cellular Signalling Through Adenosine Receptor A2a and Adenosine (k_opt = Pathway genes Silhouette and Z-score Atf2 Adora2a Gng12 Pard6a Arhgef7 Gnb1 Prkcz 0.5 Cdc42 Gnas Rps6ka1 Map3k4 Prkacb Map3k1 Creb1 Pdpk1 Map2k7 0.4 Akt1 Rap1a Mapk10 Map2k2 Chuk Jun Braf Pak1 Silhouette 0.3 Nfkbia Mapk1 Map2k6 Gene Co-Expression Above Threshold 0.1 0.0 No. cell types 80 900 Z-score 600 60 50 200 100 150 Number clusters ECDF of Profile Dispersions Profile Dispersion Plot 1.00 Global UMAP: Pathway ON 125 type — pathway — pos control — transcriptome Cell type diversity (PCA) 1.00 Exaction of clusters 0.50 0.50 0.50 pected 0.00 100 150 200 50 50 75 Cell state dispersion Pathway profile Motifs, Dispersion ≥ 90th percentile **Motif Tissue Composition** 78 32 22 25 26 26 18 32 25 33 45 57 57 59 60 61 cell types) 62 67 65 66 67 2 68 69 70 72 74 75 77 78 61 79 83 84 89 cell types) Pathway genes 4e-04 3e-01 5e-01 8e-01 1e+00

