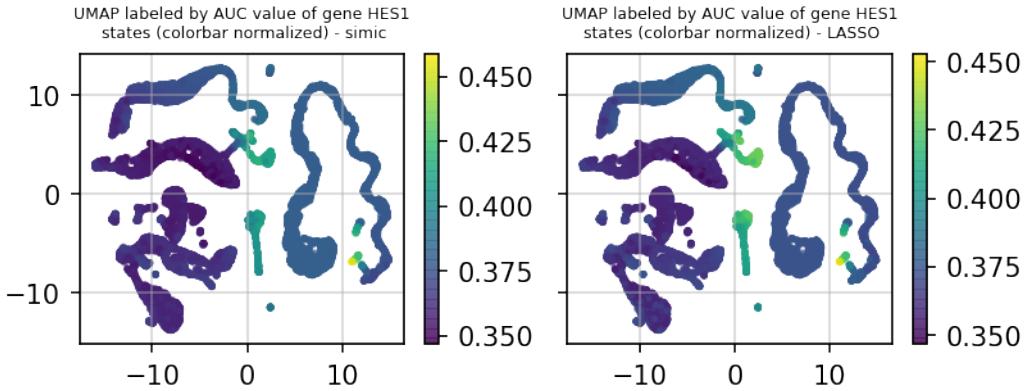
CEBPD



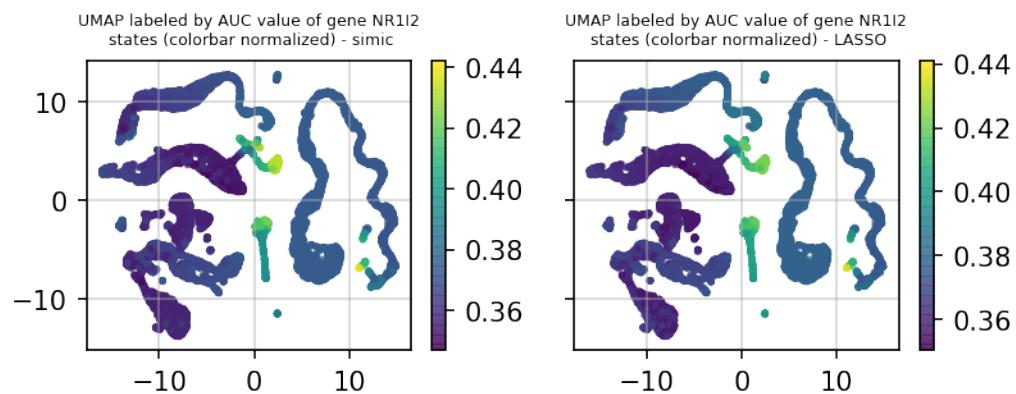
BCL6



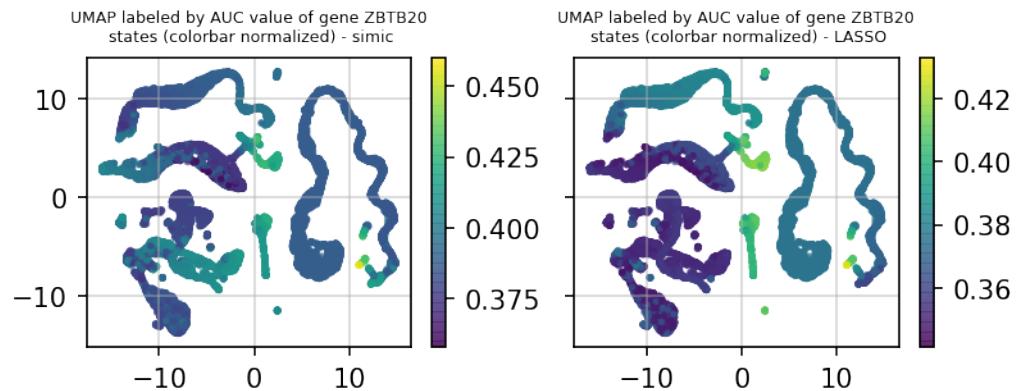
HES1



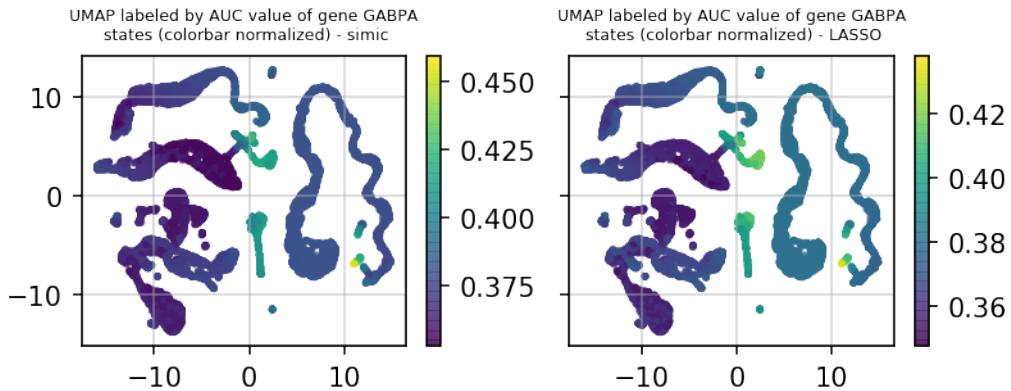
