In the published differential expression analysis, we did not explicitly correct for the 10x Genomics library preparation chemistry variable (v2 versus v3) as a covariate. However, we included factors of unwanted variation estimated by the R package RUVseq as covariates. Here, we assessed the correlation between the chemistry variable and the factors of unwanted variation estimated by RUVseq, as well as the extent to which these factors explain variance in the chemistry variable.

Our results show a significant correlation between the chemistry variable and multiple factors of unwanted variation. Additionally, in a linear regression model, the RUVseq-estimated factors cumulatively explain between 75% (Mic) and 88% (OPC) of the variance in the chemistry variable.

**Evaluation of covariates, including 10x Genomics library preparation chemistry.**

(A to F) Correlation between known sources of variation and factors of unwanted variation estimated by RUVseq. The values in the heatmap cells represent Spearman correlation coefficients. The accompanying heatmap on the right is color-coded by the negative logarithm (base 10) of the P value for each correlation.

(G to L) Percent variance in the 10x Genomics library preparation chemistry variable (v2 vs. v3) explained by models incorporating increasing numbers of RUVseq-estimated factors (W\_1 through W\_10). R² values were derived from linear models, where successive factors were incrementally added to assess their contribution to explaining variance. Bars indicate the variance explained by each model.

**Tables**

**Study\_Participant\_Overlap\_deidentified.csv**: A table of subject IDs for each MIT\_ROSMAP study that overlap with the subject IDs from the Mathys, Peng, Boix, et al. Cell 2023 study.

**Study\_Participant\_Overlap\_table.csv**: A table showing the number of overlapping subject IDs across studies.

**Individual\_Cells\_Across\_Studies\_v2.csv**: A table of cell barcodes for each MIT\_ROSMAP study that overlap with the cells analyzed in the Mathys, Peng, Boix, et al. Cell 2023 and Mathys, Boix, Akay et al. Nature 2024 studies. The table also includes the 10x Genomics library preparation chemistry for each cell.

**Individual\_Cells\_Overlap\_table.csv**: A table showing the number of overlapping cells across studies.