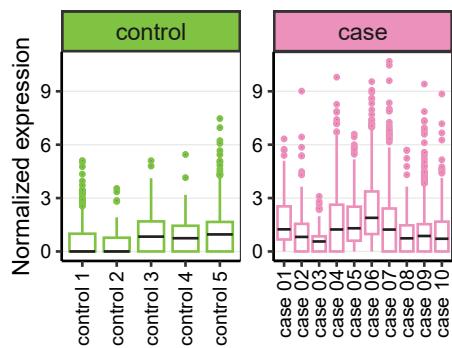
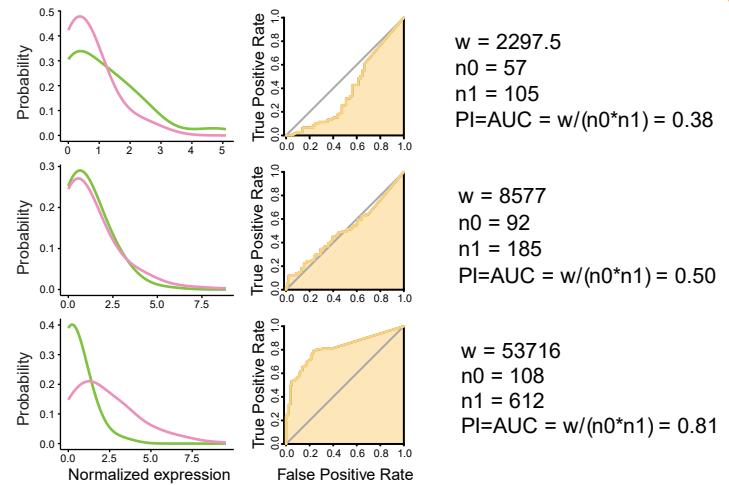
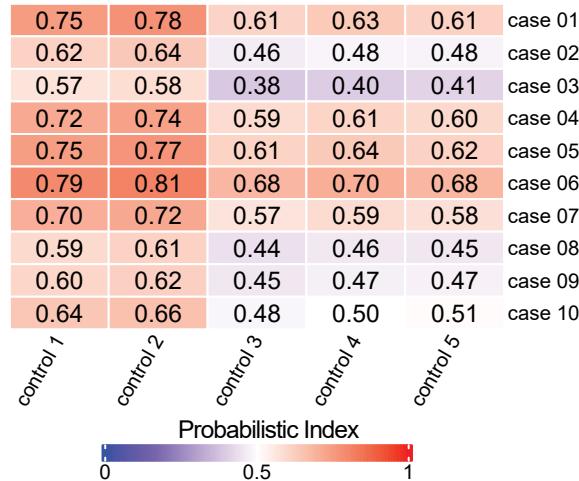