NR1I2



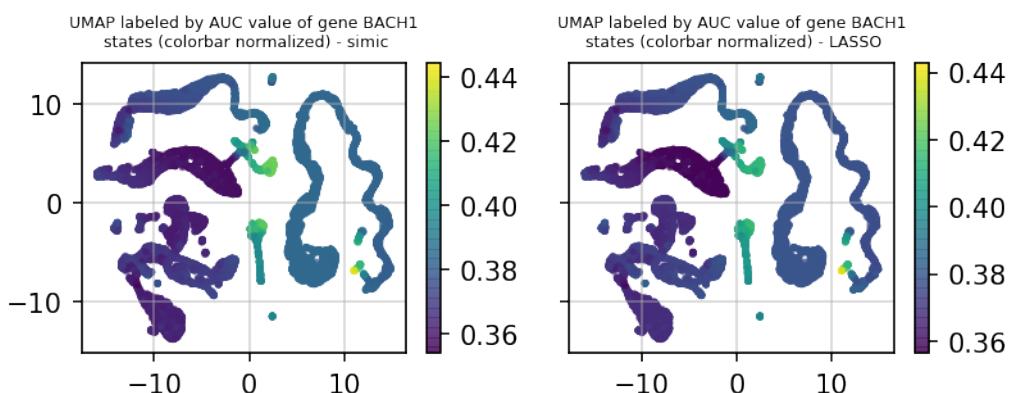
ZBTB20



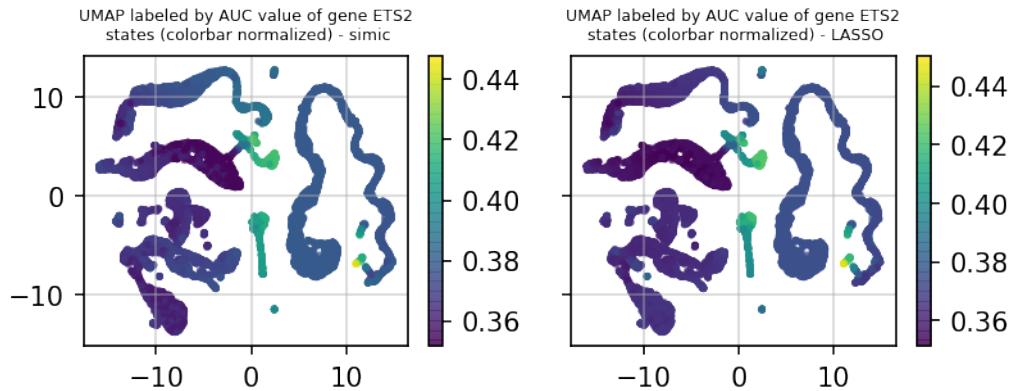
GABPA



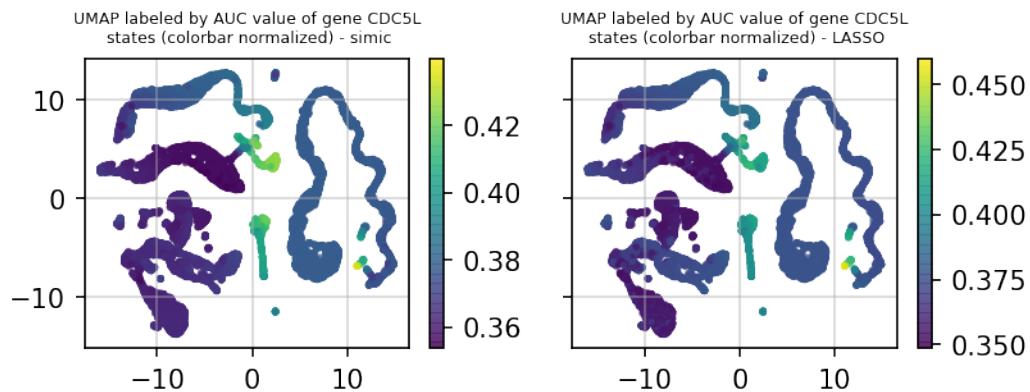
BACH1



