

Supplementary 3 - wAUC analysis of Hepatocyte with 9 states

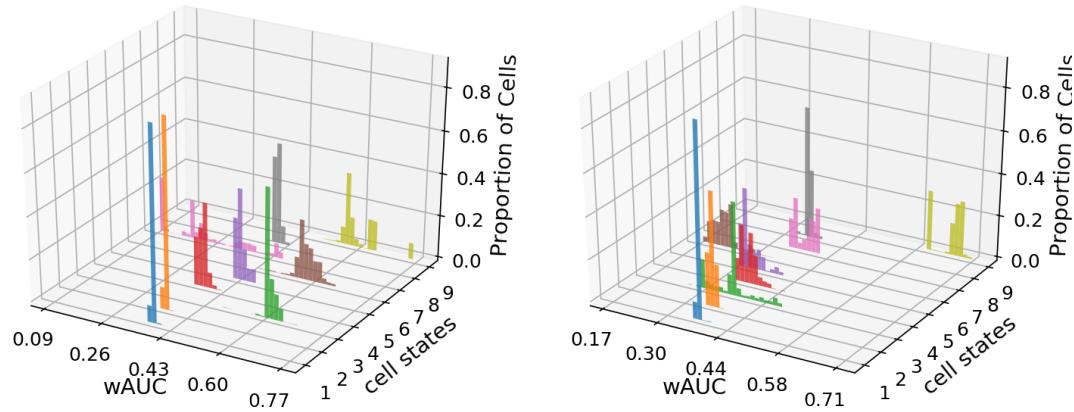
March 31, 2020

1 Get TF lists in simic and LASSO

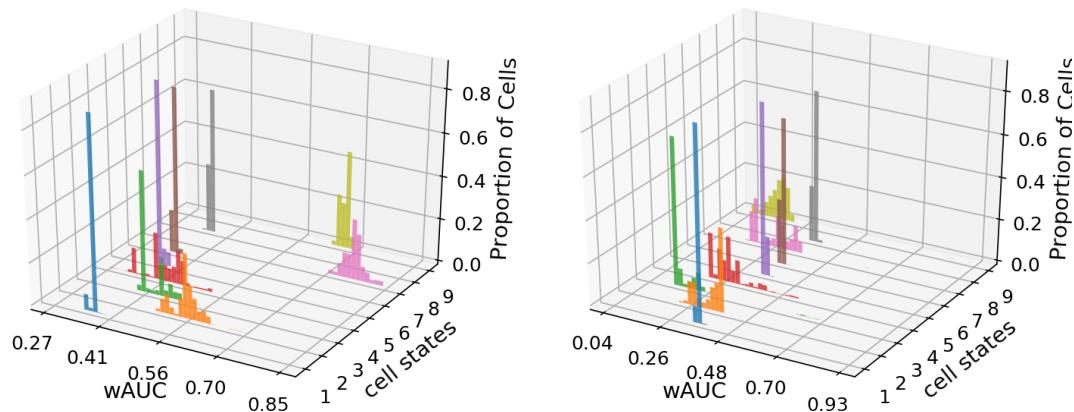
```
common top in simic and no-simic:  9
{'Ybx3', 'Nr0b2', 'Foxa3', 'Smarca5', 'Tcf25', 'Id1', 'Rxra', 'Sfpq', 'Srebf1'}
- - - - -
common last in simic and no-simic:  2
{'Bcl6', 'Hsf2'}
- - - - -
>>>>>>>>>> simic >>>>>>>>>
top only in simic:  17
{'Ncor1', 'Epas1', 'Hes6', 'Mlx', 'Hnf4a', 'Dnmt1', 'Crem', 'Nfia', 'Nono',
'Foxq1', 'Phf5a', 'Id3', 'Prox1', 'Stat5b', 'Rela', 'Nr2f6', 'Hopx'}
- - - - -
last only in simic:  12
{'Mier3', 'Ncoa2', 'Mxd4', 'Foxp1', 'Zfp637', 'Zbtb7b', 'Purb', 'Bhlhe40',
'Rcor1', 'Dnajc1', 'Cebpd', 'Nfkbia'}
- - - - -
>>>>>>>>> no-simic >>>>>>>>>
top only in no-simic:  14
{'Rora', 'Onecut2', 'Peg3', 'Nr1h4', 'Nr1h3', 'Tfam', 'Irf9', 'Tfdp2', 'Junb',
'Gata1', 'Hmg20b', 'Zfp91', 'Sox5', 'Smarce1'}
- - - - -
last only in no-simic:  16
{'Cdc51', 'Tbx3', 'Creb3l3', 'Rara', 'Atrx', 'Hhex', 'Ahr', 'Smad4', 'Thrb',
'Smarcc2', 'Cebpb', 'Phf5a', 'Csrnp1', 'Id3', 'Sp3', 'Jund'}
- - - - -
>>>>>>>>> contradicting cases >>>>>>>>>
top in simic, but last in no-simic:  2
{'Id3', 'Phf5a'}
- - - - -
last in simic, but top in no-simic:  0
set()
- - - - -
```

