antigen processing and presentation of exogenous peptide antigen via MHC class II spatial domain age **LGMN PIKFYVE** TRAF6 spatial domain SLM **CTSF** ML UNC93B1 CA3&4 DNM2 SGZ **GCL** HLA-DRB5 mean HLA-DQB1 log norm counts (centered & scaled) HLA-DRB1 **CD74** HLA-DRA 0 HLA-DPA1 -2 HLA-DPB1 age HLA-DQA1 Infant FCER1G Teen **CTSS** Adult IFI30 Elderly HLA-DMA HLA-DMB CTSD **CTSL** B<sub>2</sub>M