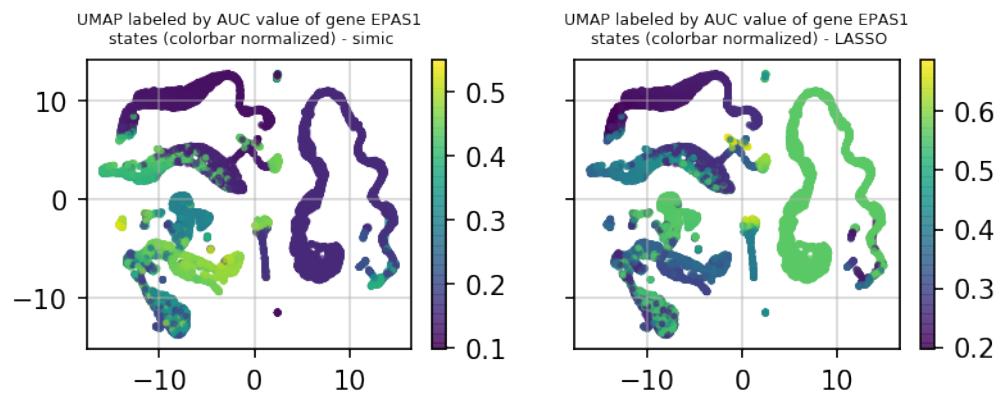
ETS2



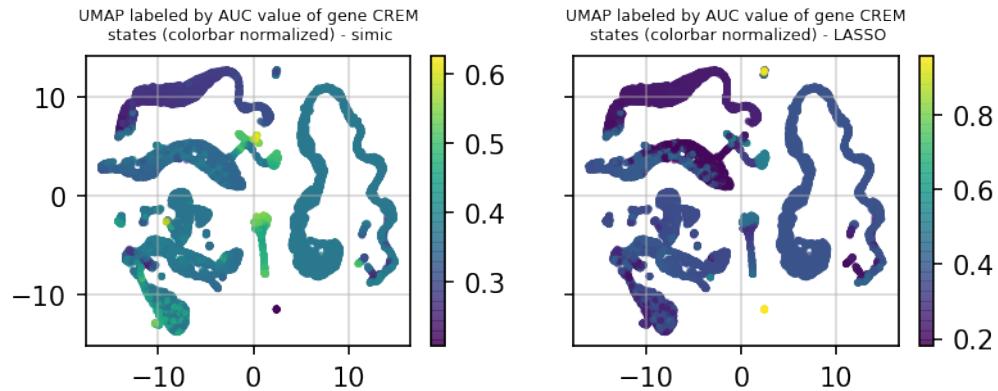
CDC5L



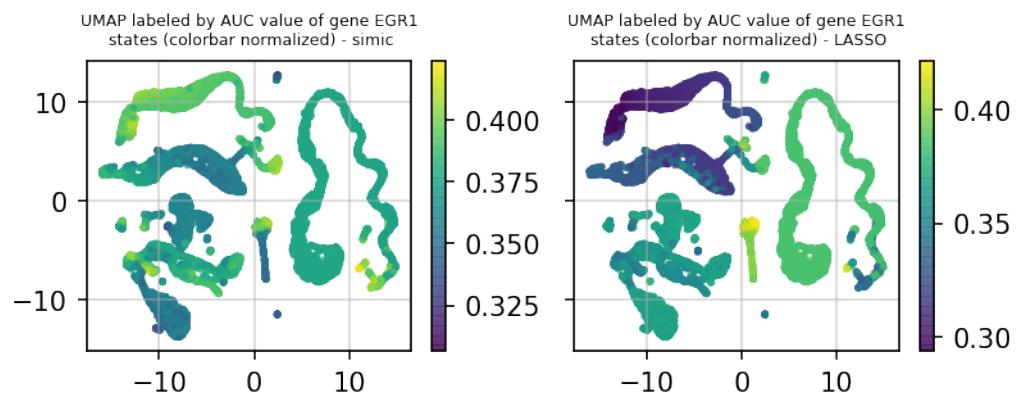
EPAS1



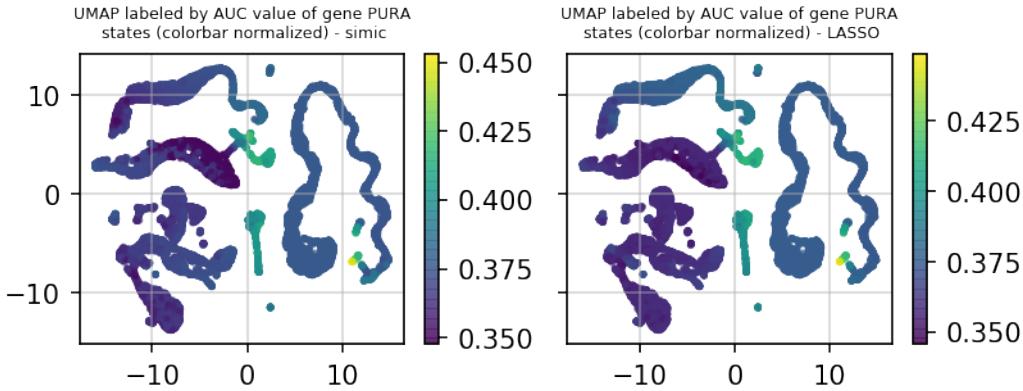