2 TFs that are only rank top variant in simic

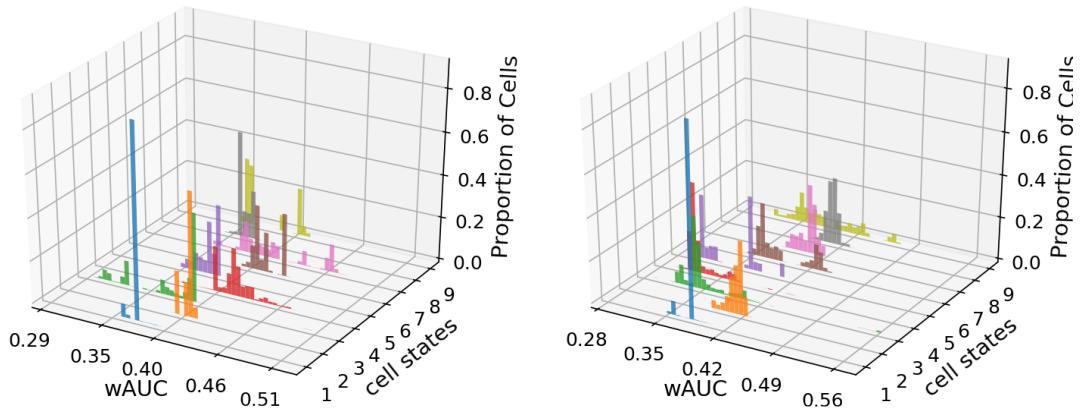
Ncor1



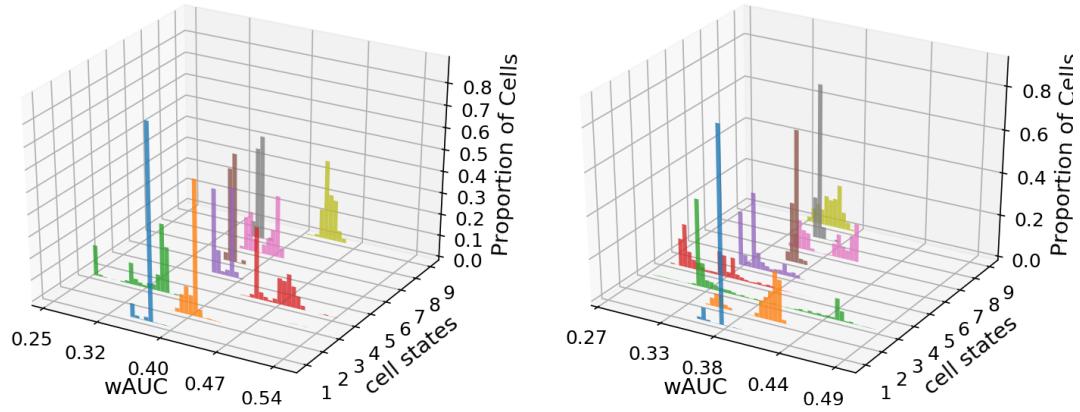
Epas1



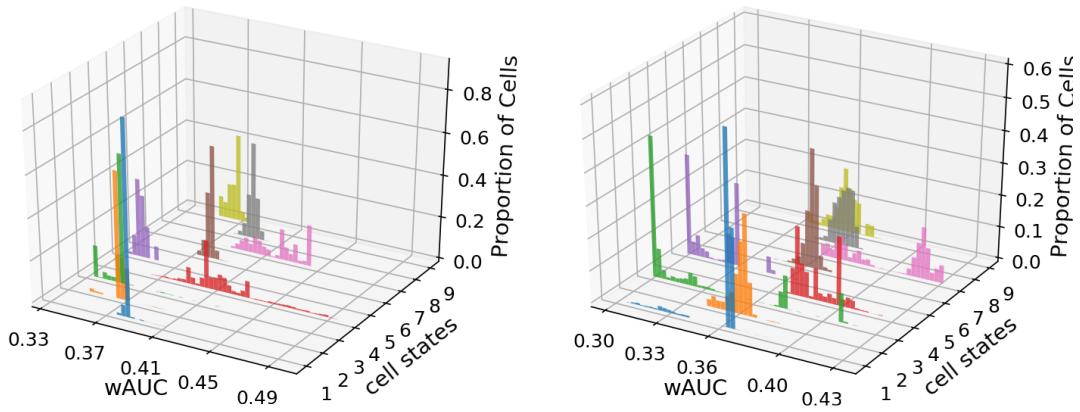
Hes6



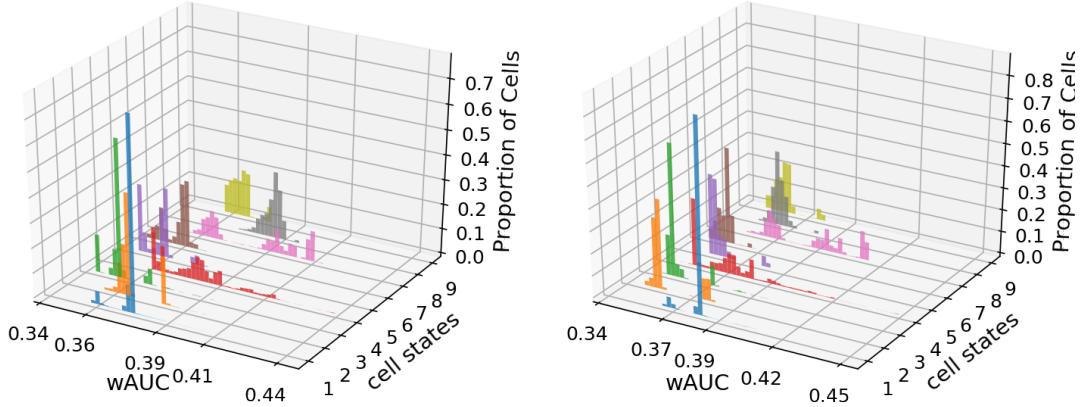
Mlx



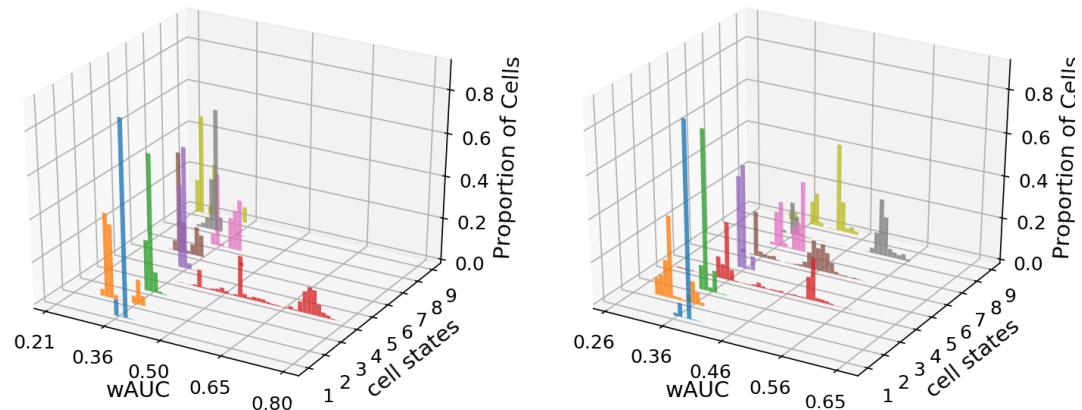
Hnf4a



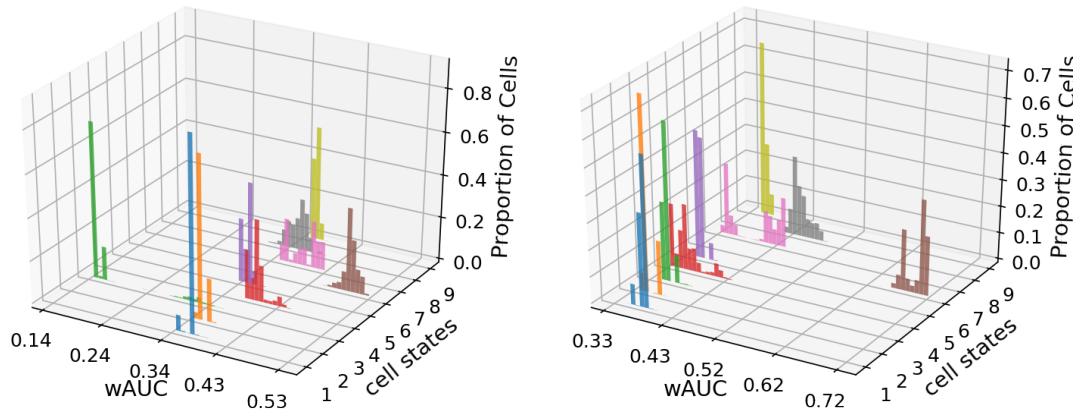
Dnmt1



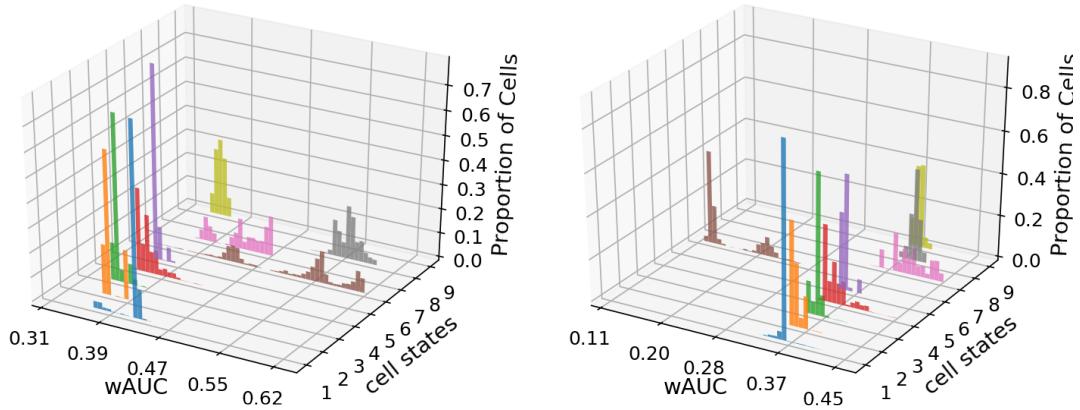
Crem



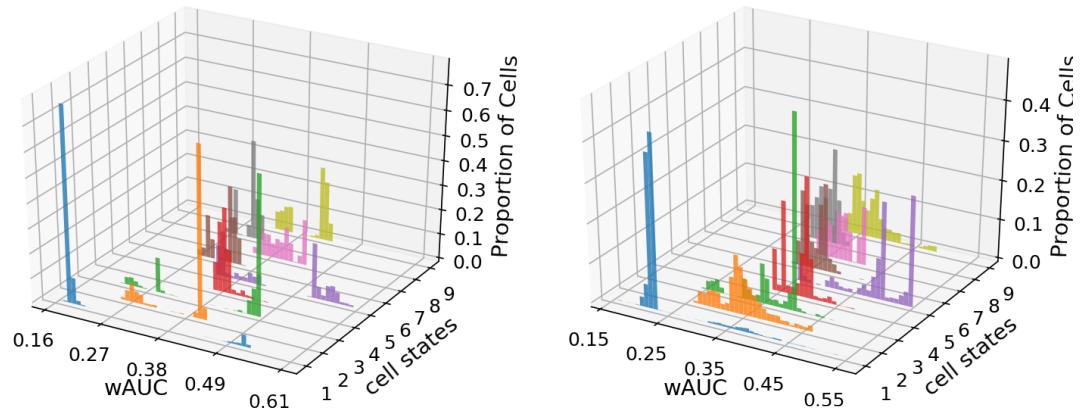
Nfia



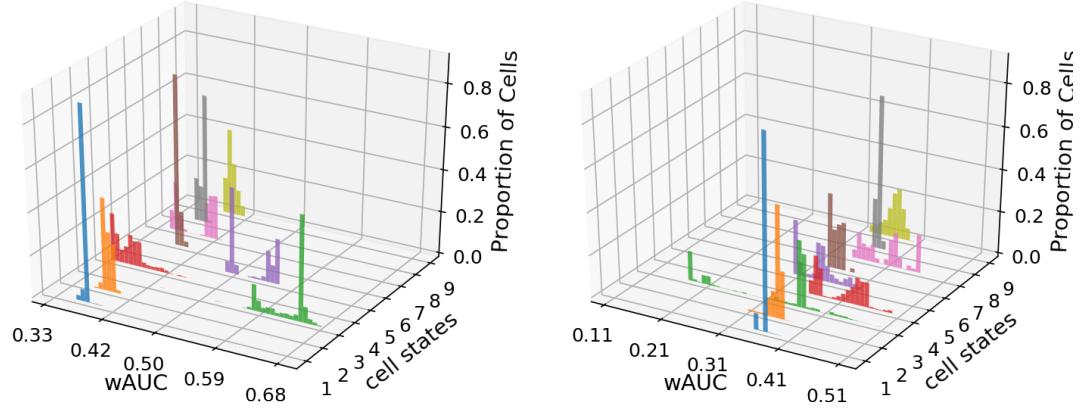
Nono



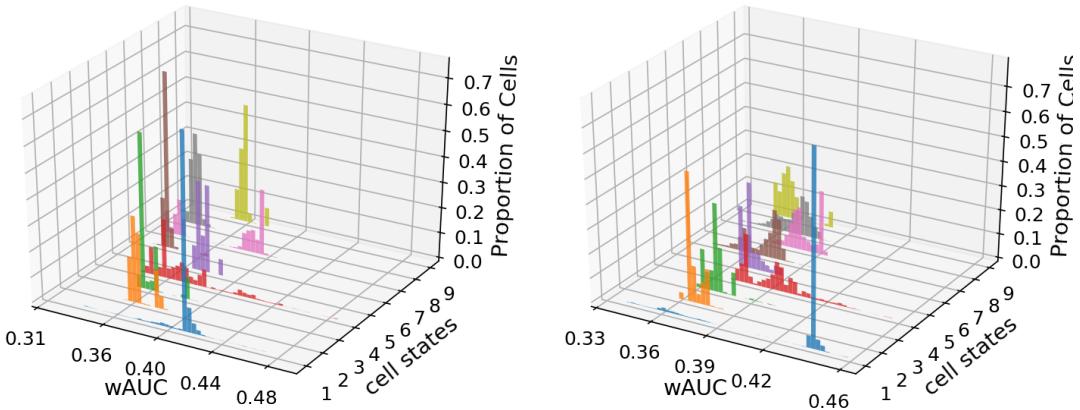
Foxq1



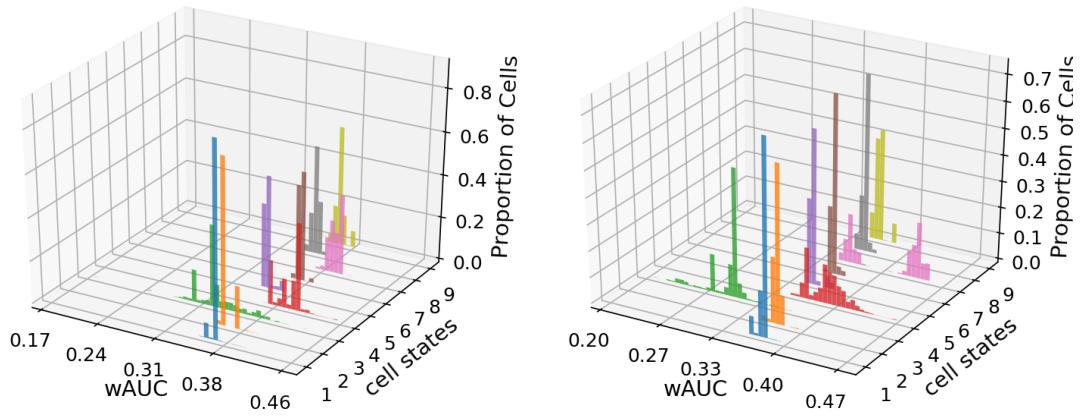
Phf5a



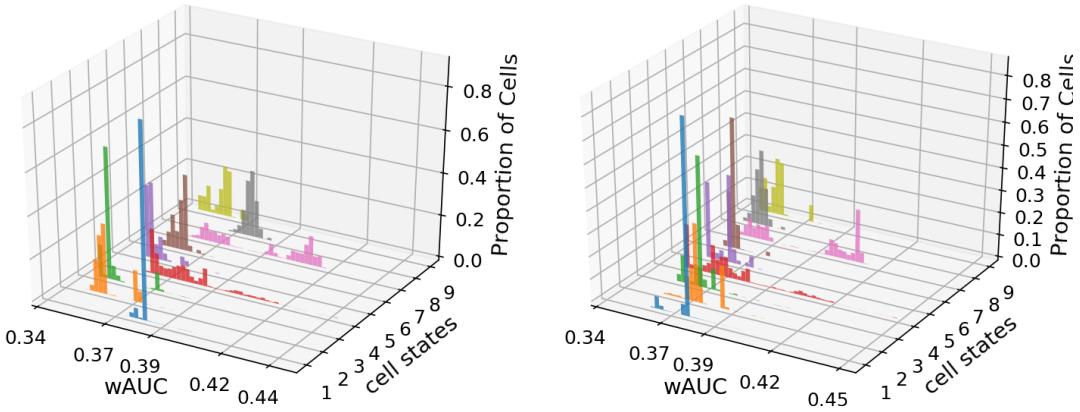
Id3



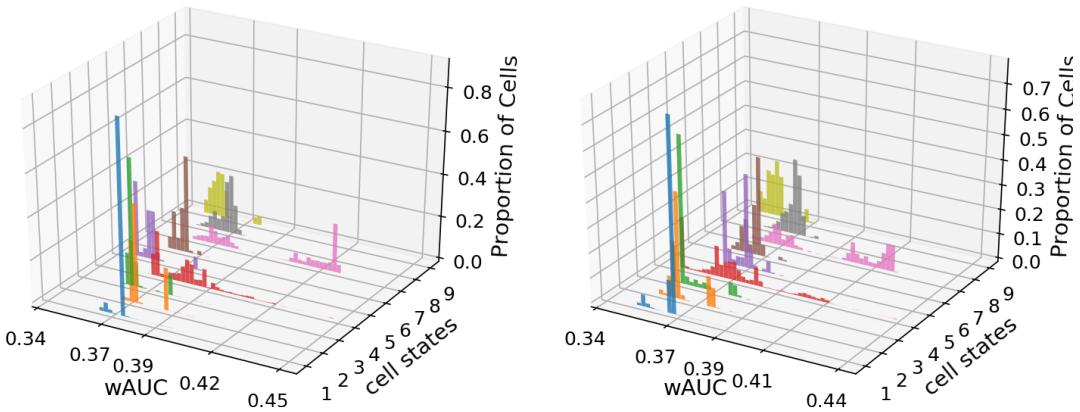
Prox1



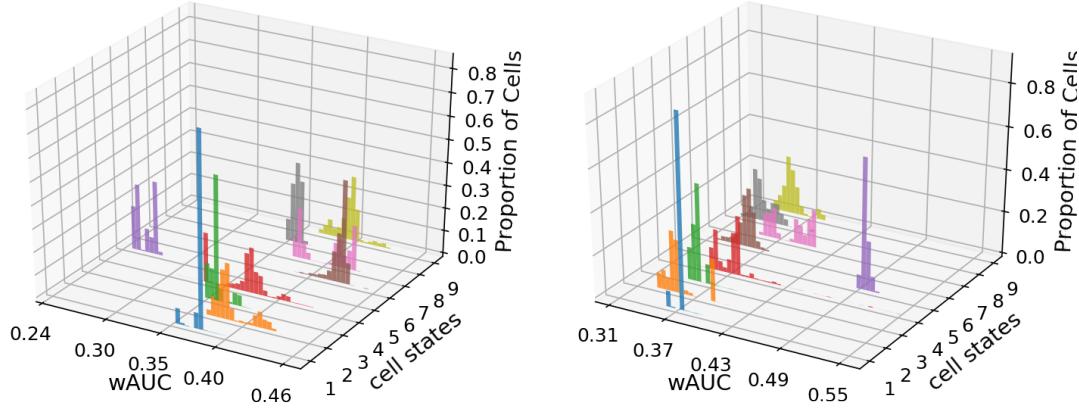
Stat5b



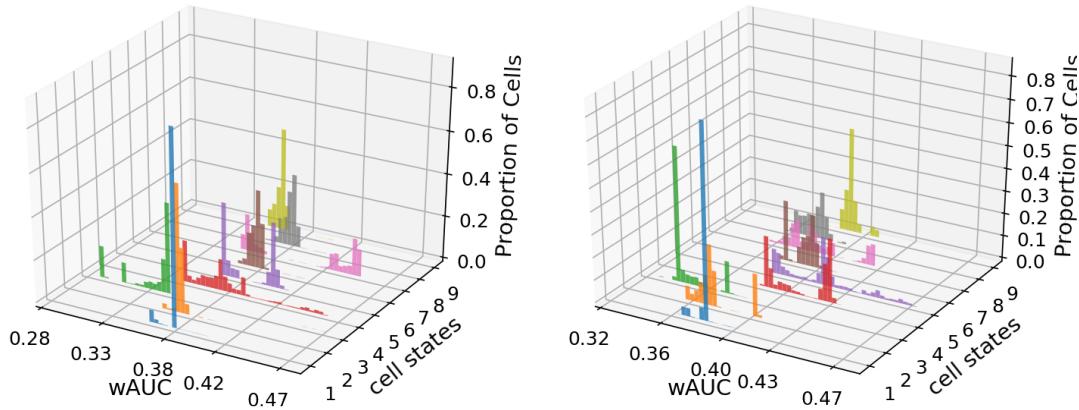
Rela



Nr2f6

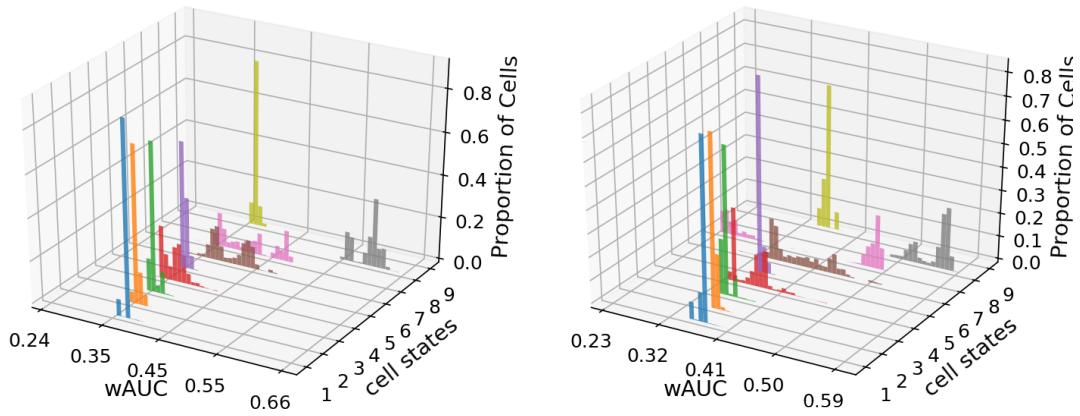


Hopx

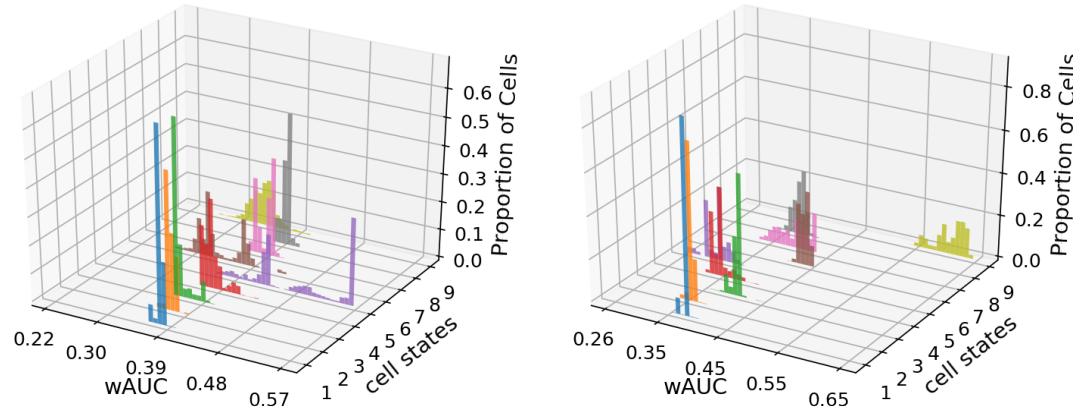


3 TFs that are only rank top varint in LASSO

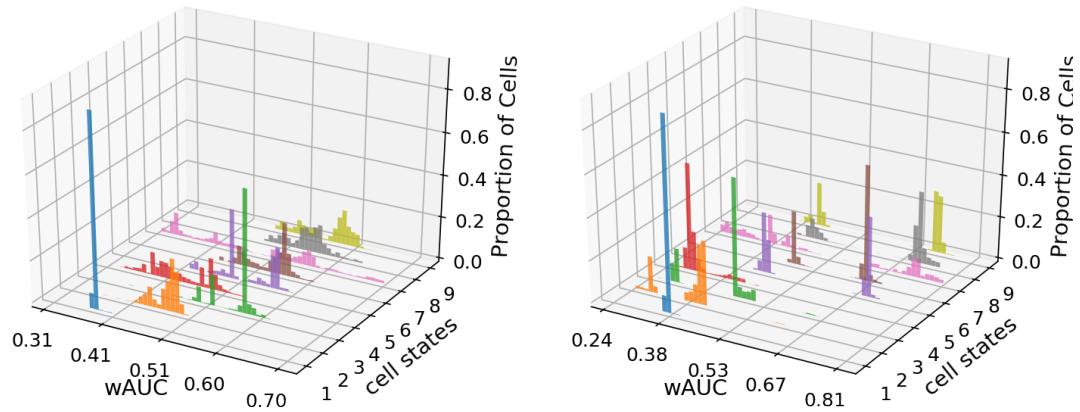
Rora



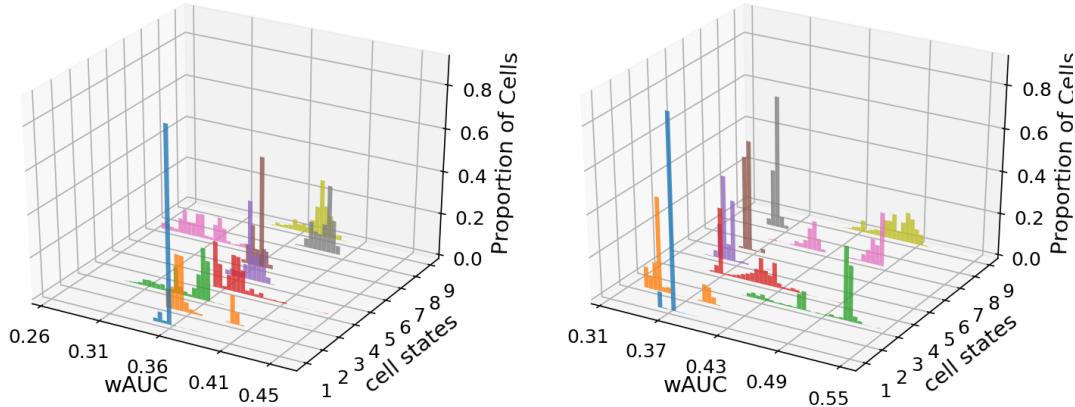
Onecut2



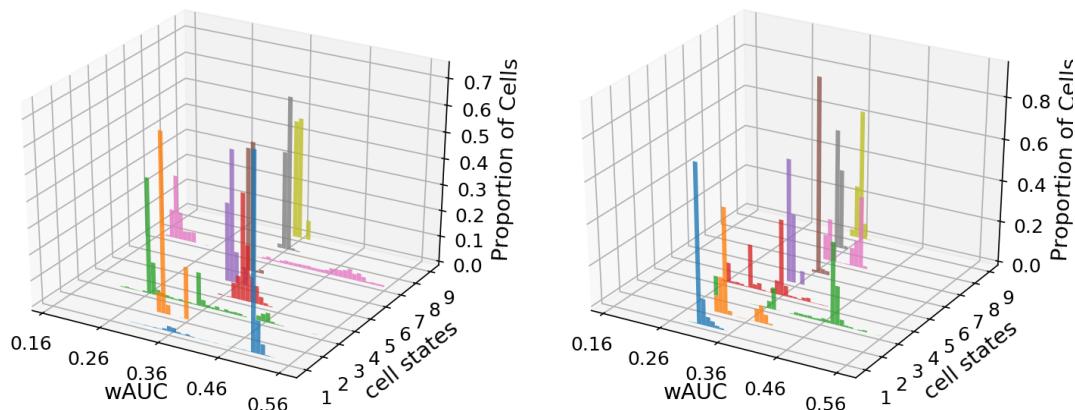
Peg3



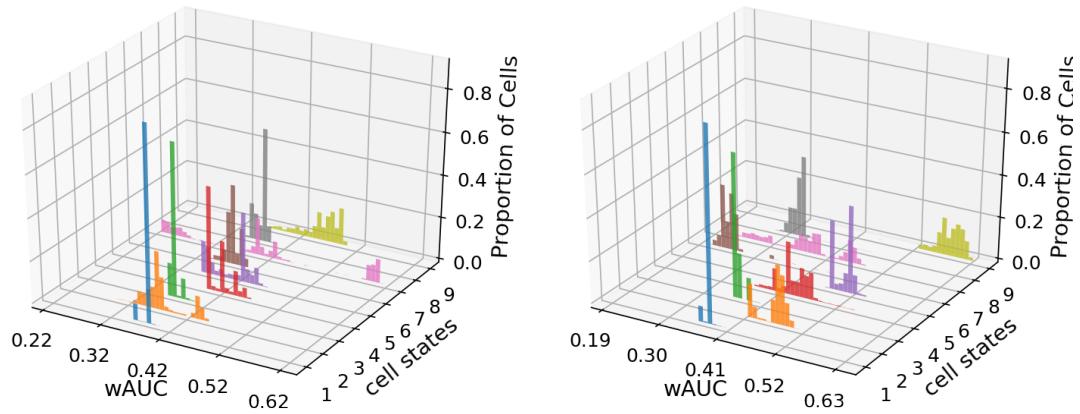
Nr1h4



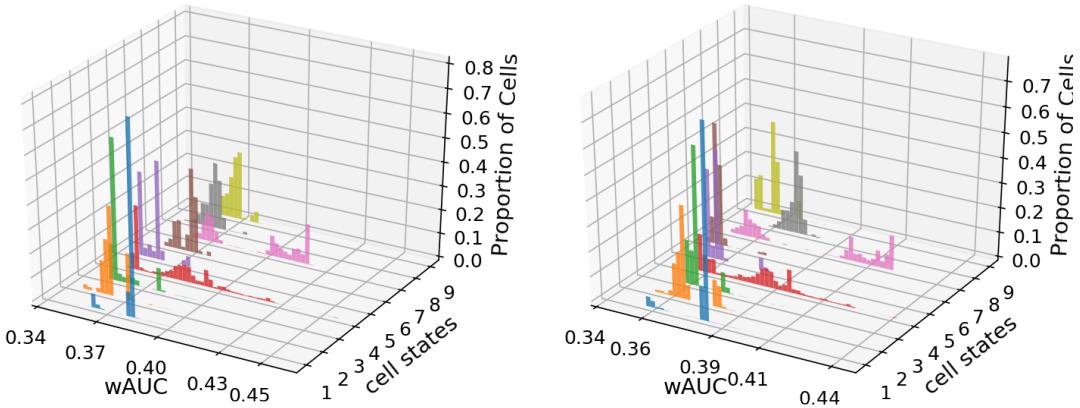
Nr1h3



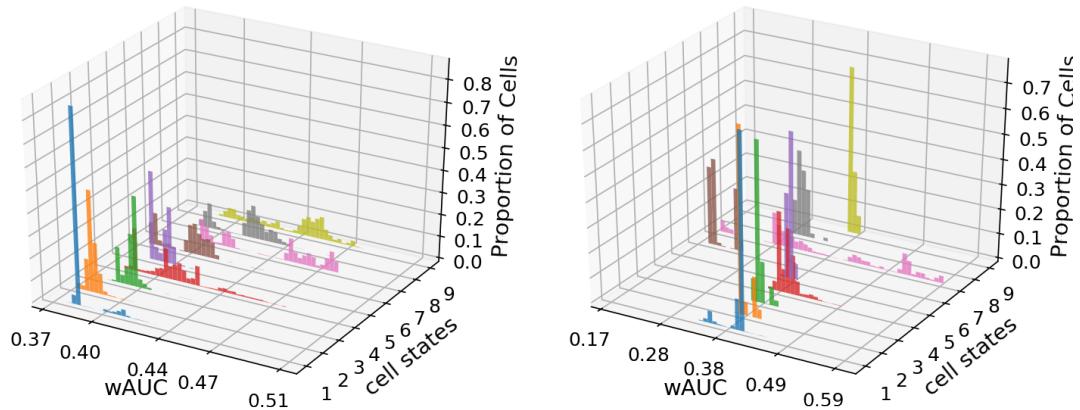
Tfam



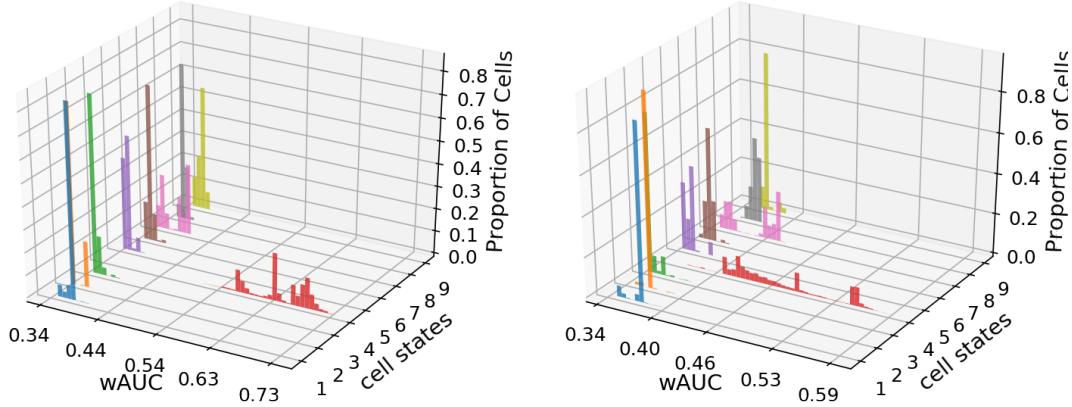
Irf9



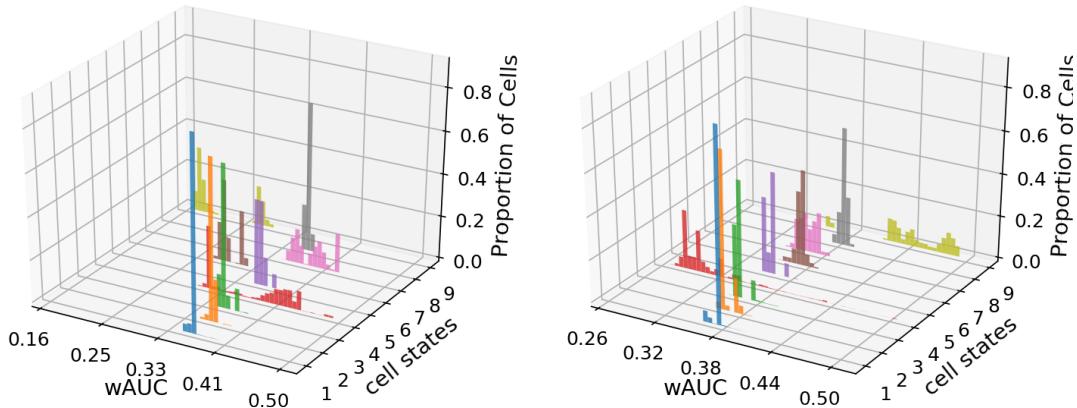
Tfip2



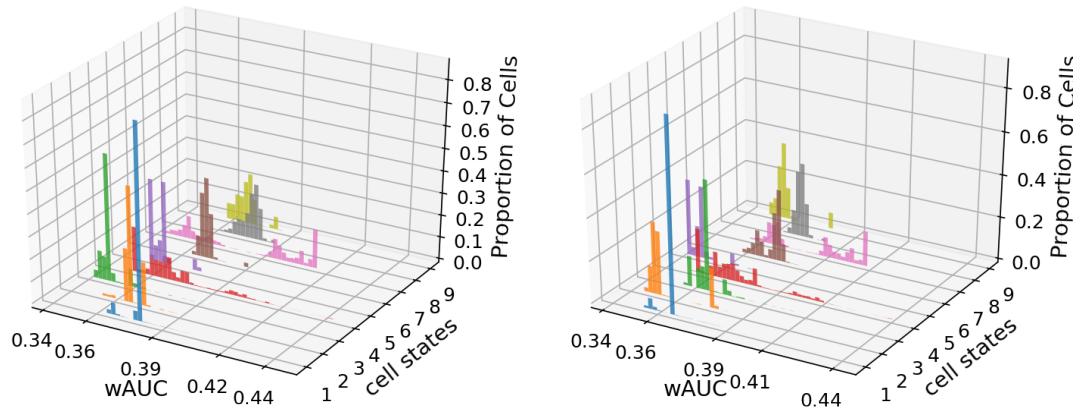
Junb



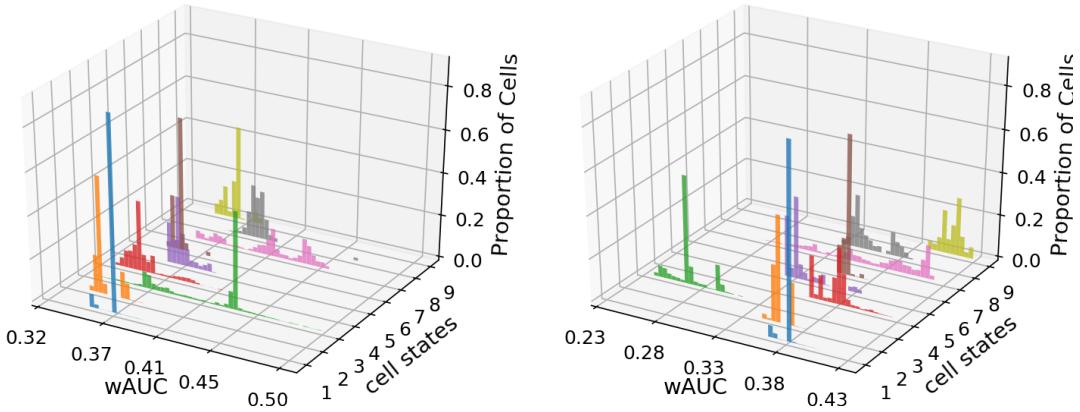
Gata1



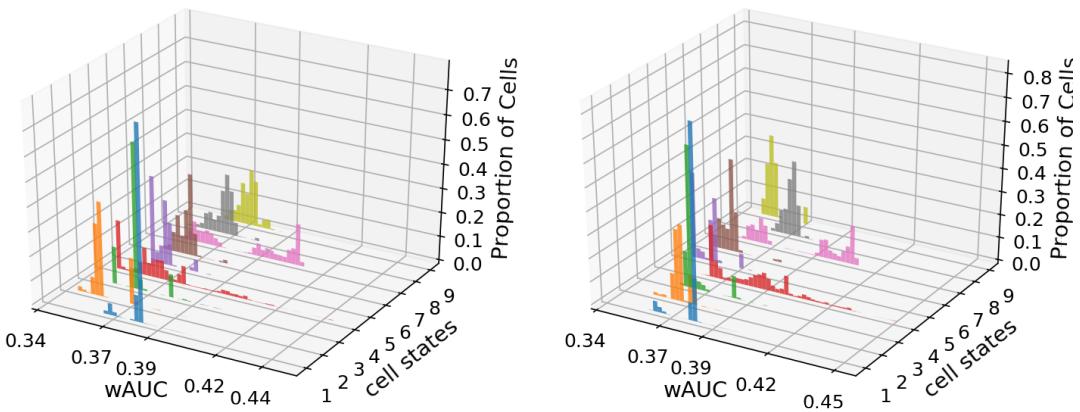
Hmg20b



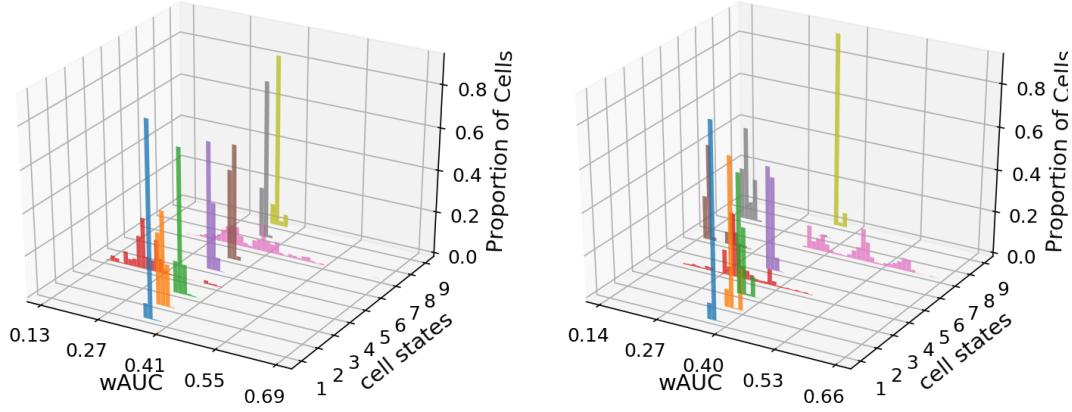
Zfp91



Sox5

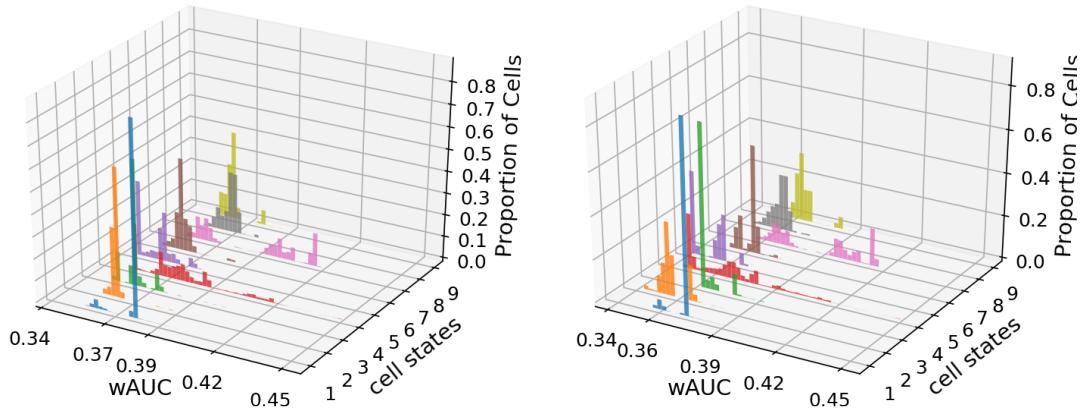


Smarce1

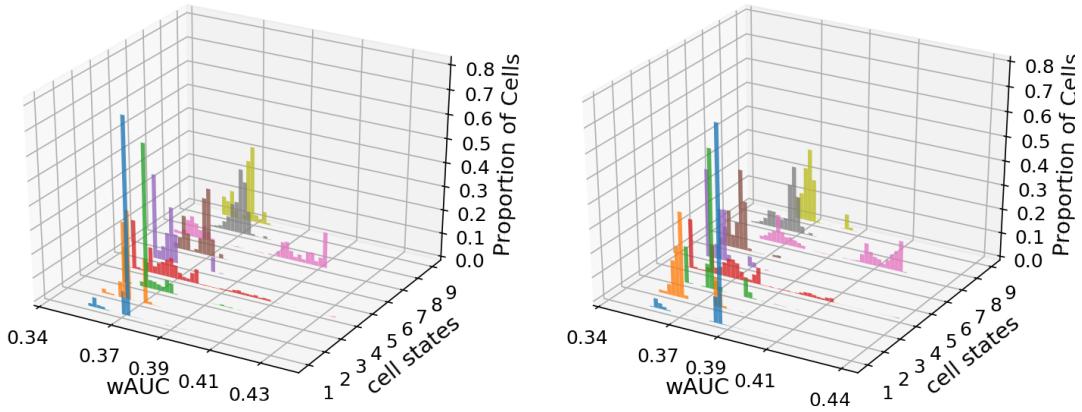


4 TFs that are only rank last variant in simic

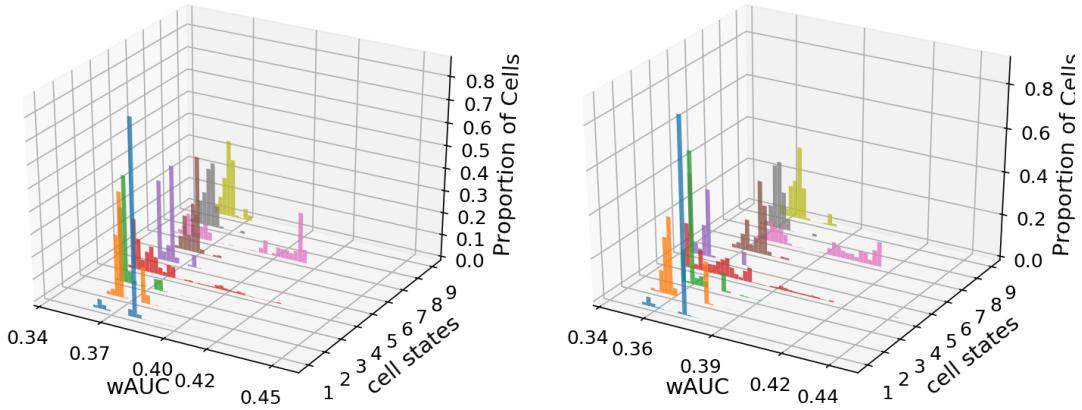
Mier3



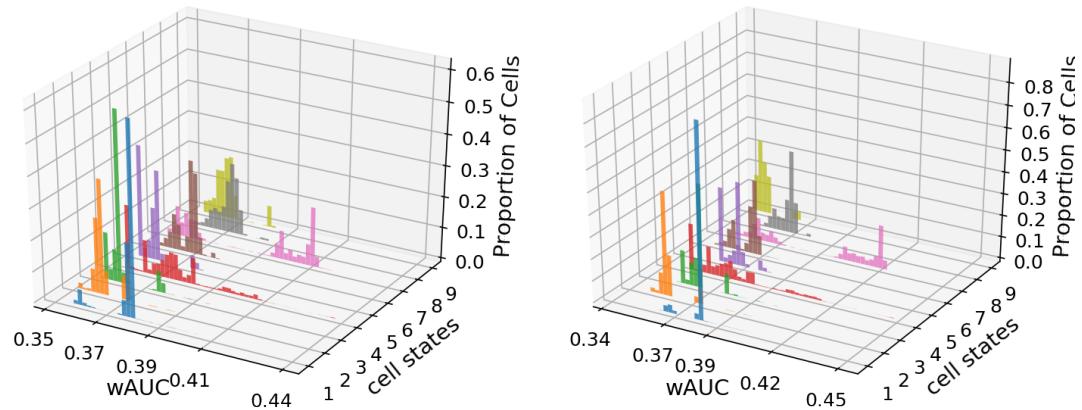
Ncoa2



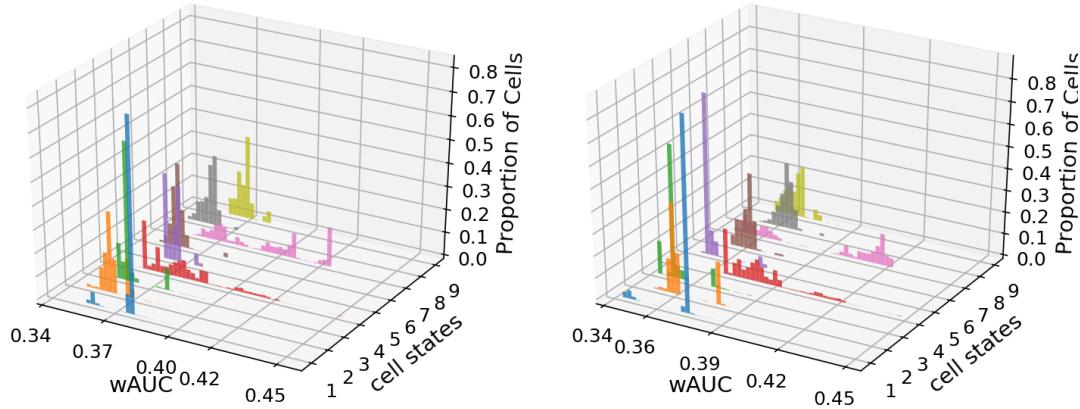
Mxd4



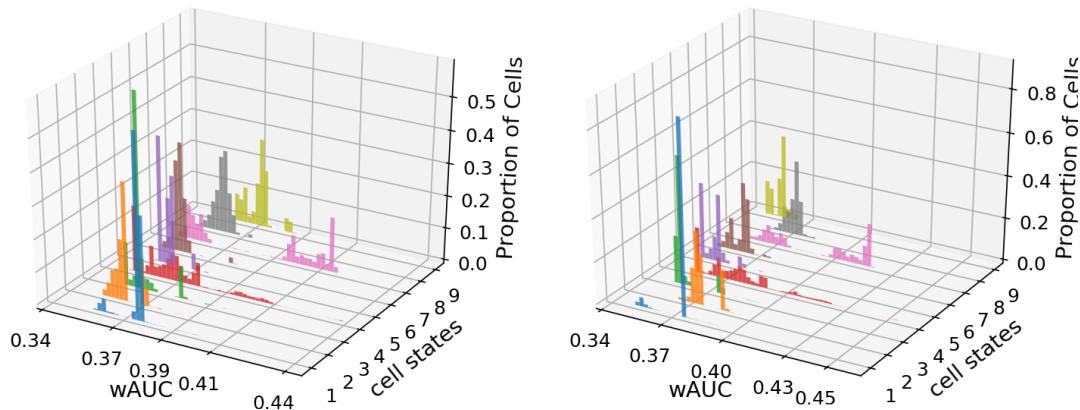
Foxp1



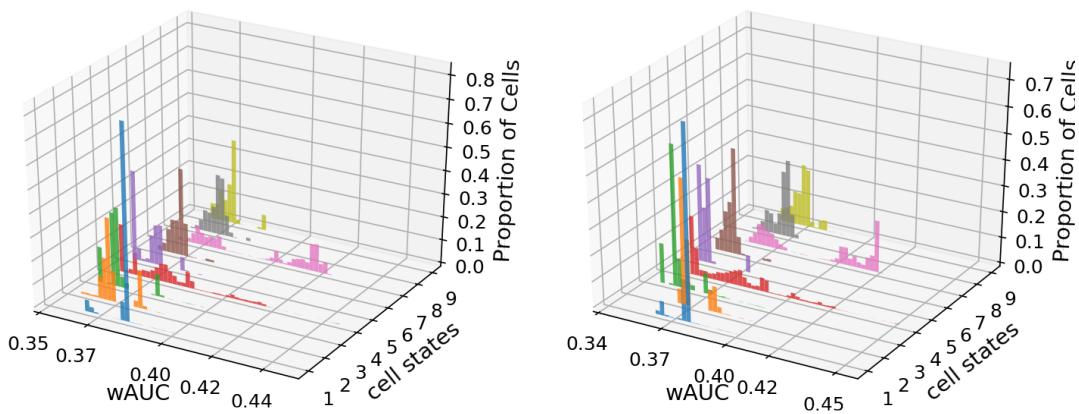
Zfp637



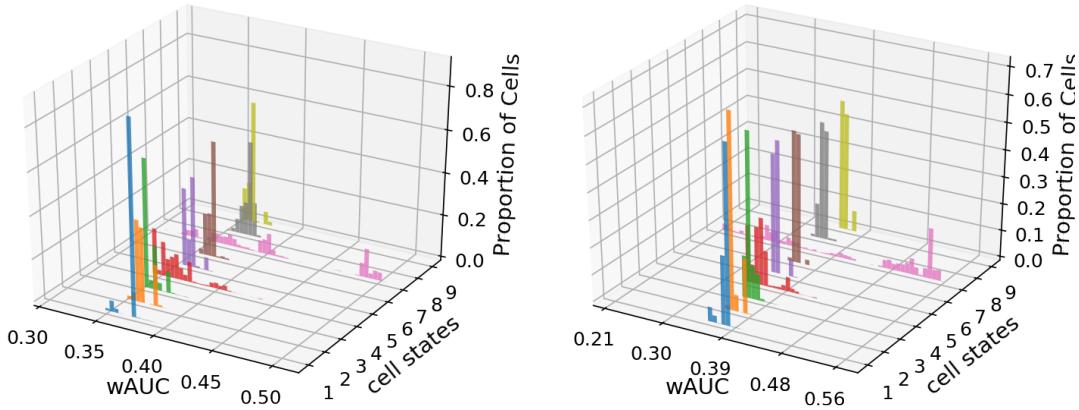
Zbtb7b



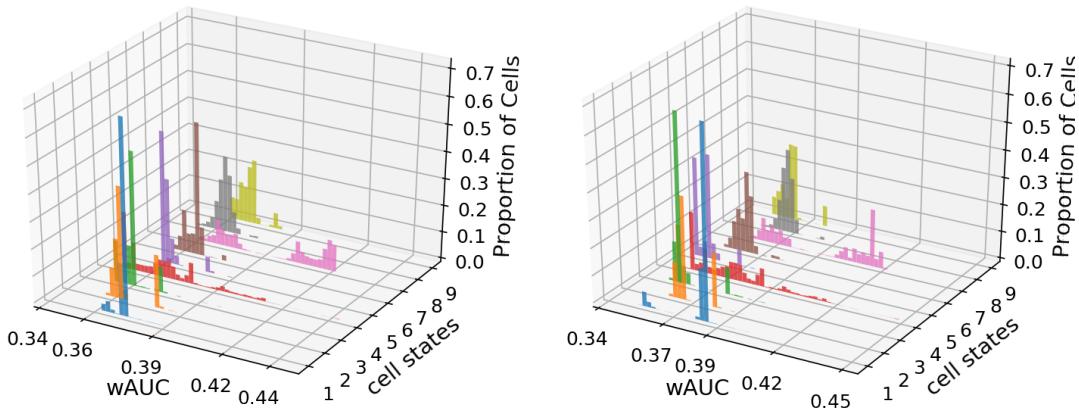
Purb



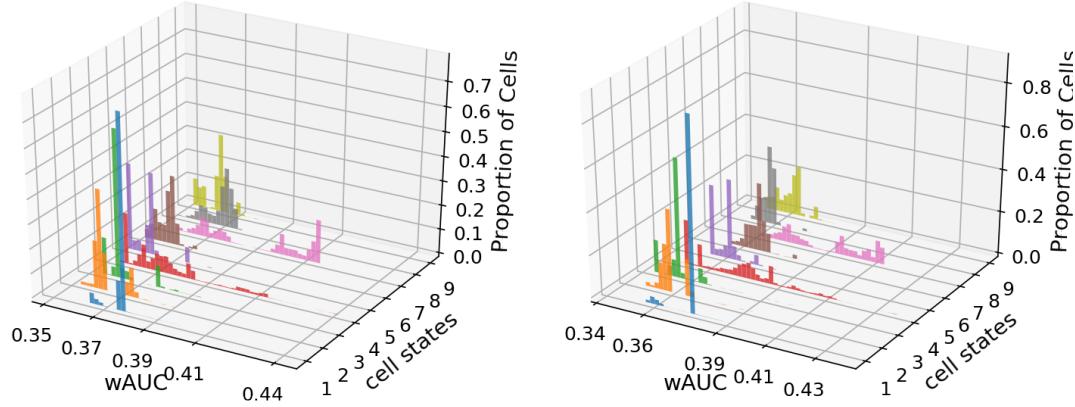
Bhlhe40



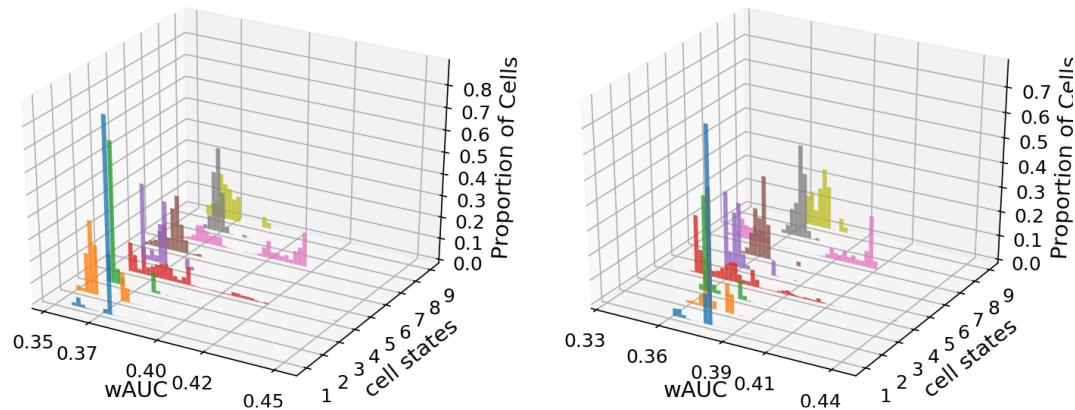
Rcor1



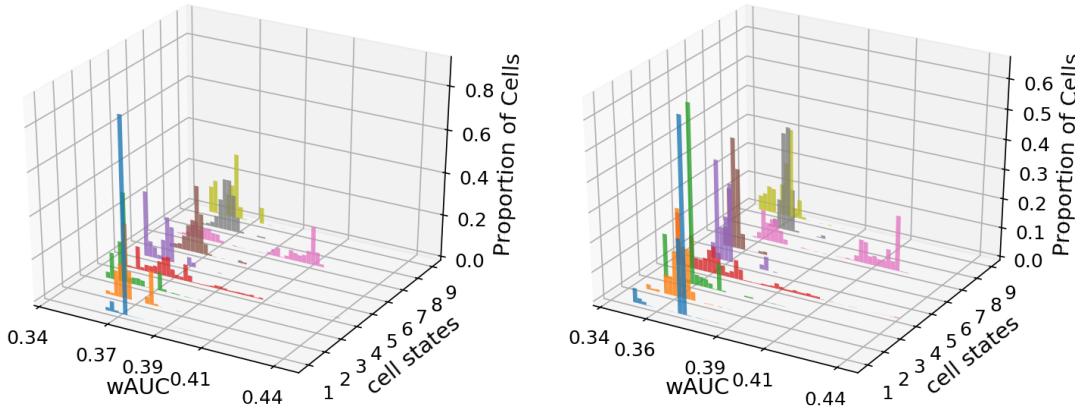
Dnajc1



Cebpd

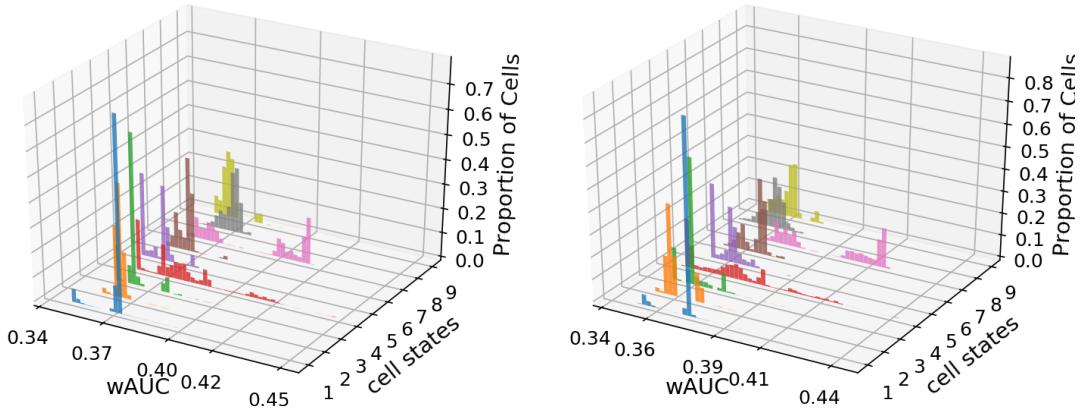


Nfkbia

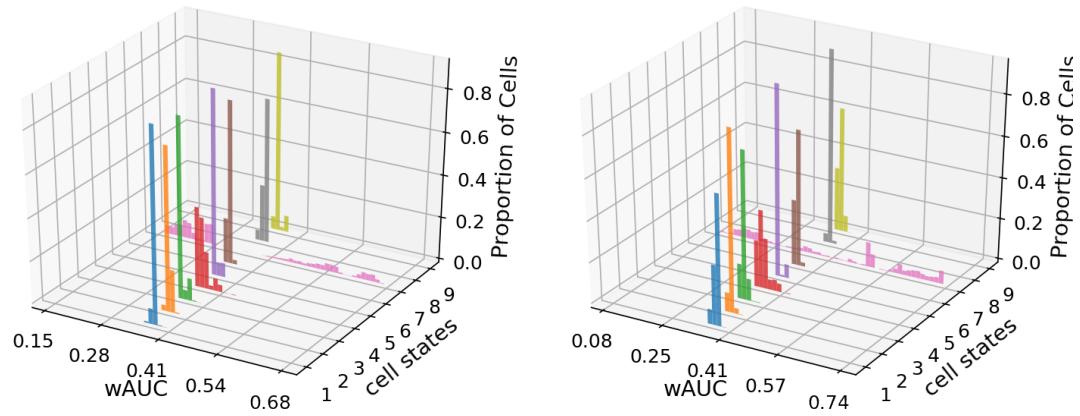


5 TFs that are only rank last variant in LASSO

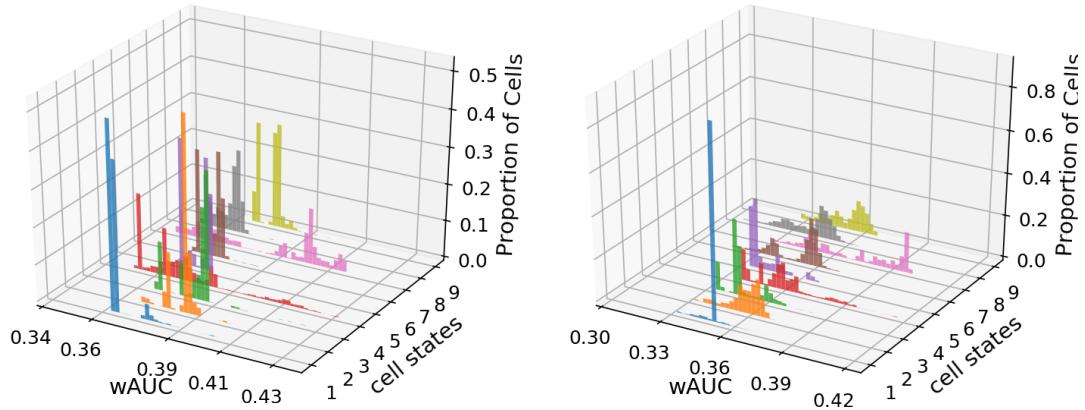
Cdc51



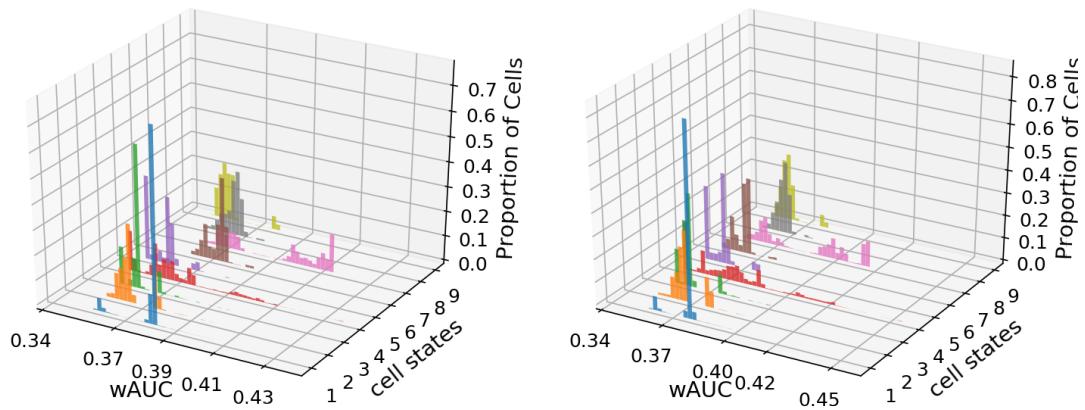
Tbx3



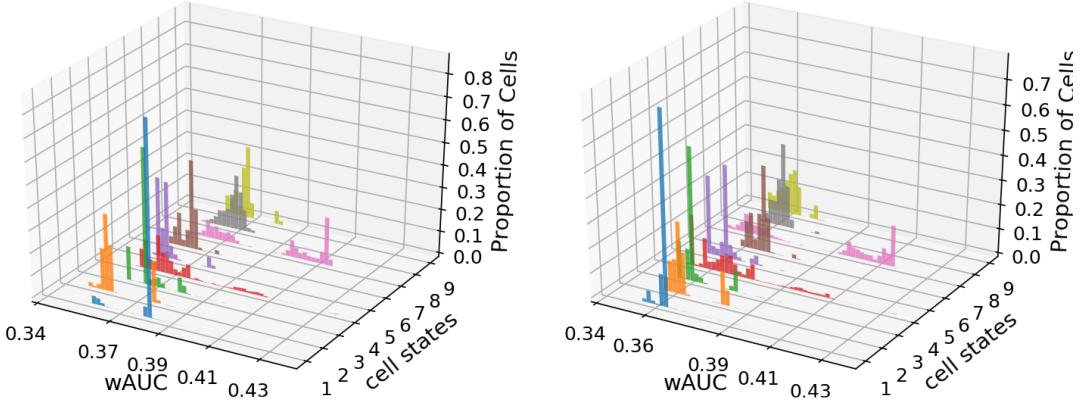
Creb3l3



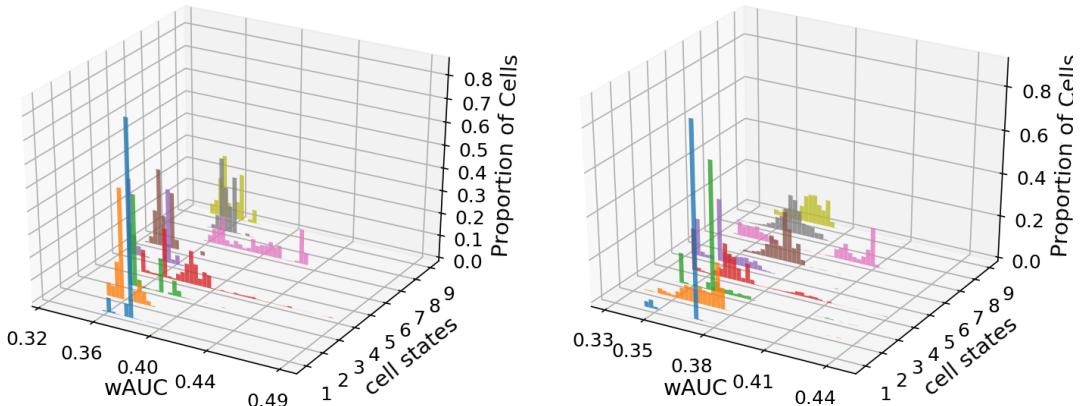
Rara



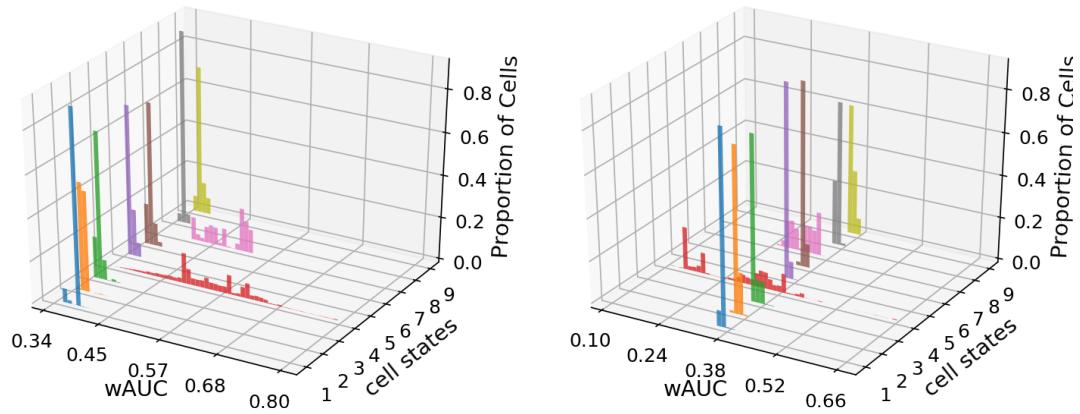
Atrx



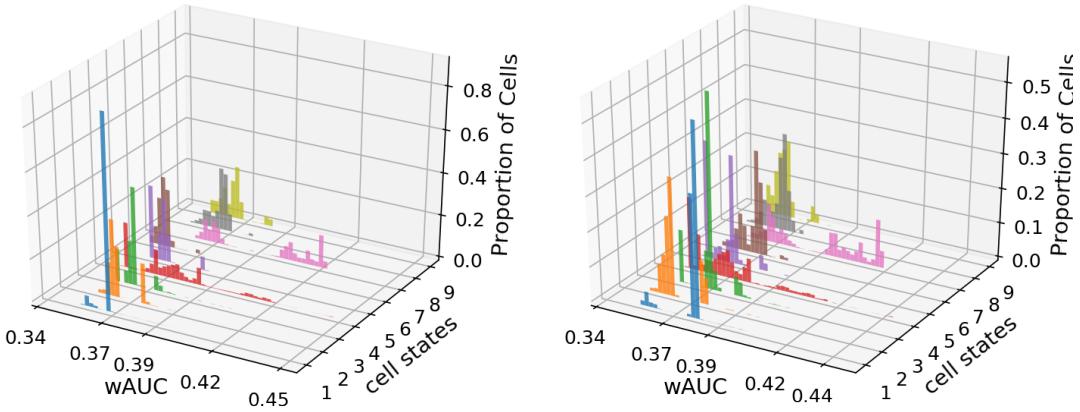
Hhex



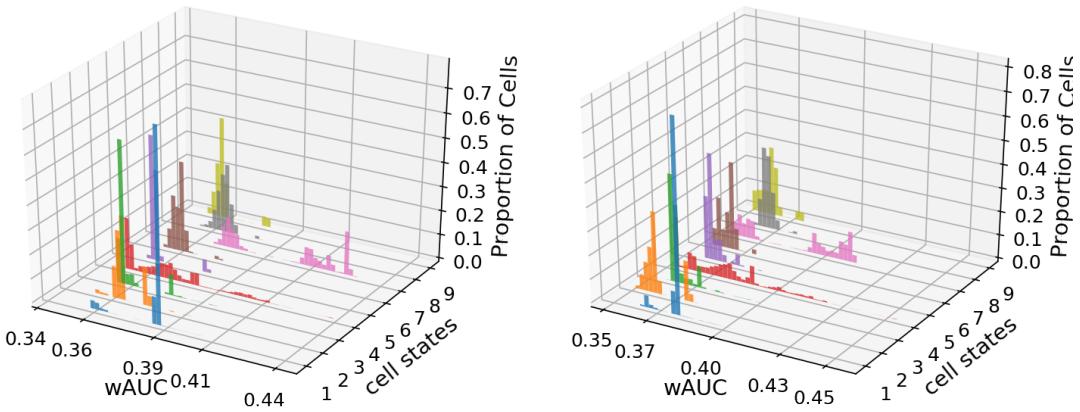
Ahr



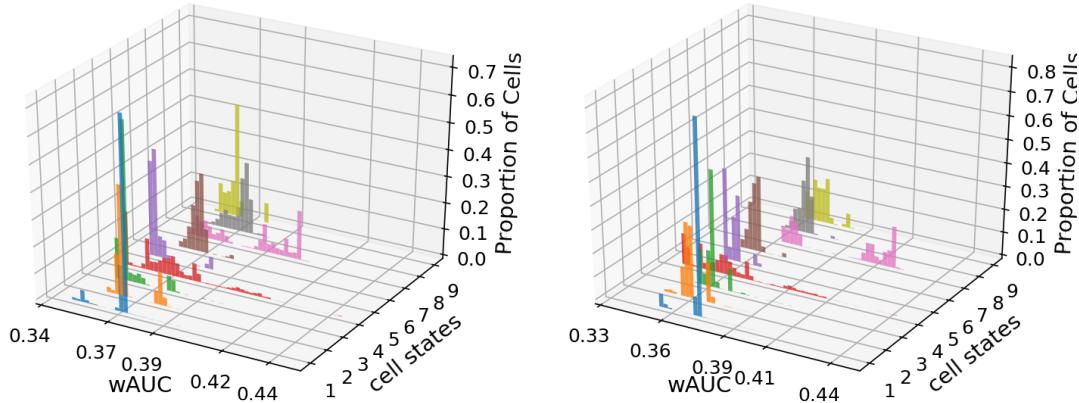
Smad4



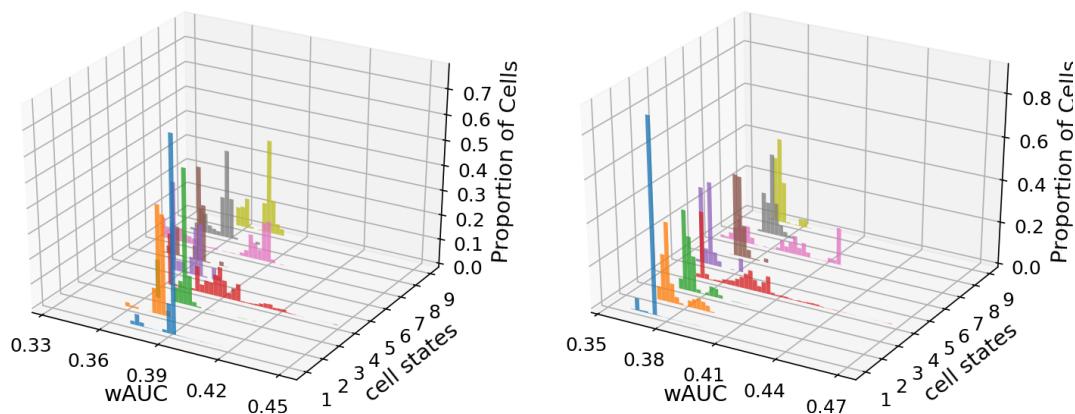
Thrb



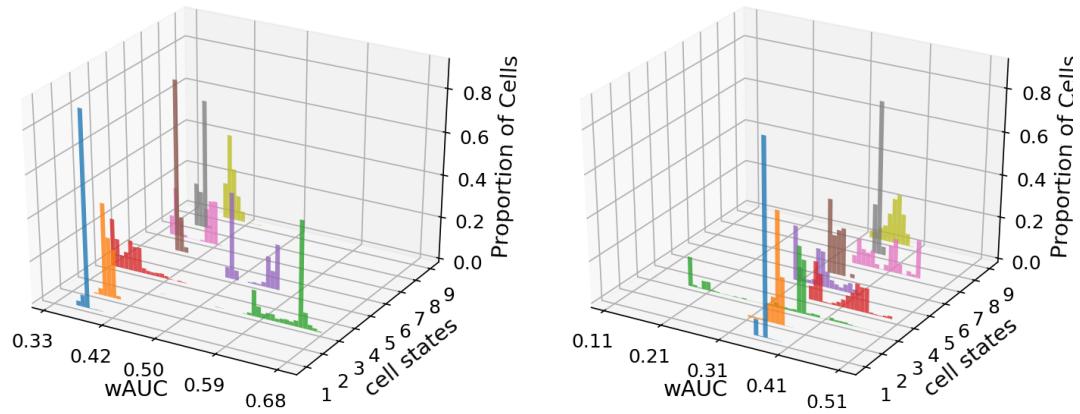
Smarcc2



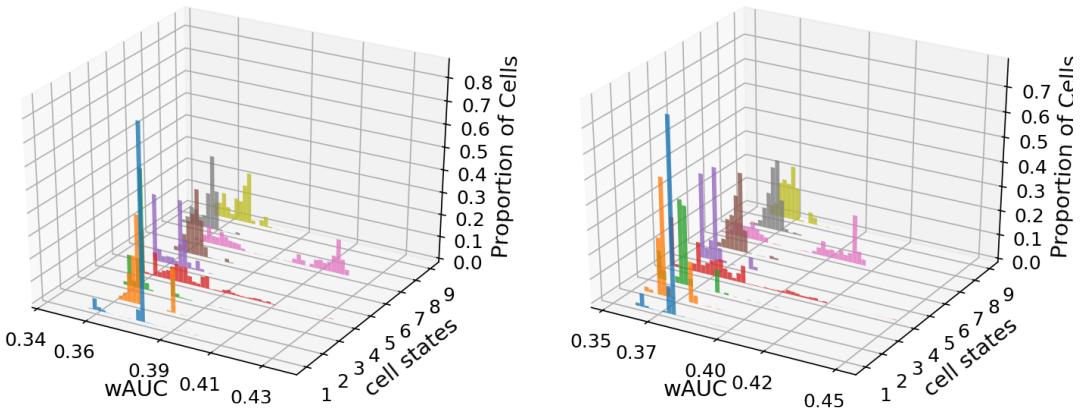
Cebpb



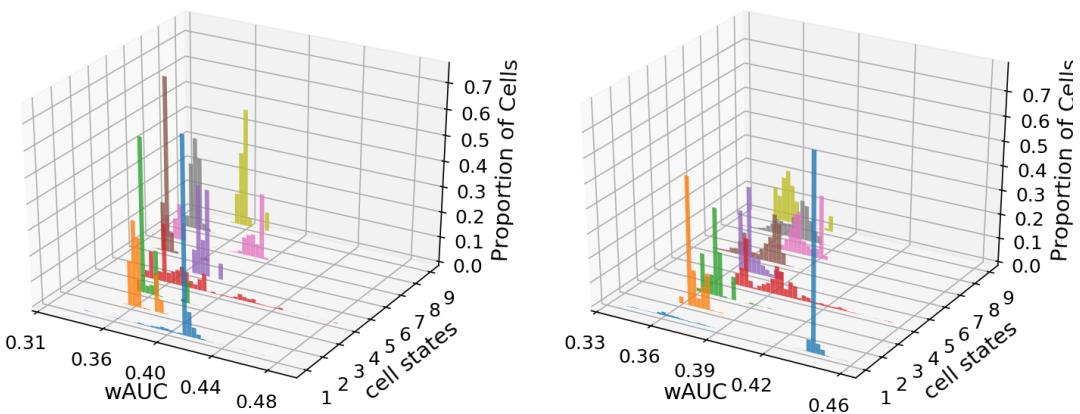
Phf5a



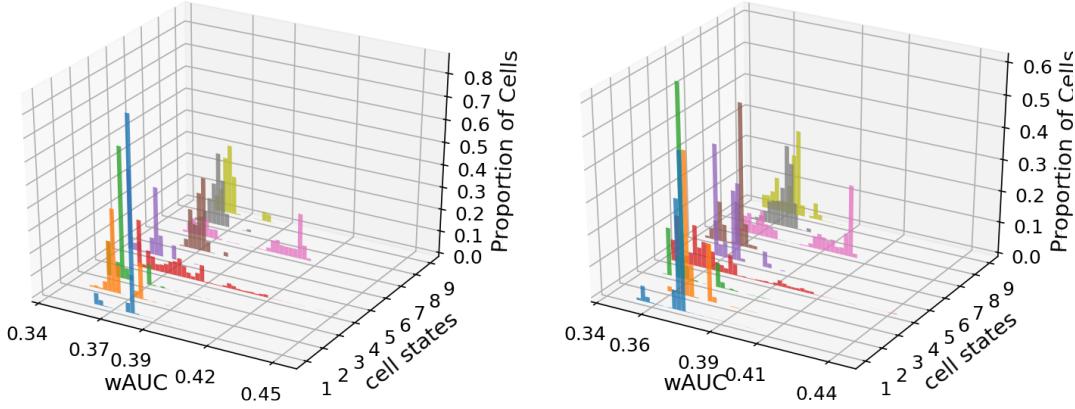
Csrnp1



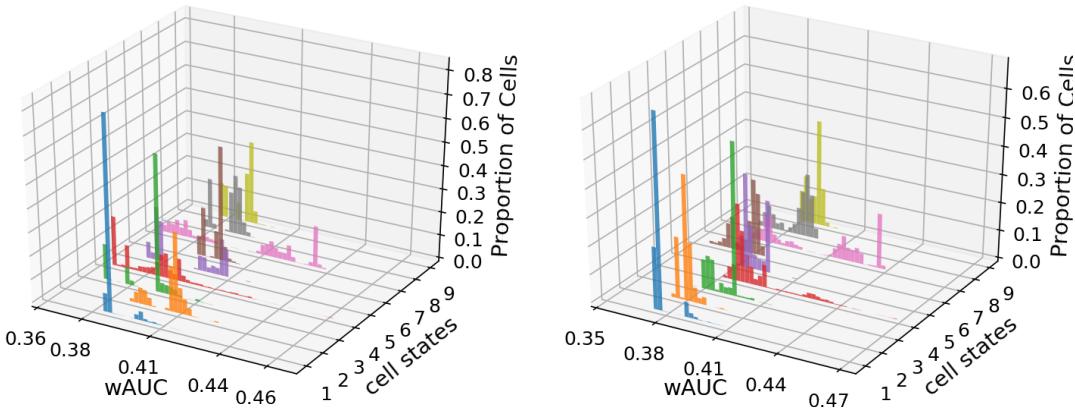
Id3



Sp3

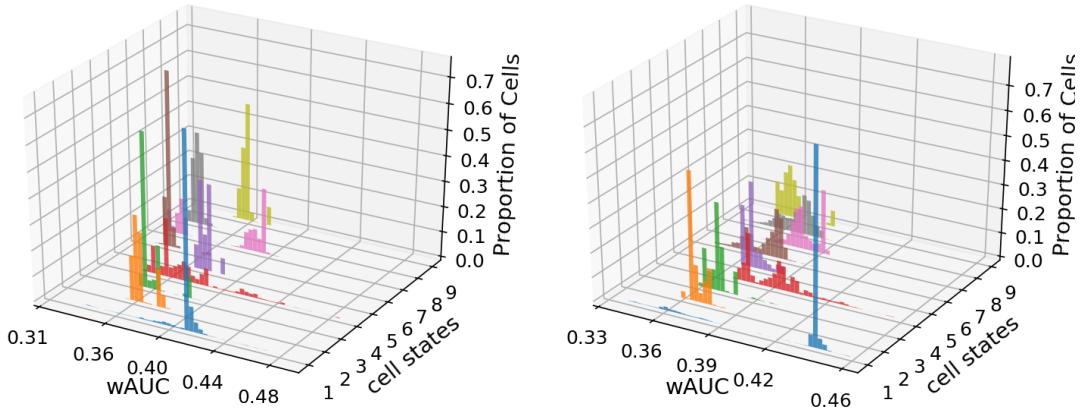


Jund

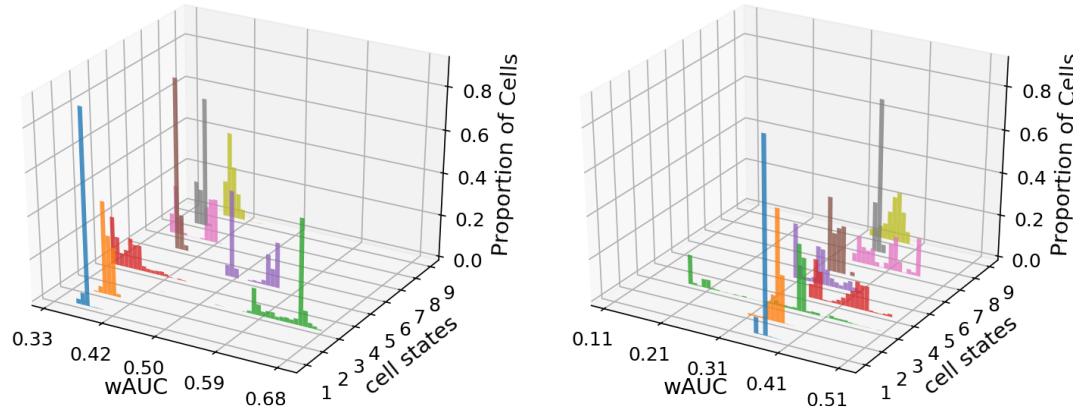


6 TFs that are rank top in simic, but last in LASSO

Id3

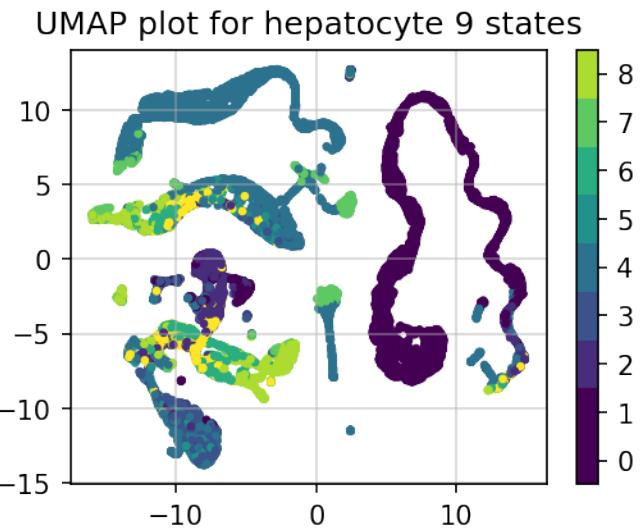


Phf5a



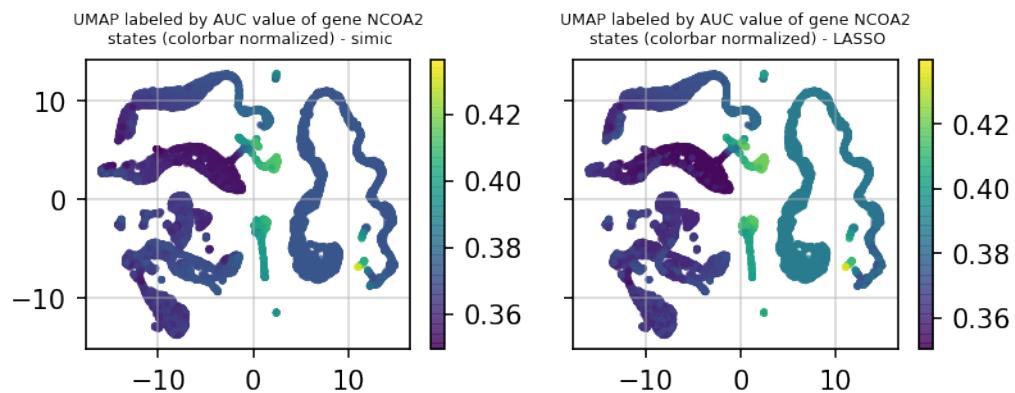
7 TFs that are rank last in simic, but top in LASSO

