

Table S1. Multiple comparisons of type I error performance of all methods

Paired comparison	Tukey multiple comparisons of Means						Wilcoxon tests
	NB			R			Modencodfly data set
	N=2	N=5	N=10	N=2	N=5	N=10	
	p adj	p adj	p adj	p adj	p adj	p adj	p adj
DESeq-ABSSeq	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.21E-10
DESeq2-ABSSeq	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.34E-03
edgeR-ABSSeq	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.21E-10
Voom-ABSSeq	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.21E-10
DESeq2-DESeq	0.00E+00	0.00E+00	0.00E+00	5.11E-05	9.81E-01	0.00E+00	2.08E-05
edgeR-DESeq	0.00E+00	0.00E+00	0.00E+00	8.51E-01	0.00E+00	0.00E+00	9.19E-02
Voom-DESeq	1.70E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.32E-03
edgeR-DESeq2	1.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.56E-07
Voom-DESeq2	3.80E-06	0.00E+00	6.93E-02	0.00E+00	0.00E+00	0.00E+00	2.21E-08
Voom-edgeR	4.20E-06	1.81E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.19E-02
edgeR-robust-edgeR	/	/	/	0.00E+00	0.00E+00	1.97E-02	/
edgeR-robust-ABSSeq	/	/	/	0.00E+00	0.00E+00	0.00E+00	/
edgeR-robust-Voom	/	/	/	0.00E+00	0.00E+00	0.00E+00	/
edgeR-robust-DESeq	/	/	/	0.00E+00	0.00E+00	0.00E+00	/
edgeR-robust-DESeq2	/	/	/	0.00E+00	0.00E+00	0.00E+00	/

* edgeR-robust was only applied on data sets that contain outliers (indicated by R)

Table S2. Tukey's multiple comparisons of means for AUCs

Paired comparison	Tukey multiple comparisons of Means					
	NB			R		
	N=2	N=5	N=10	N=2	N=5	N=10
	p adj	p adj	p adj	p adj	p adj	p adj
EBSeq-ABSSeq	0.00E+00	0.00E+00	2.62E-02	0.00E+00	0.00E+00	0.00E+00
baySeq-ABSSeq	8.73E-01	9.08E-01	5.58E-02	9.99E-01	0.00E+00	0.00E+00
DESeq-ABSSeq	1.00E+00	9.98E-01	7.86E-01	1.30E-04	0.00E+00	0.00E+00
DESeq2-ABSSeq	0.00E+00	0.00E+00	0.00E+00	1.00E-03	0.00E+00	0.00E+00
edgeR-ABSSeq	1.00E+00	9.98E-01	1.00E+00	2.65E-02	0.00E+00	0.00E+00
edgeR-robust-ABSSeq	/	/	/	1.00E+00	0.00E+00	0.00E+00
Voom-ABSSeq	9.96E-01	3.05E-02	0.00E+00	9.68E-01	0.00E+00	0.00E+00
EBSeq-baySeq	0.00E+00	6.11E-03	1.00E+00	0.00E+00	4.71E-01	0.00E+00
DESeq-baySeq	9.15E-01	9.97E-01	6.97E-01	7.05E-04	0.00E+00	9.81E-01
DESeq2-baySeq	3.90E-06	0.00E+00	4.10E-06	4.77E-03	0.00E+00	0.00E+00
edgeR-baySeq	7.76E-01	6.09E-01	1.08E-01	8.94E-02	9.50E-02	8.78E-04
edgeR-robust-baySeq	/	/	/	9.99E-01	1.00E+00	9.70E-04
Voom-baySeq	9.95E-01	3.79E-01	3.08E-03	9.99E-01	0.00E+00	0.00E+00
EBSeq-DESeq	0.00E+00	8.58E-04	5.13E-01	2.25E-01	0.00E+00	0.00E+00
DESeq2-DESeq	0.00E+00	0.00E+00	0.00E+00	9.99E-01	9.12E-01	0.00E+00
edgeR-DESeq	1.00E+00	9.21E-01	9.09E-01	7.58E-01	1.00E-07	2.60E-05
edgeR-robust-DESeq	/	/	/	1.05E-04	0.00E+00	2.90E-05
Voom-DESeq	9.99E-01	1.21E-01	1.12E-05	4.93E-03	0.00E+00	0.00E+00
EBSeq-DESeq2	1.40E-06	1.00E-07	1.22E-05	6.34E-02	0.00E+00	0.00E+00
edgeR-DESeq2	0.00E+00	0.00E+00	0.00E+00	9.69E-01	0.00E+00	0.00E+00
edgeR-robust-DESeq2	/	/	/	8.19E-04	0.00E+00	0.00E+00
Voom-DESeq2	3.00E-07	0.00E+00	5.28E-01	2.72E-02	0.00E+00	0.00E+00
EBSeq-edgeR	0.00E+00	1.50E-05	5.42E-02	3.02E-03	1.53E-04	9.49E-02
edgeR-robust-edgeR	/	/	/	2.25E-02	3.01E-02	1.00E+00
EBSeq-edgeR-robust	/	/	/	0.00E+00	7.57E-01	8.86E-02
EBSeq-Voom	0.00E+00	6.15E-01	7.57E-03	4.00E-07	0.00E+00	0.00E+00
Voom-edgeR	9.84E-01	5.94E-03	1.00E-07	2.97E-01	0.00E+00	0.00E+00
Voom-edgeR-robust	/	/	/	9.57E-01	0.00E+00	0.00E+00

* edgeR-robust was only applied on data sets that contain outliers (indicated by R)