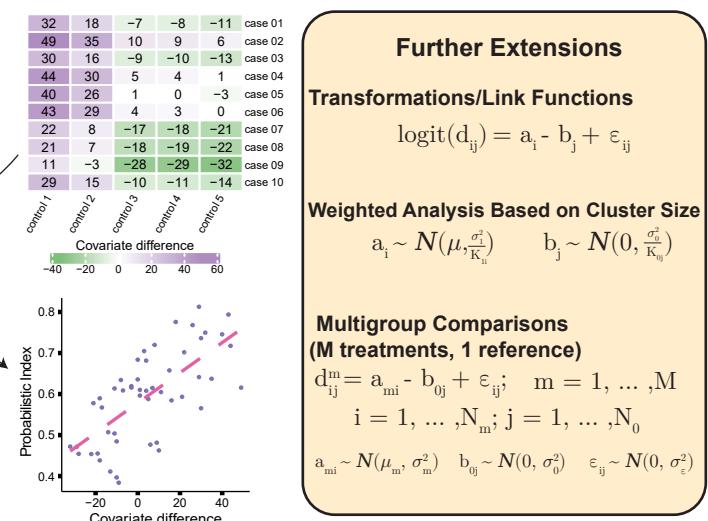
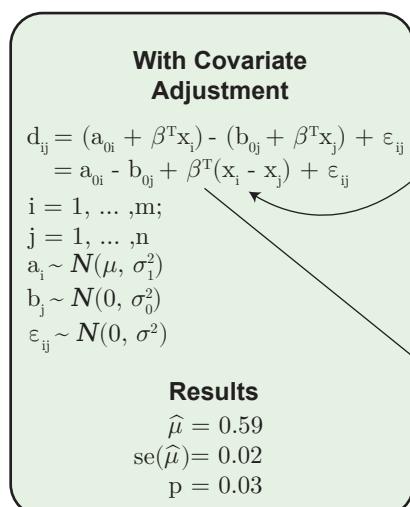
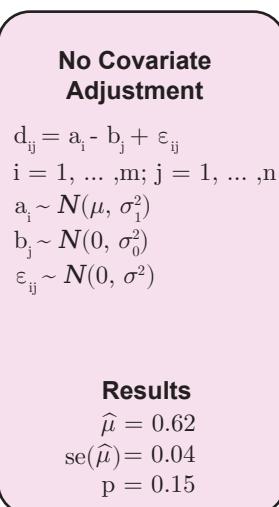