8 True label of 9-states



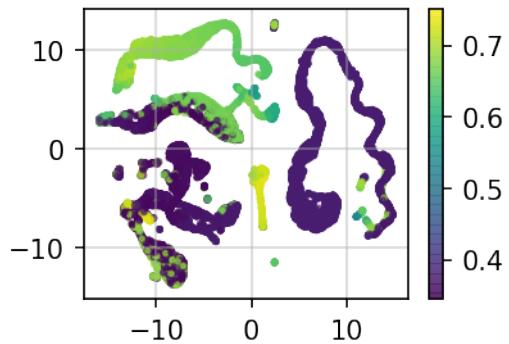
9 UMAP Plots for all TFs

NCOA2

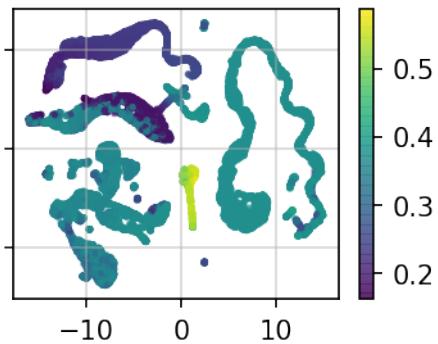


STAT1

UMAP labeled by AUC value of gene STAT1
states (colorbar normalized) - simic

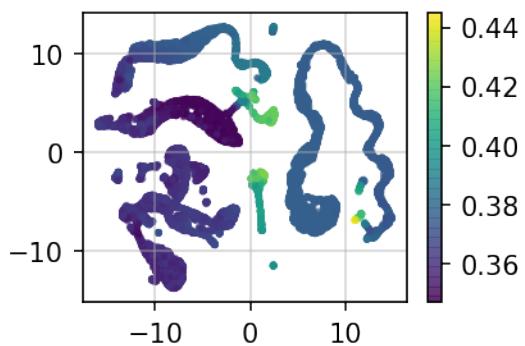


UMAP labeled by AUC value of gene STAT1
states (colorbar normalized) - LASSO

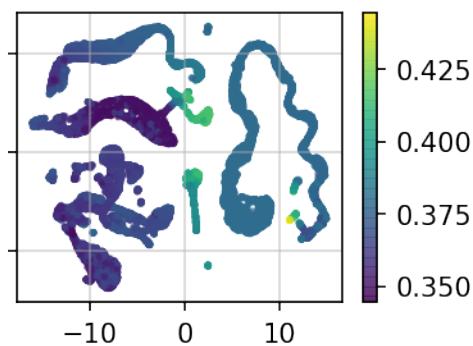


LRRFIP1

UMAP labeled by AUC value of gene LRRFIP1
states (colorbar normalized) - simic

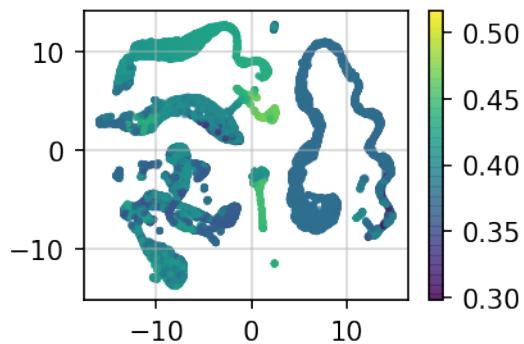


UMAP labeled by AUC value of gene LRRFIP1
states (colorbar normalized) - LASSO

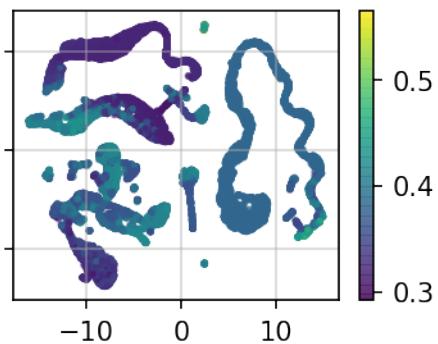


HES6

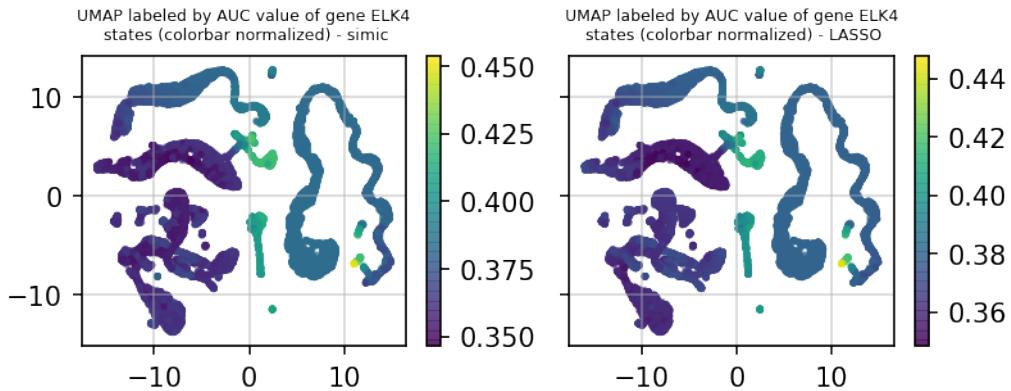
UMAP labeled by AUC value of gene HES6
states (colorbar normalized) - simic



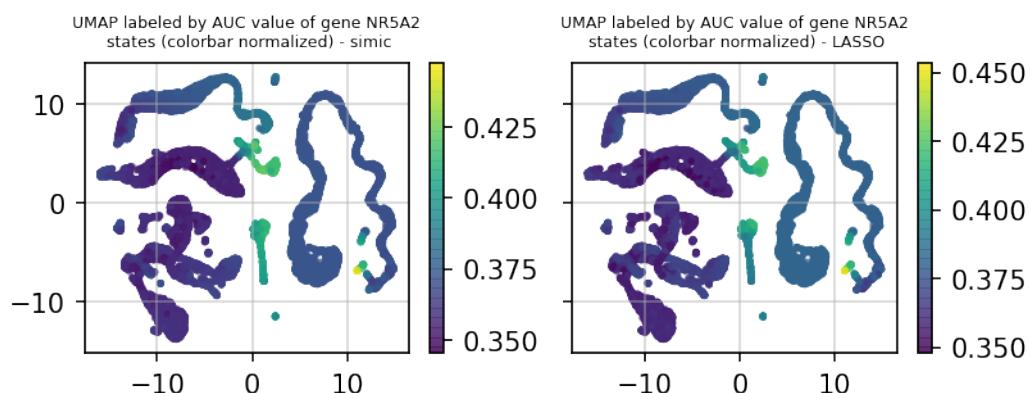
UMAP labeled by AUC value of gene HES6
states (colorbar normalized) - LASSO