CREM



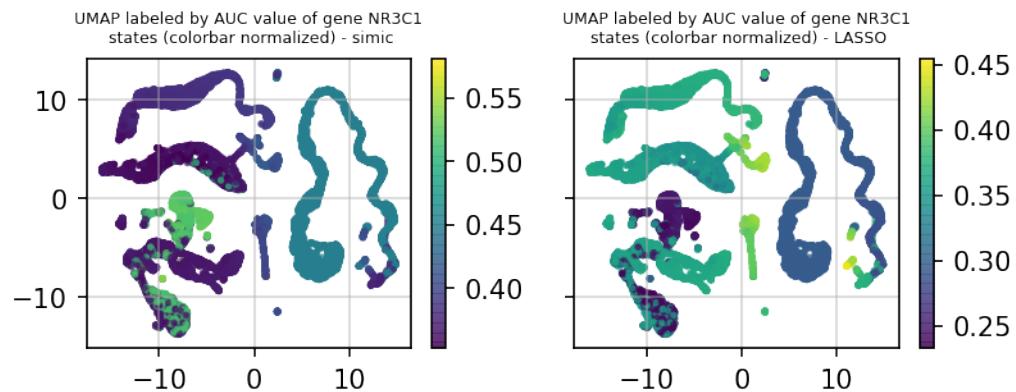
EGR1



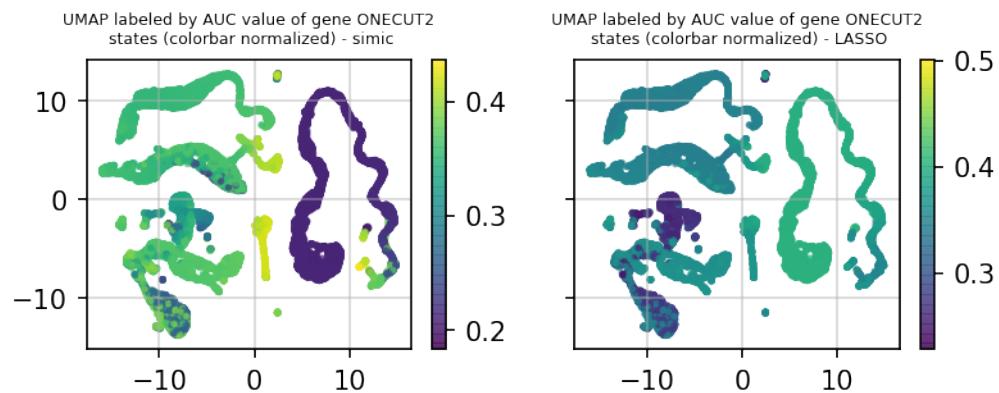
PURΑ



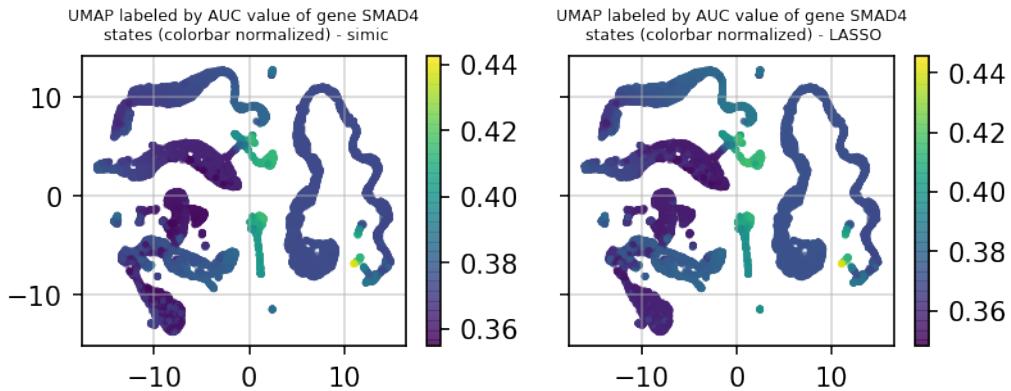
NR3C1