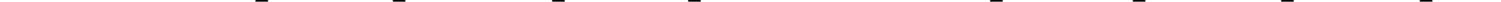
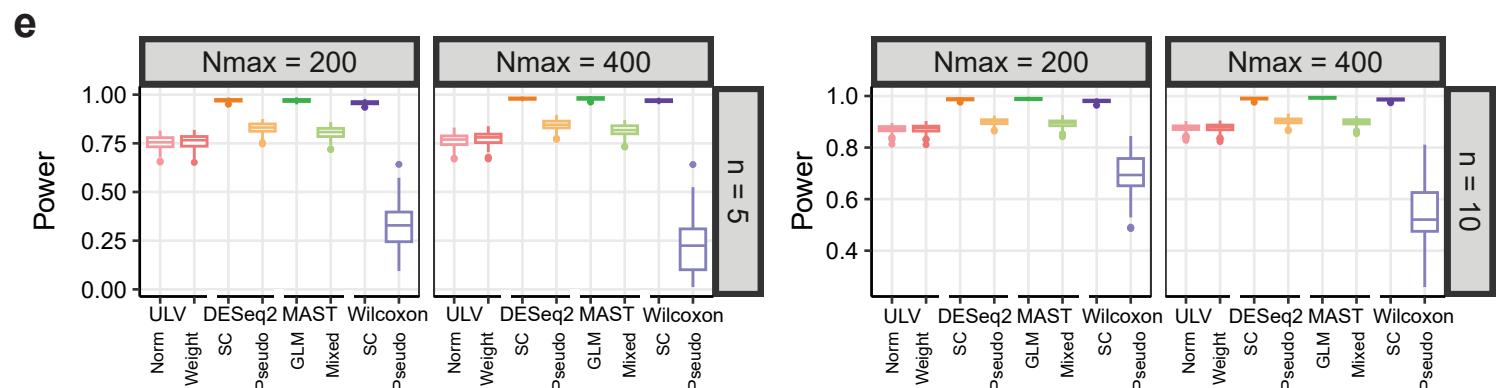
