



**c**

**b** Computational performance metrics\*  
of SCEPTRE

| Dataset                        | Frangieh (IFN- $\gamma$ ) | Papalexi (gene) |
|--------------------------------|---------------------------|-----------------|
| Calibration check run time     | 84 min                    | 33 min          |
| Calibration check peak memory  | 5.4 GB                    | 2.5 GB          |
| Discovery analysis run time    | 54 min                    | 44 min          |
| Discovery analysis peak memory | 5.4 GB                    | 2.6 GB          |
| Number of pairs                | 2,275,095                 | 323,906         |
| Number of cells                | 50,053                    | 20,729          |

\*Benchmarking conducted on standard laptop using one processor

| Dataset                   | Calibration<br>check time | Calibration check<br>peak memory | Discovery<br>analysis time | Discovery analysis<br>peak memory | Number gene-<br>perturbation pairs |
|---------------------------|---------------------------|----------------------------------|----------------------------|-----------------------------------|------------------------------------|
| Frangieh (IFN- $\gamma$ ) | 84 min                    | 5.4 GB                           | 54 min                     | 5.4 GB                            | 2,275,095                          |
| Papalexi (gene)           | 33 min                    | 2.5 GB                           | 44 min                     | 2.6 GB                            | 323,906                            |