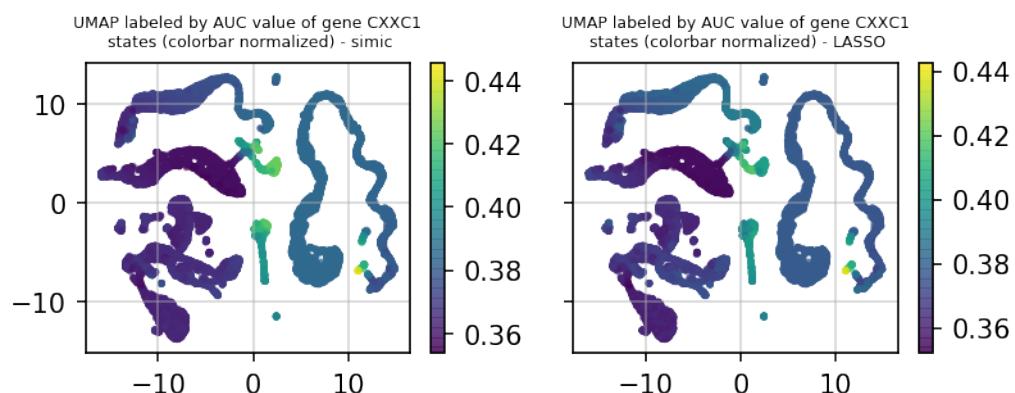
ONECUT2



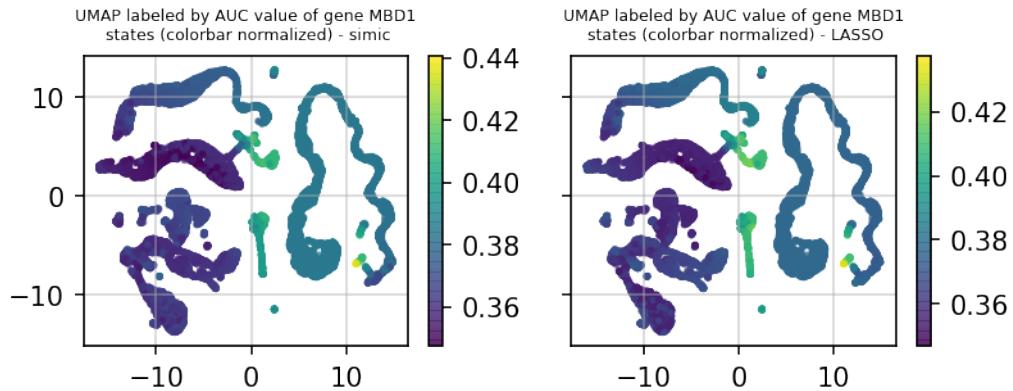
SMAD4



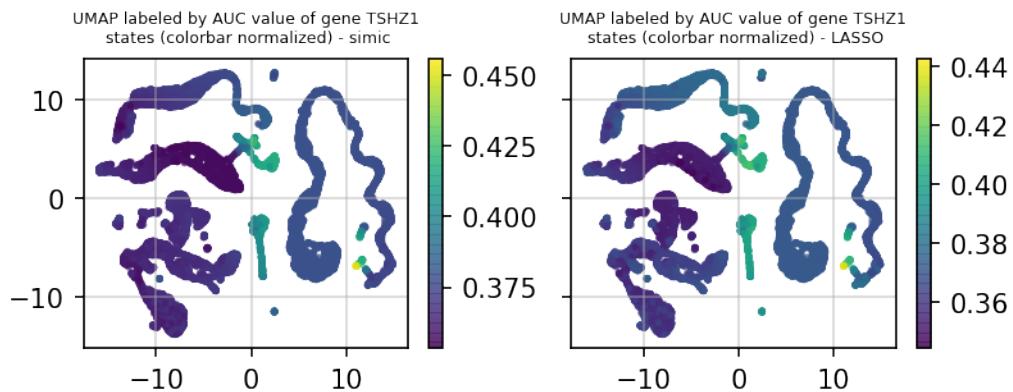
CXXC1



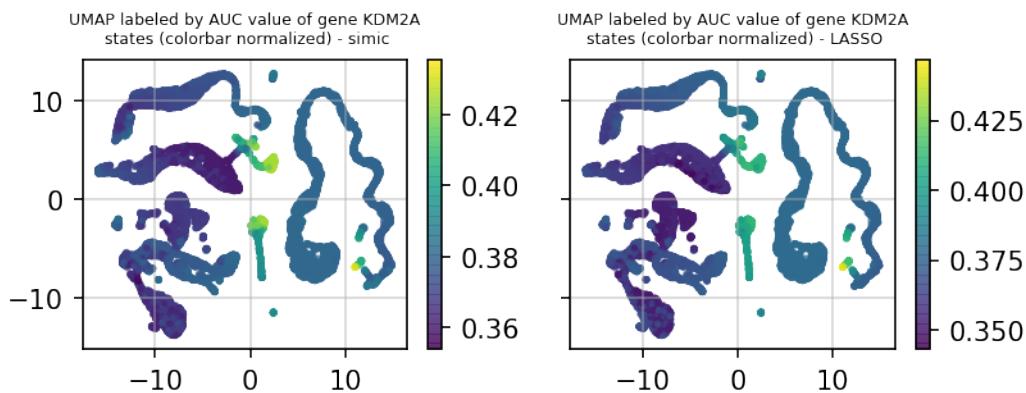