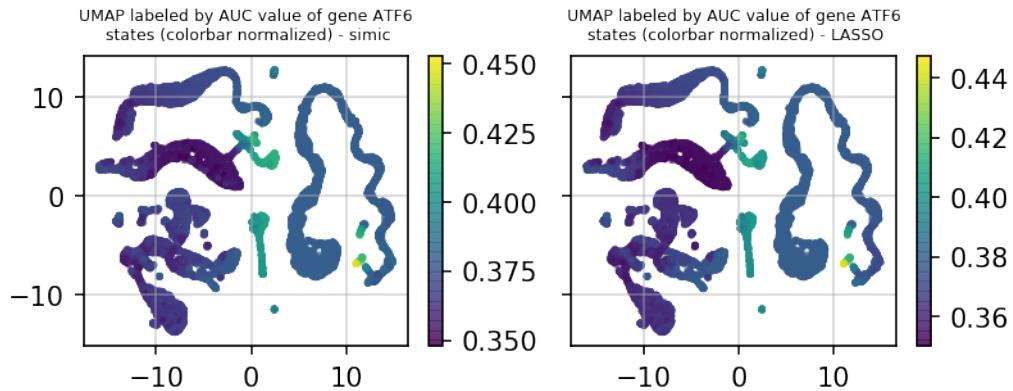
ELK4



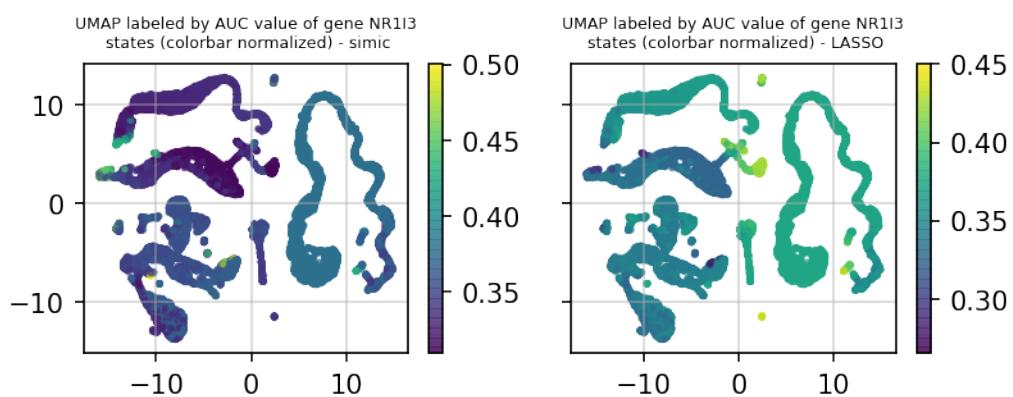
NR5A2



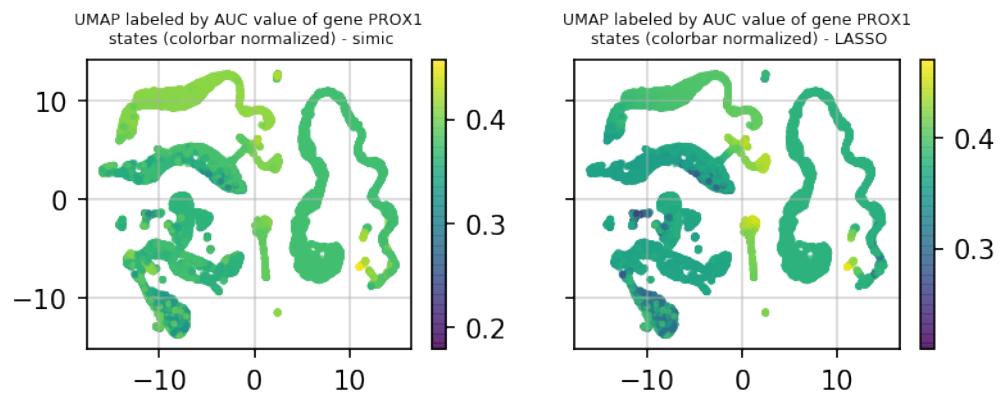
ATF6



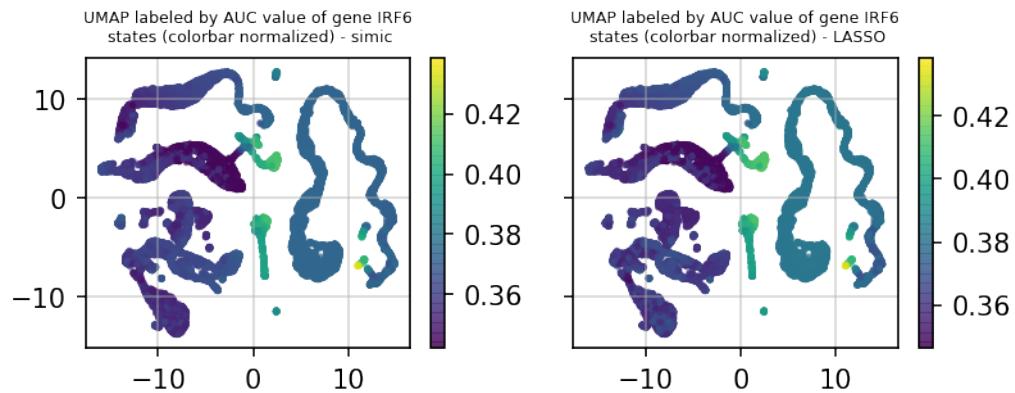
NR1I3



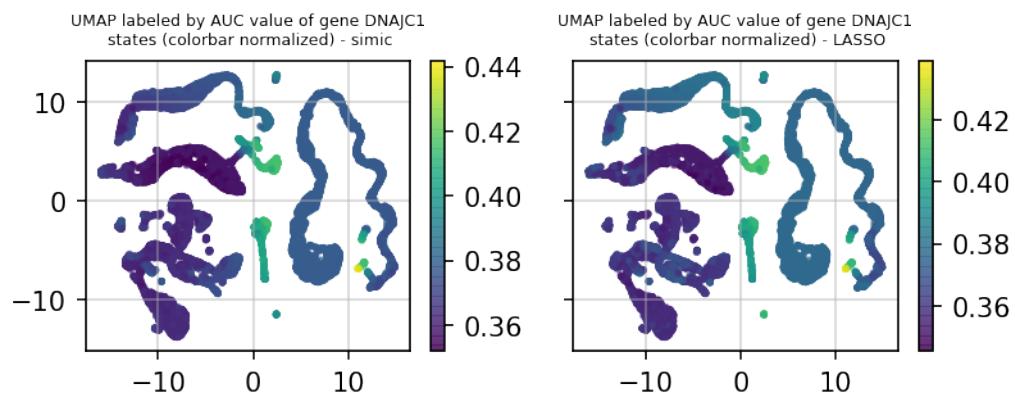
PROX1



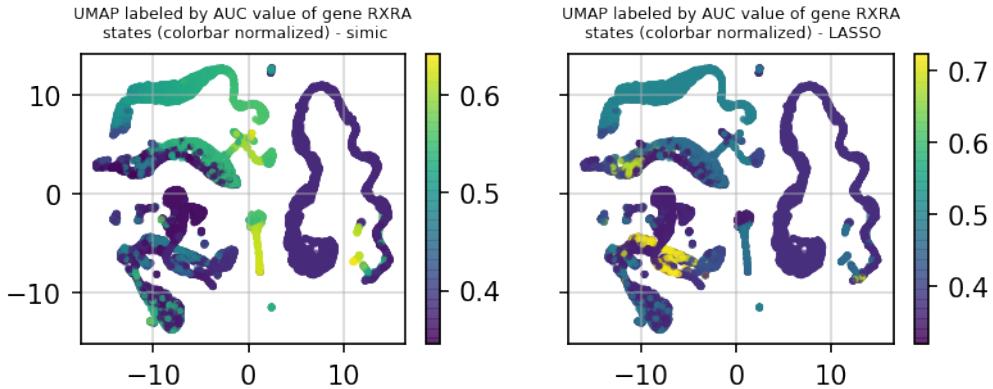
IRF6



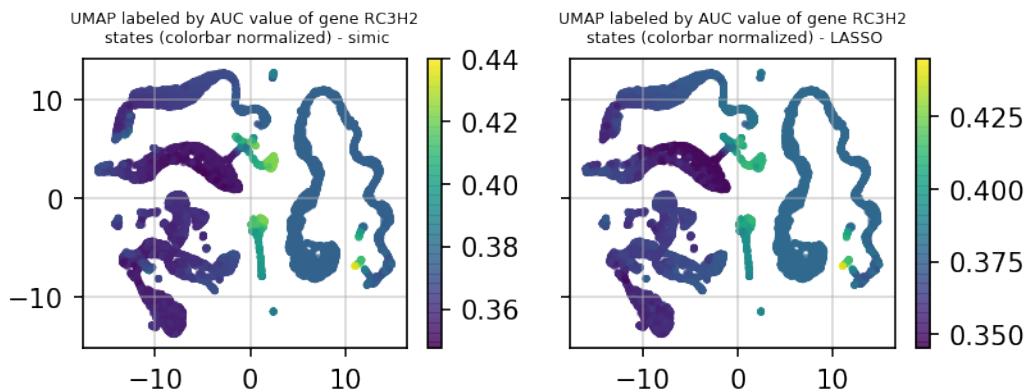
DNAJC1



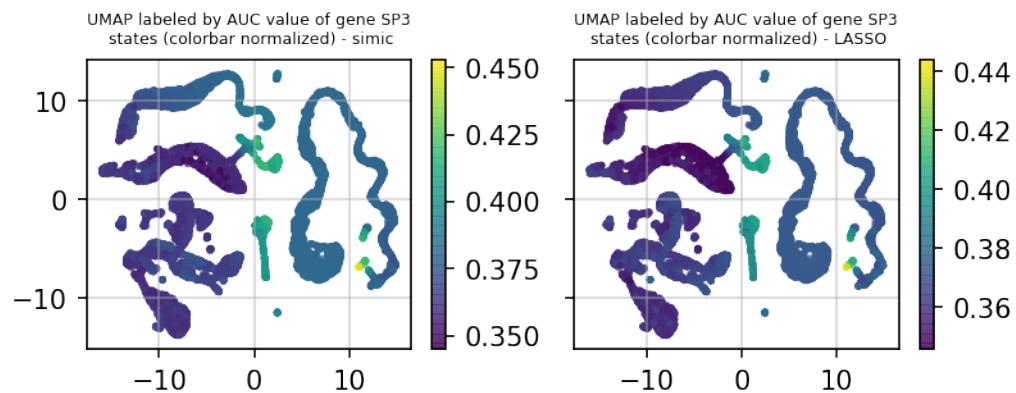
RXRA



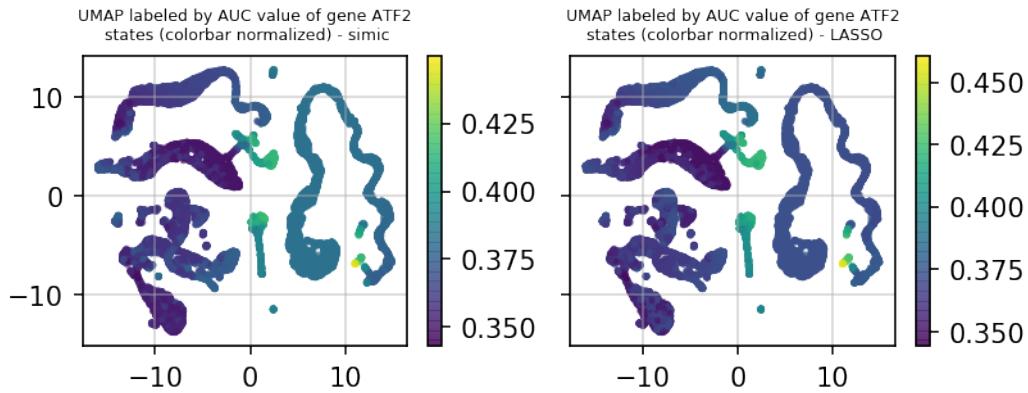
RC3H2



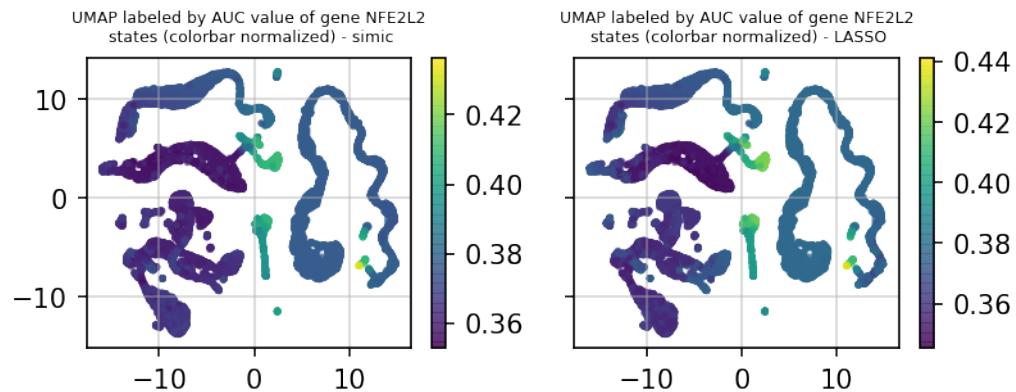
SP3



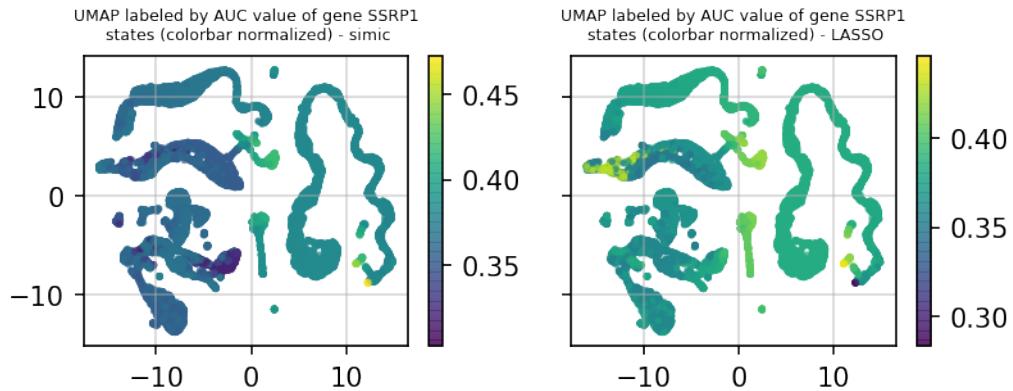
ATF2



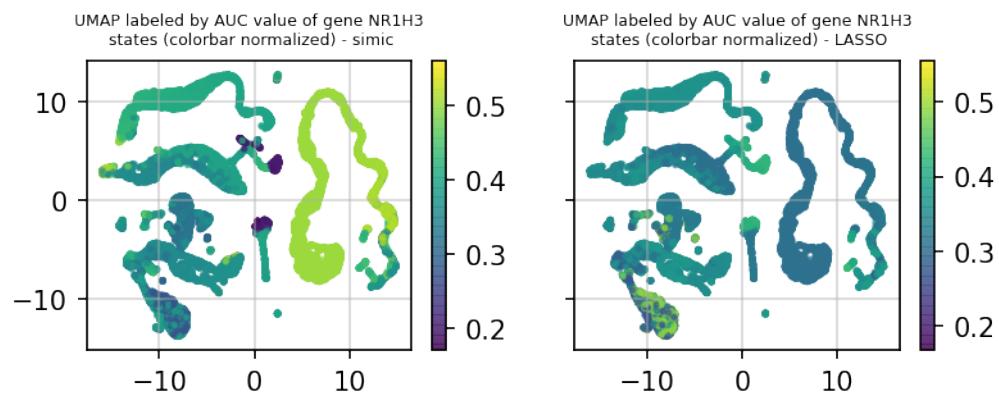
NFE2L2



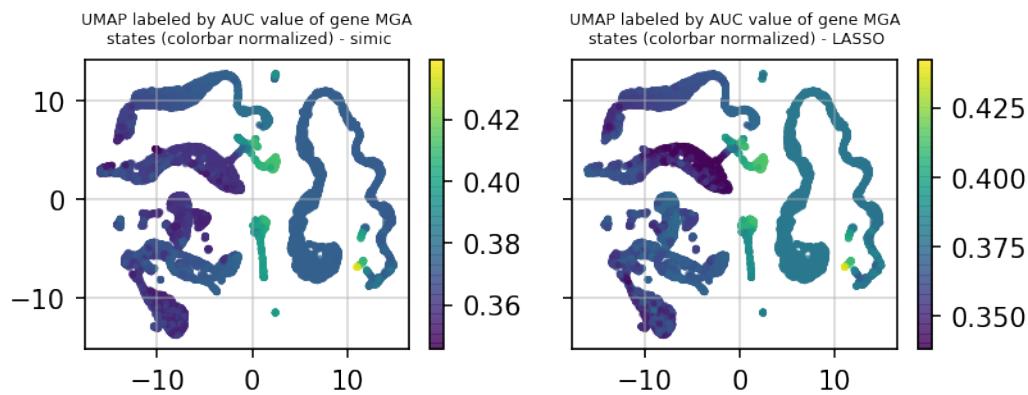
SSRP1



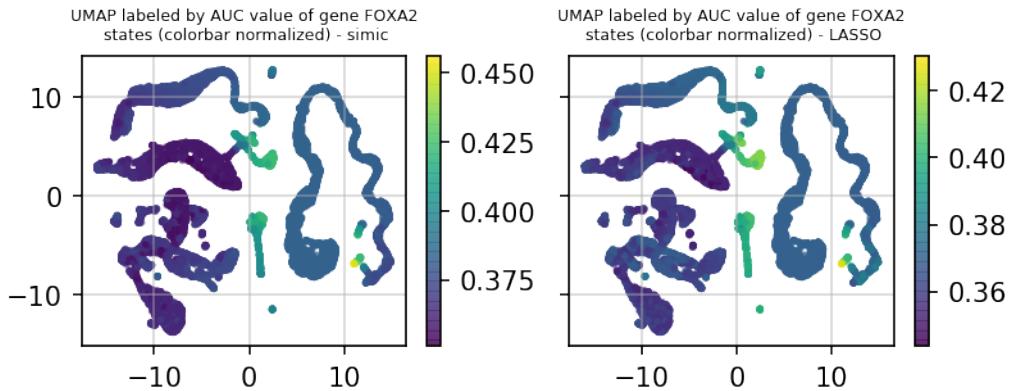
NR1H3



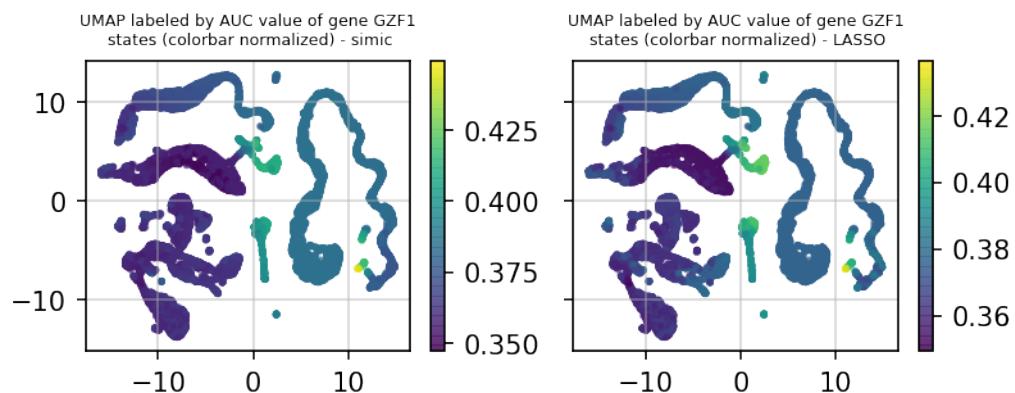
MGA



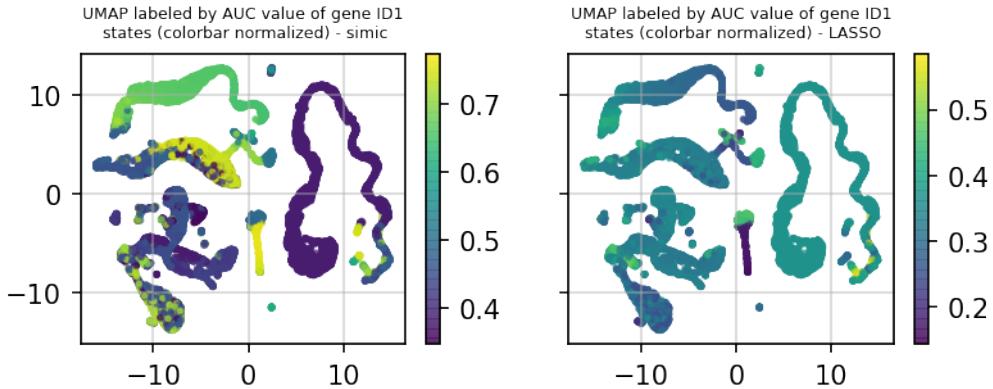
FOXA2



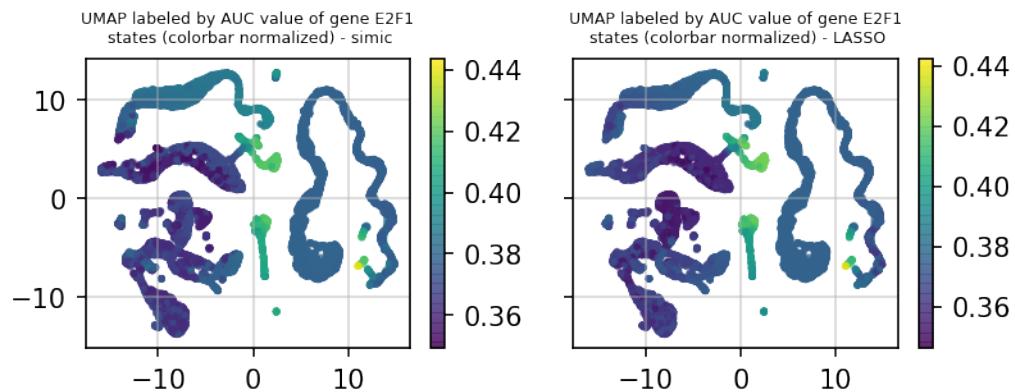
GZF1



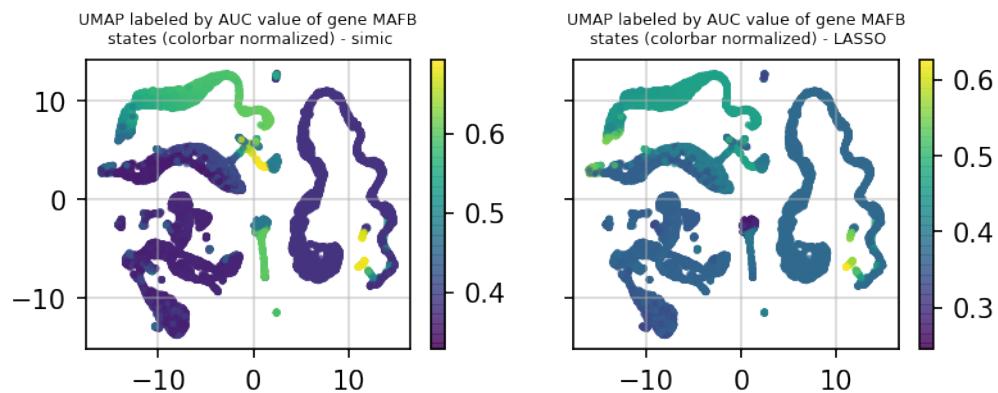
ID1



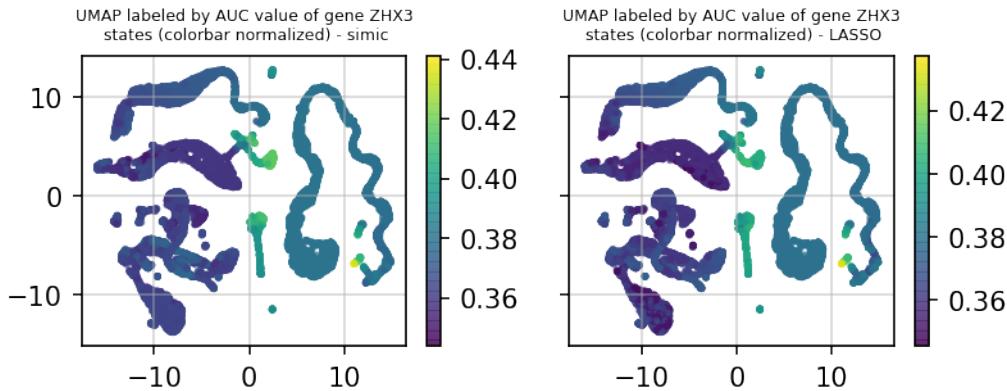
E2F1



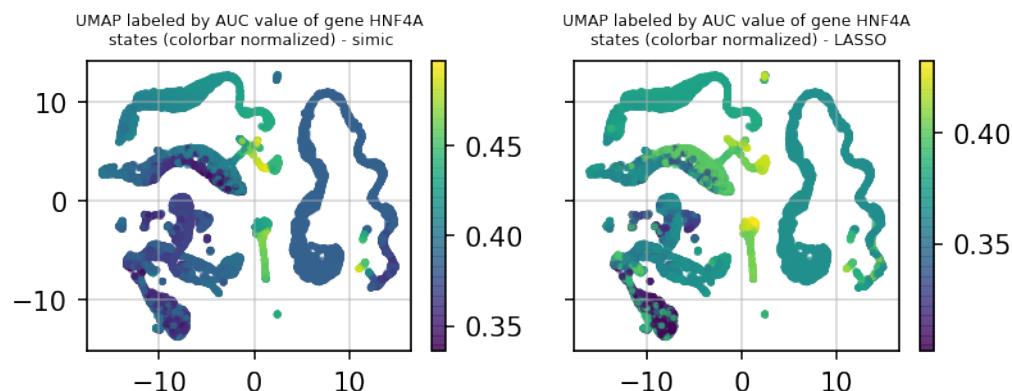
MAFB



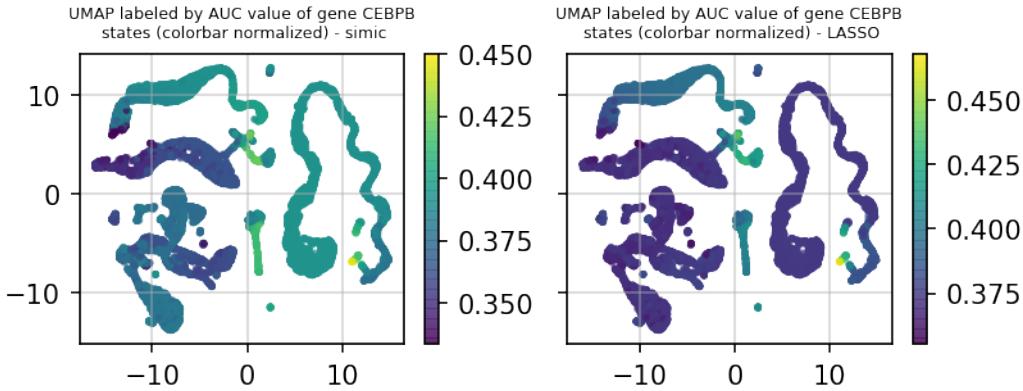
ZHX3



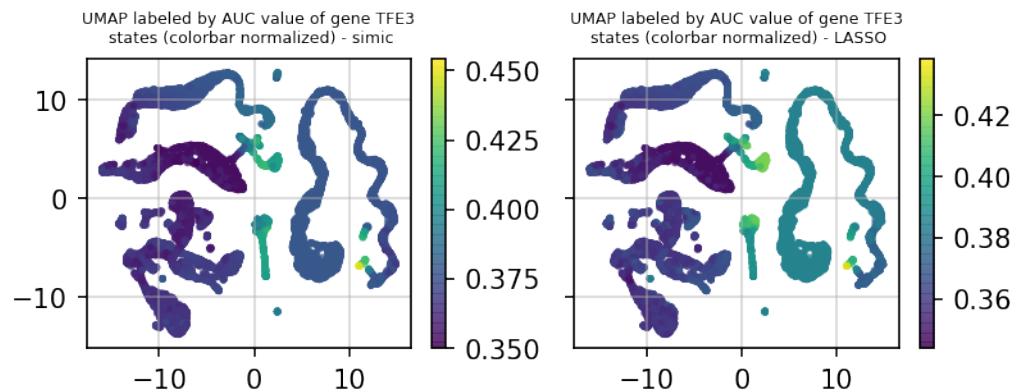
HNF4A



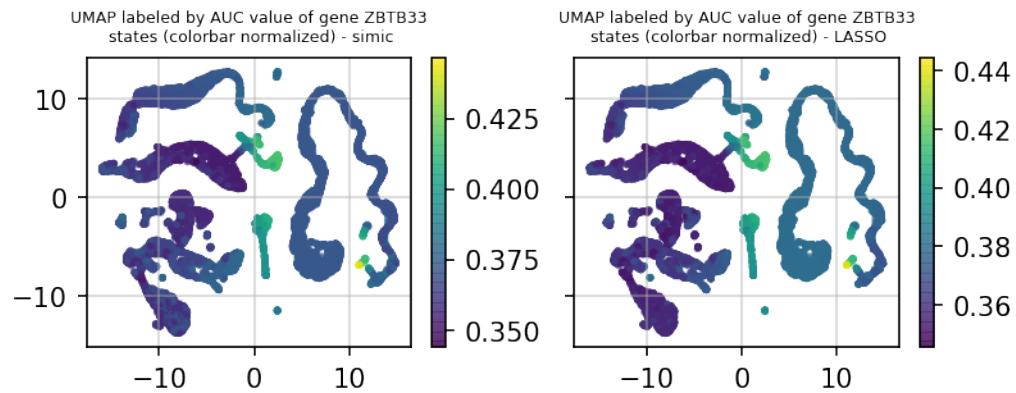
CEBPB



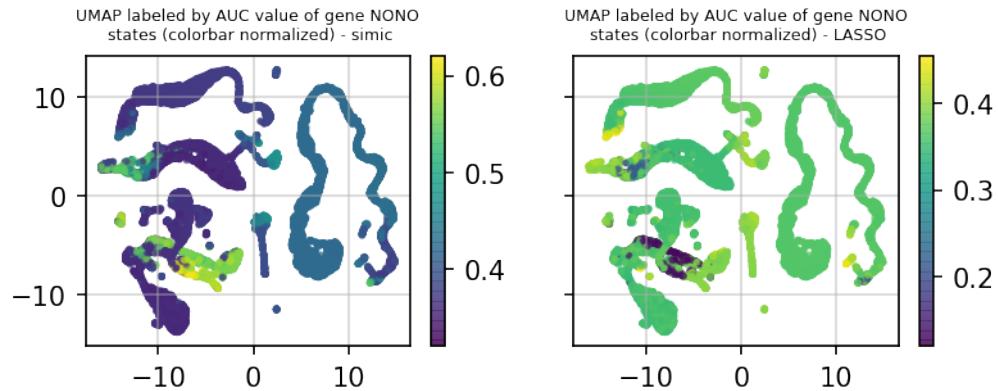
TFE3



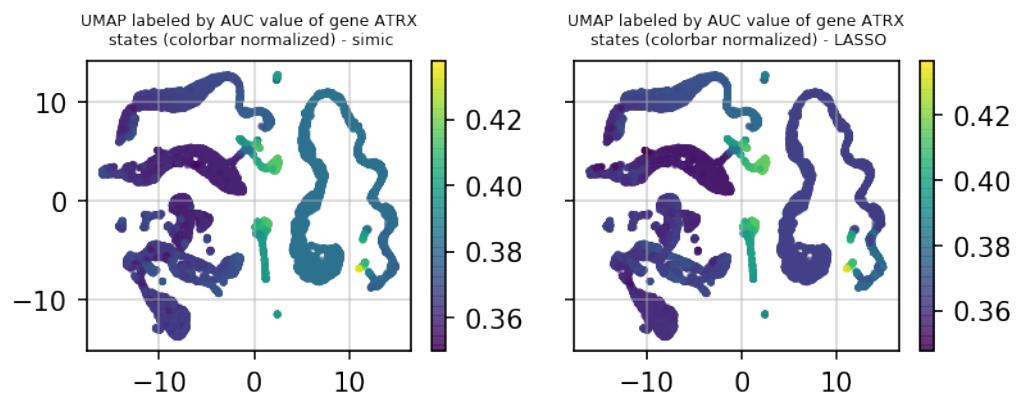
ZBTB33



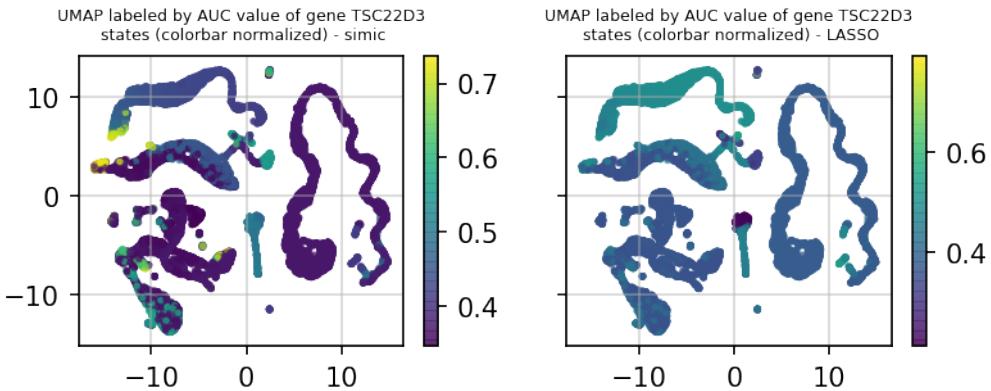
NONO



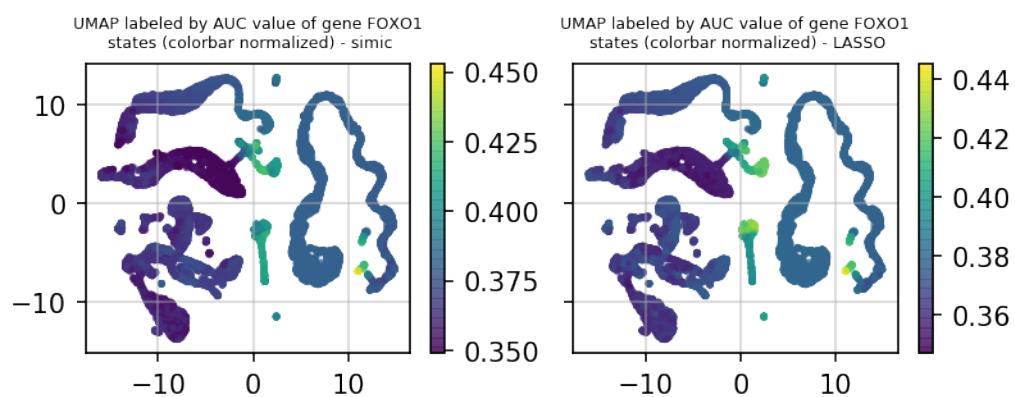
ATRX



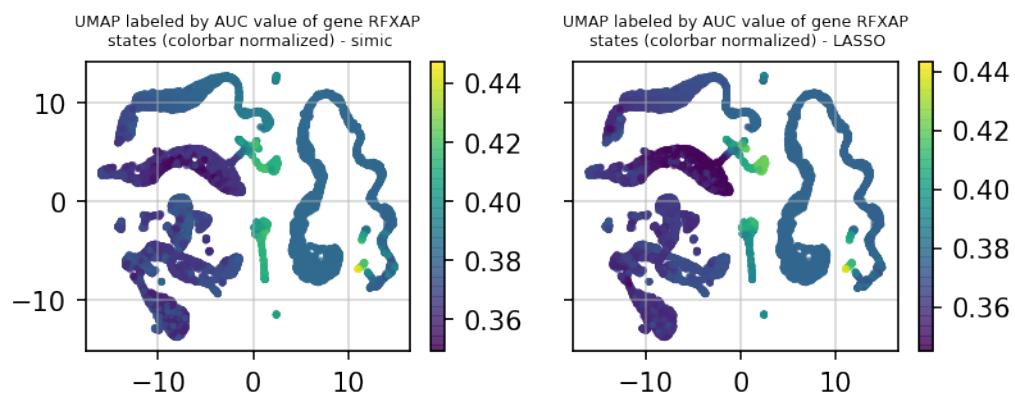
TSC22D3



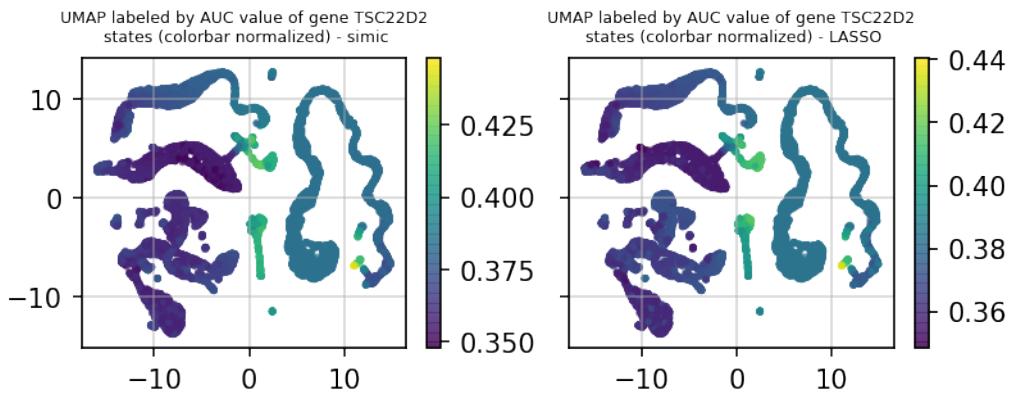
FOX01



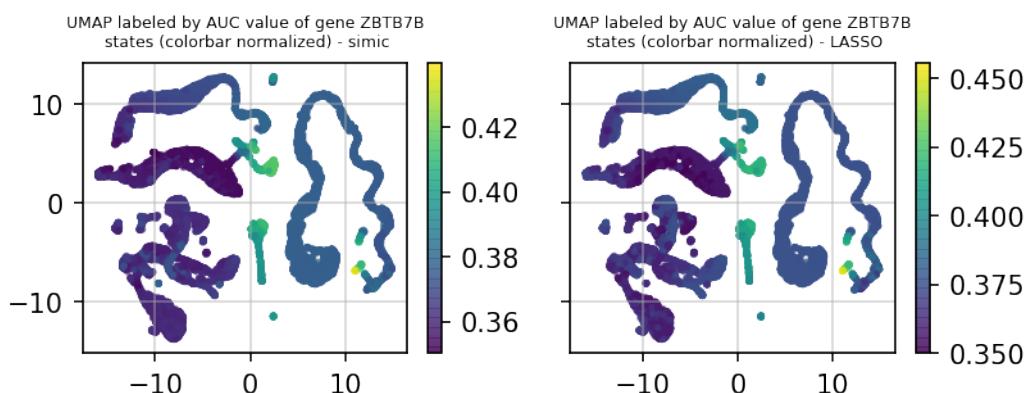
RFXAP



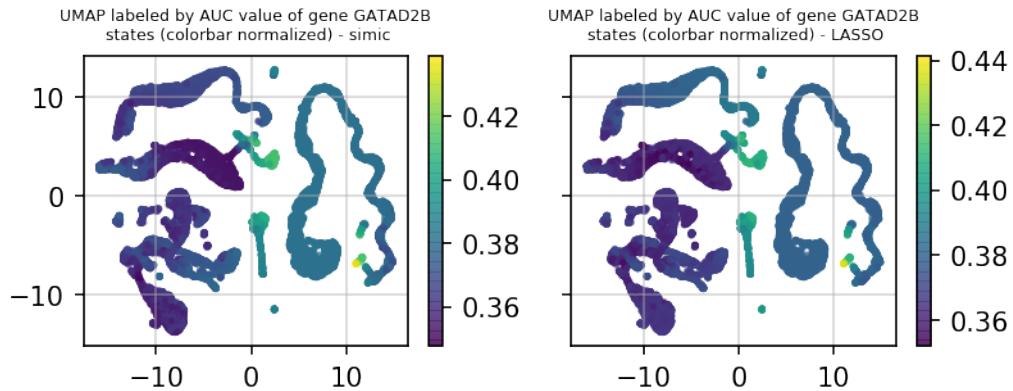
TSC22D2



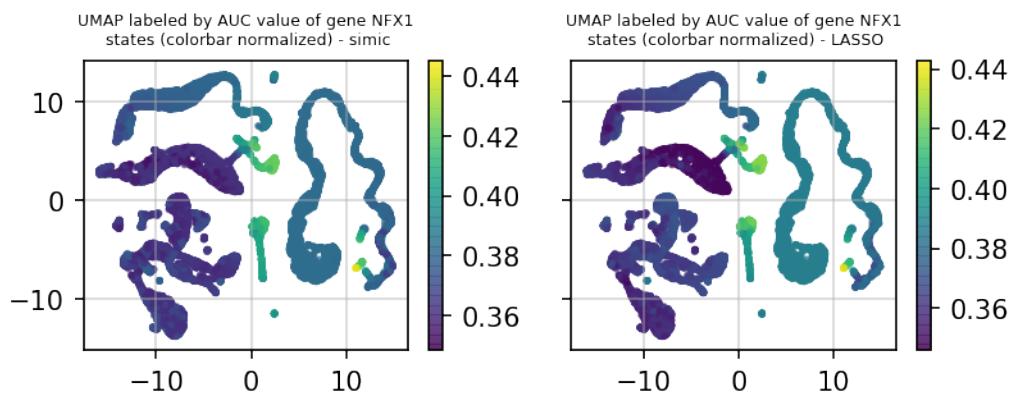
ZBTB7B



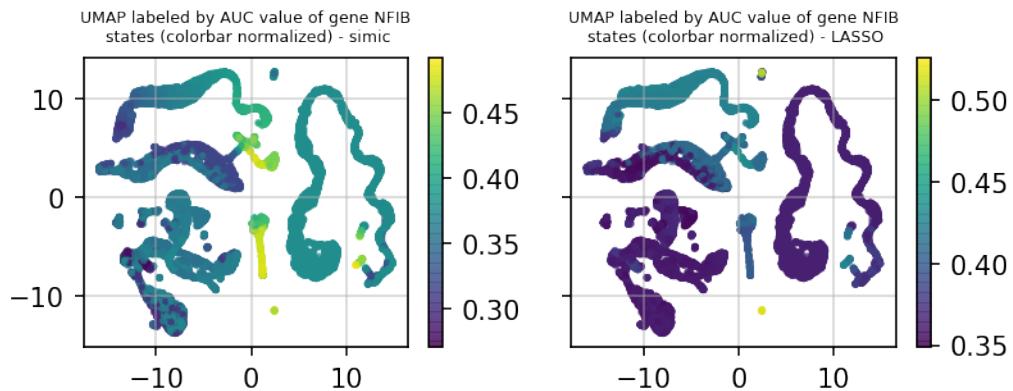
GATAD2B



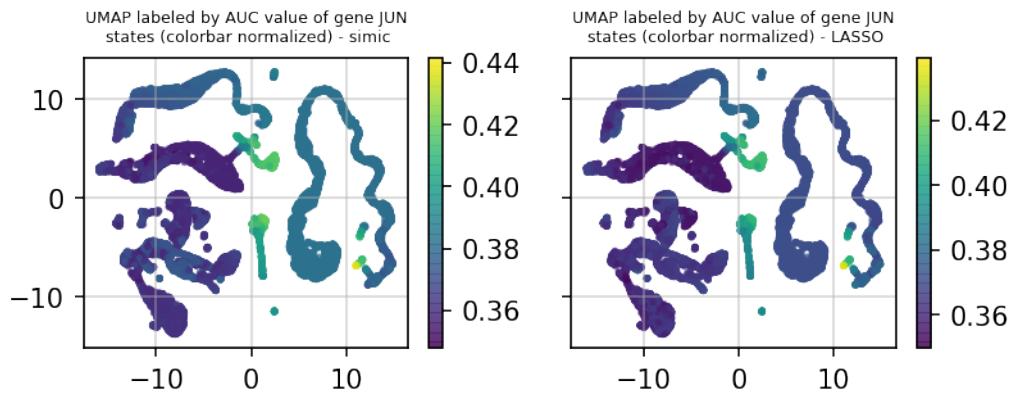
NFX1



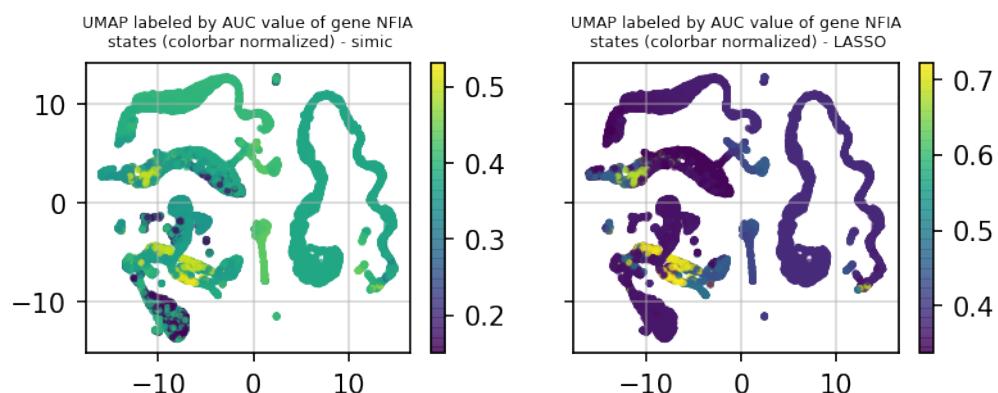
NFIB



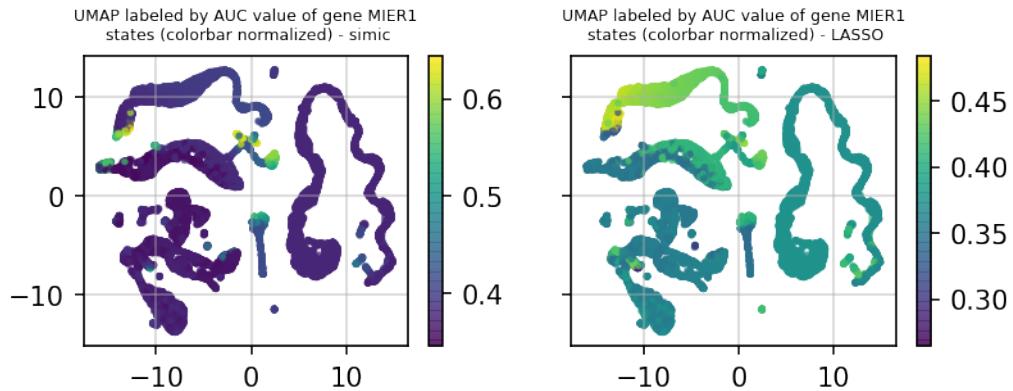
JUN



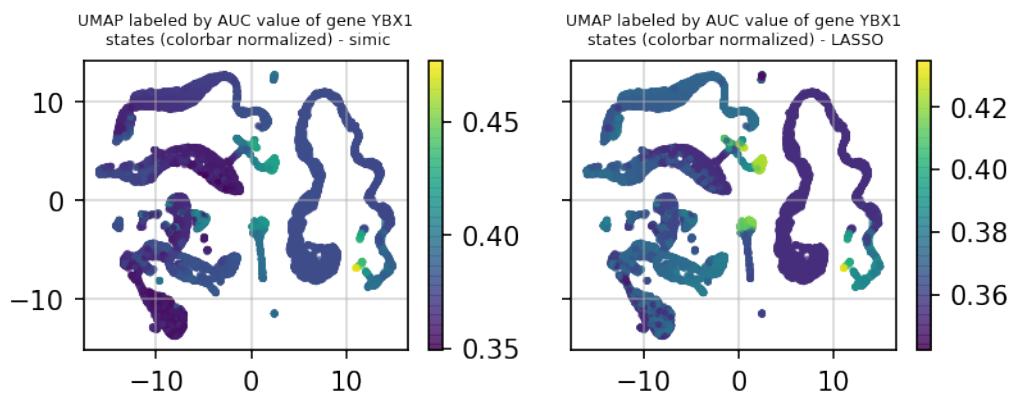
NFIA



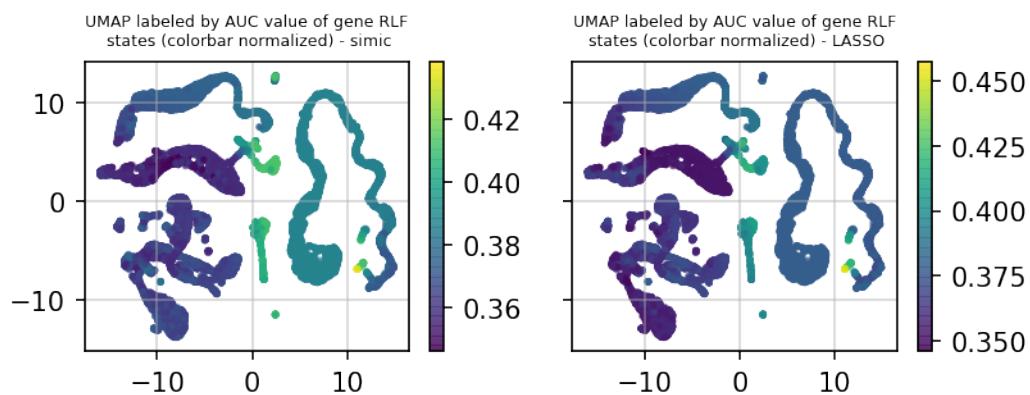
MIER1



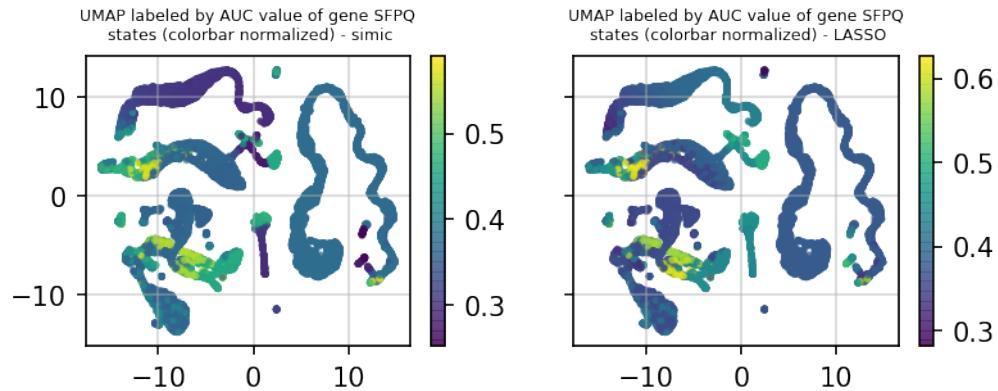