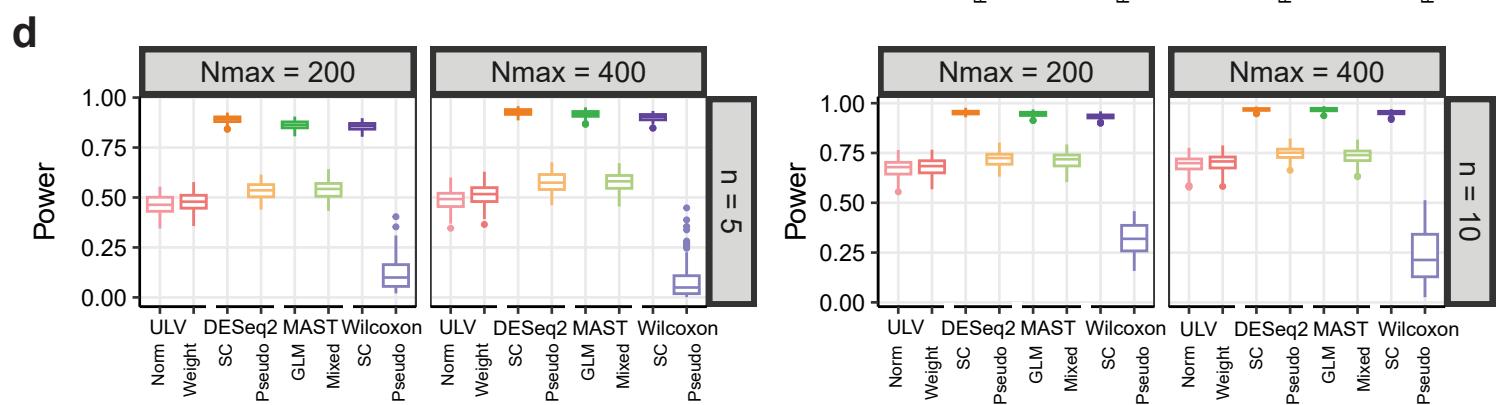
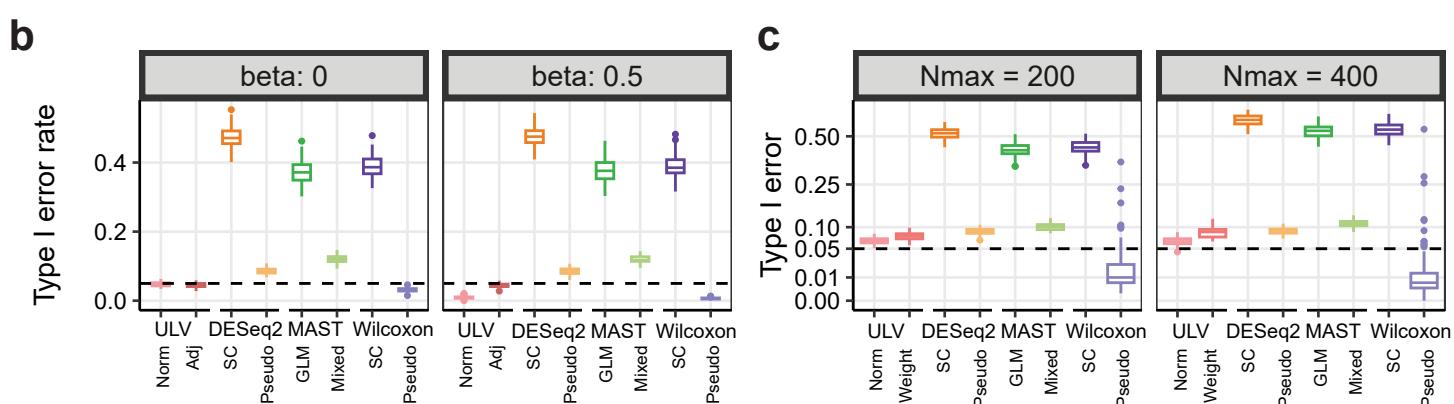
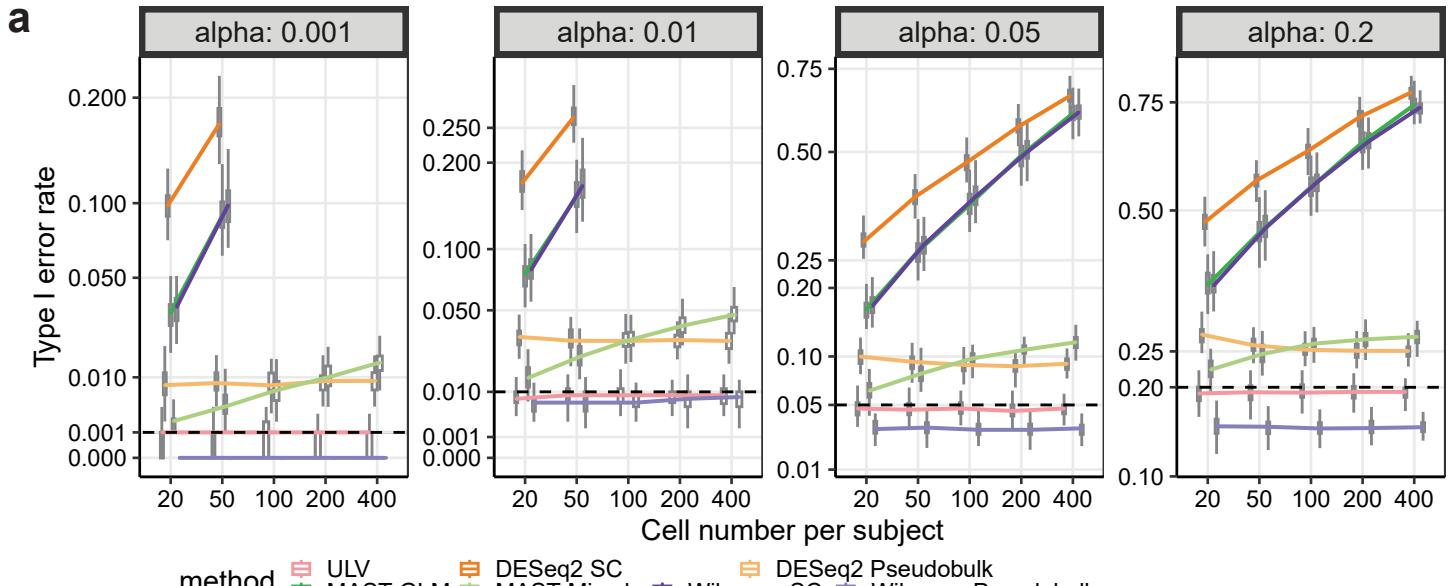