MBD1



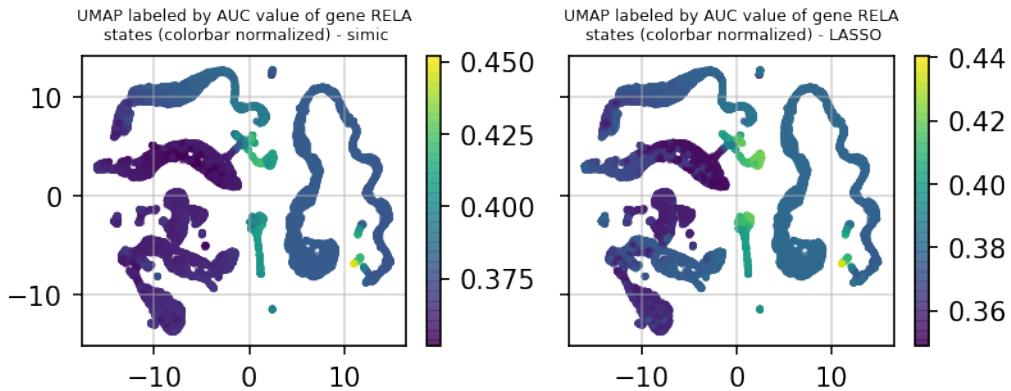
TSHZ1



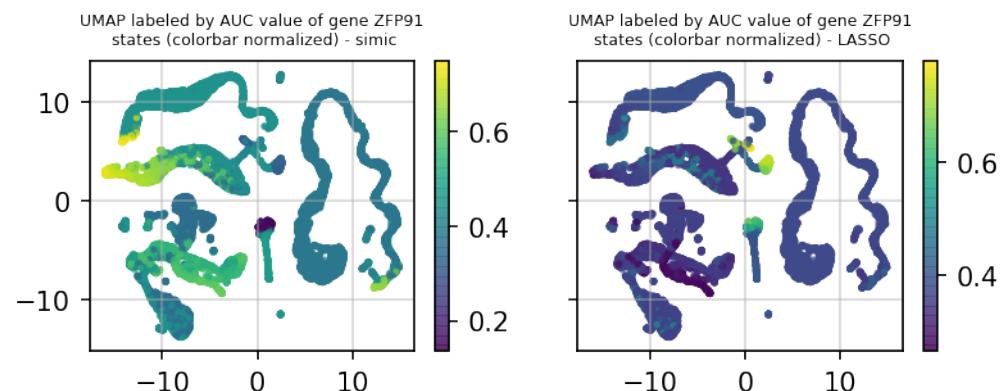
KDM2A



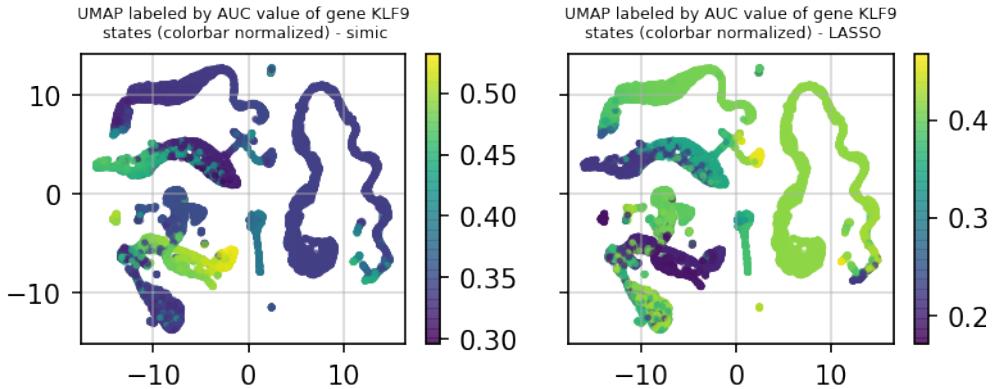
RELA



