Reproducibility of control arrays

In order to assess the inter-RPPA variability in the raw data for the three kinds of array (ctrl, sypro and anti-chk2), the following linear mixed-effect model was used:

\[ y_{ijkl} = \mu + \text{Sample}_i + \text{Steps}_j + \text{Array}_k + \epsilon_{ijkl} \] (1)

where:

- \( y_{ijkl} \) corresponds to the raw intensity,
- \( \mu \) corresponds to the overall mean,
- \( \text{Sample}_i \) corresponds to the sample fixed-effect,
- \( \text{Steps}_j \) corresponds to the dilution step fixed-effect,
- \( \text{Array}_k \) corresponds to the array random-effect, with \( \text{Array}_k \sim \mathcal{N}(0, \sigma_{\text{array}}) \) and \( \sigma_{\text{array}} \) corresponds to the inter-RPPA variability,
- \( \epsilon_{ijkl} \) corresponds to the residual error with \( \epsilon_{ijkl} \sim \mathcal{N}(0, \sigma_r) \) and \( \sigma_r \) corresponds to the intra-RPPA variability.

We tested if the inter-array variability is significant relative to the intra-RPPA variability. No matter the type of array, the null hypothesis is significantly rejected. This demonstrates that in the raw data, the inter-array variability is significantly higher than the intra-array variability.