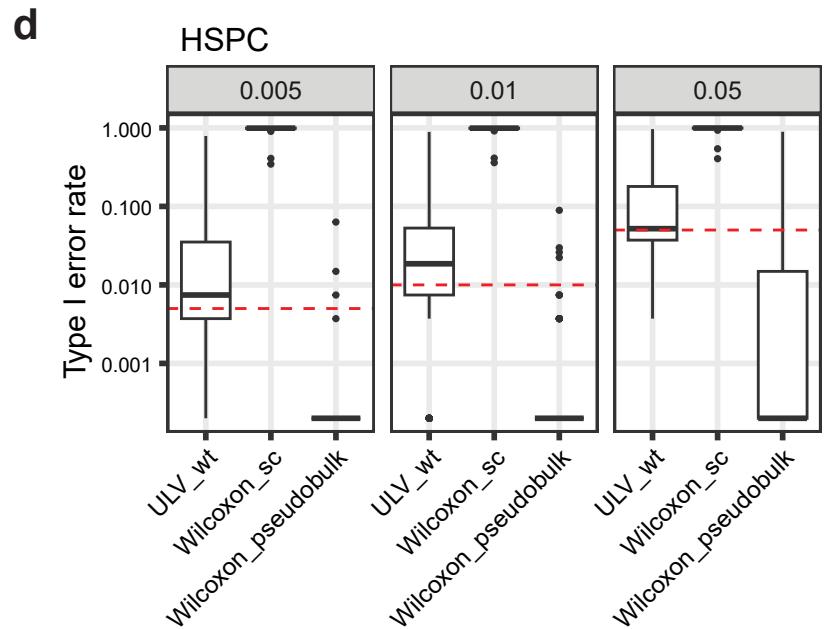
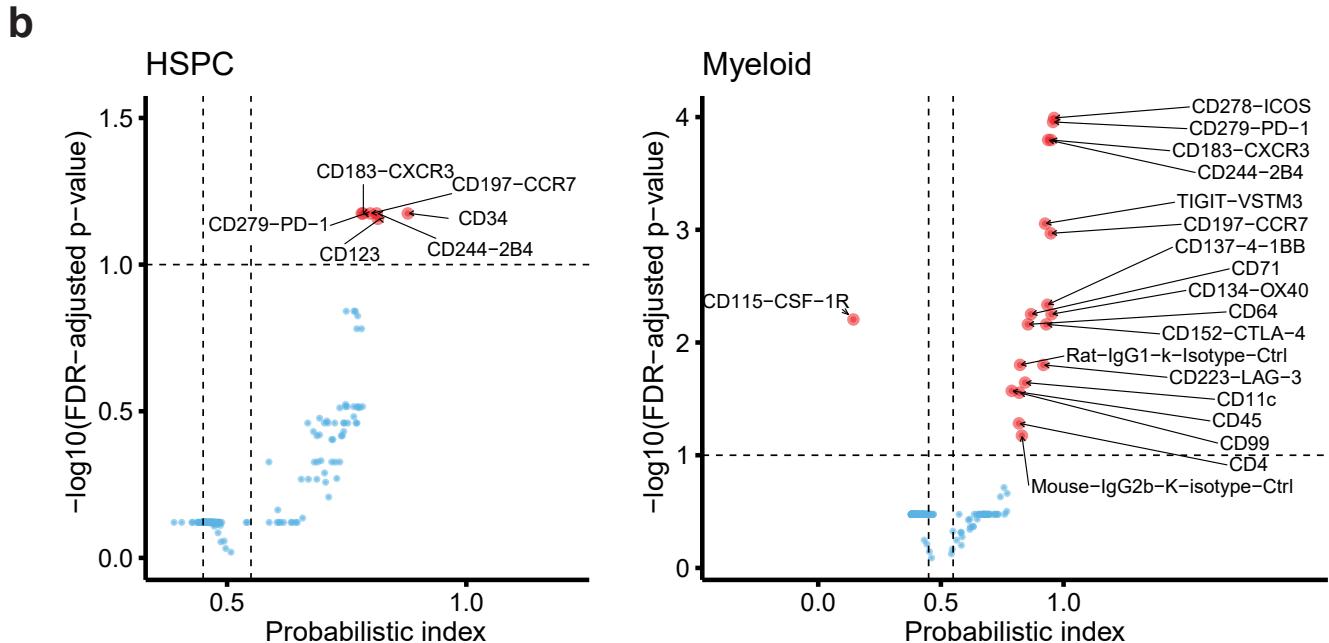
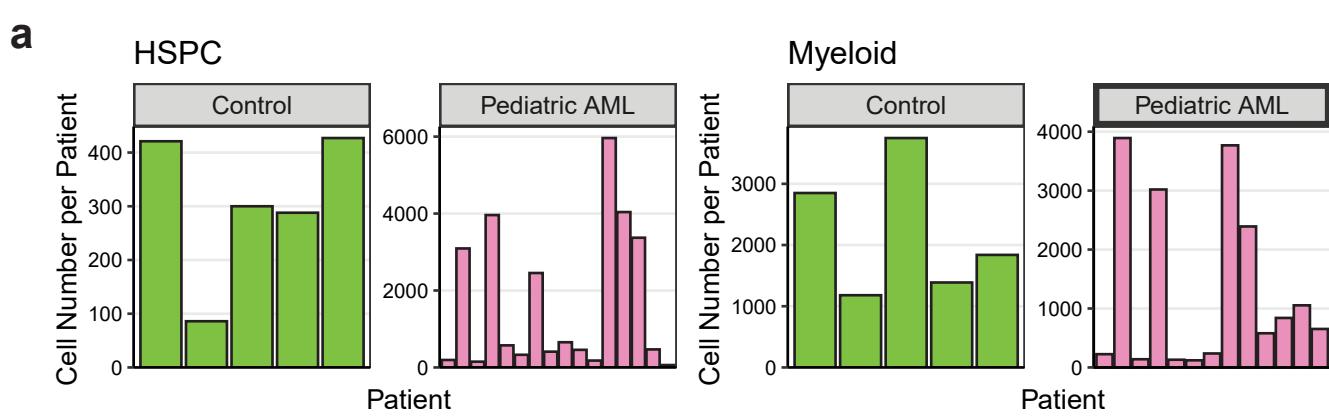