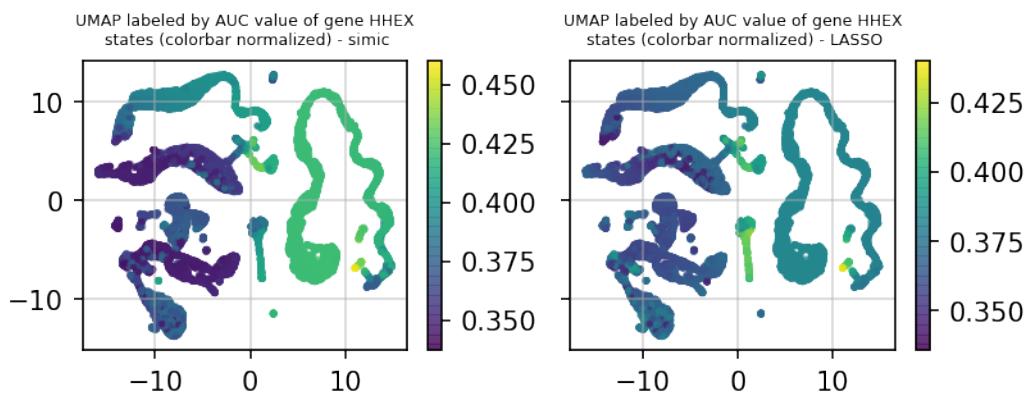
ZFP91



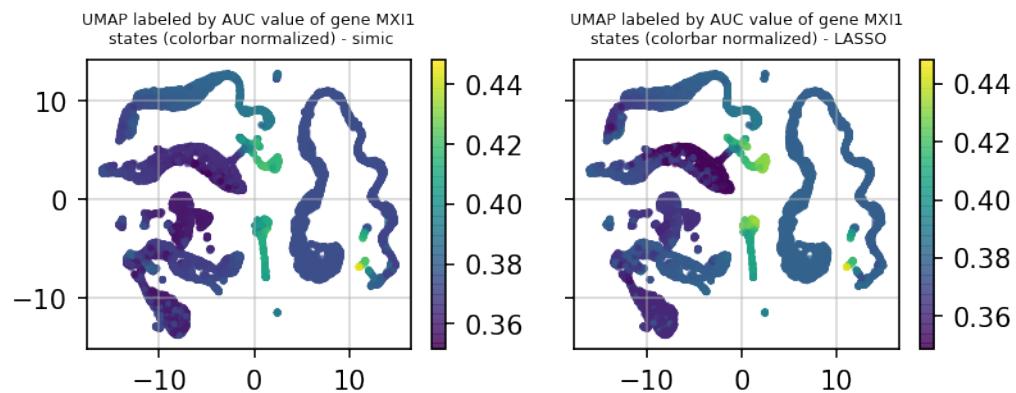
KLF9



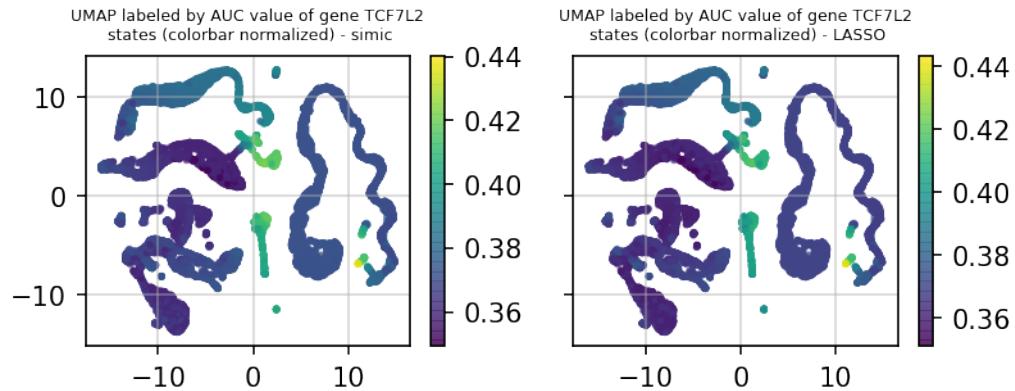
HHEX



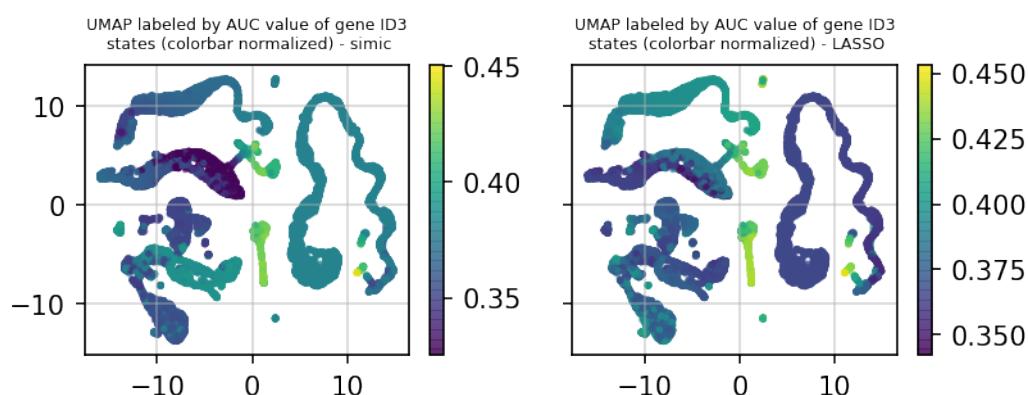