YBX1



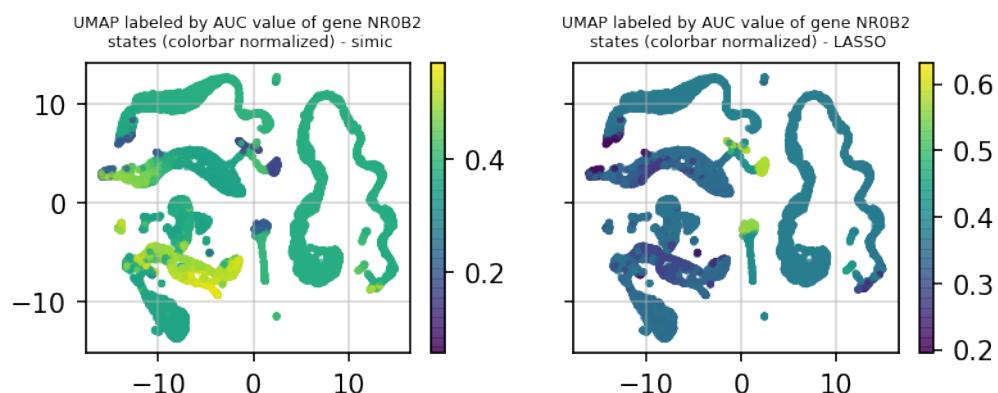
RLF



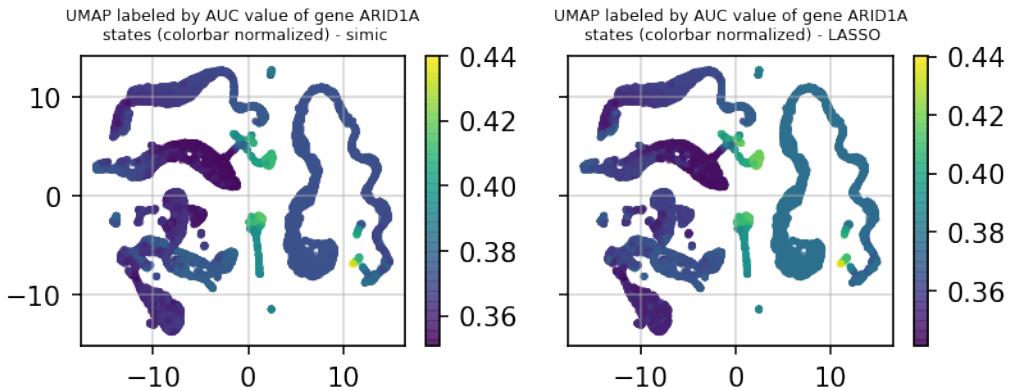
SFPQ



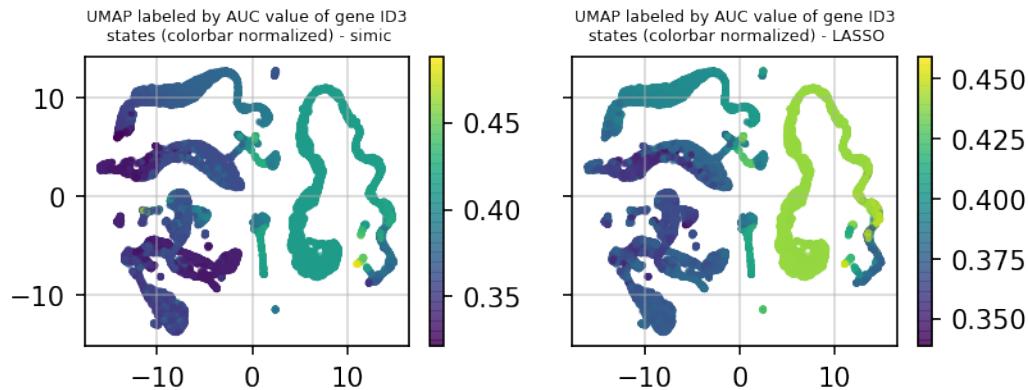
NR0B2



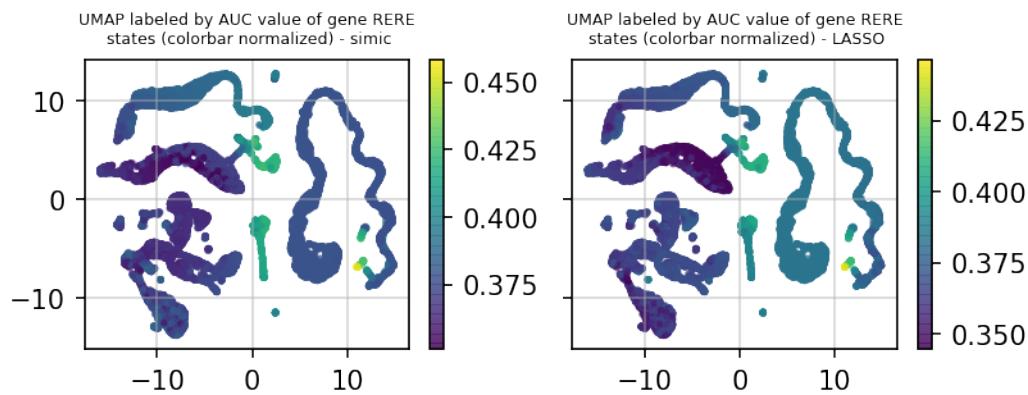
ARID1A



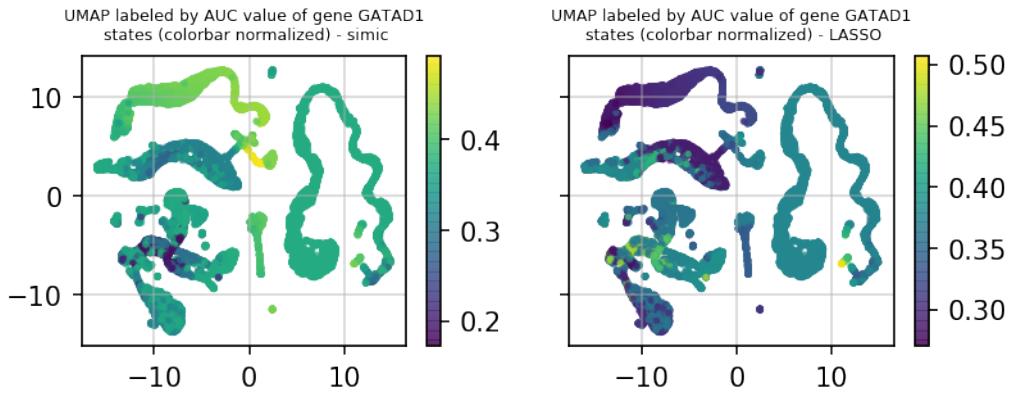
ID3



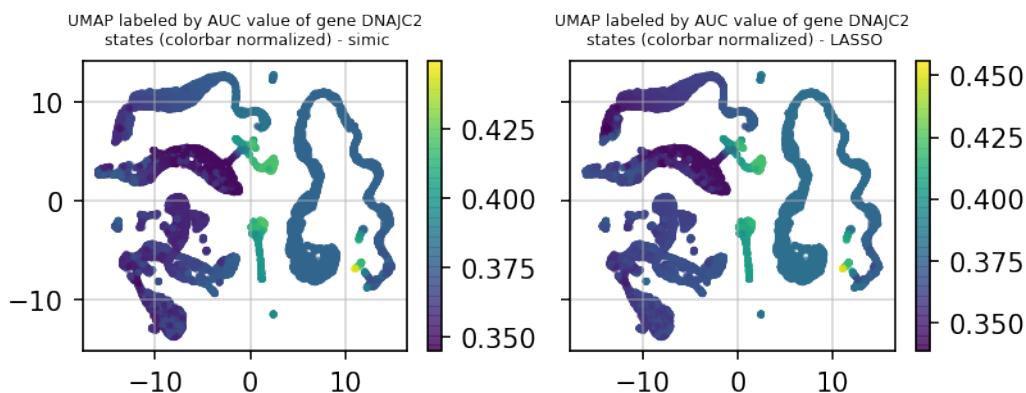
RERE



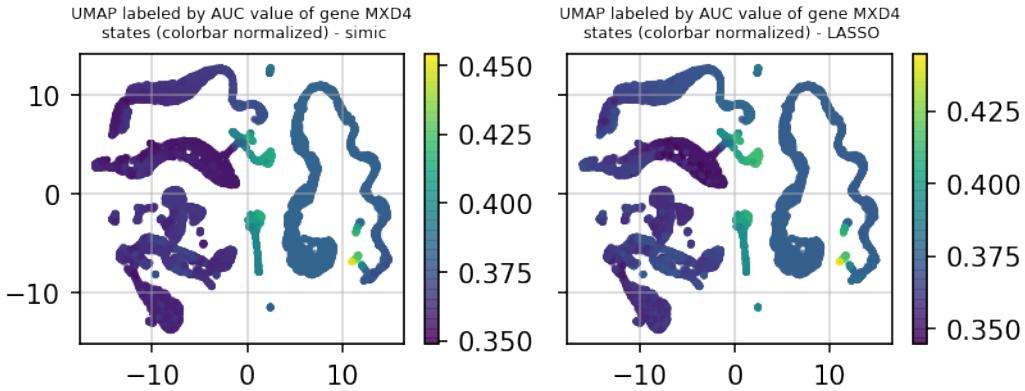
GATAD1



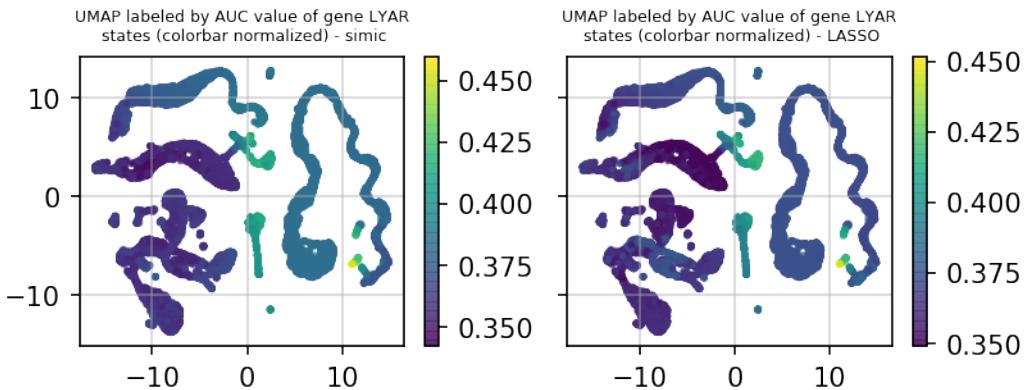
DNAJC2



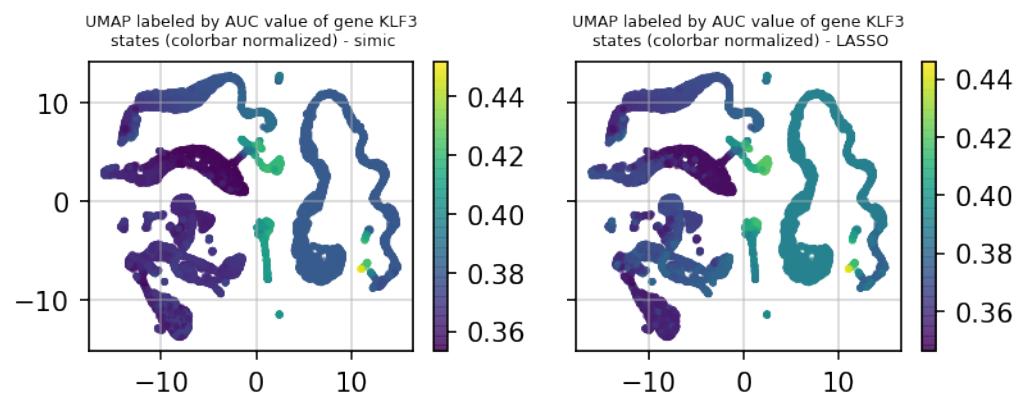
MXD4



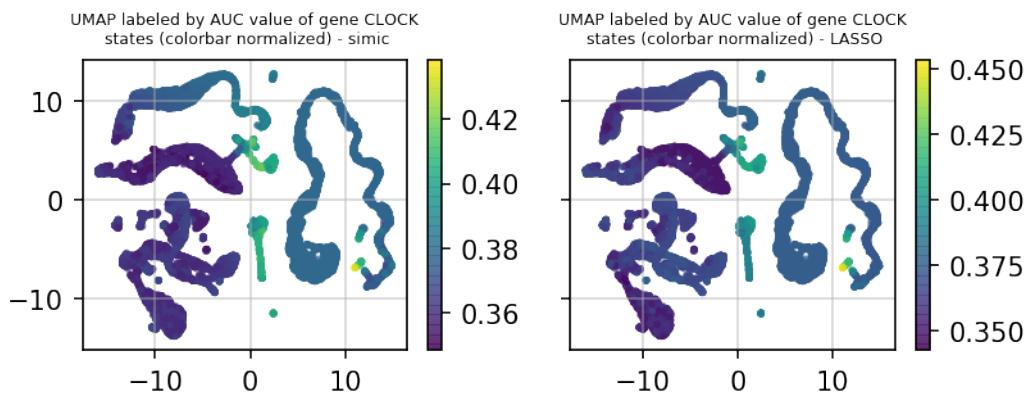
LYAR



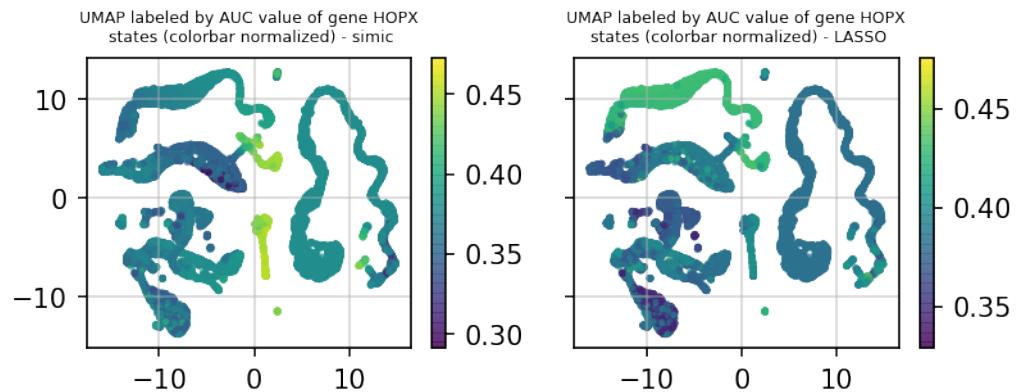
KLF3



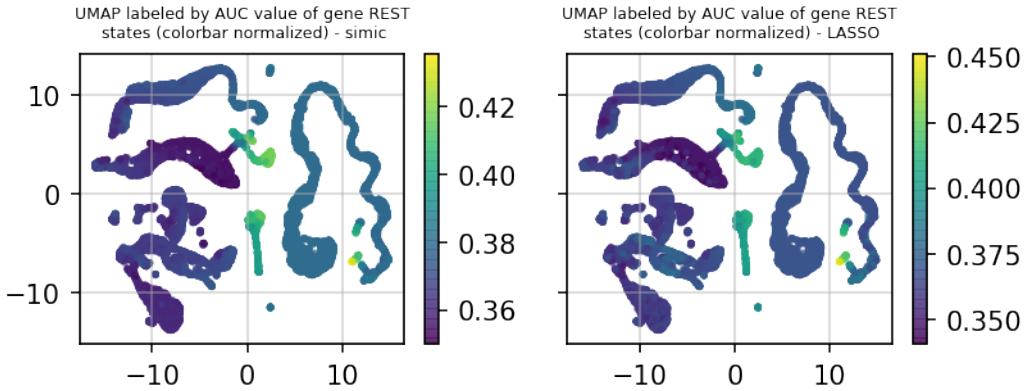
CLOCK



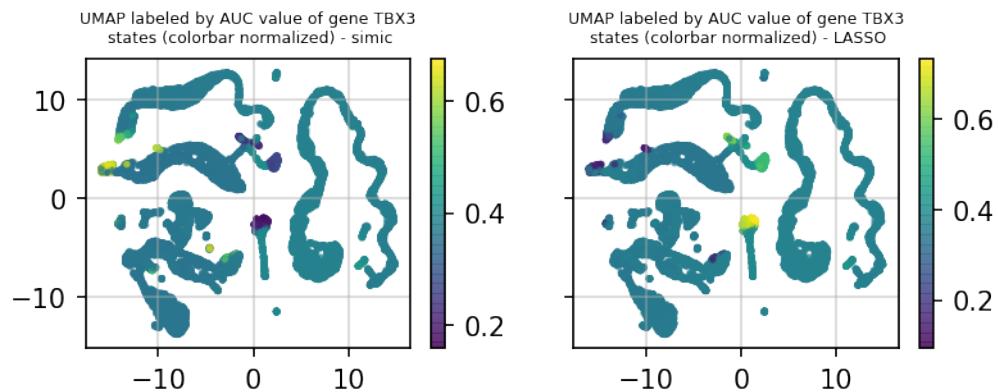
HOPX



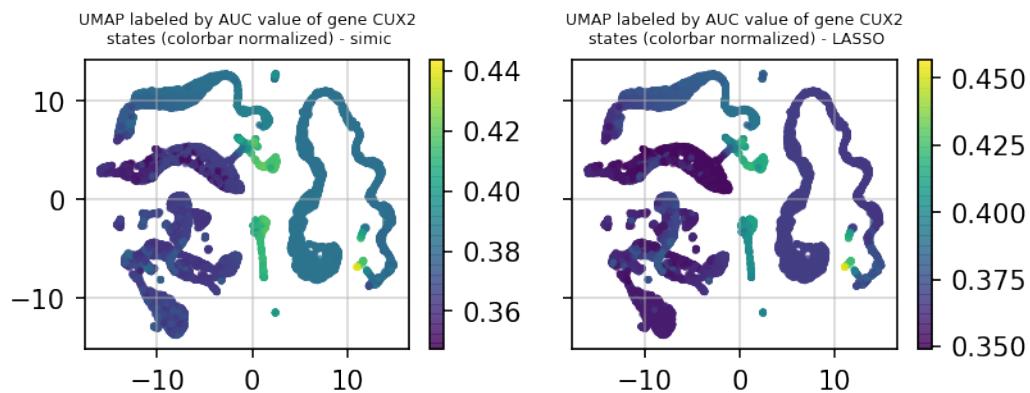
REST



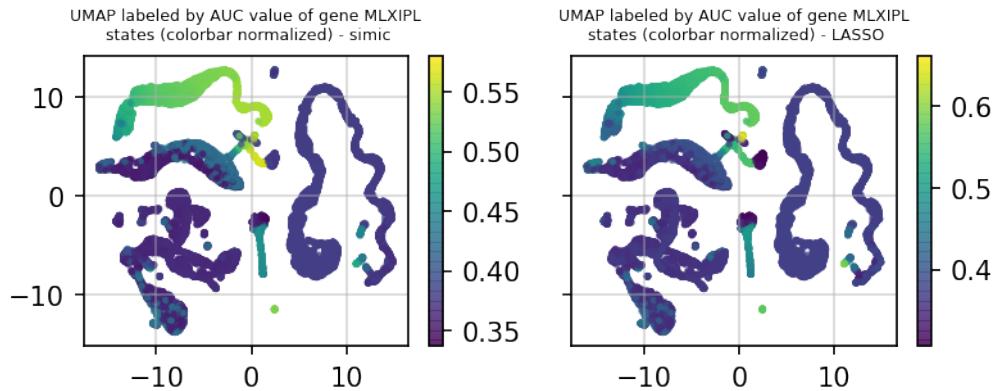
TBX3



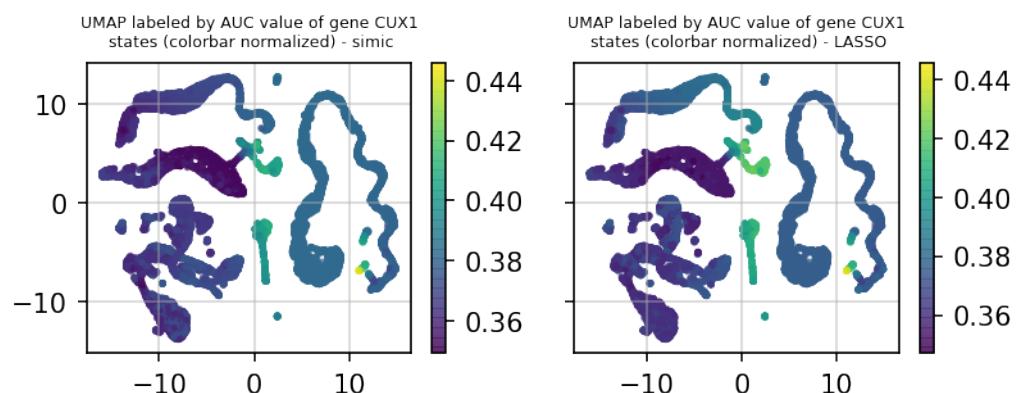
CUX2



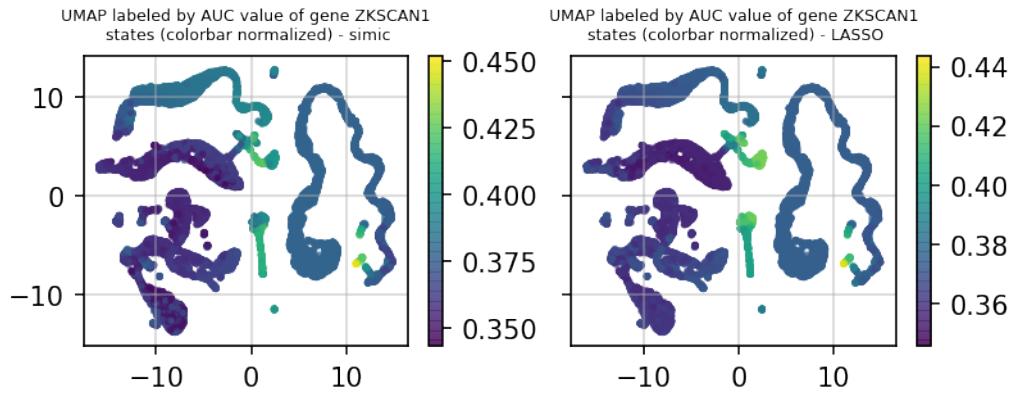
MLXIPL



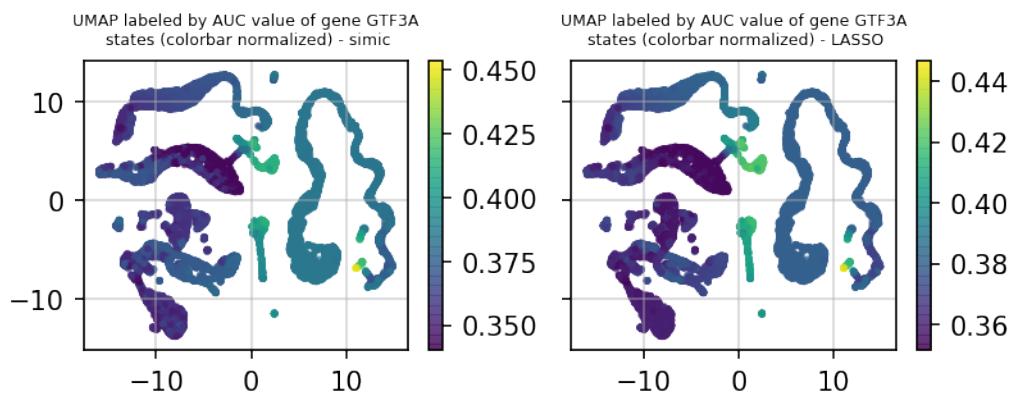
CUX1



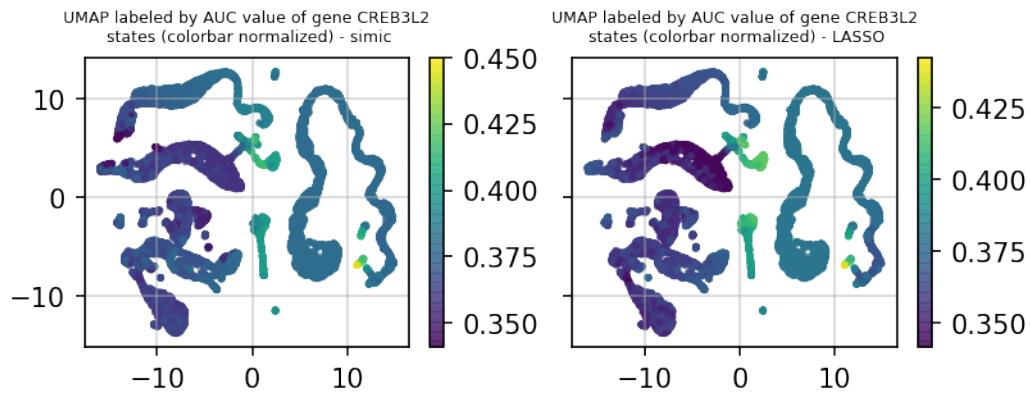
ZKSCAN1



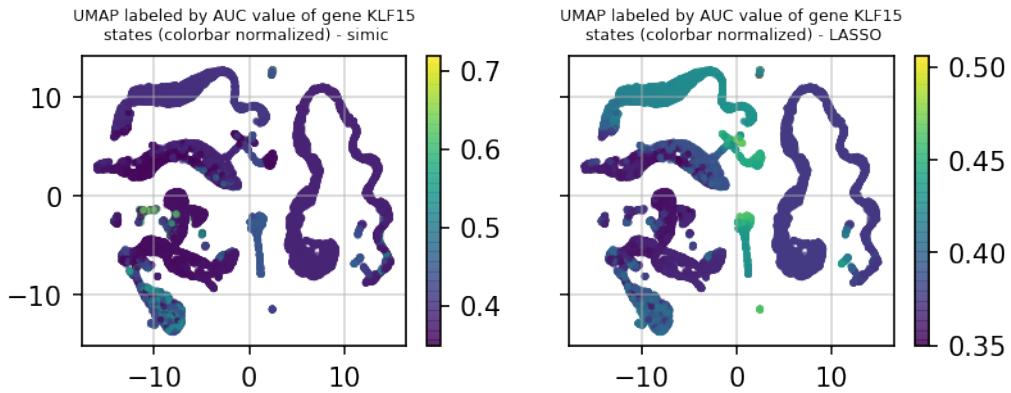
GTF3A



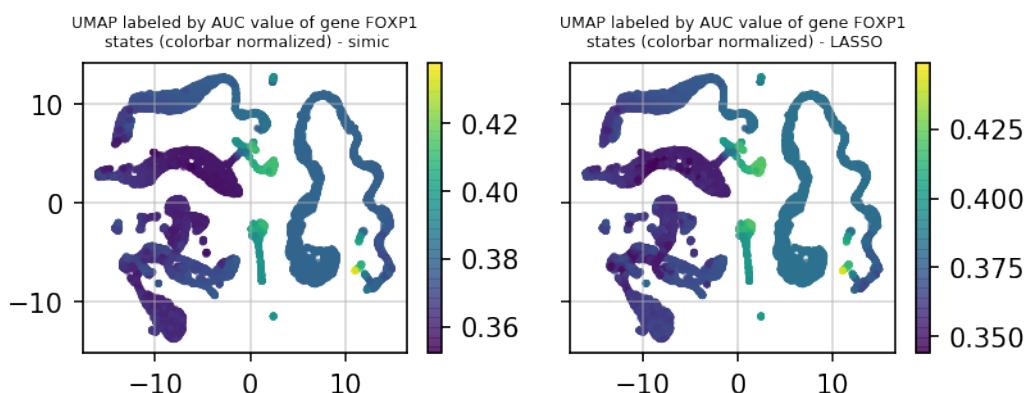
CREB3L2



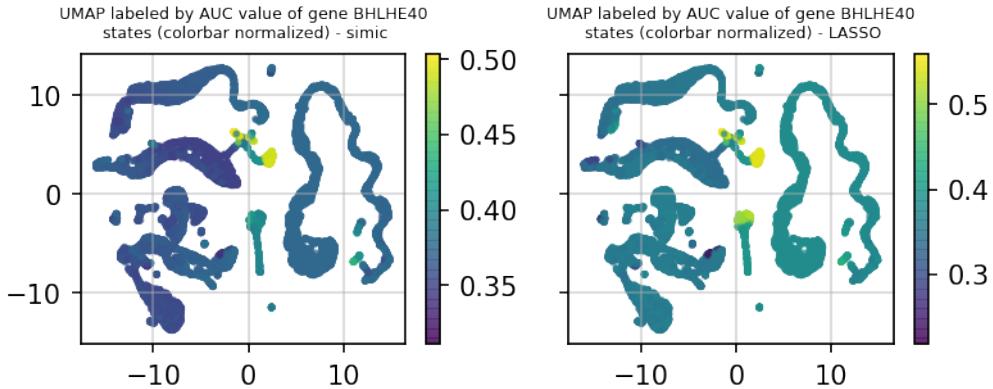
KLF15



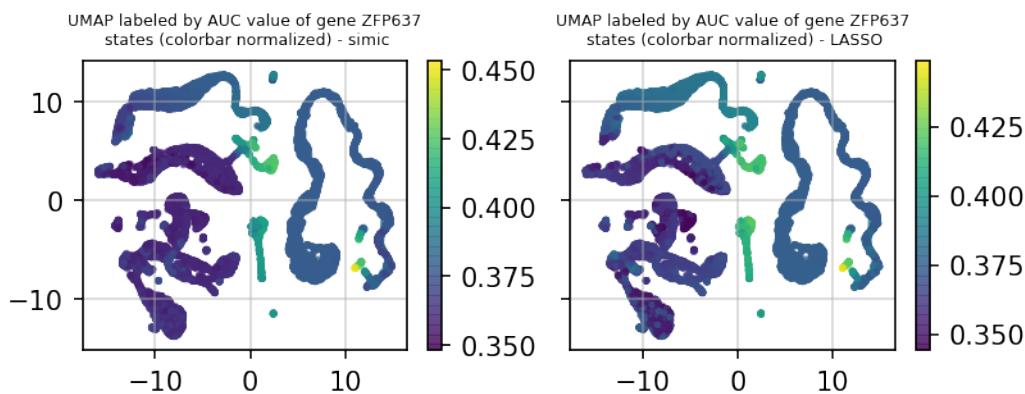
FOXP1



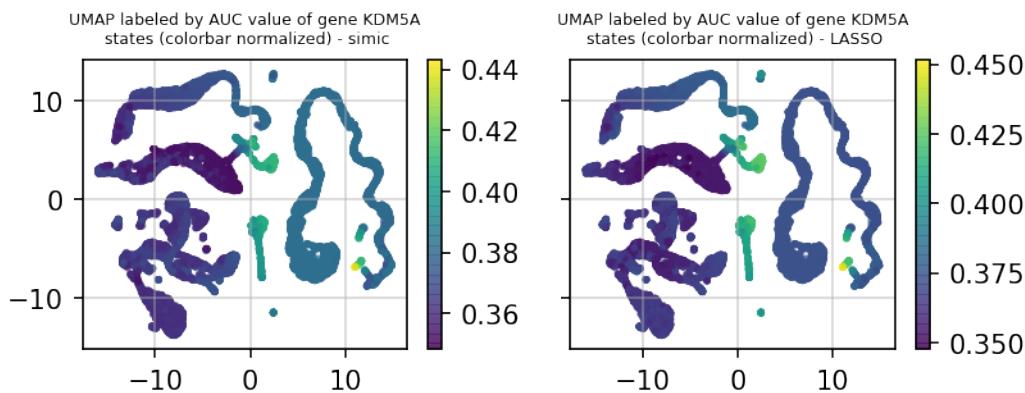
BHLHE40



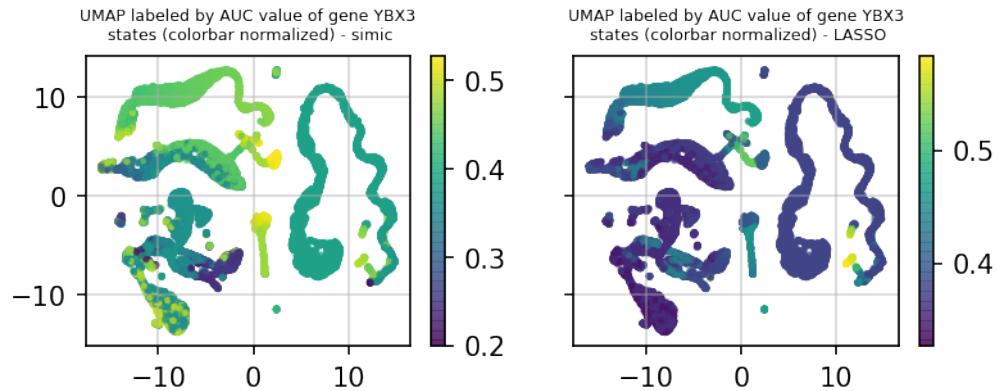
ZFP637



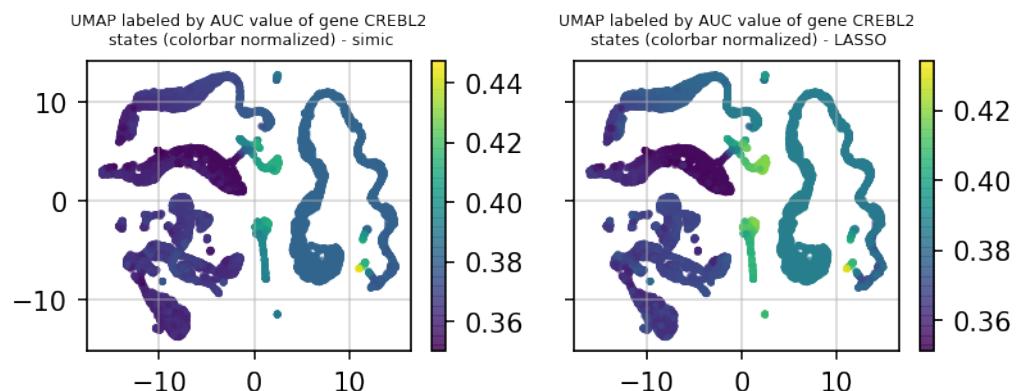
KDM5A



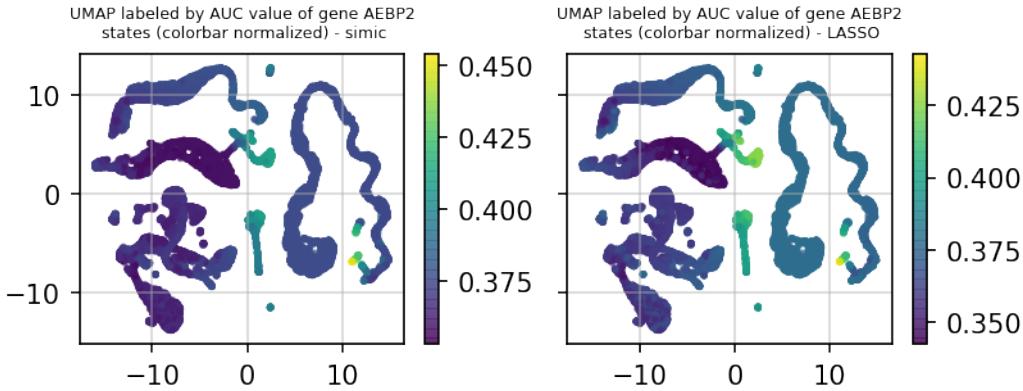
YBX3



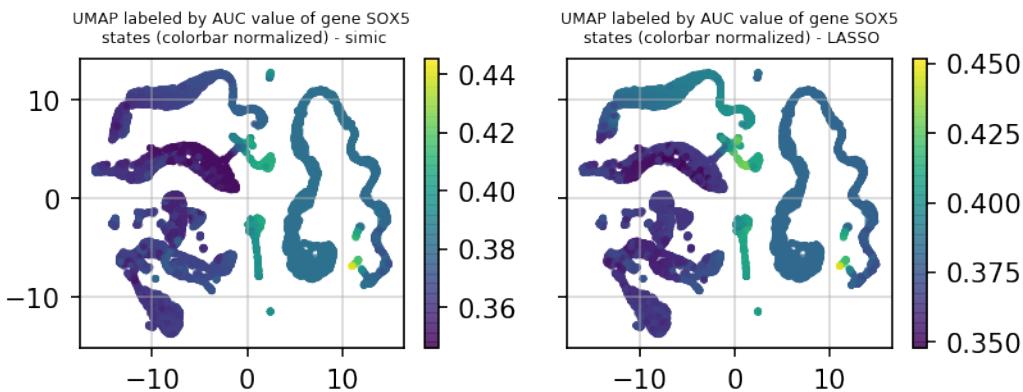
CREBL2



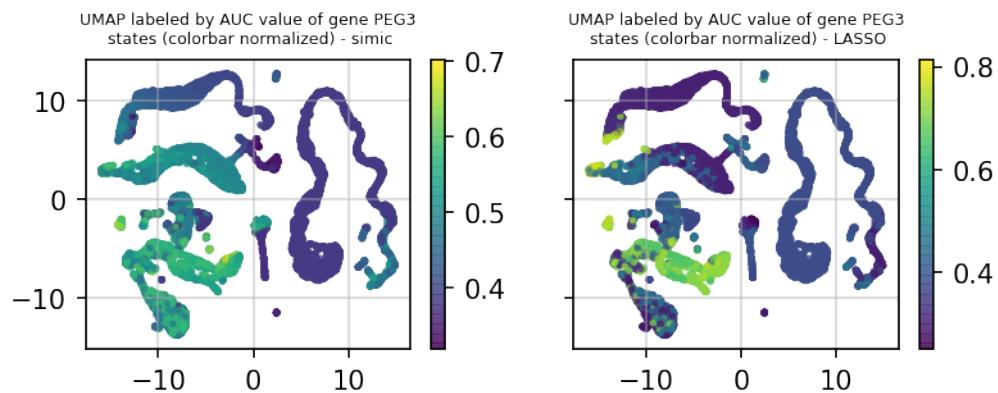
AEBP2



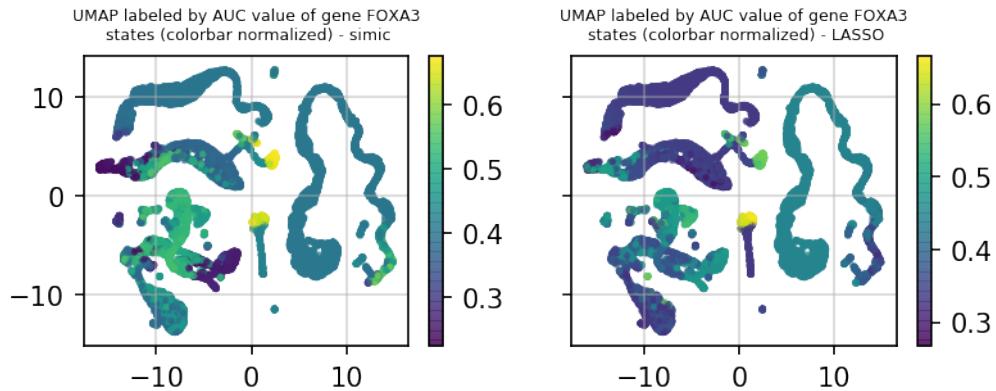
SOX5



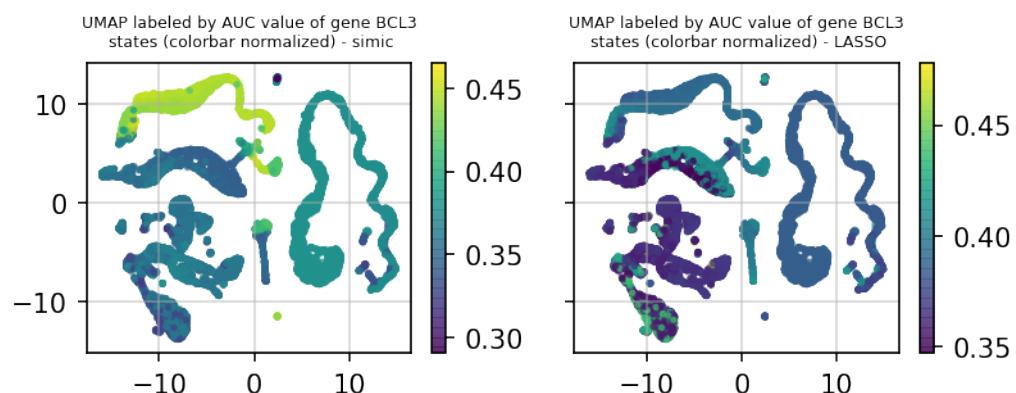
PEG3



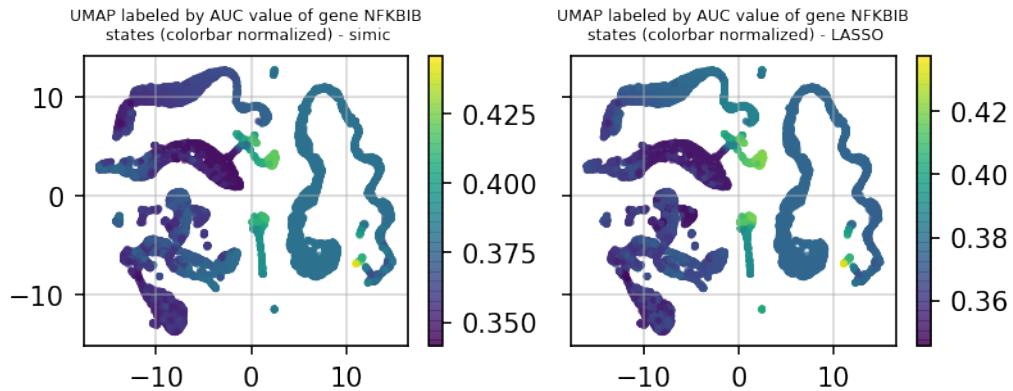
FOXA3



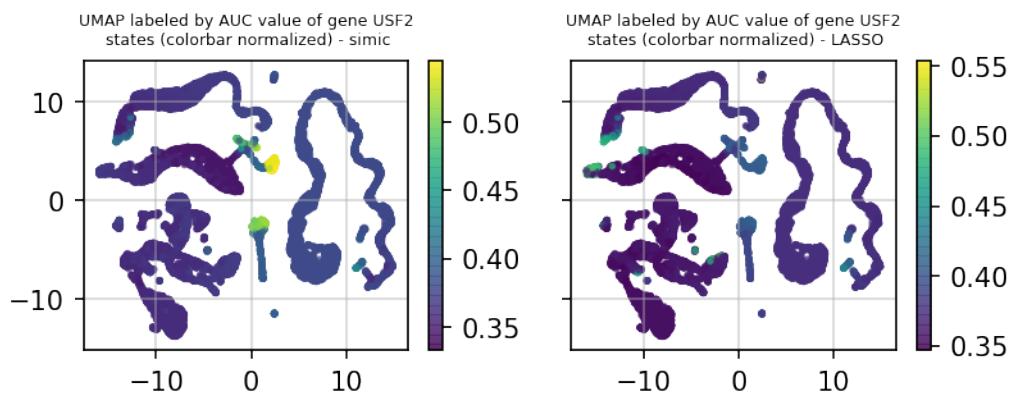
BCL3



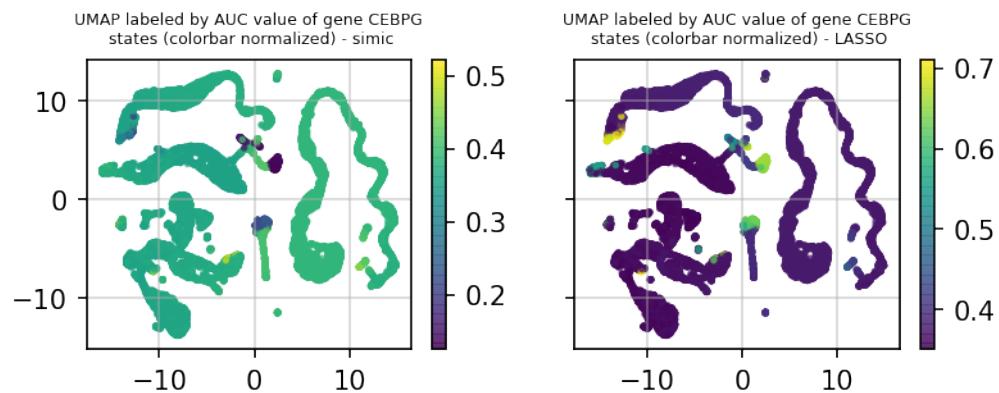
NFKBIB



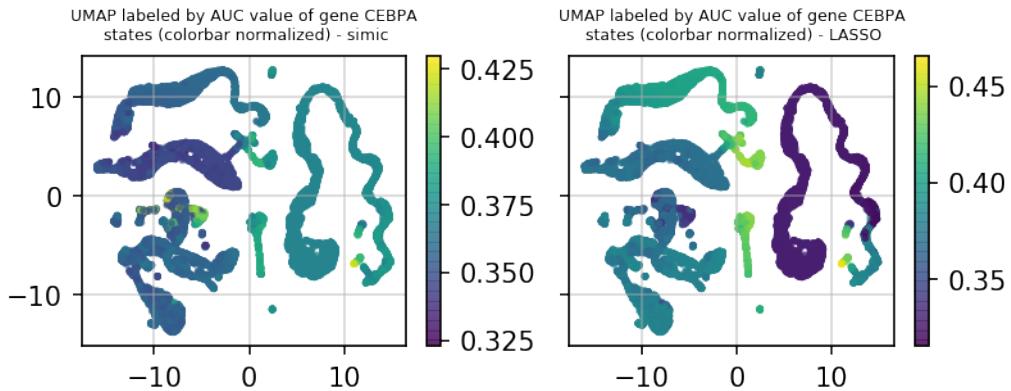
USF2



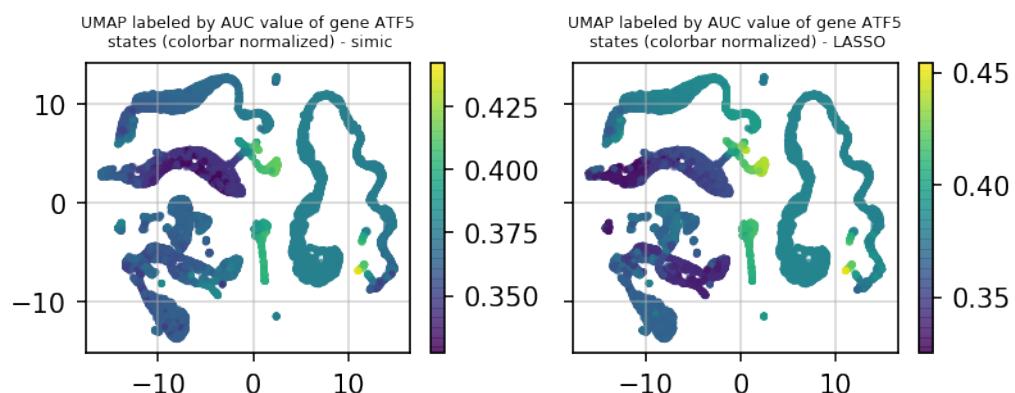
CEBPG



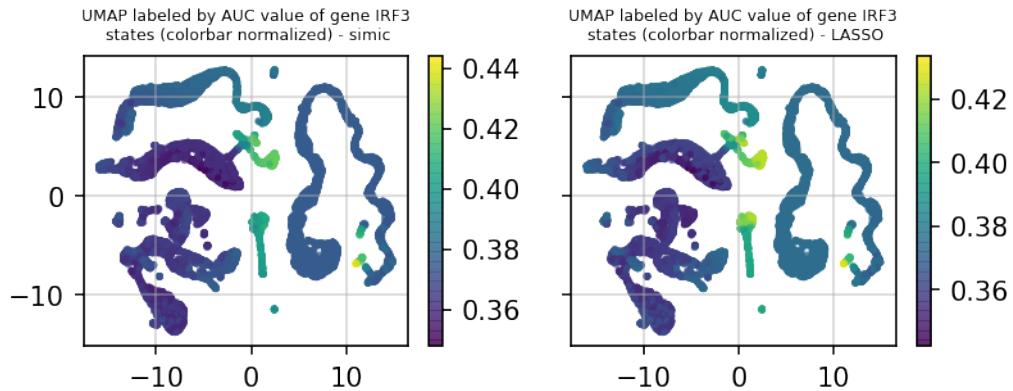
CEBPA



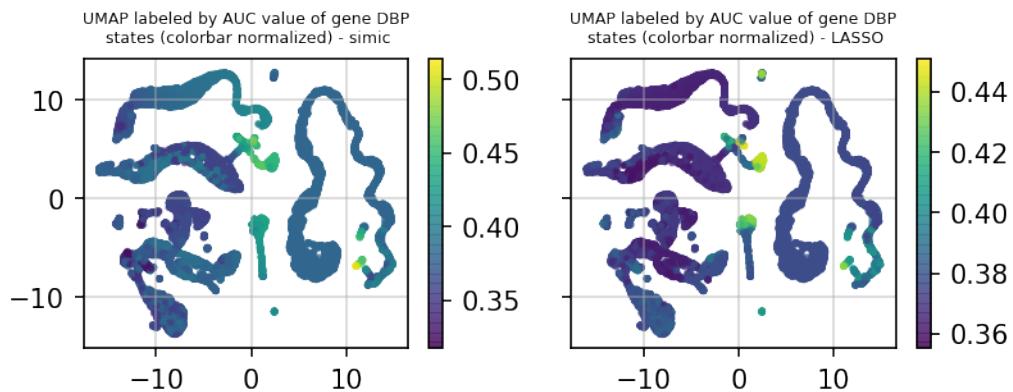
ATF5



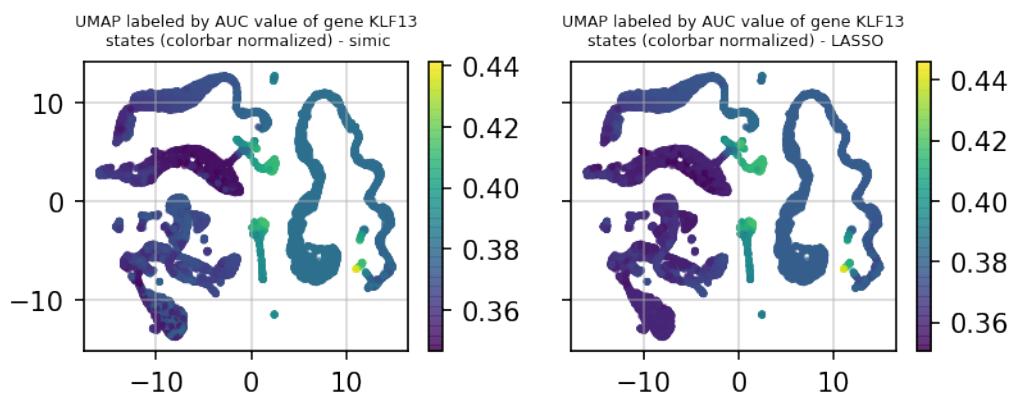