a**Subject Level Covariate Information**

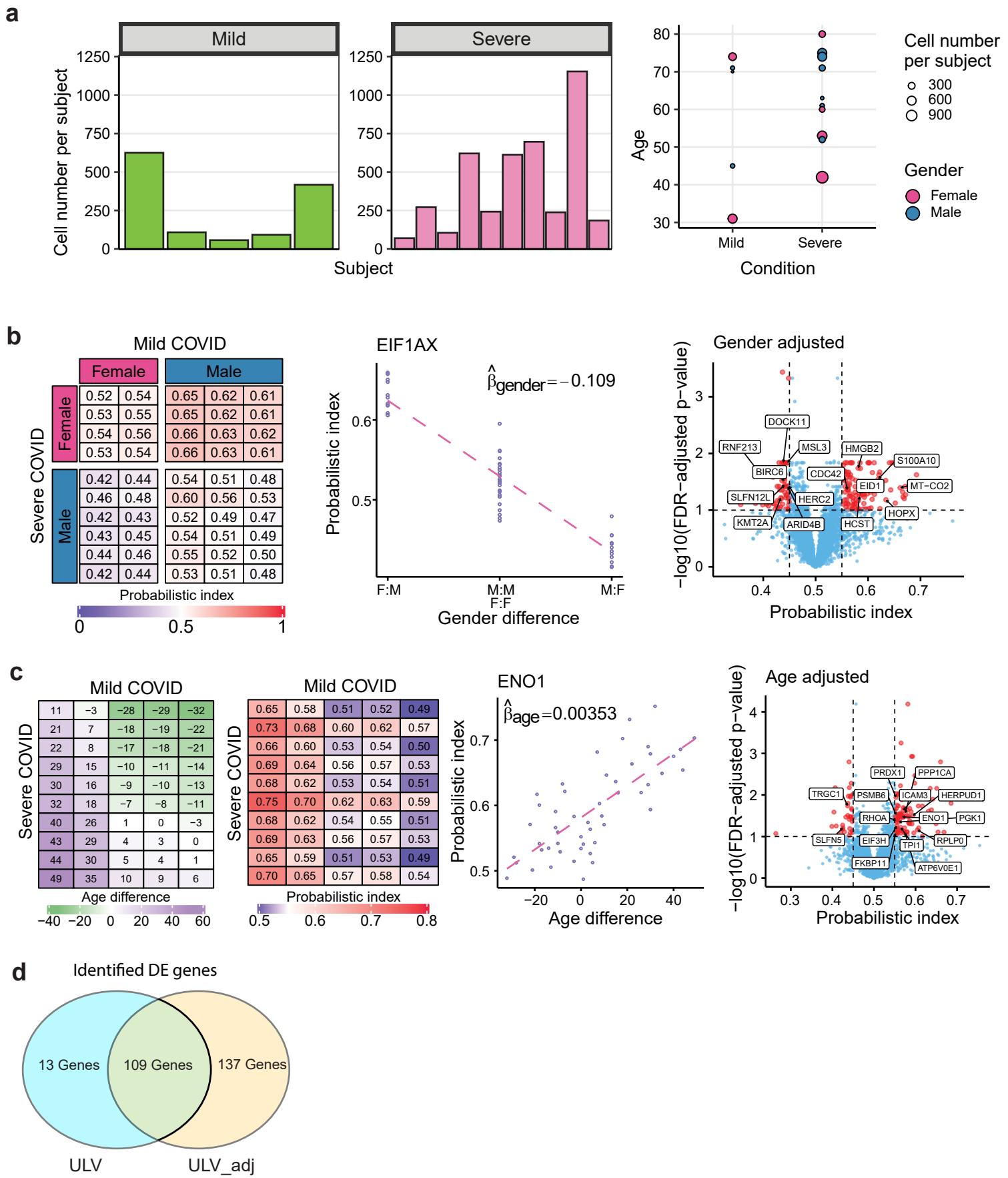
Subject ID	Age	Gender	...