MXI1



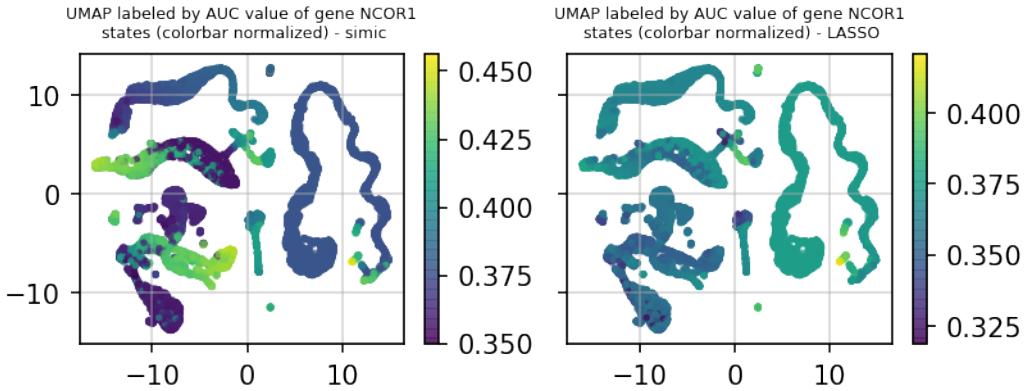
TCF7L2



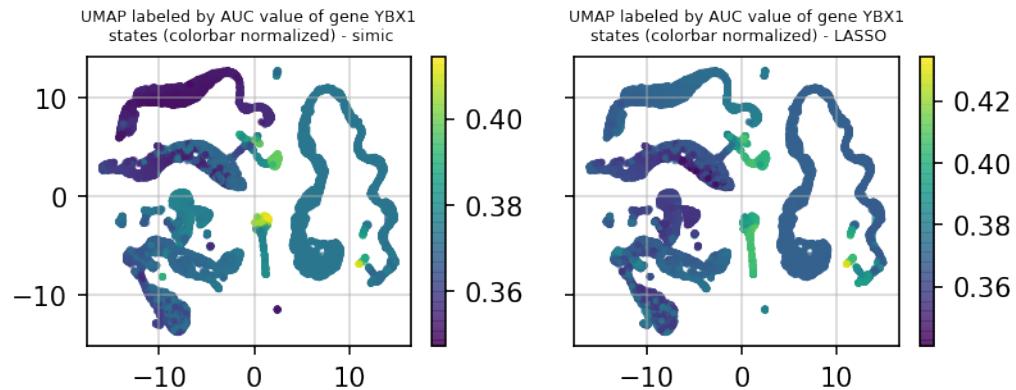
ID3



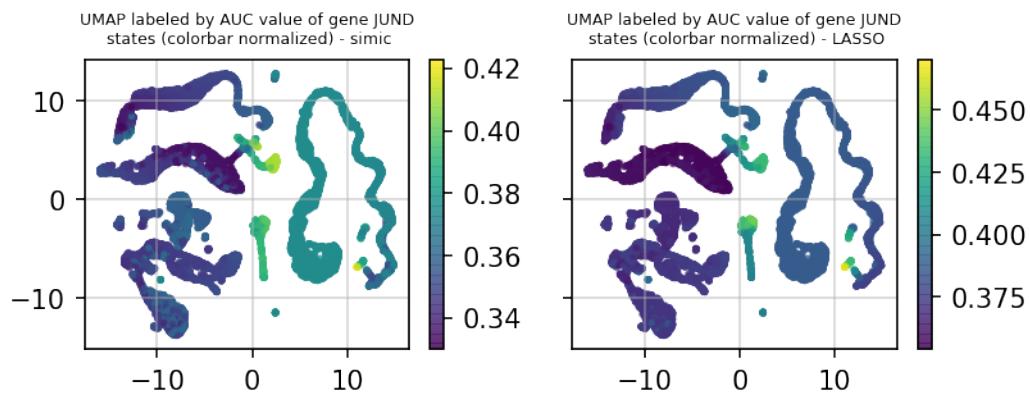
NCOR1



YBX1



JUND



NR0B2