IRF3



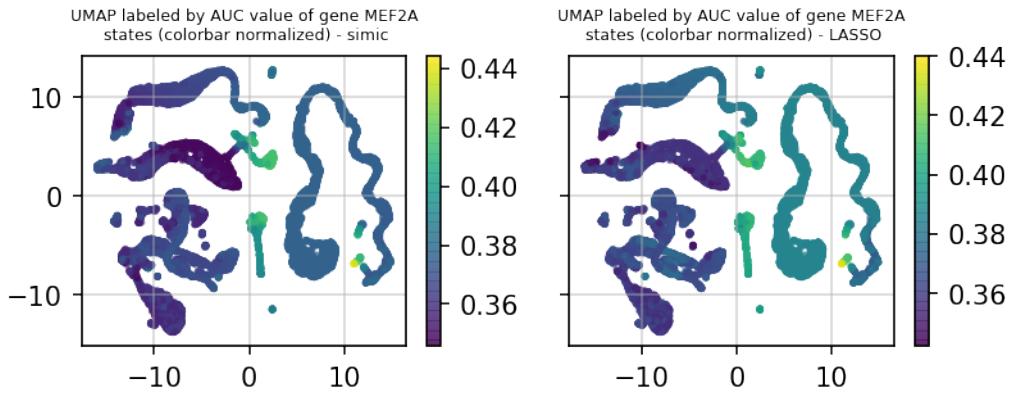
DBP



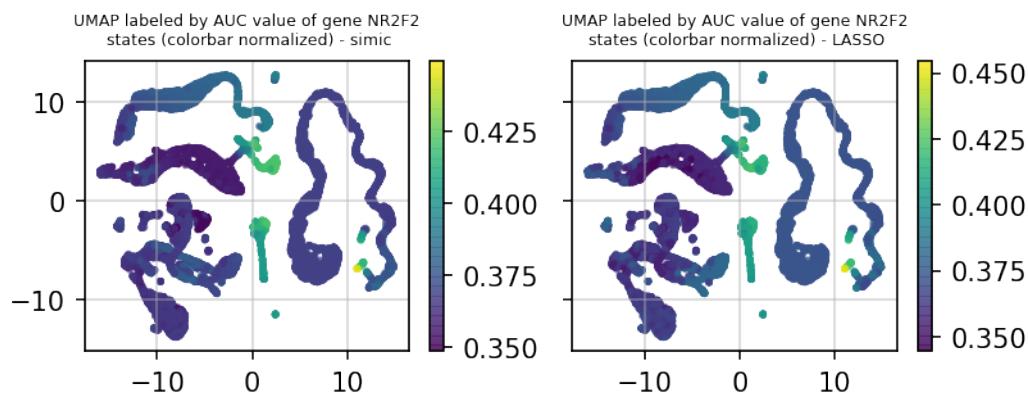
KLF13



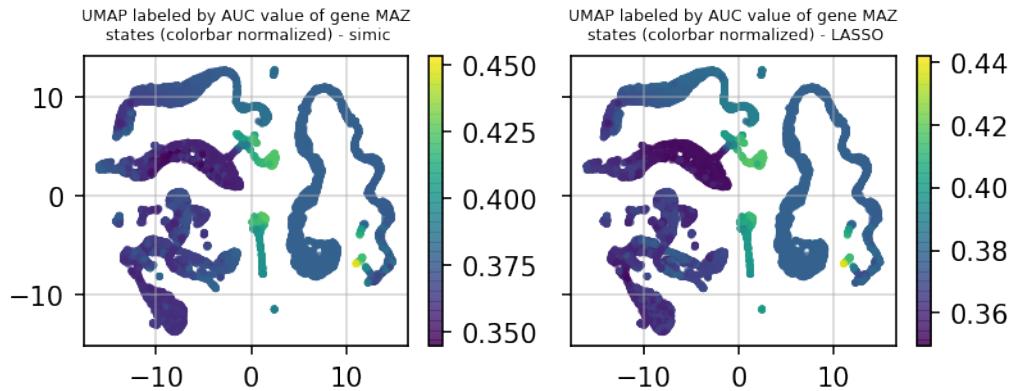
MEF2A



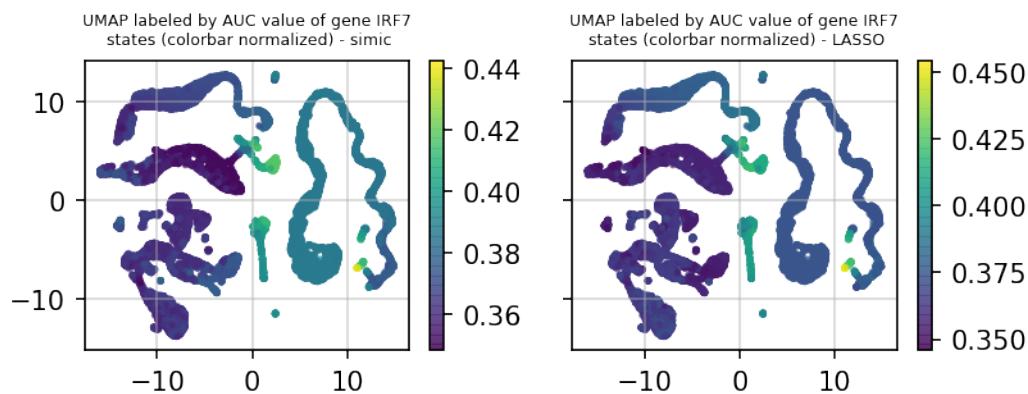
NR2F2



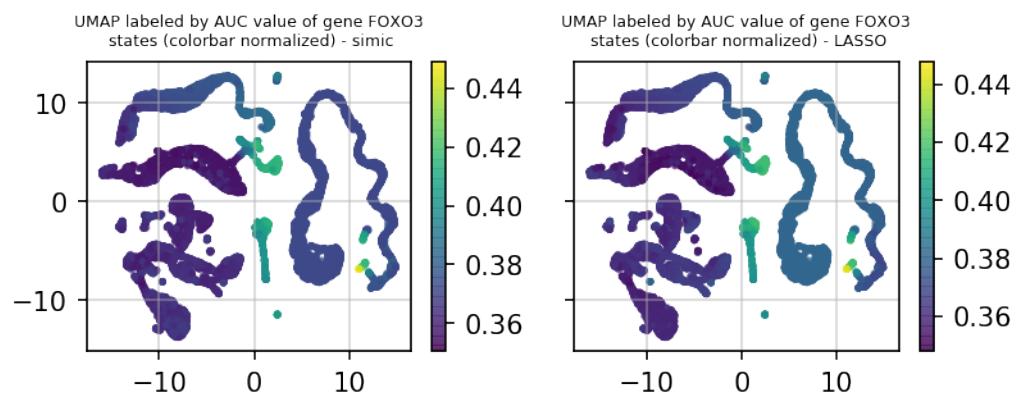
MAZ



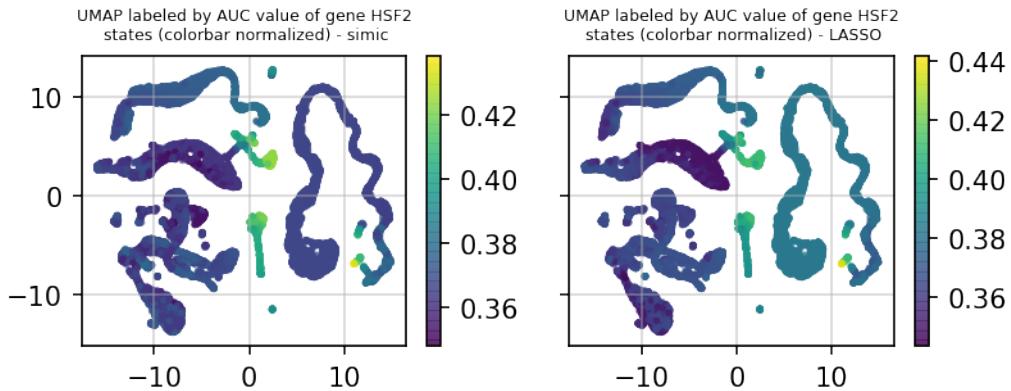
IRF7



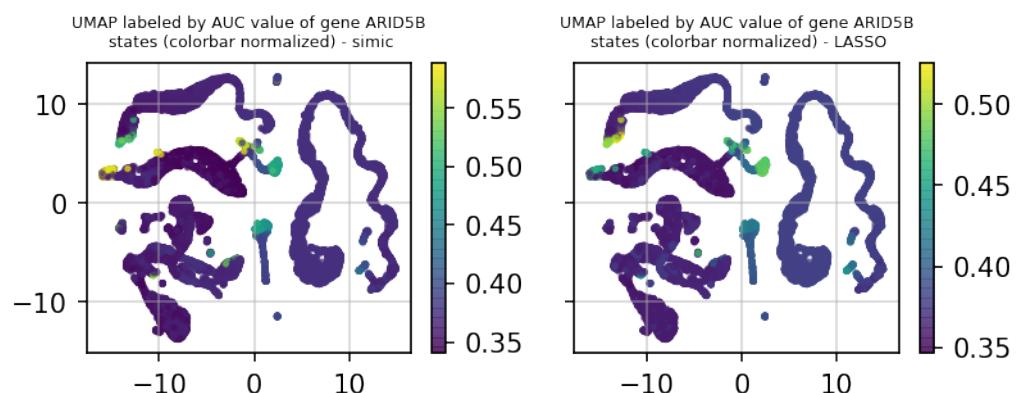
FOX03



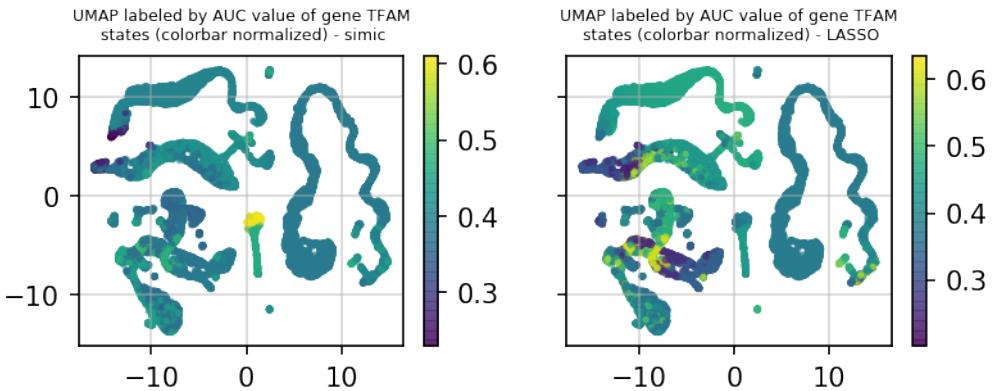
HSF2



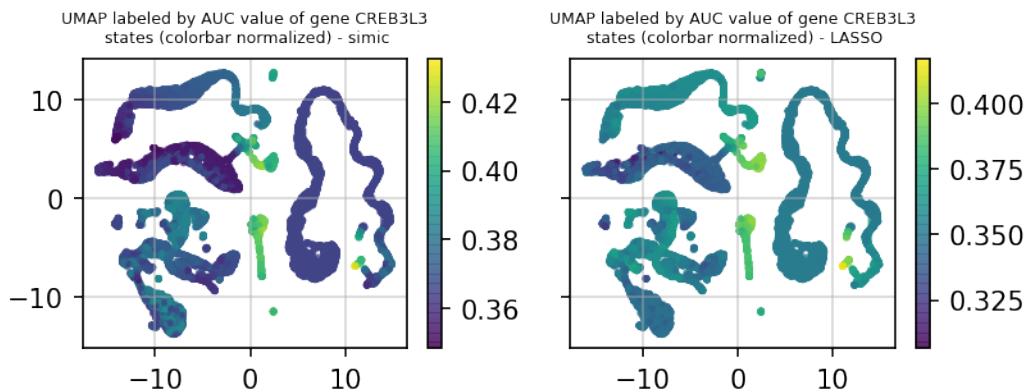
ARID5B



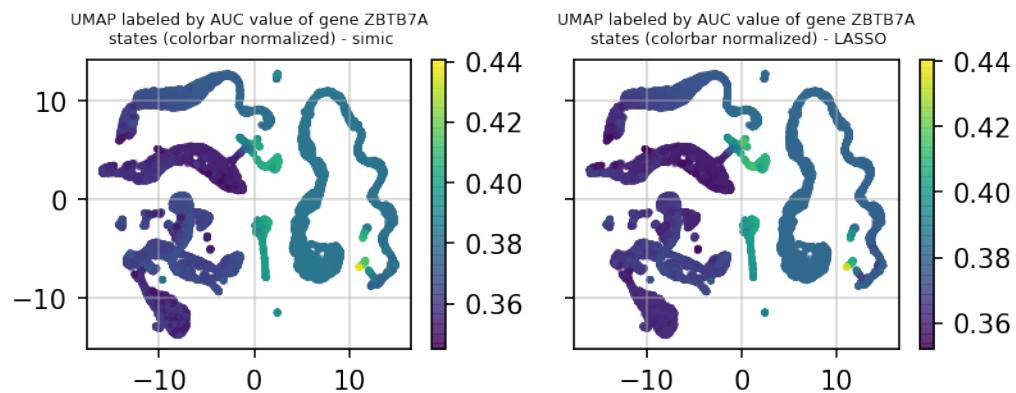
TFAM



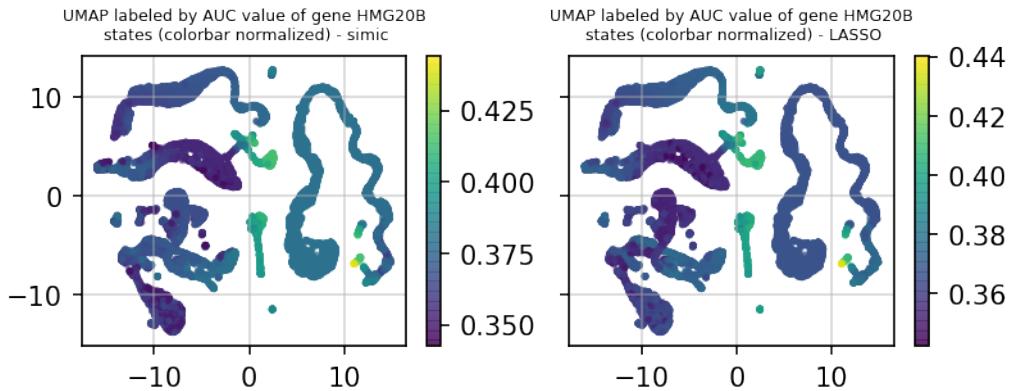
CREB3L3



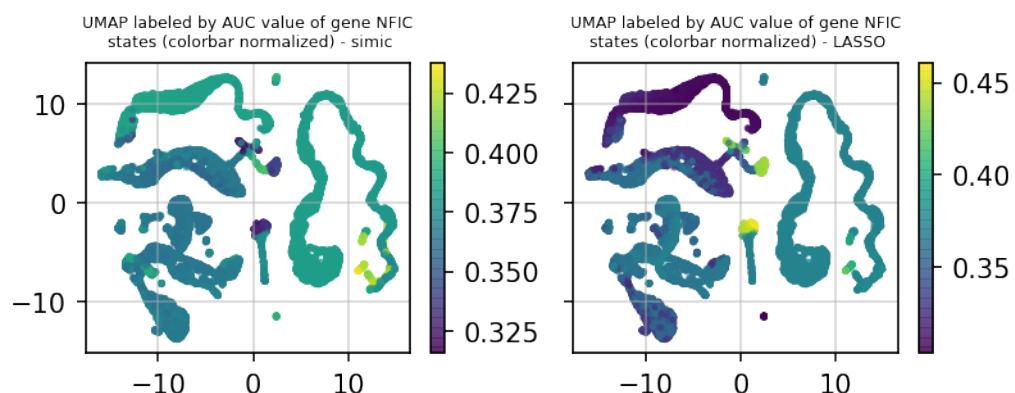
ZBTB7A



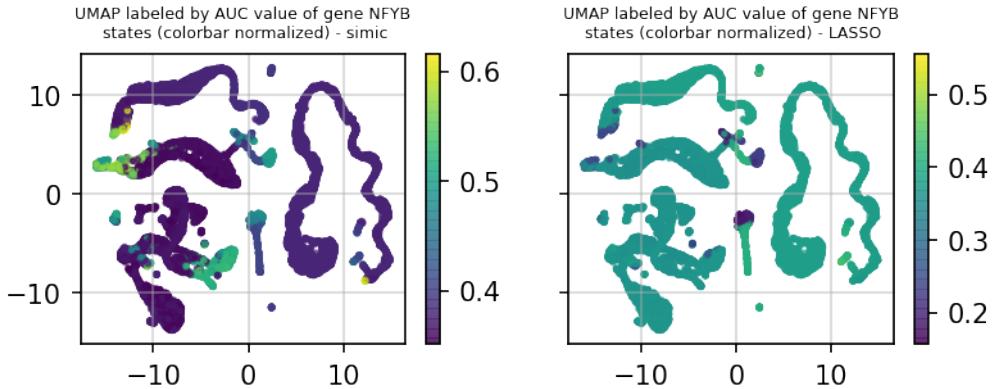
HMG20B



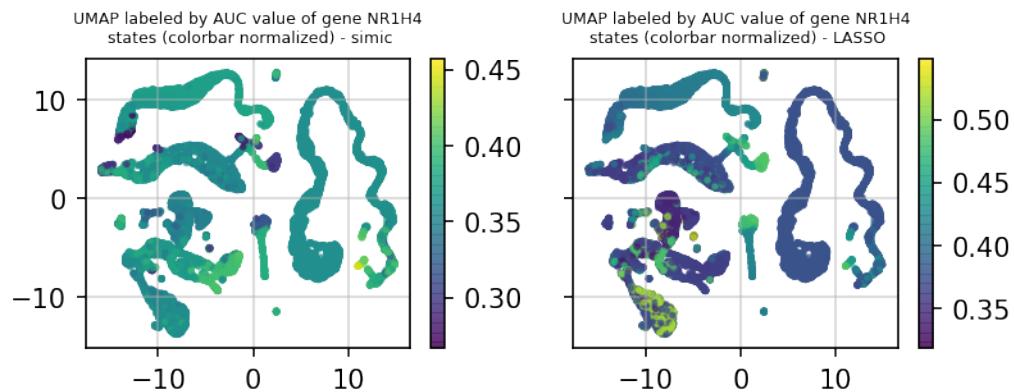
NFIC



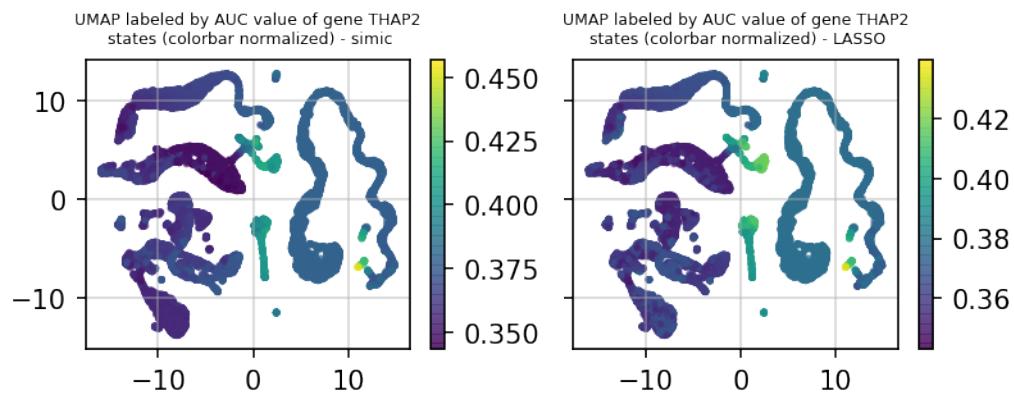
NFYB



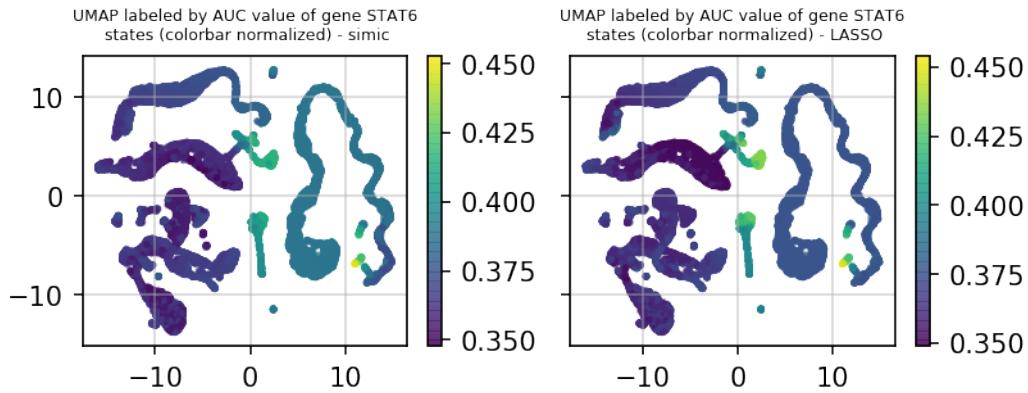
NR1H4



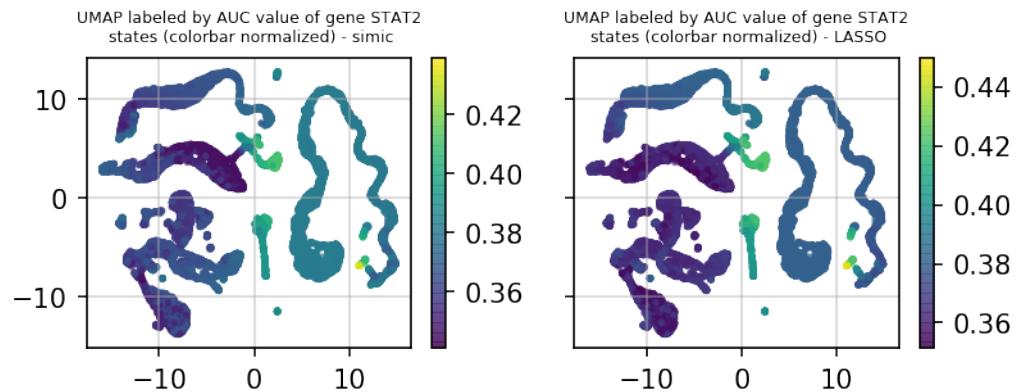
THAP2



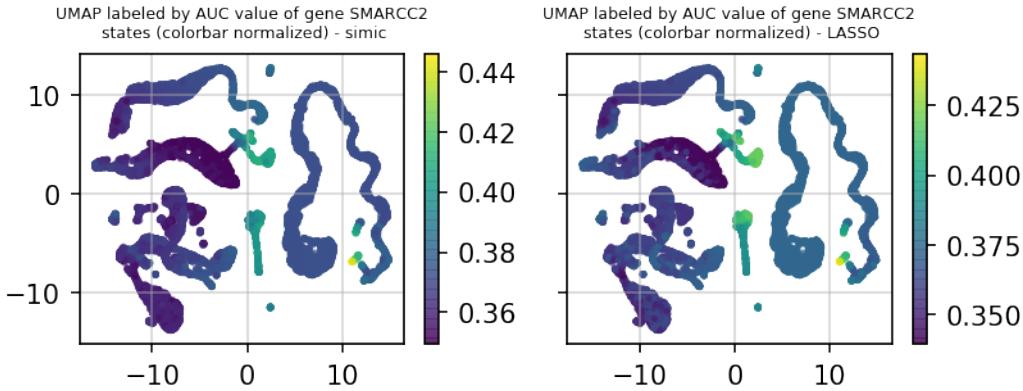
STAT6



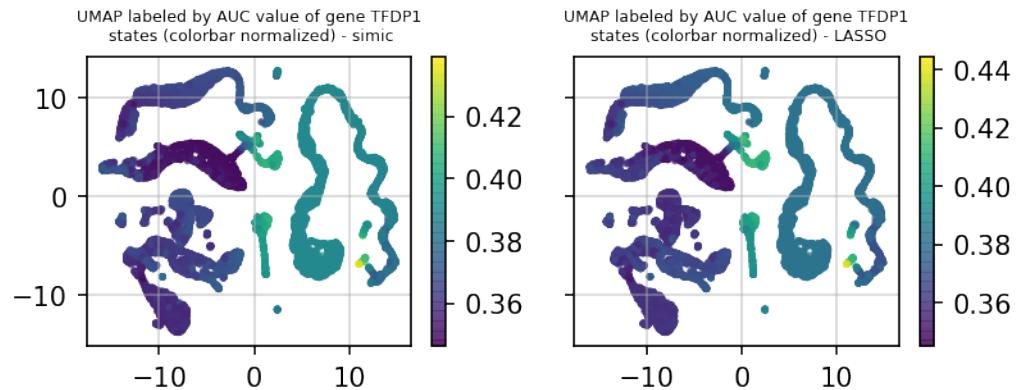
STAT2



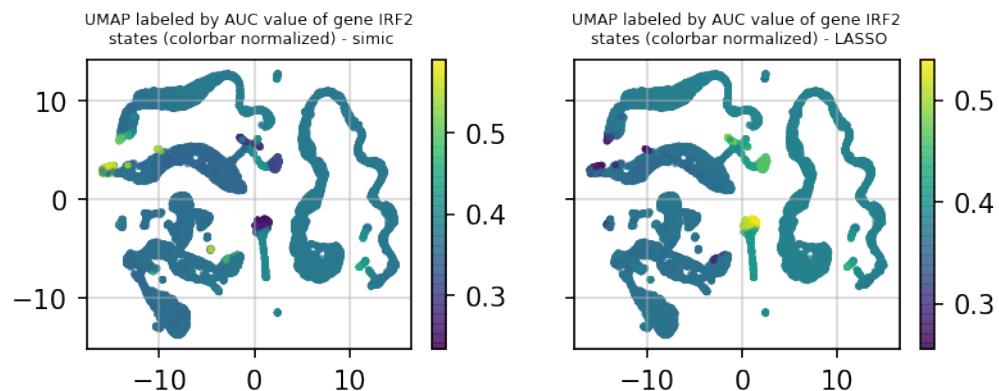
SMARCC2



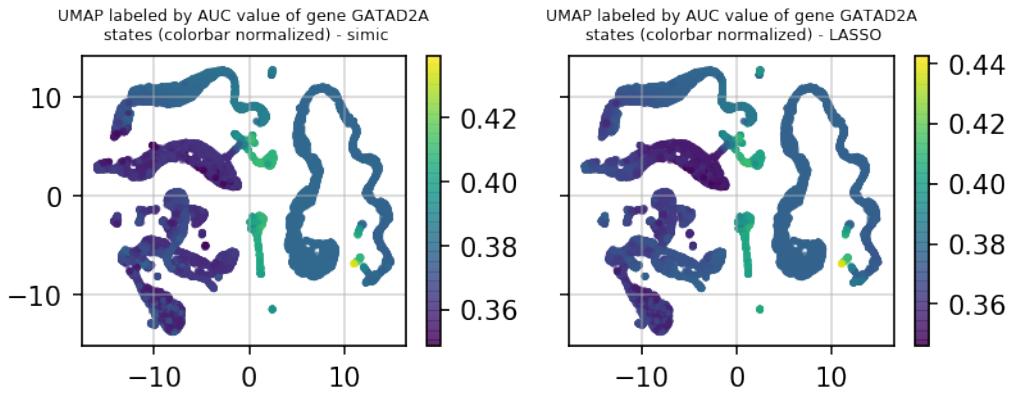
TFDP1



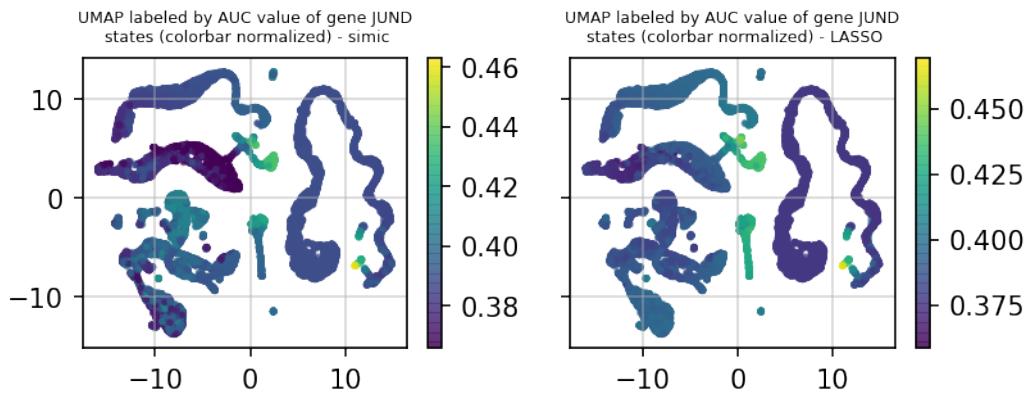
IRF2



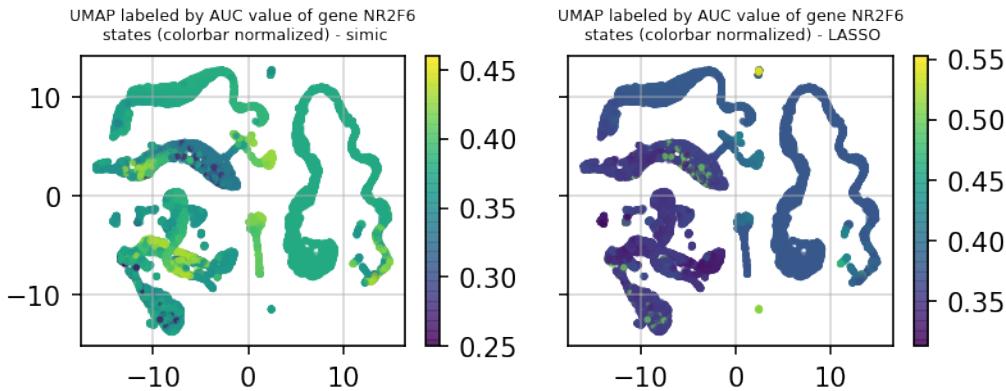
GATAD2A



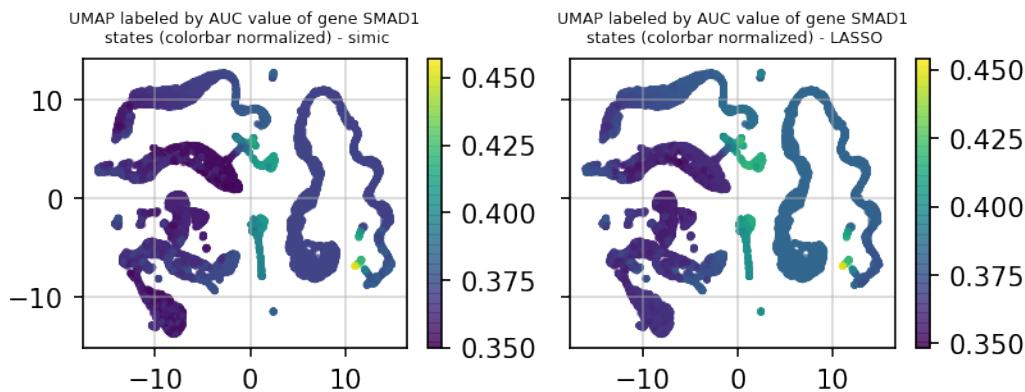
JUND



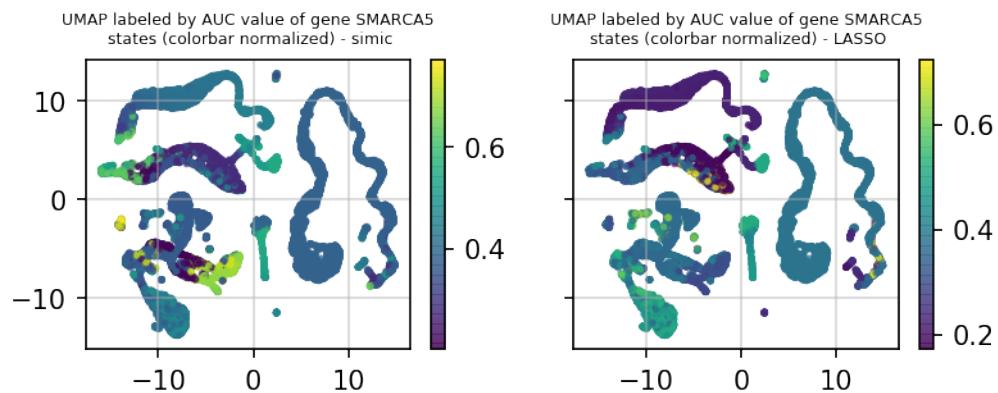
NR2F6



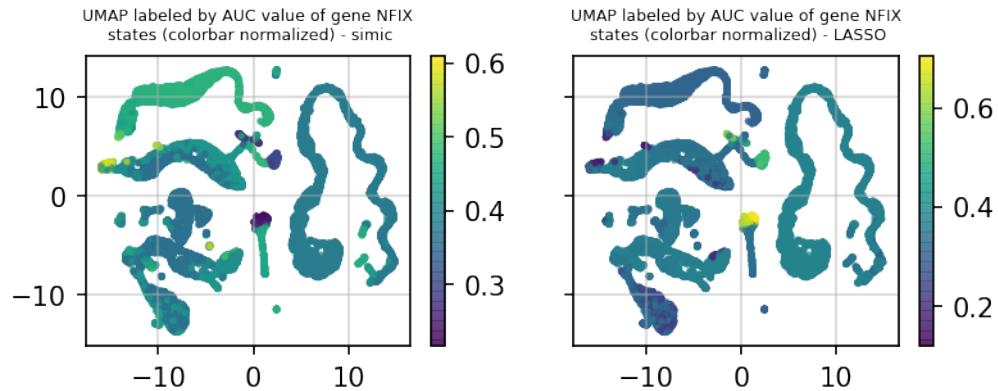
SMAD1



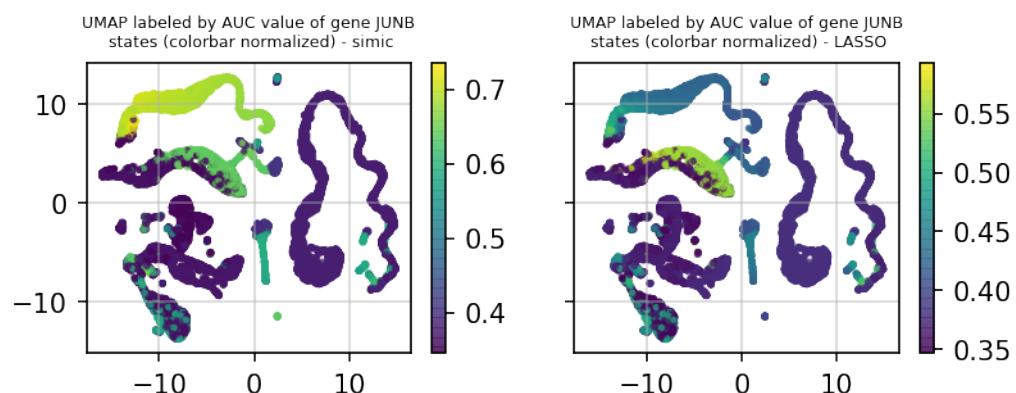
SMARCA5



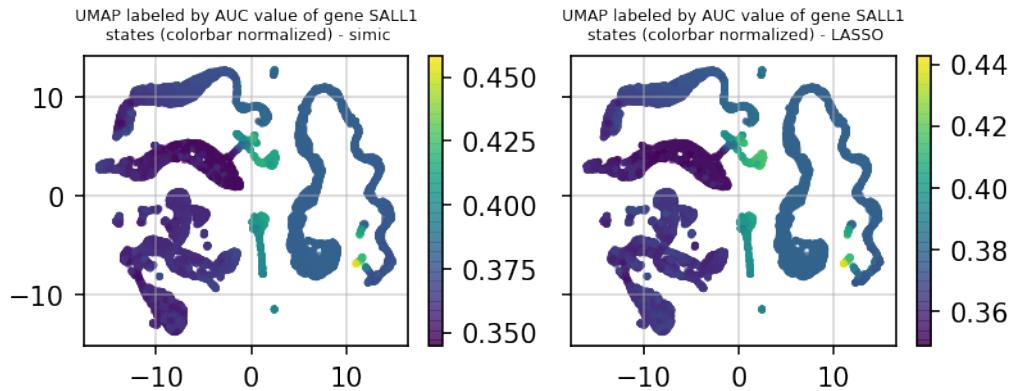
NFIX



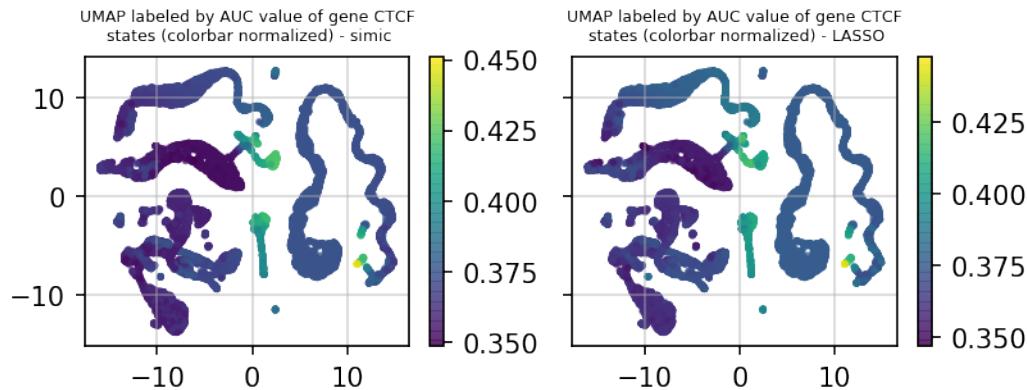
JUNB



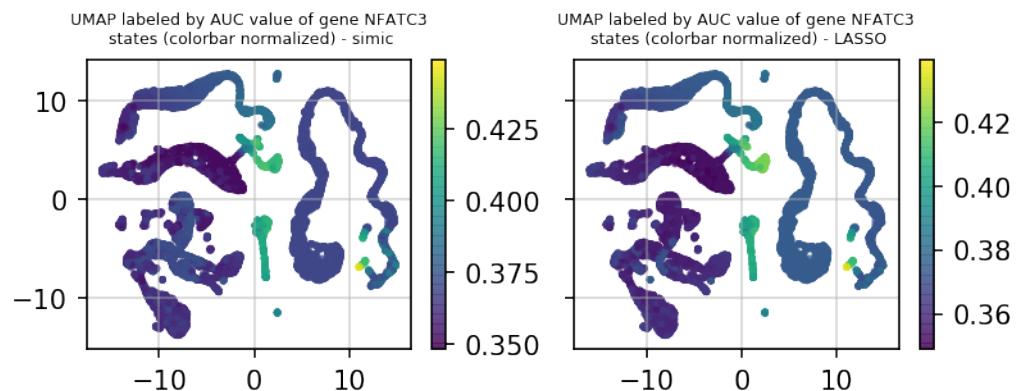
SALL1



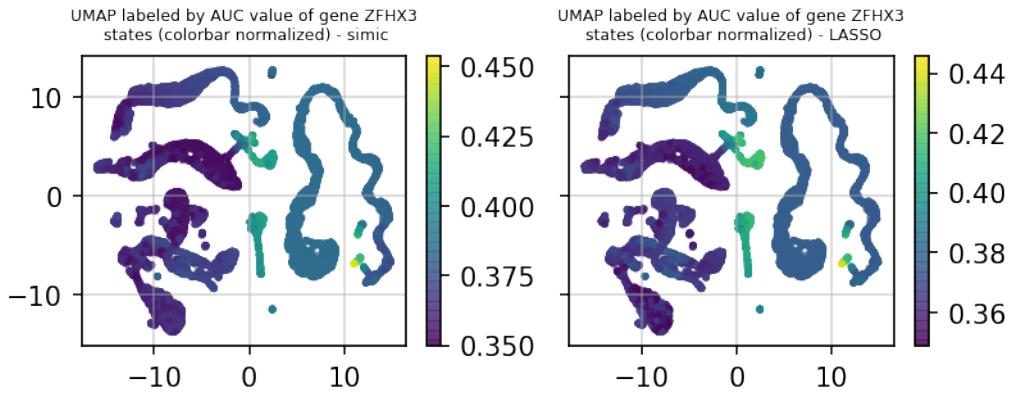
CTCF



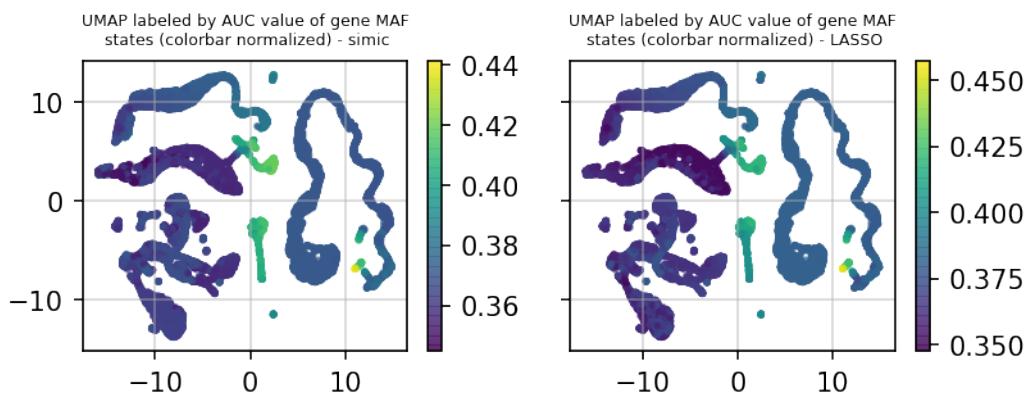
NFATC3



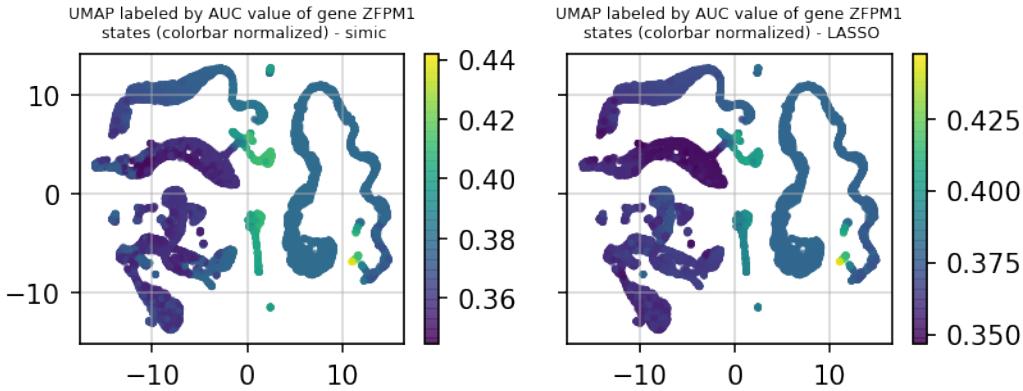
ZFHX3



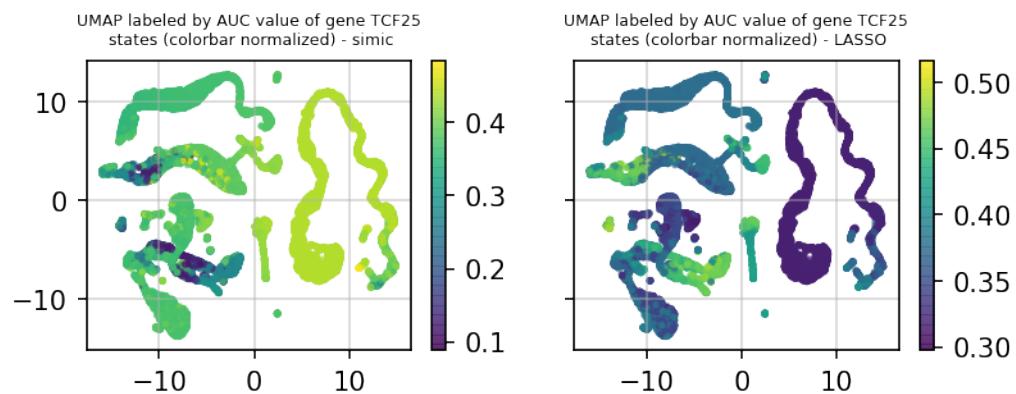
MAF



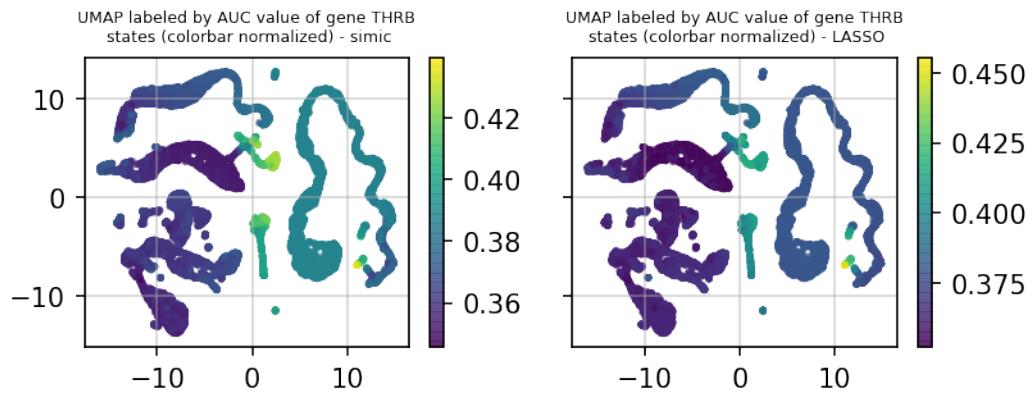
ZFPM1



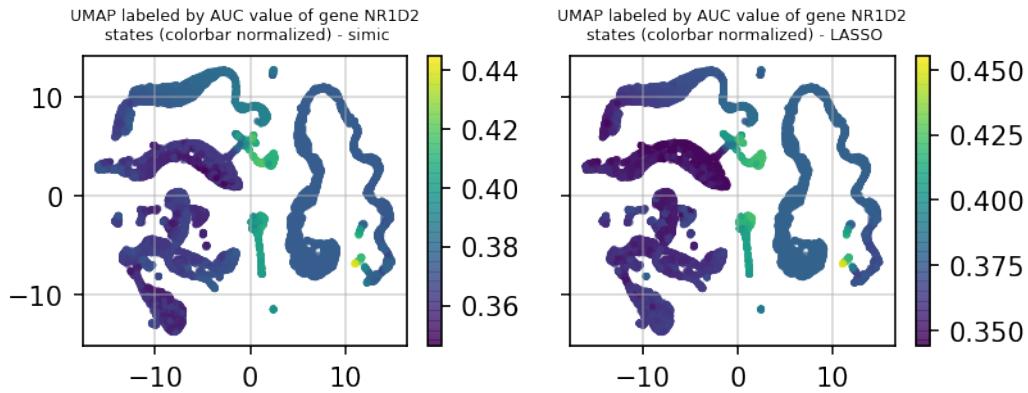
TCF25



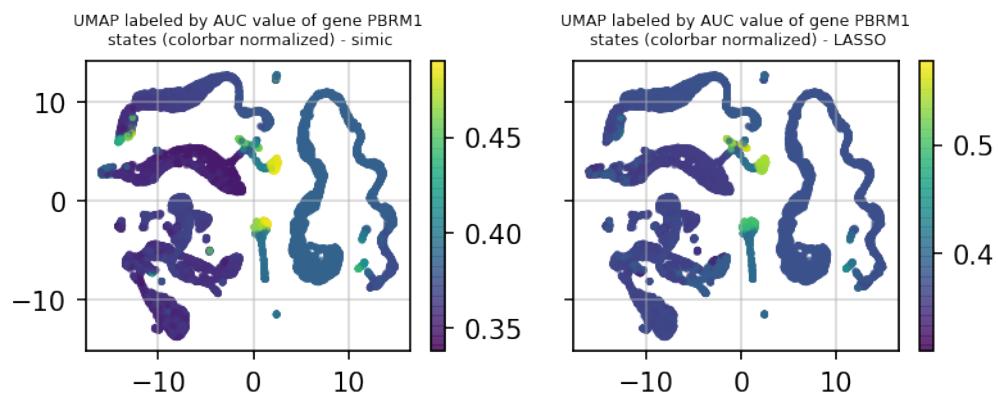
THRB



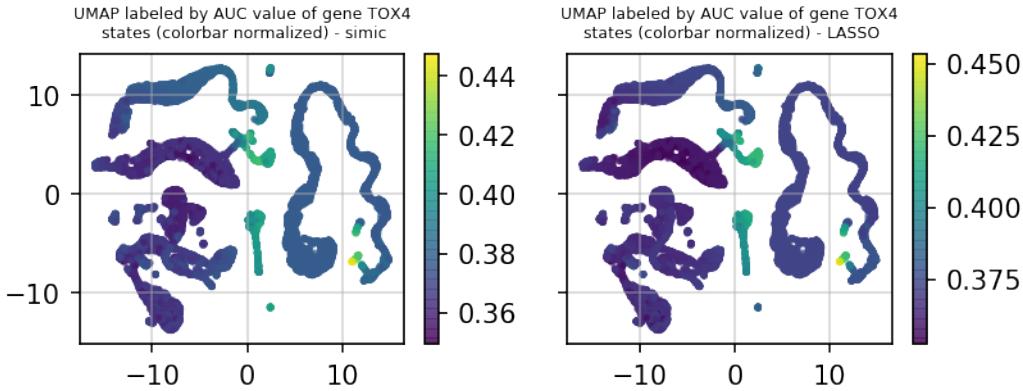
NR1D2