case 1	63	Male	...
case 2	80	Female	...
...
control 1	31	Female	...
control 2	45	Male	...
...

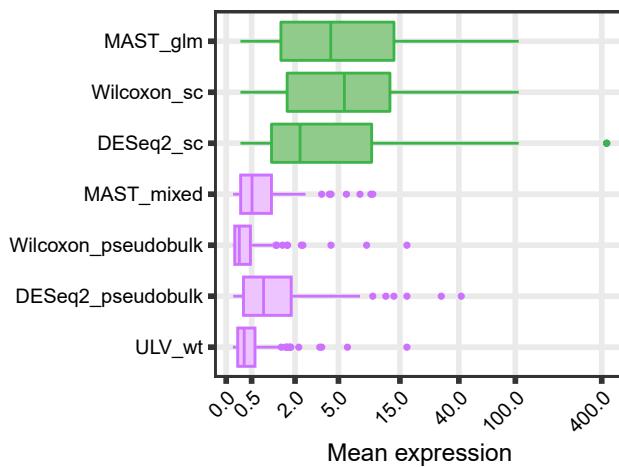
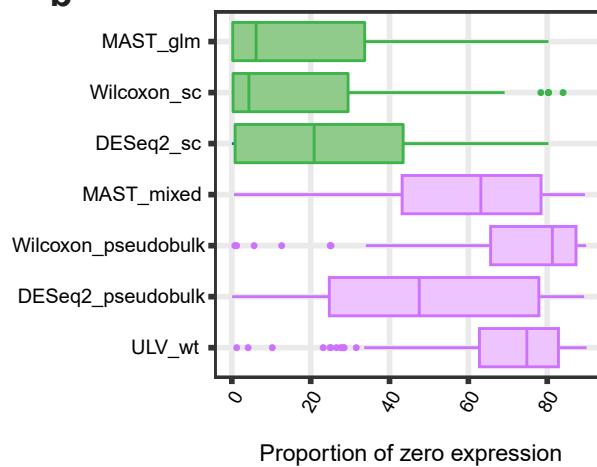
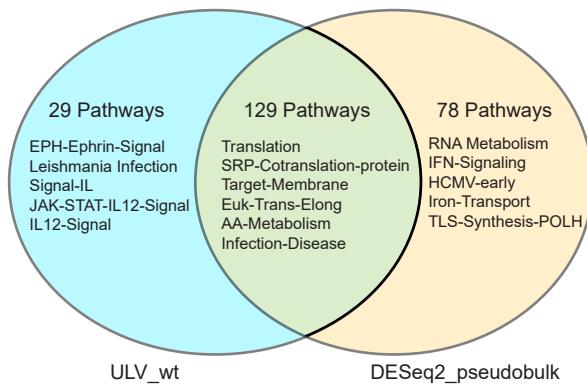
#case m = 10
#control n = 5

**Stage 1: Calculate a matrix of pairwise differences based on Wilcoxon rank sum****b****c****Stage 2: Model the pairwise difference using a latent variable model**







a**b****c****d**