random_X_and_structured_Beta 0.62 0.8 -0.625 0.8 0.58 opserved 0.54 0.6 0.6 0.600 0.4 0.4 -0.575 0.50 -0.025 0.05 0.2 300 100 500 1000 2000 0.1 0.4 600 1200 2400 4800 200 60 Beta_FPR 0.70 0.71 0.8 0.8 0.70 ORC_fine 0.69 0.6 0.6 0.60 0.68 0.4 0.4 0.67 0.55 **-**300 100 0.025 0.4 1200 4800 0.05 0.2 600 2400 200 500 1000 2000 80 0.1 20 40 60 batch_effect Ν S method \rightarrow IBMR_int $-\Delta \cdot$ IBMR_no_Gamma method → IBMR_int → IBMR_no_Gamma → subset → relabel

random_X_and_structured_Beta 1000 -observed 780 0.025 0.05 0.2 0.1 0.4 1000 -ORC_fine 750 -600 -725 -0.025 0.05 0.2 0.4 0.1

Beta_SSE

batch_effect

method → IBMR_int -△· IBMR_no_Gamma method → IBMR_int → IBMR_no_Gamma → subset → relabel

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Ν

random_X_and_structured_Beta 1.0000 -0.9975 -1.0 1.000 -0.9975 0.995 0.9950 0.9 opserved 0.9925 0.990 0.9950 0.985 0.9925 0.9900 0.7 0.980 0.9900 0.05 300 0.025 0.1 0.2 600 1200 2400 4800 100 200 500 1000 2000 20 40 60 80 Beta_TPR 1.0000 1.00 -1.000 0.998 0.95 0.9975 ORC_fine 0.995 0.90 0.996 0.9950 0.85 0.990 0.9925 0.994 0.80 0.9900 300 100 600 0.025 0.05 0.2 0.4 1200 2400 4800 200 500 2000 0.1 1000 20 40 60 80 batch_effect Ν р

method → IBMR_int → IBMR_no_Gamma → subset → relabel

method → IBMR_int -△· IBMR_no_Gamma

random_X_and_structured_Beta 0.48 -0.50 0.7 0.48 0.47 **-**0.6 0.47 opserved 0.46 0.45 0.5 0.46 0.4 0.40 0.45 0.45 -0.3 0.44 0.35 0.025 0.05 300 1200 100 500 0.1 0.2 0.4 600 2400 4800 200 1000 2000 0.7 error 0.44 0.45 0.45 0.6 ORC_fine 0.44 0.5 0.40 0.43 0.4 0.42 0.42 -0.35 0.3 0.025 0.4 300 1200 100 2000 0.05 0.2 600 2400 4800 200 500 1000 0.1 20 40 60 80 batch_effect Ν S

method → IBMR_int → IBMR_no_Gamma → subset → relabel

method \rightarrow IBMR_int $-\triangle \cdot$ IBMR_no_Gamma

method → IBMR_int → IBMR_no_Gamma → subset → relabel

method \rightarrow IBMR_int $-\triangle \cdot$ IBMR_no_Gamma