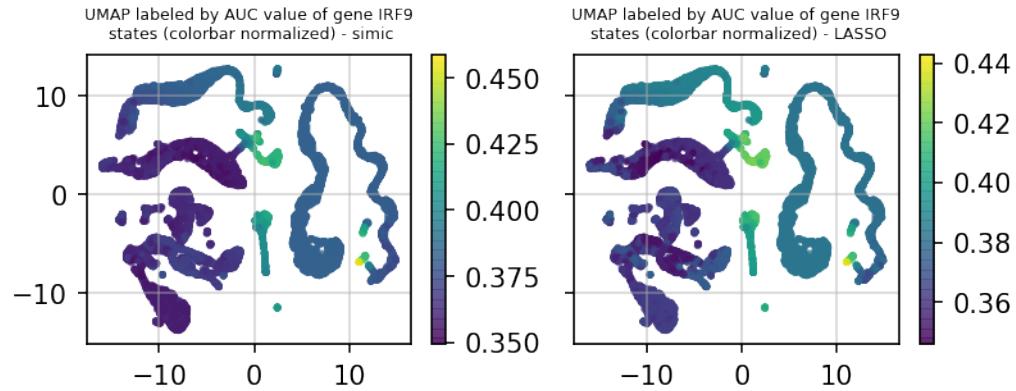
PBRM1



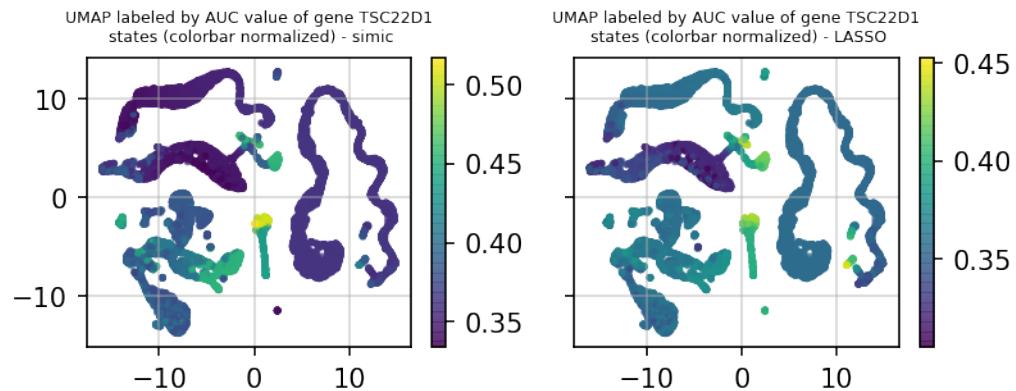
TOX4



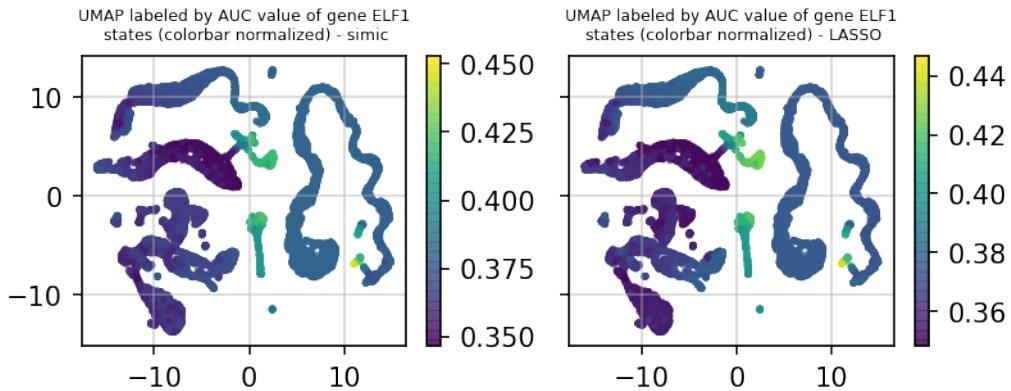
IRF9



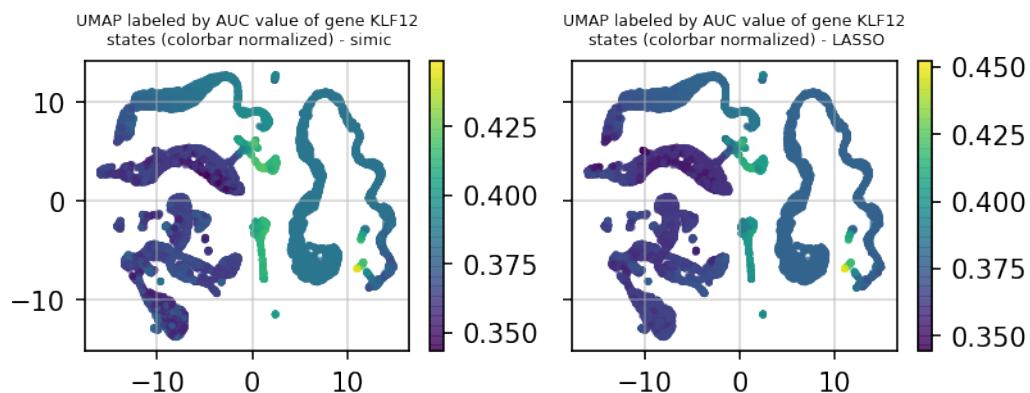
TSC22D1



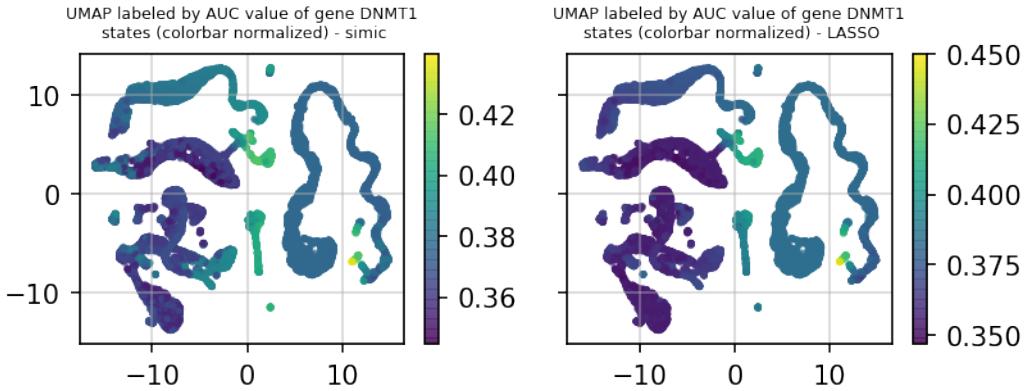
ELF1



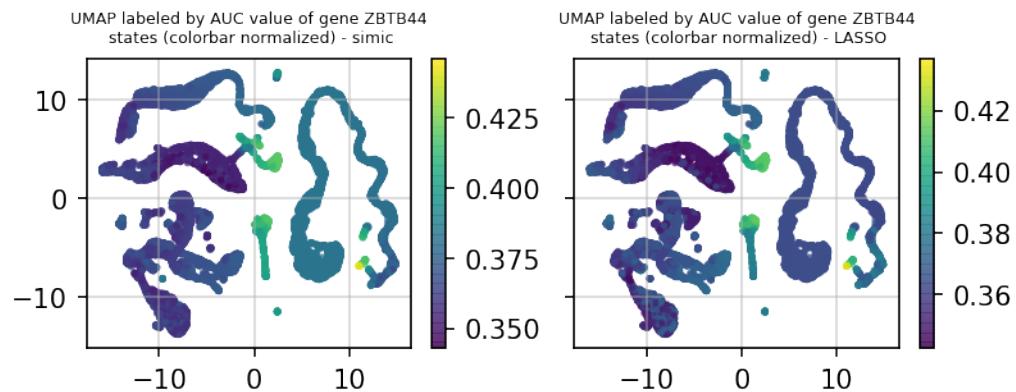
KLF12



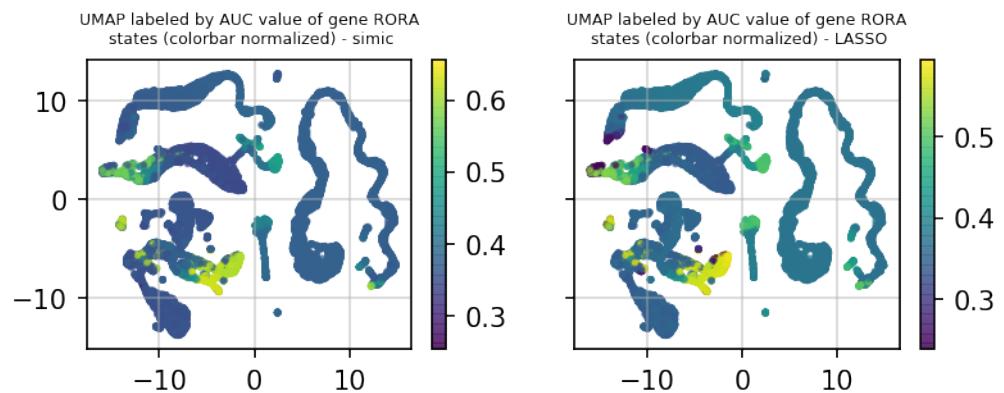
DNMT1



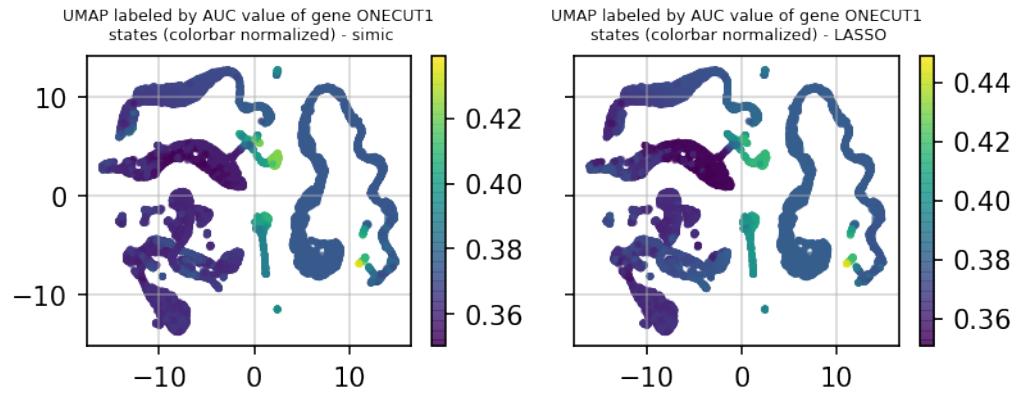
ZBTB44



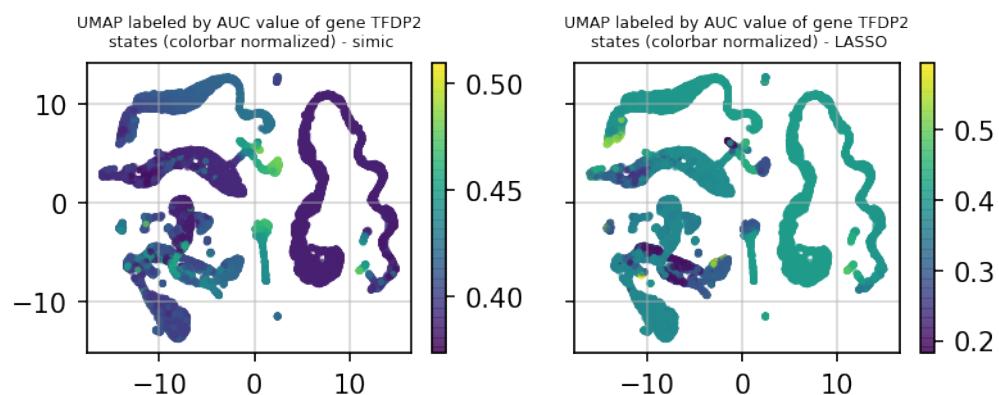
RORA



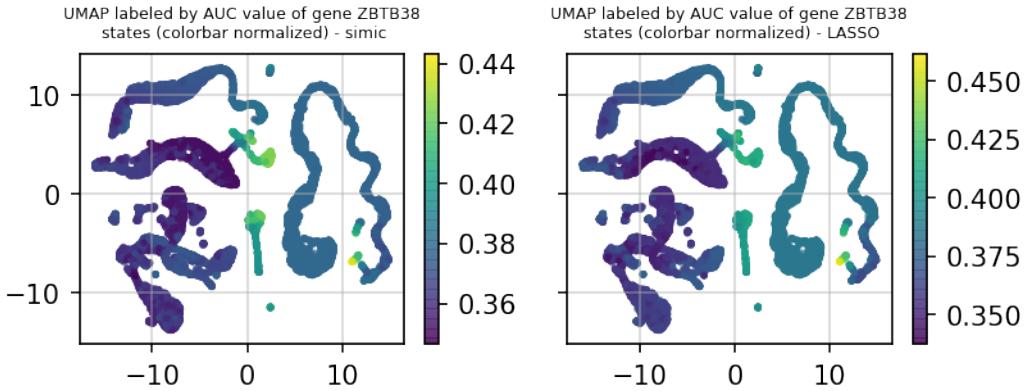
ONECUT1



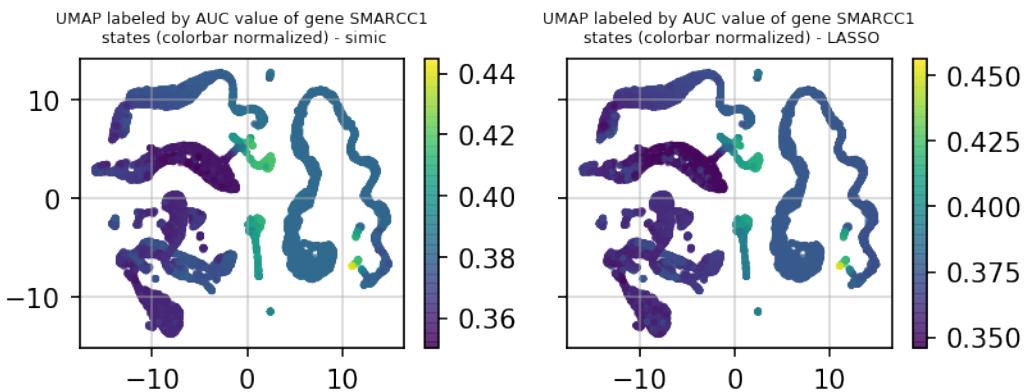
TFDP2



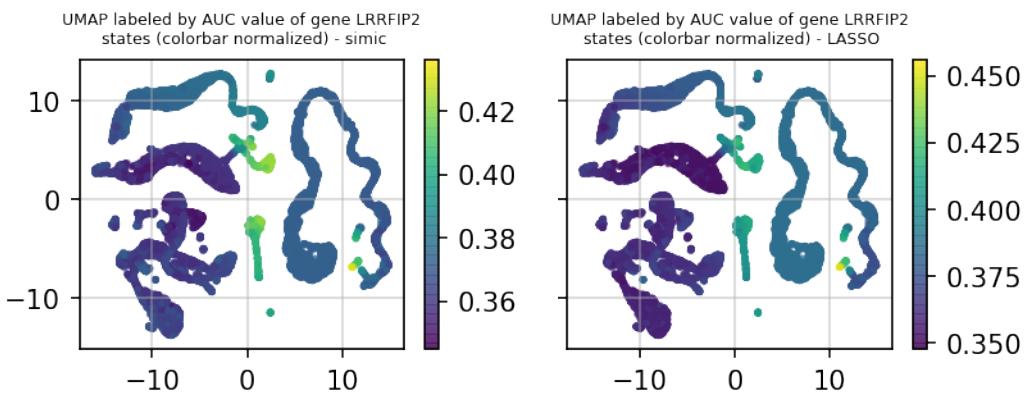
ZBTB38



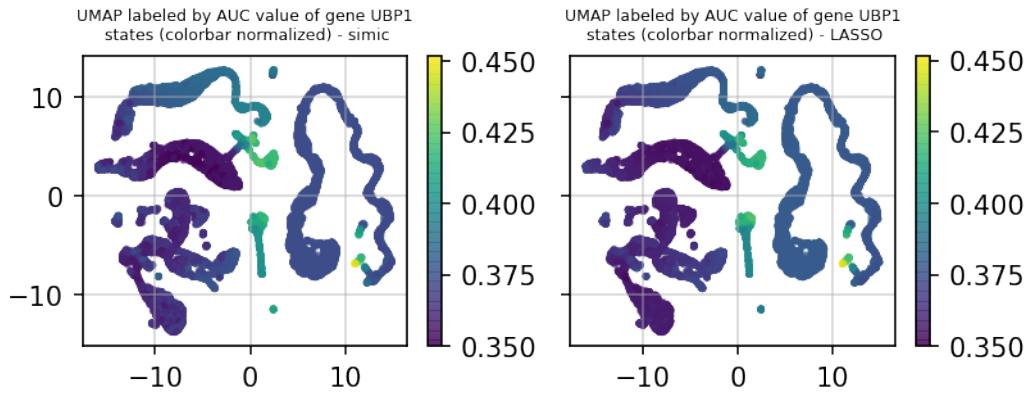
SMARCC1



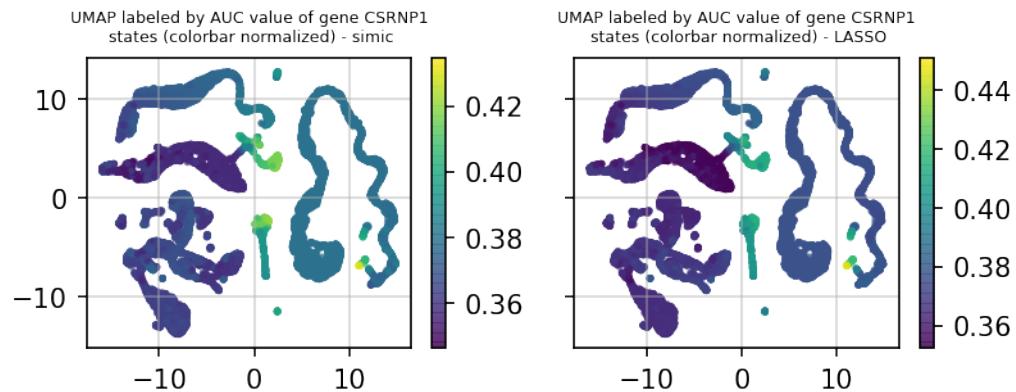
LRRFIP2



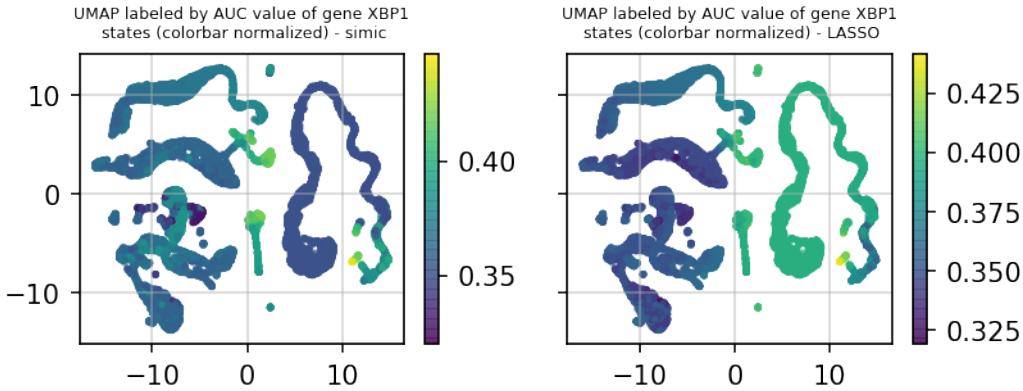
UBP1



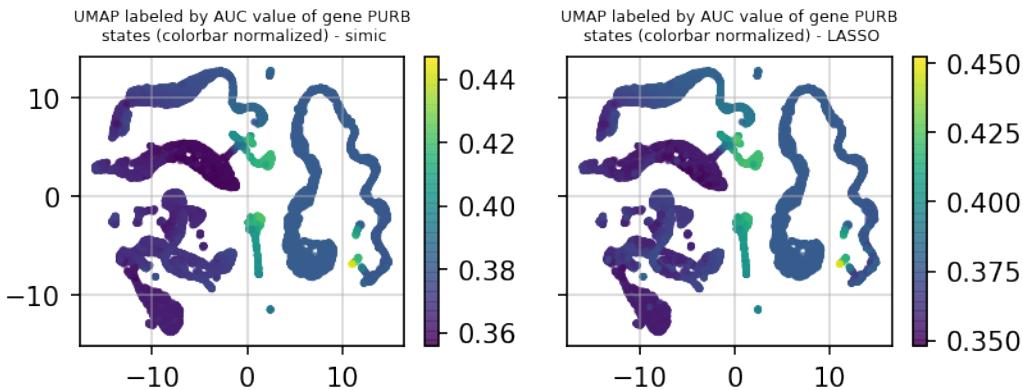
CSRNP1



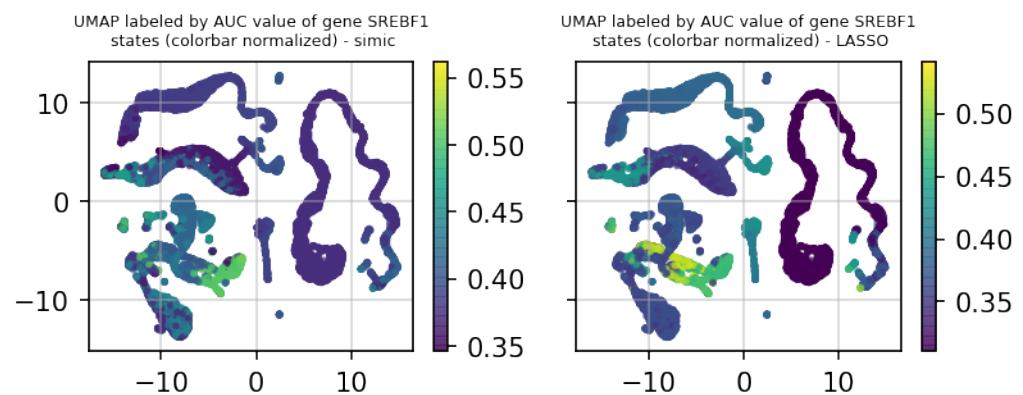
XBP1



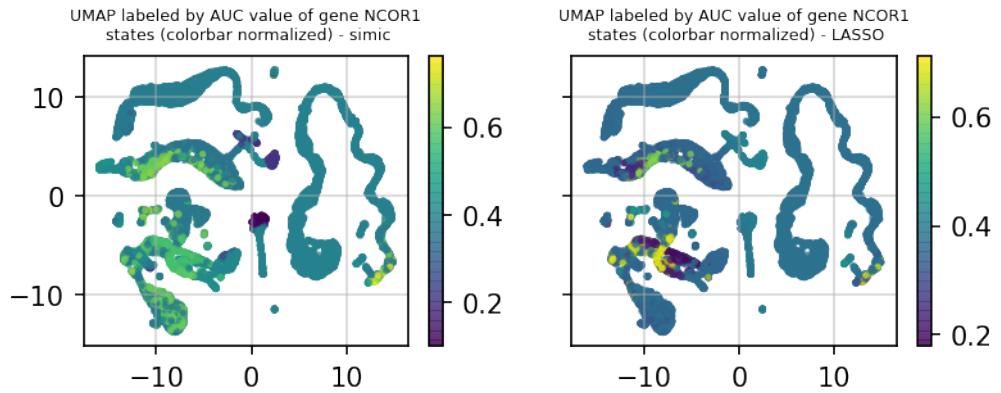
PURB



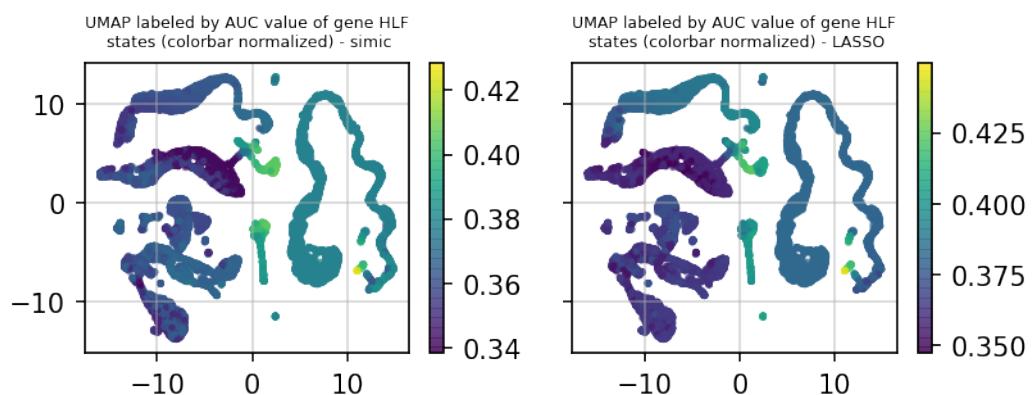
SREBF1



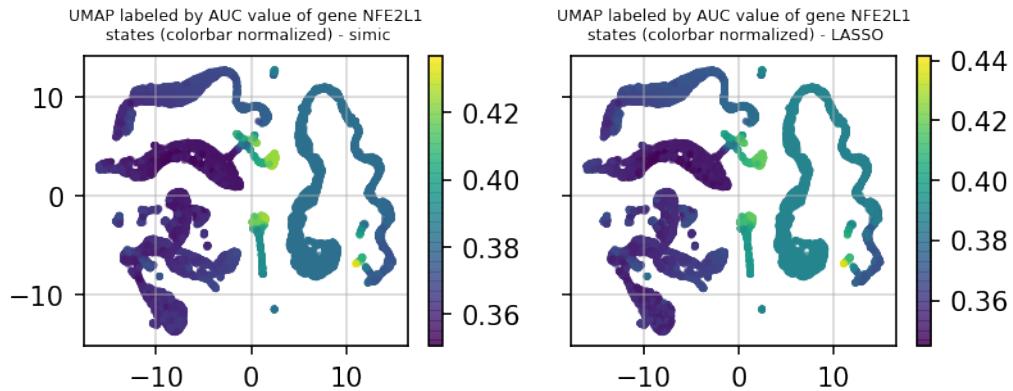
NCOR1



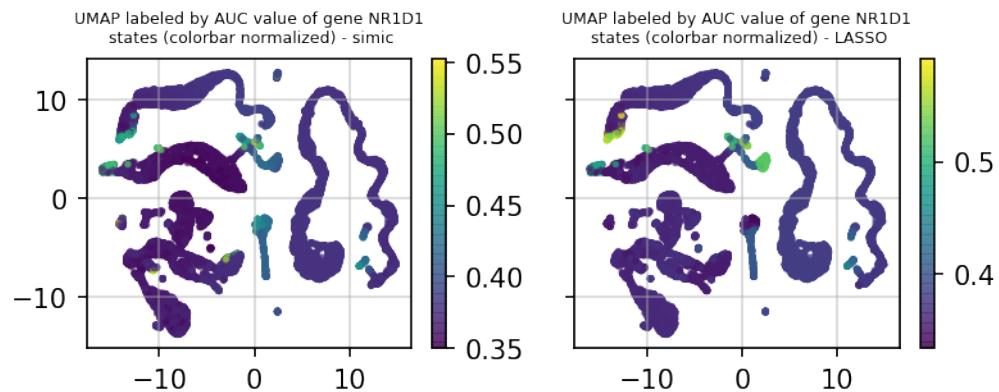
HLF



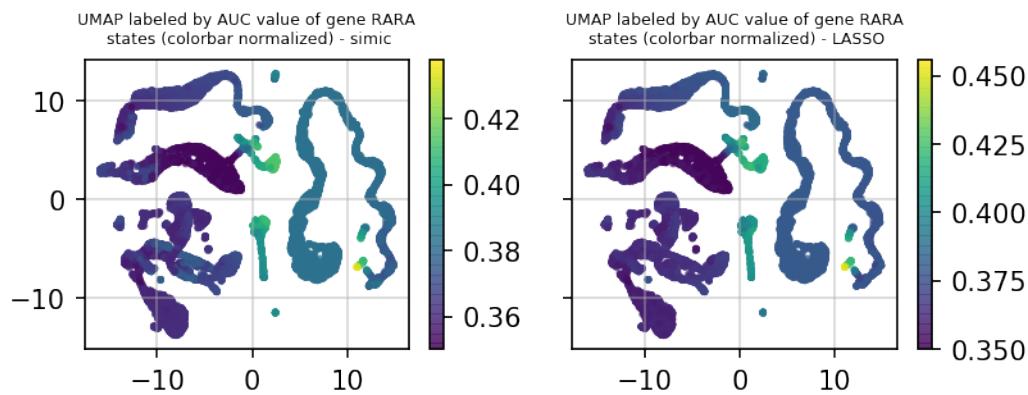
NFE2L1



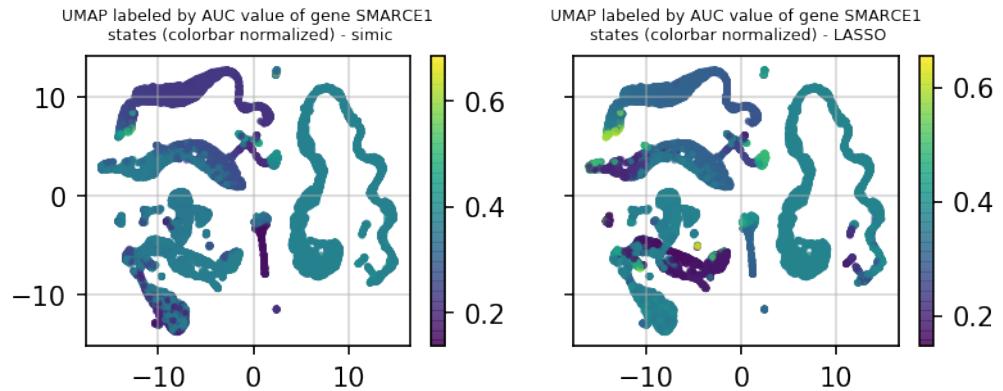
NR1D1



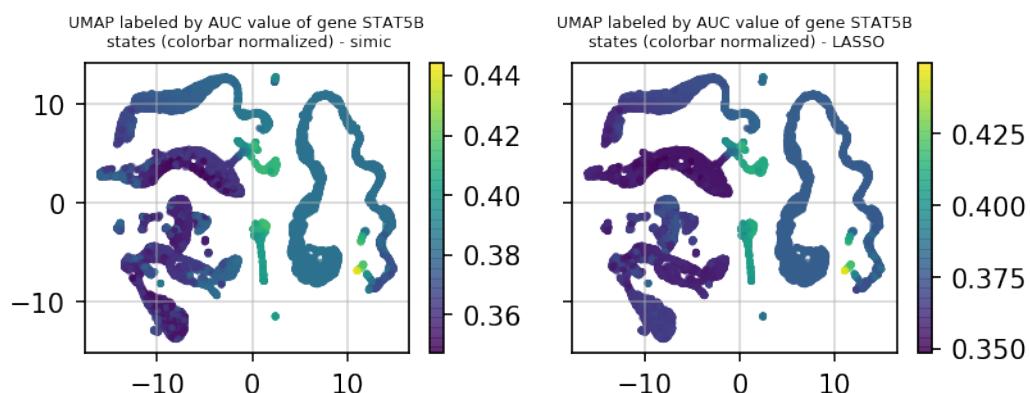
RARA



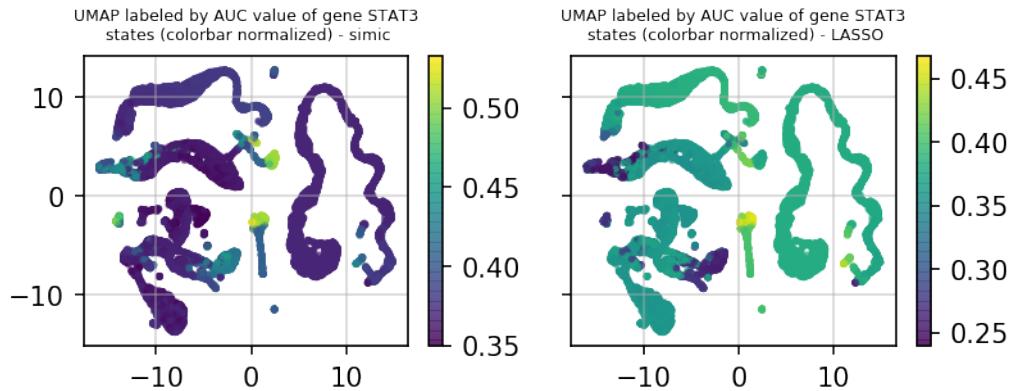
SMARCE1



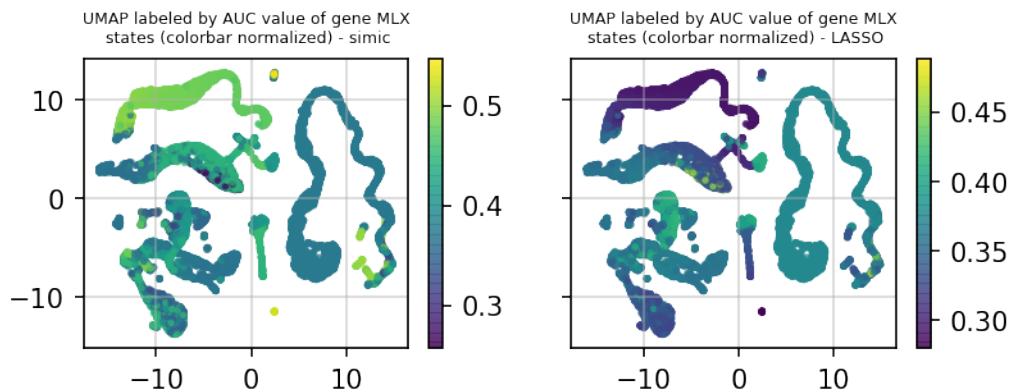
STAT5B



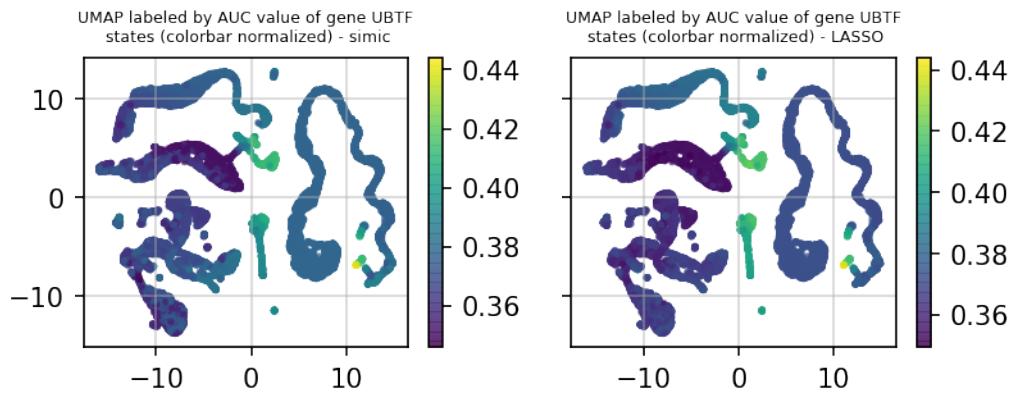
STAT3



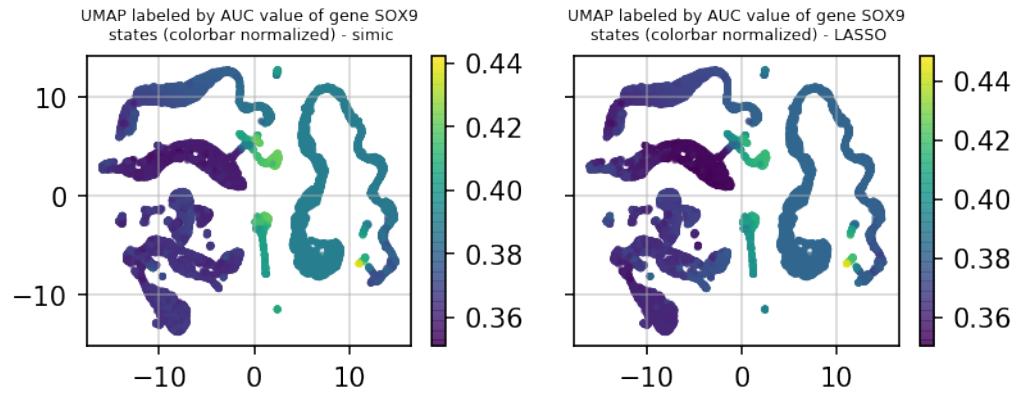
MLX



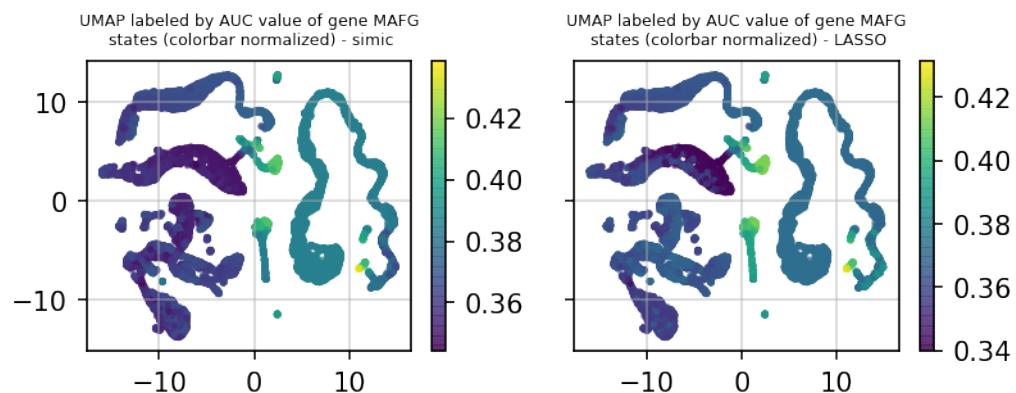
UBTF



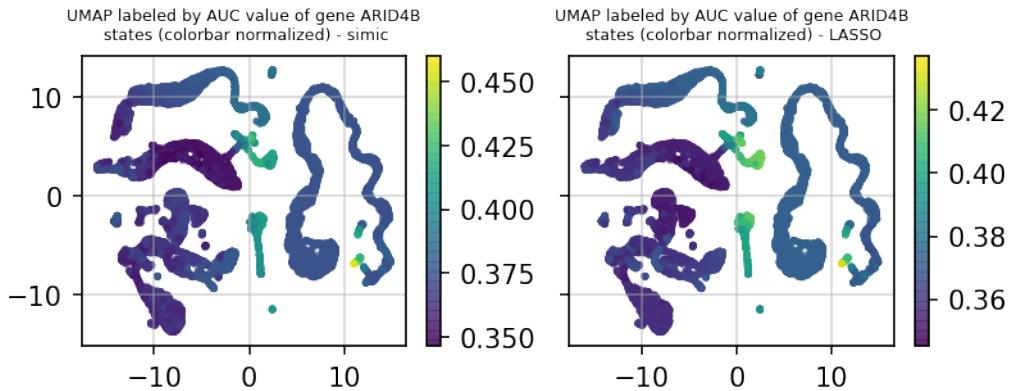
SOX9



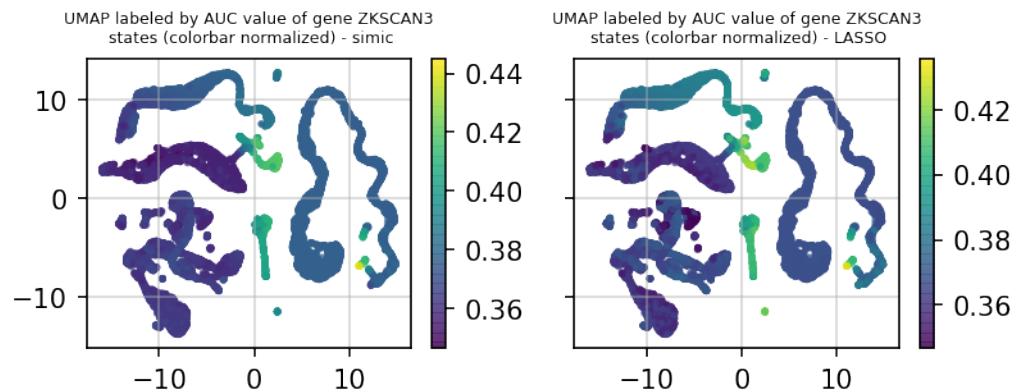
MAFG



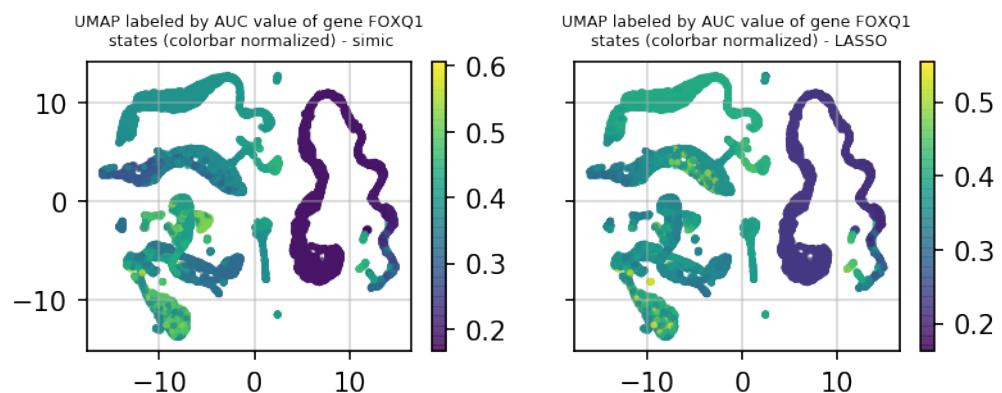
ARID4B



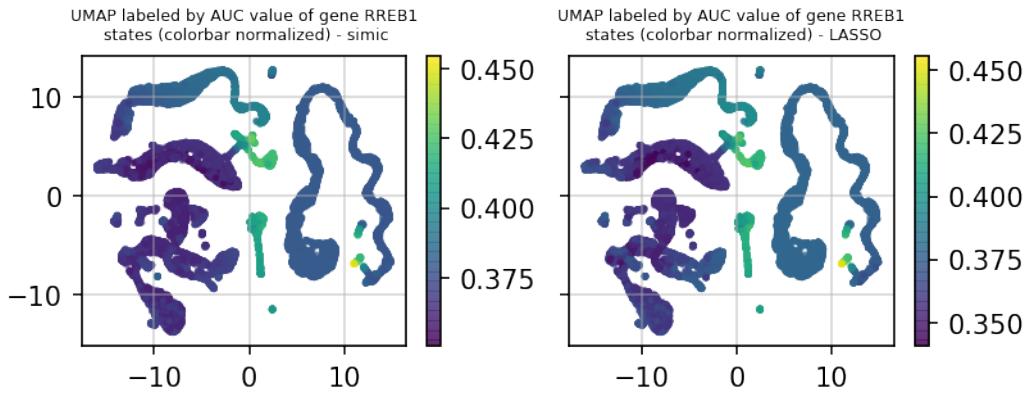
ZKSCAN3



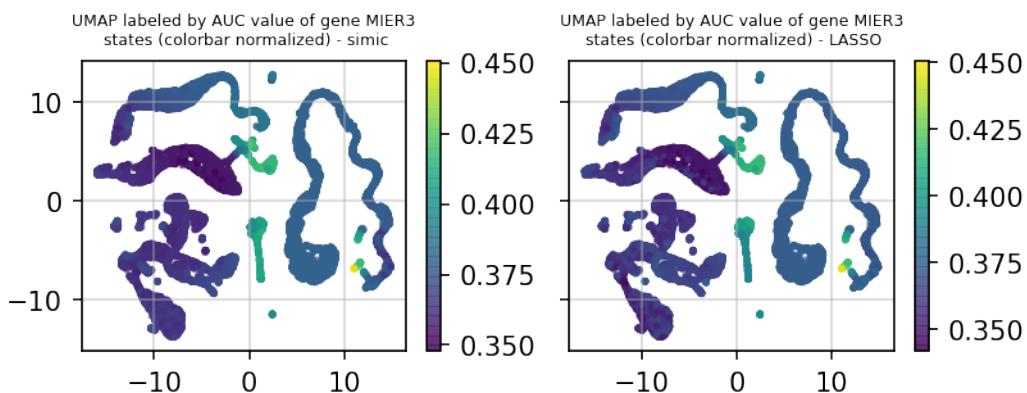
FOXQ1



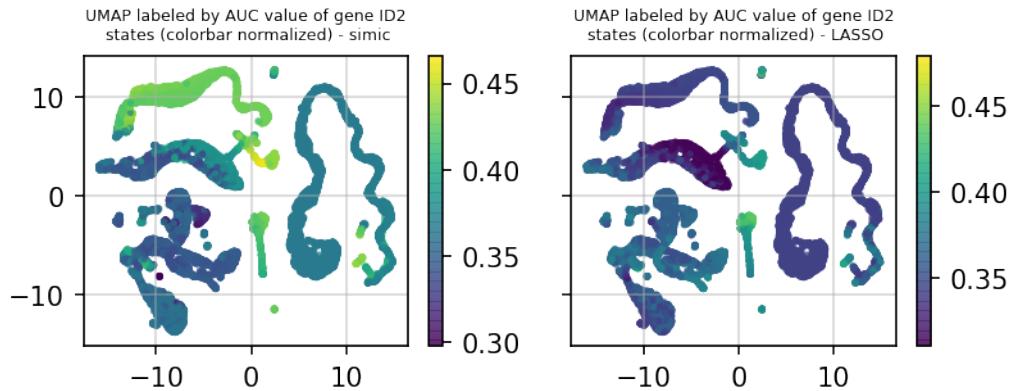
RREB1



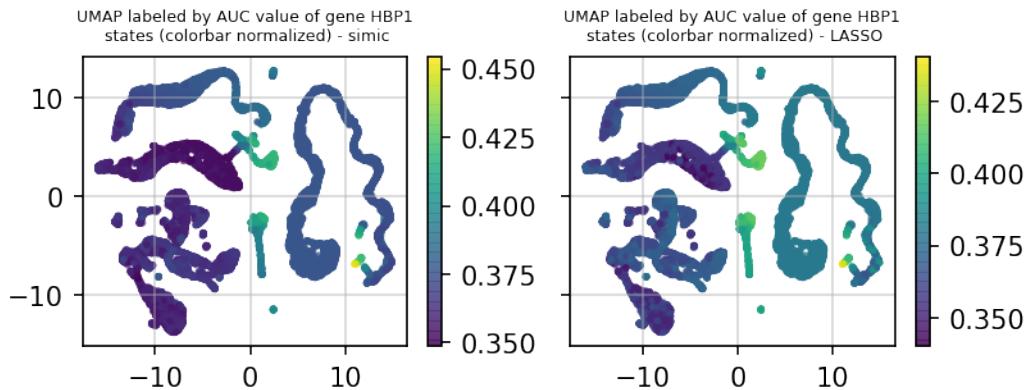
MIER3



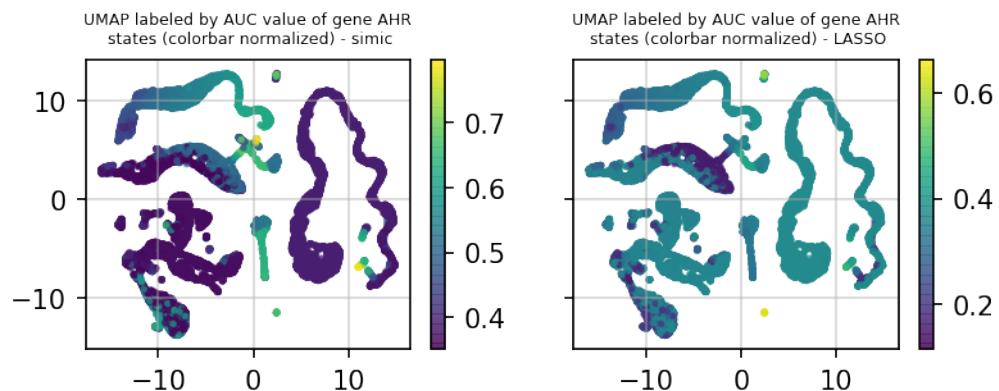
ID2



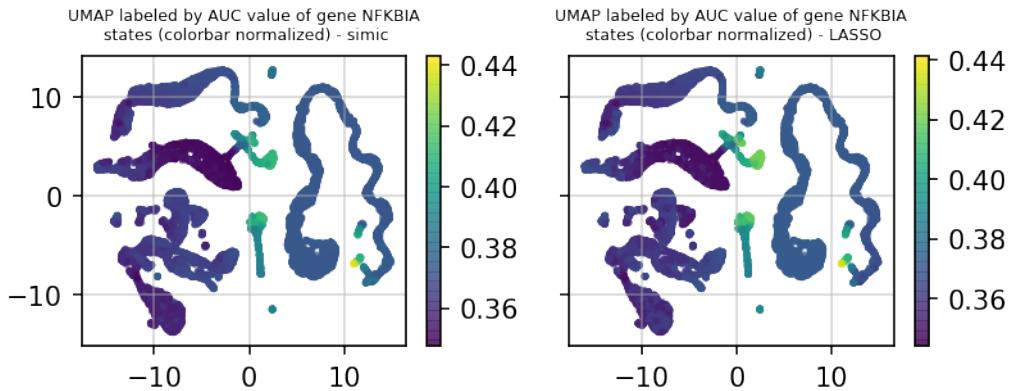
HBP1



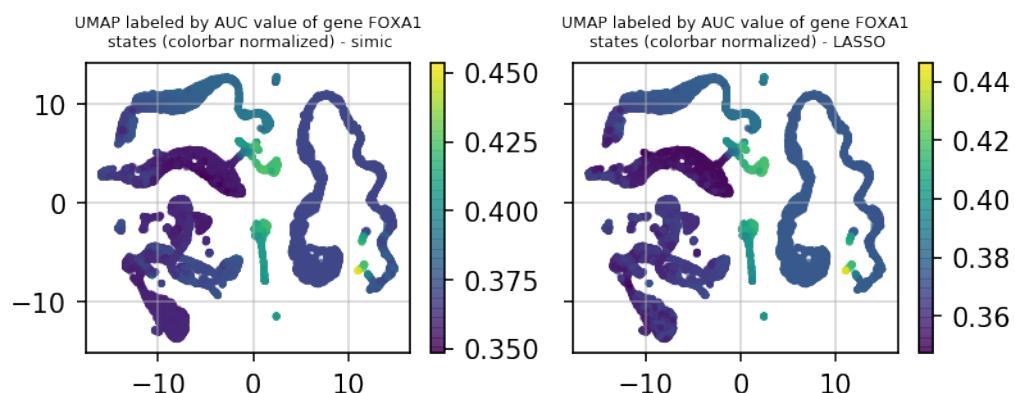
