



**S7 Fig. FDR control analysis (Sample size 300 in each group).** scaDA is compared to both ZINB-based LRTs and published methods. Using the same simulation strategy in Scenario 4 ( $\log_2FC=2.5$ ), we assume 20% DA peaks and simulate the read counts based on ZINB for 4000 peaks across 300 cells in each group. The observed FDR is plotted against the nominal FDR level. **A.** scaDA is compared to ZINB-based LRT tests. **B.** scaDA is compared to published methods.