



b Computational performance metrics*
of SCEPTRE

Dataset	Frangieh (Control)	Papalexi (gene)
Calibration check run time	45 min	32 min
Calibration check peak memory	3.4 GB	2.4 GB
Discovery analysis run time	8.6 h	1.8 h
Discovery analysis peak memory	4.0 GB	2.8 GB
Number of pairs	2.2 million	323,906
Number of cells	30,486	20,729

*Benchmarking conducted on standard
laptop using one processor

Dataset	Calibration check time	Calibration check peak memory	Discovery analysis time	Discovery analysis peak memory	Number gene- perturbation pairs
Frangieh (IFN- γ)	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