AHR



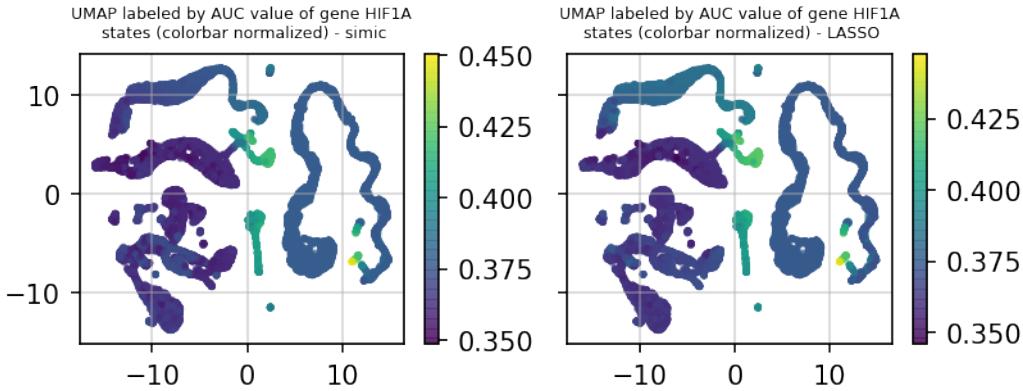
NFKBIA



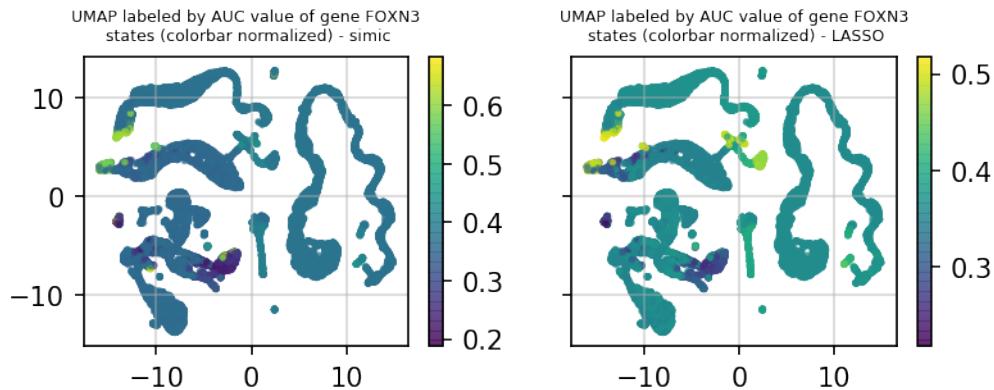
FOXA1



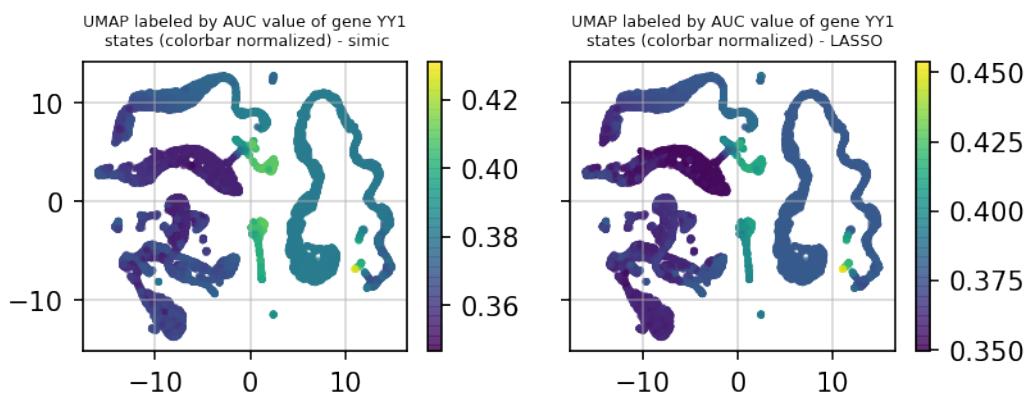
HIF1A



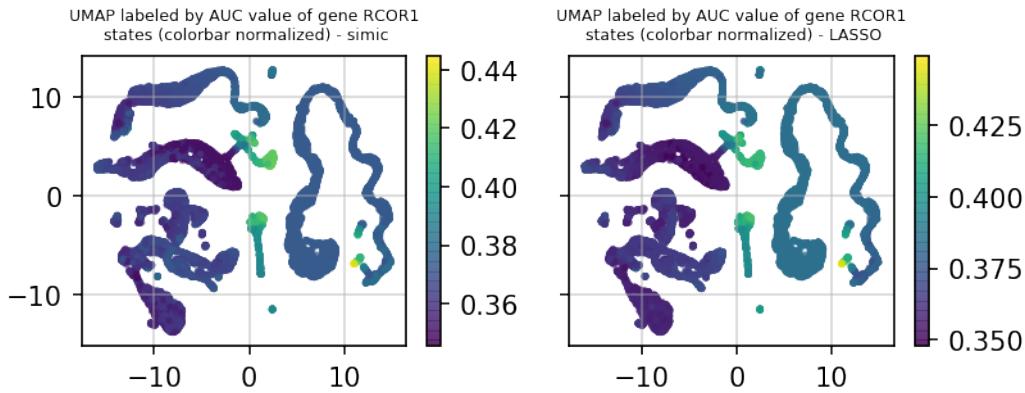
FOXN3



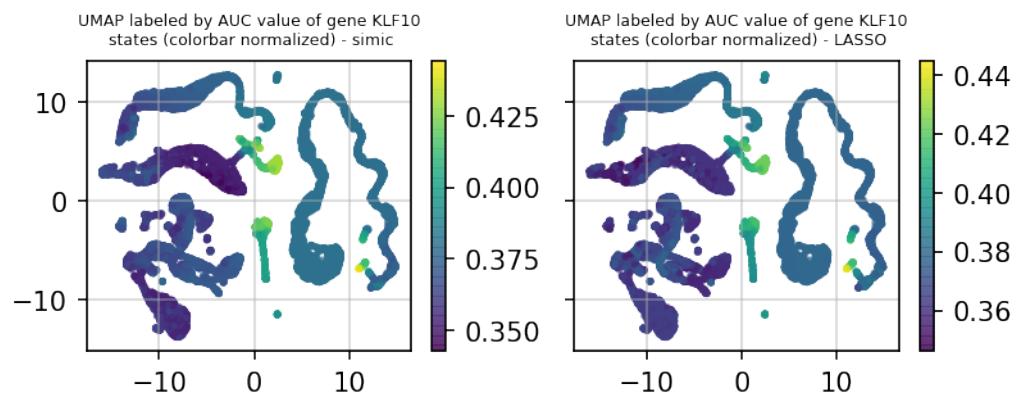
YY1



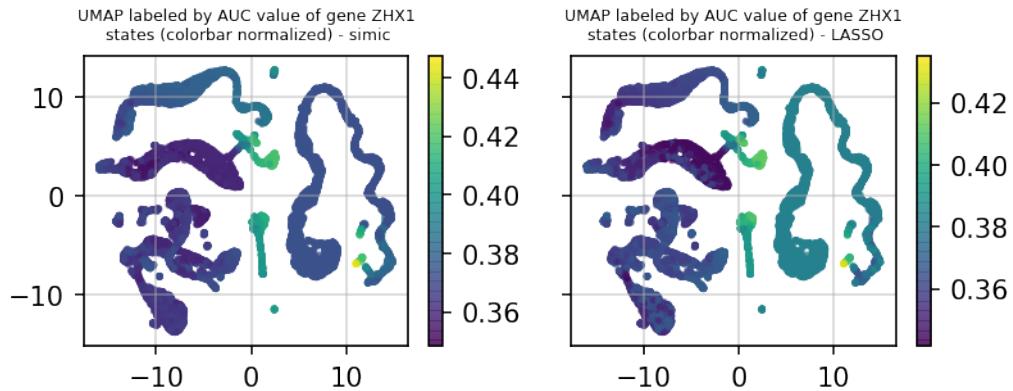
RCOR1



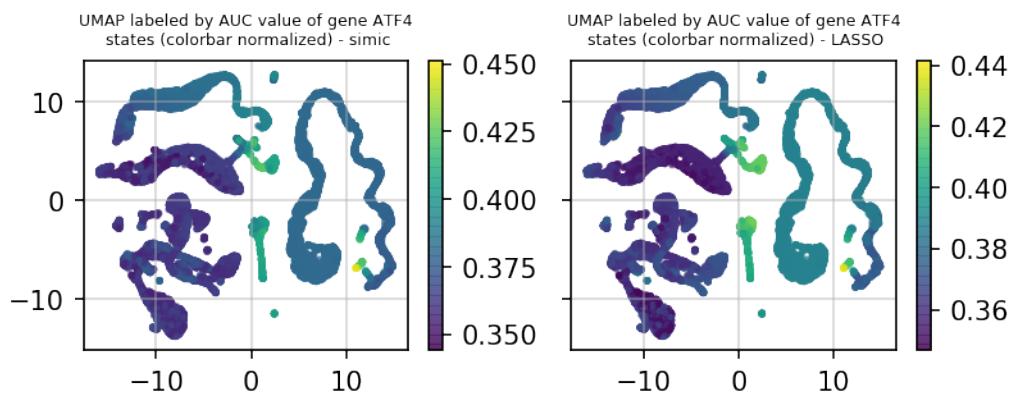
KLF10



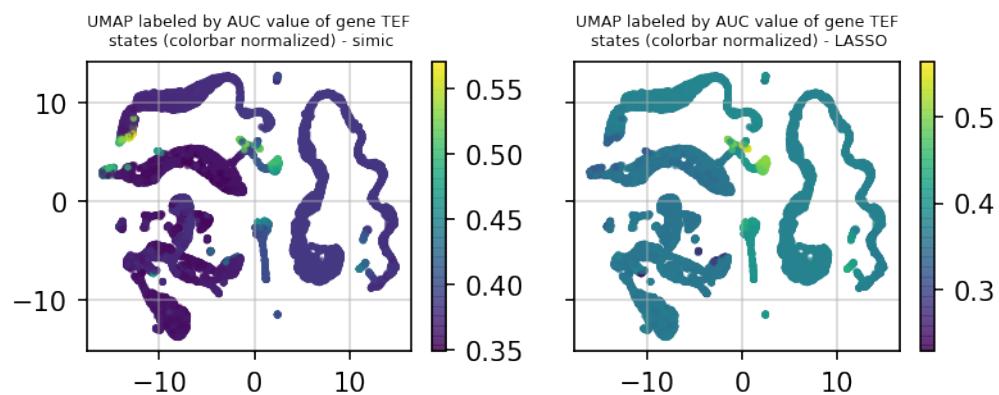
ZHXB1



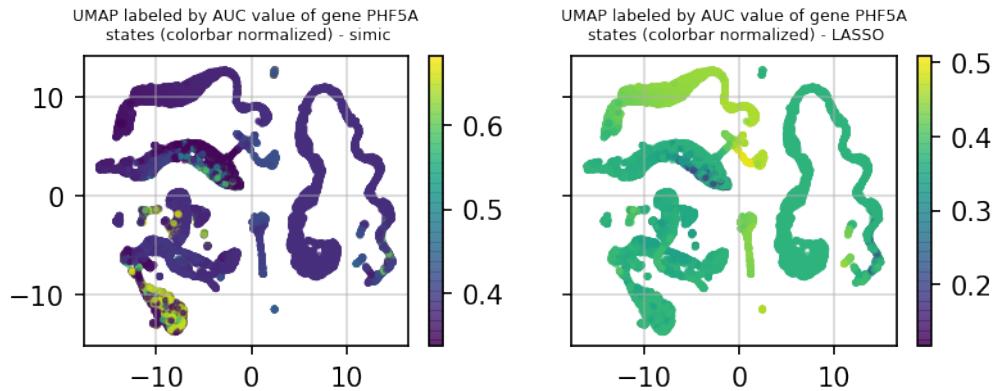
ATF4



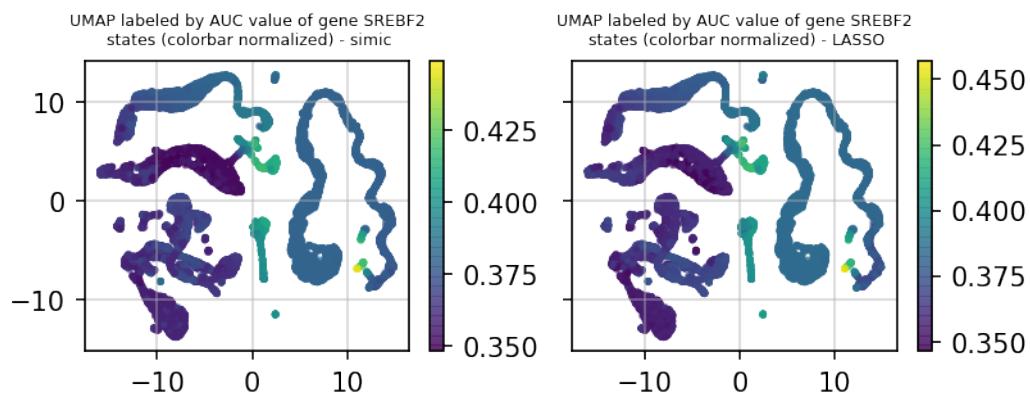
TEF



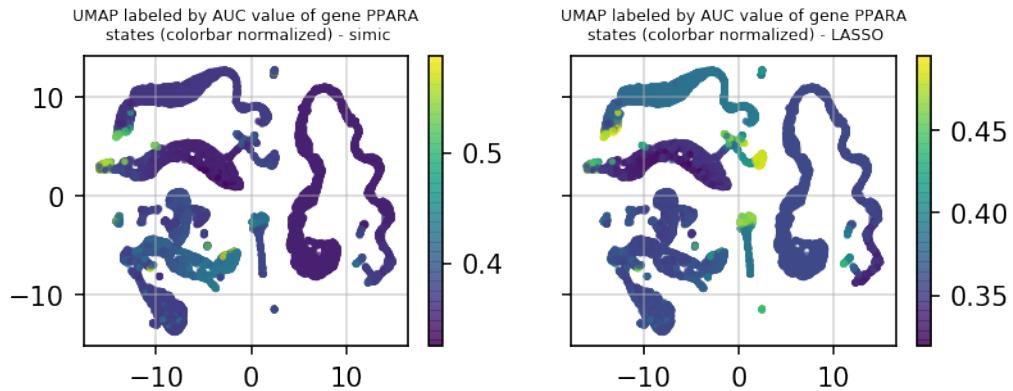
PHF5A



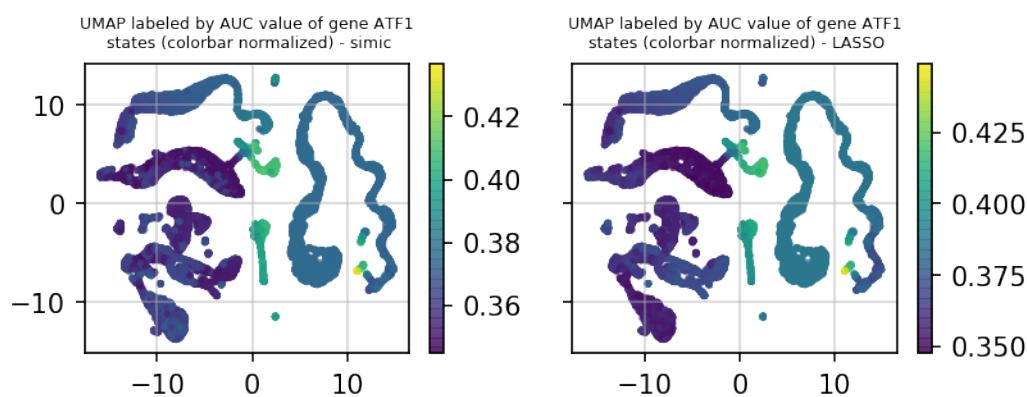
SREBF2



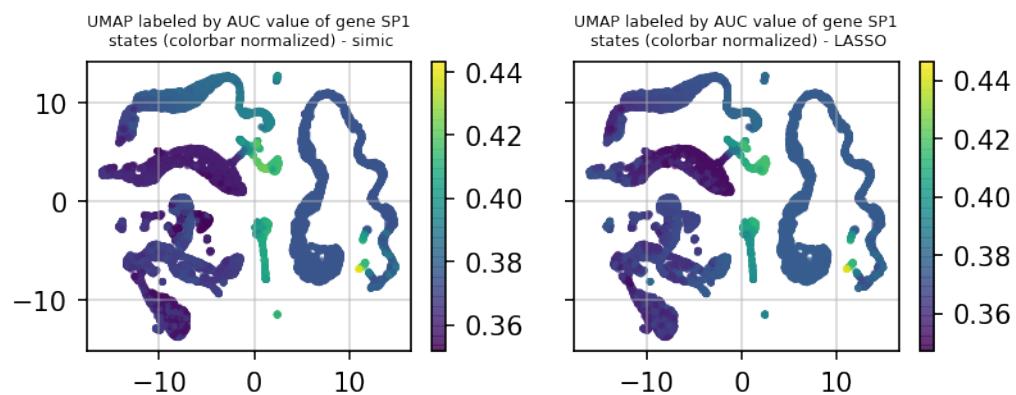
PPARA



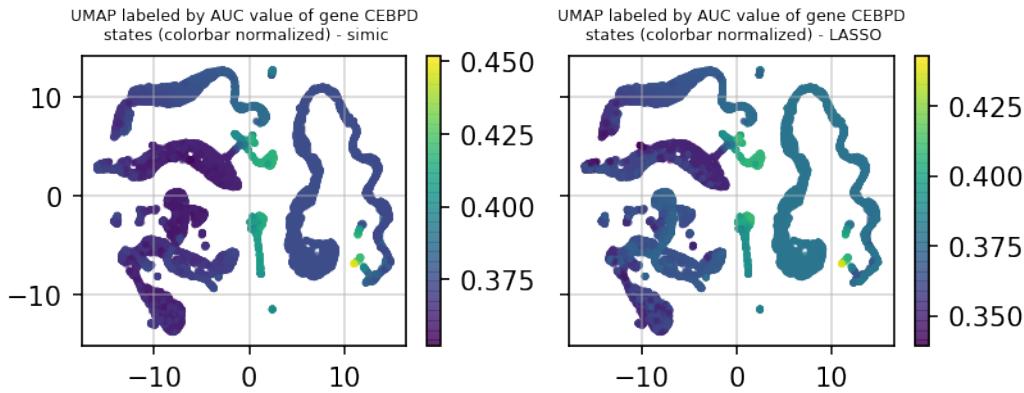
ATF1



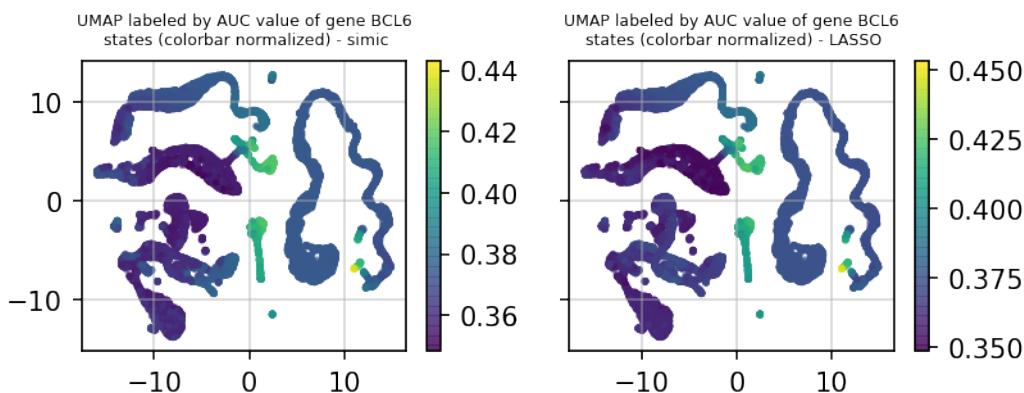
SP1



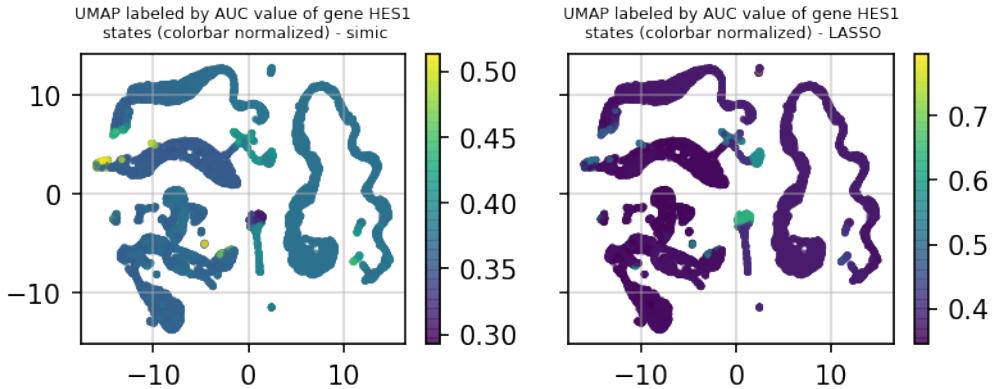
CEBPD



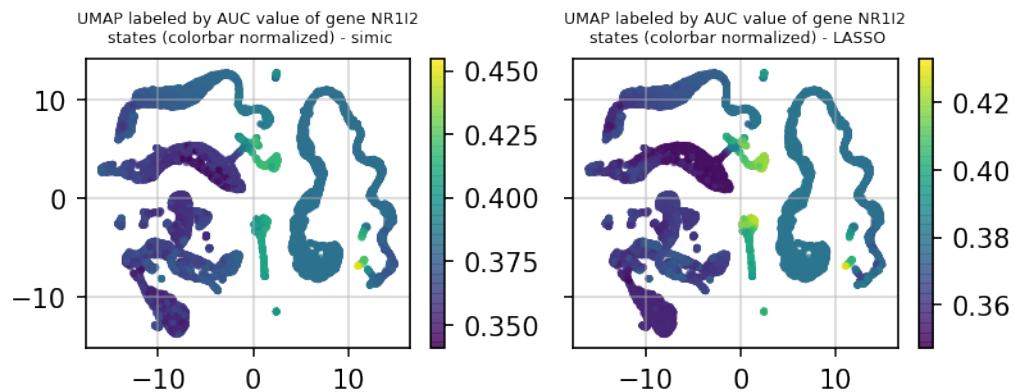
BCL6



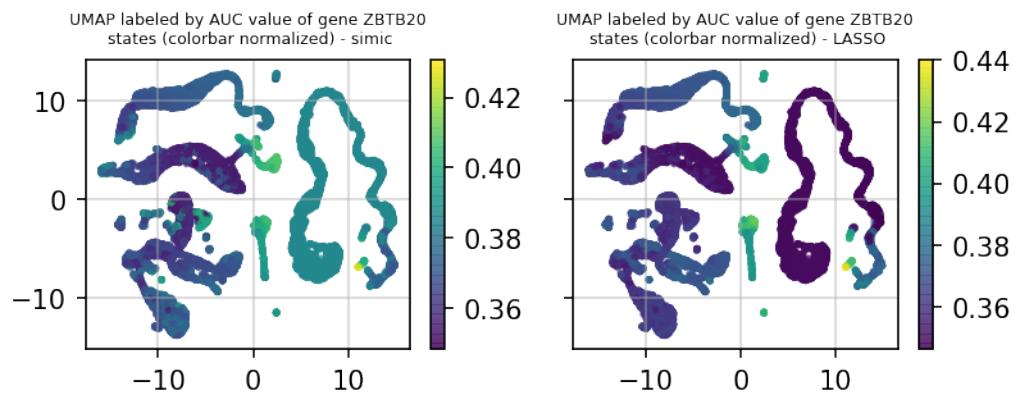
HES1



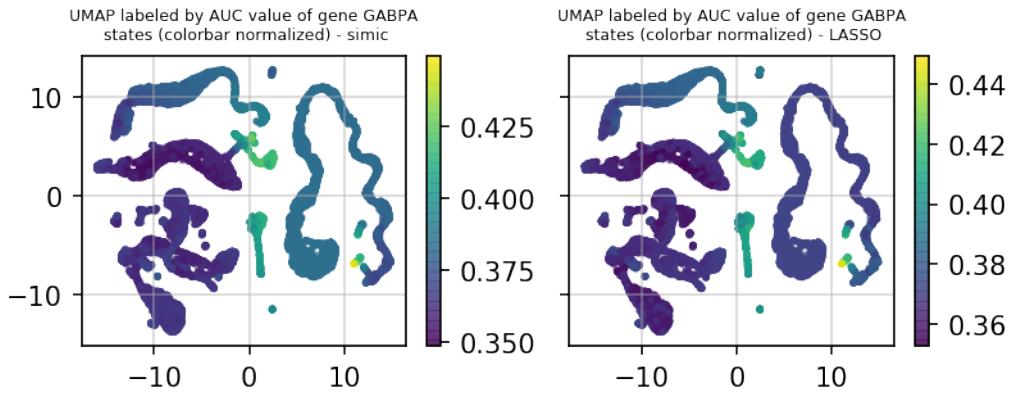
NR1I2



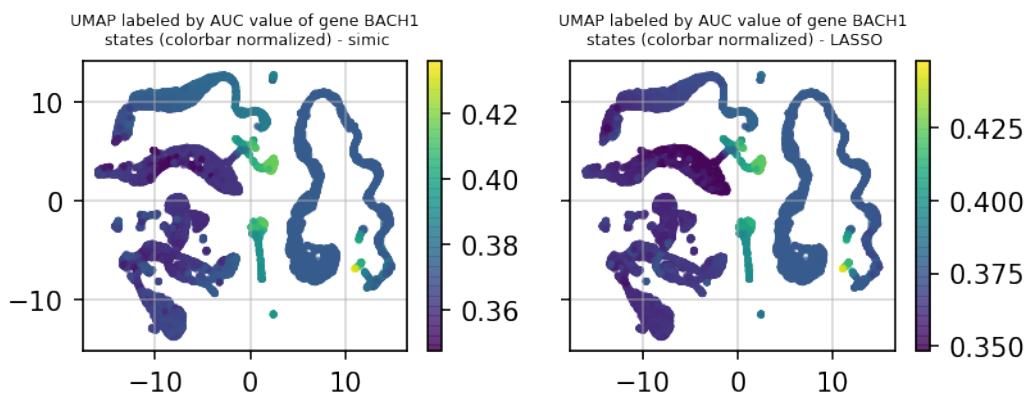
ZBTB20



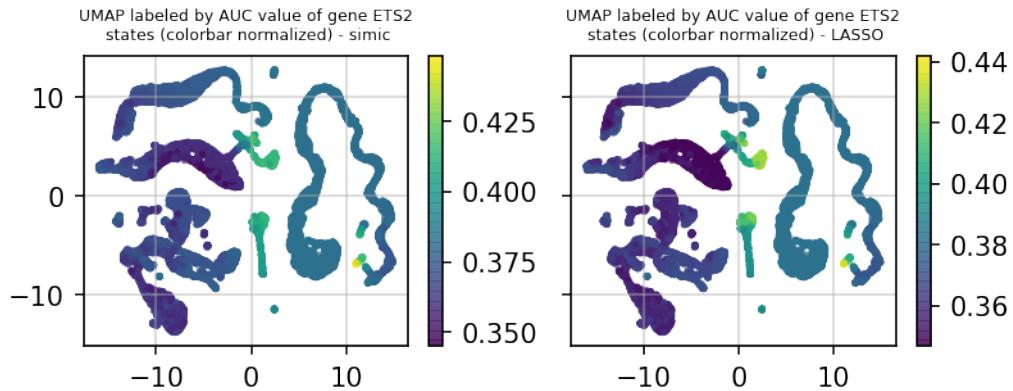
GABPA



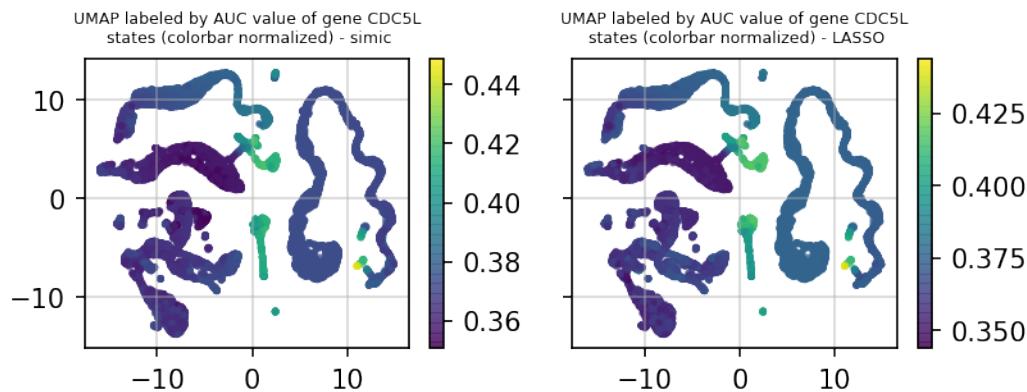
BACH1



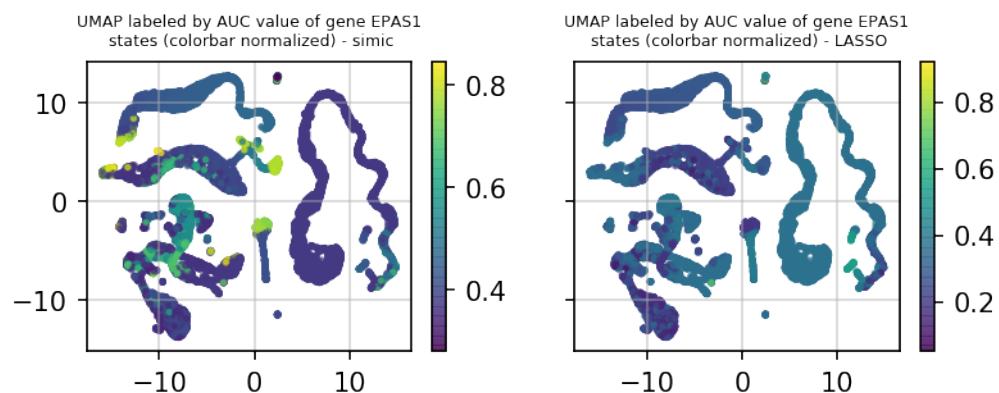
ETS2



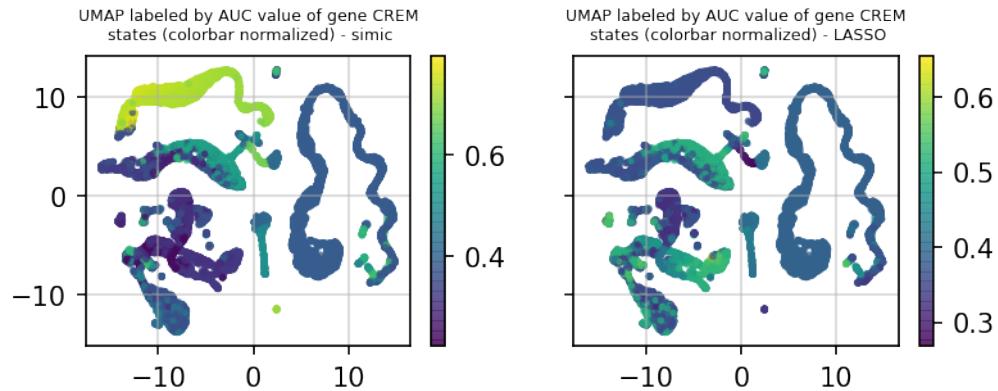
CDC5L



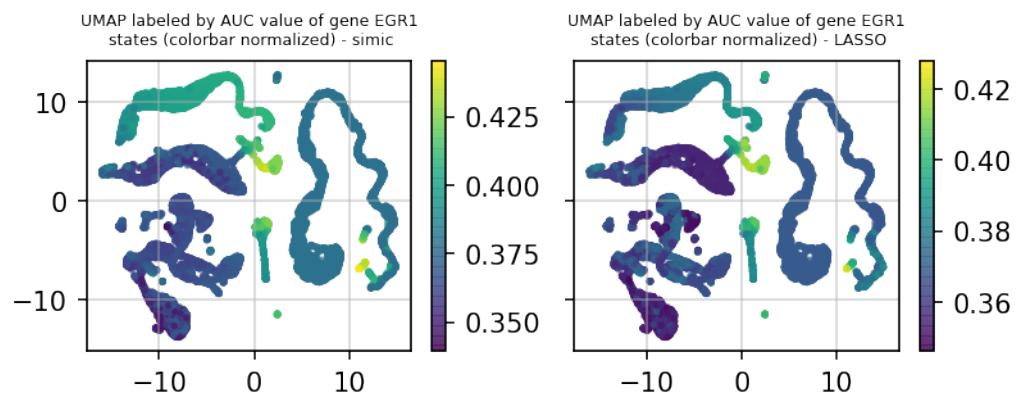
EPAS1



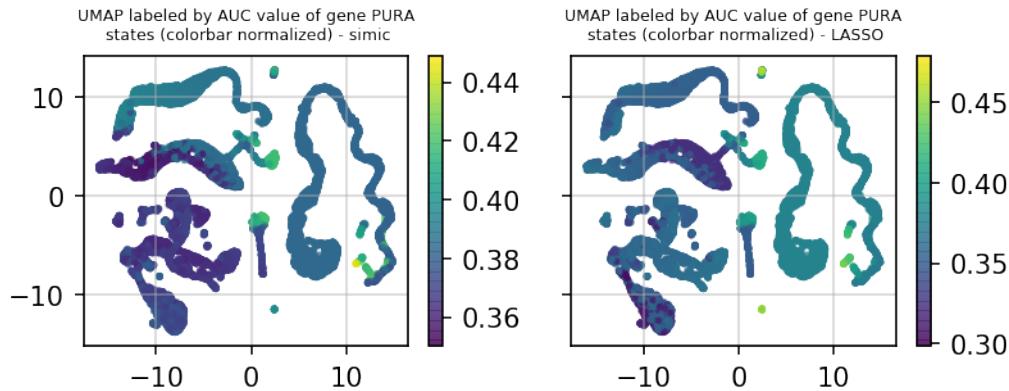
CREM



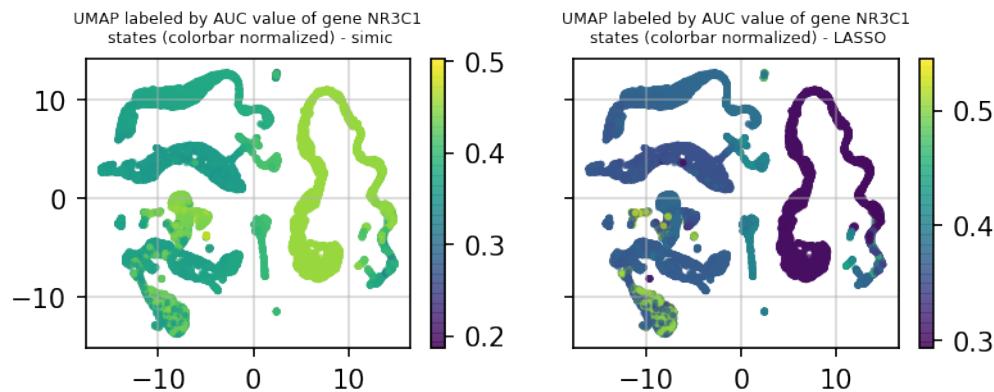
EGR1



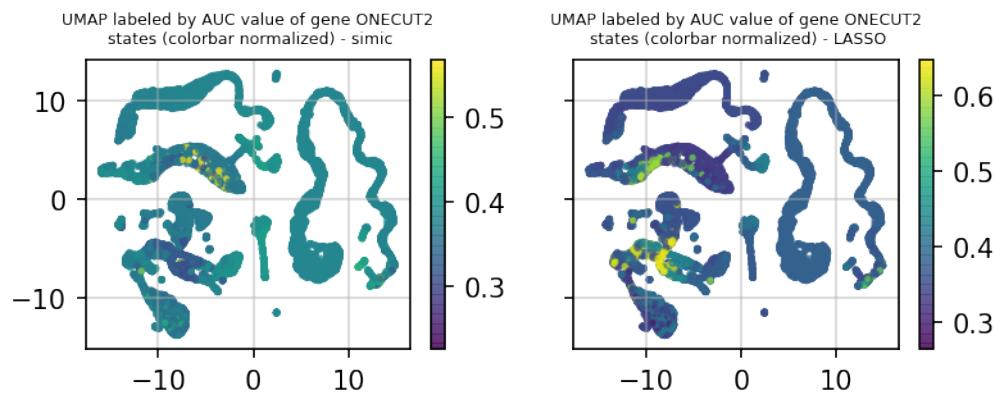
PURA



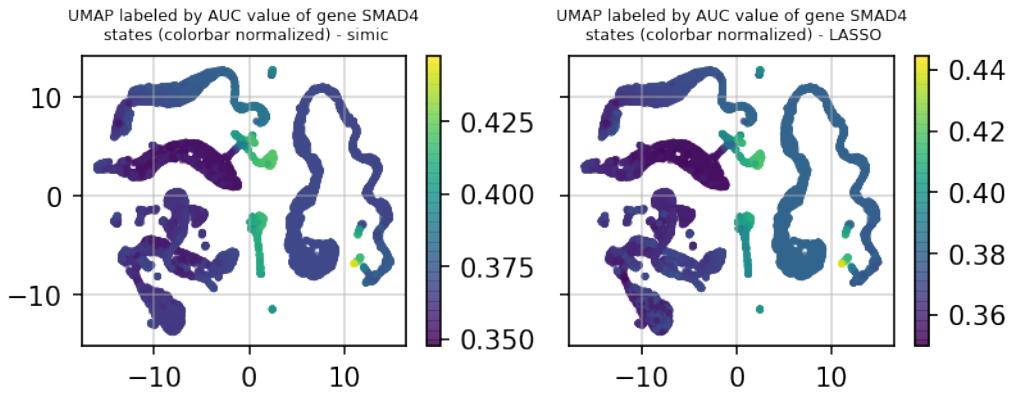
NR3C1



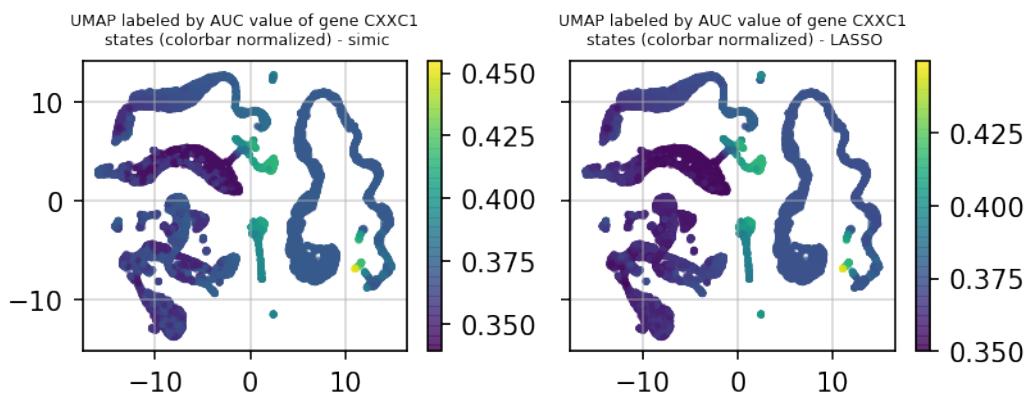
ONECUT2



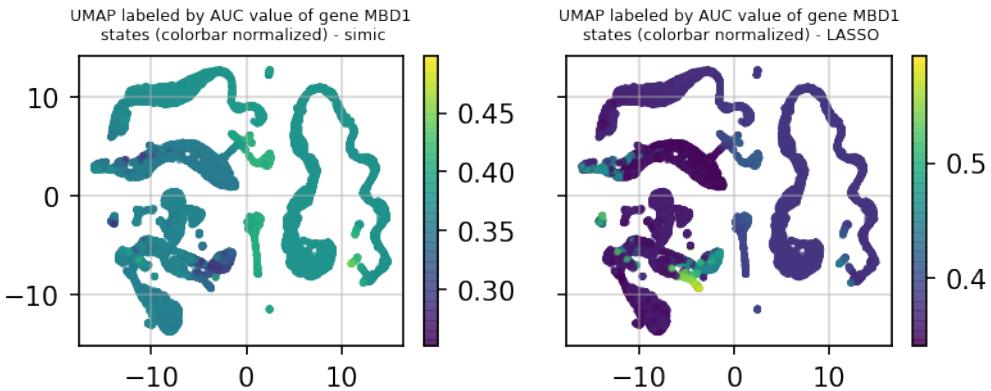
SMAD4



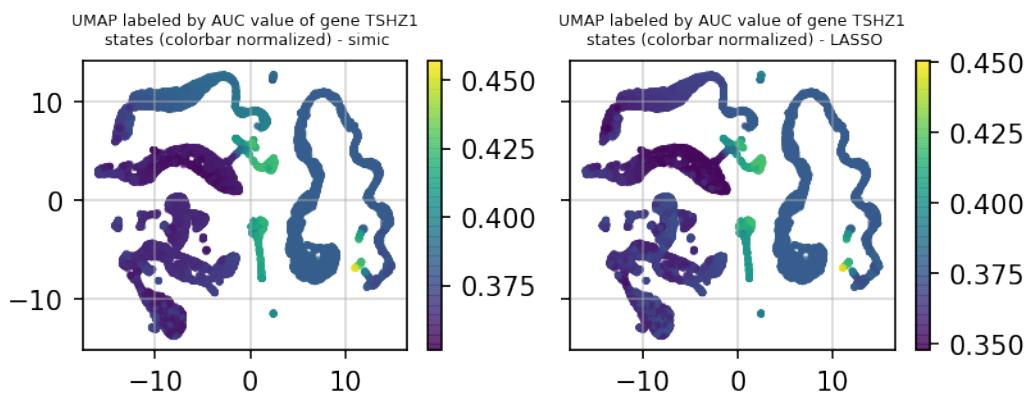
CXXC1



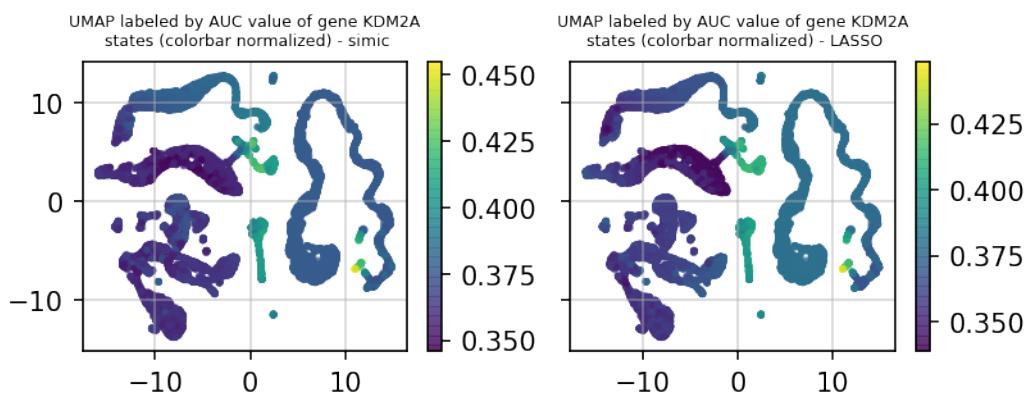
MBD1



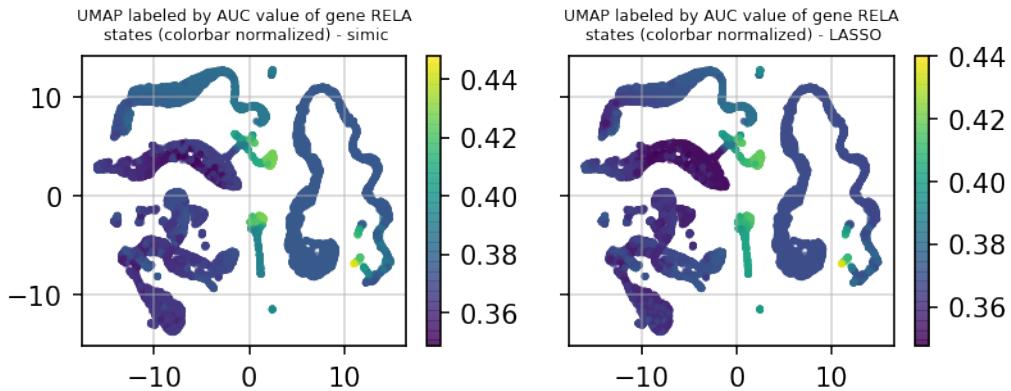
TSHZ1



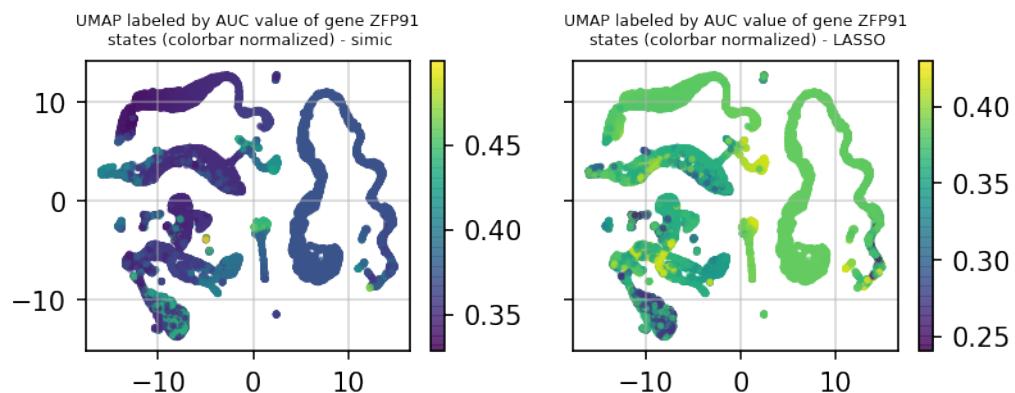
KDM2A



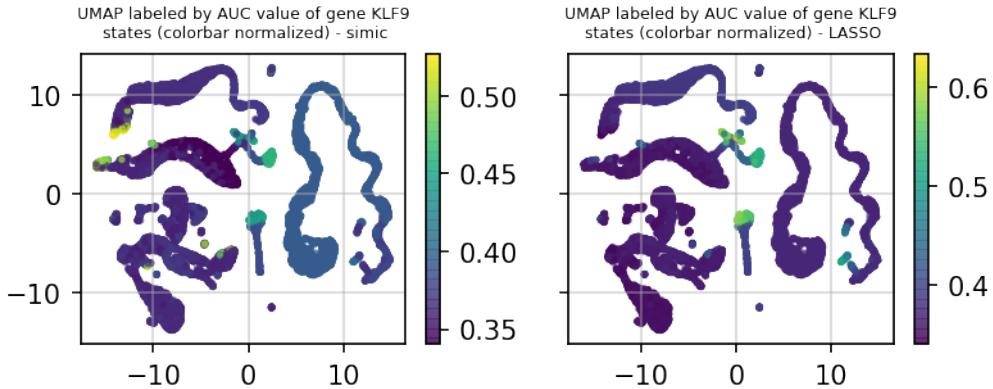
RELA



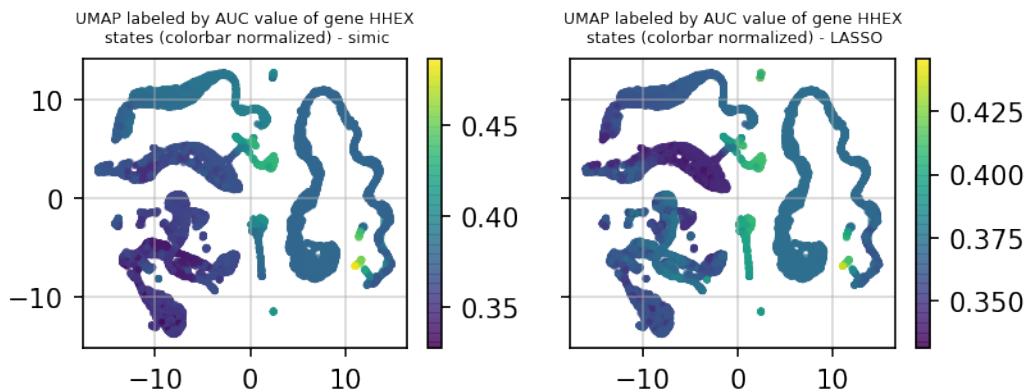
ZFP91



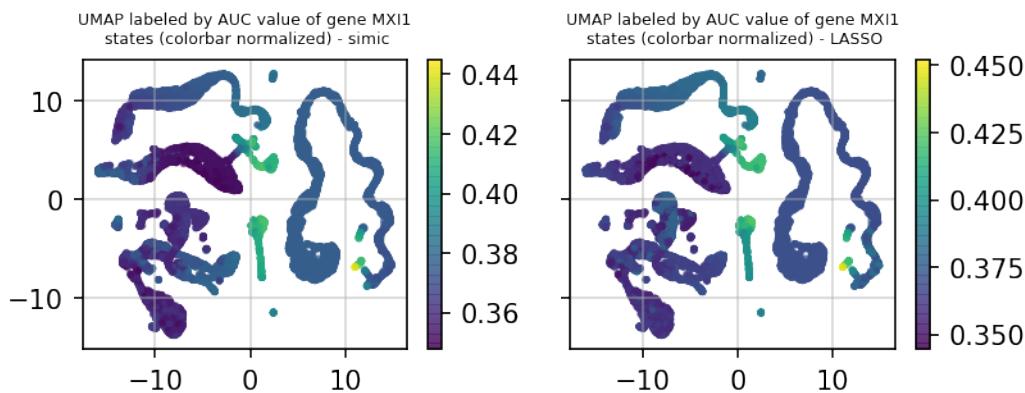
KLF9



HHEX



MXI1



TCF7L2

