

Appendix A Supplementary information

The results of a paired t-test is presented in Table A1.

Dataset	Method1	Method2	Metric	P_Value
SIFM	FlashWeave	ANCOM-BC	recall	7.902559e-04
SIFM	FlashWeave	ANCOM-BC2	recall	8.306604e-05
SIFM	ANCOM-BC	ANCOM-BC2	recall	2.196621e-05
SIFM	FlashWeave	ANCOM-BC	precision	8.174373e-01
SIFM	FlashWeave	ANCOM-BC2	precision	5.501681e-01
SIFM	ANCOM-BC	ANCOM-BC2	precision	5.136025e-01
SIFM	FlashWeave	ANCOM-BC	fpr	1.327672e-02
SIFM	FlashWeave	ANCOM-BC2	fpr	1.450598e-03
SIFM	ANCOM-BC	ANCOM-BC2	fpr	3.671633e-05
SIFM	FlashWeave	ANCOM-BC	fdr	8.174373e-01
SIFM	FlashWeave	ANCOM-BC2	fdr	5.501681e-01
SIFM	ANCOM-BC	ANCOM-BC2	fdr	5.136025e-01
SIFM	FlashWeave	ANCOM-BC	F ₁	1.782974e-04
SIFM	FlashWeave	ANCOM-BC2	F ₁	6.857132e-06
SIFM	ANCOM-BC	ANCOM-BC2	F ₁	2.072429e-05
American_gut	FlashWeave	ANCOM-BC	recall	2.299215e-04
American_gut	FlashWeave	ANCOM-BC2	recall	2.777684e-04
American_gut	ANCOM-BC	ANCOM-BC2	recall	7.630414e-04
American_gut	FlashWeave	ANCOM-BC	precision	4.238370e-01
American_gut	FlashWeave	ANCOM-BC2	precision	7.473421e-01
American_gut	ANCOM-BC	ANCOM-BC2	precision	1.548346e-01
American_gut	FlashWeave	ANCOM-BC	fpr	5.906542e-03
American_gut	FlashWeave	ANCOM-BC2	fpr	4.575519e-03

American_gut	ANCOM-BC	ANCOM-BC2	fpr	1.851767e-03
American_gut	FlashWeave	ANCOM-BC	fdr	4.238370e-01
American_gut	FlashWeave	ANCOM-BC2	fdr	7.473421e-01
American_gut	ANCOM-BC	ANCOM-BC2	fdr	1.548346e-01
American_gut	FlashWeave	ANCOM-BC	F ₁	4.942047e-08
American_gut	FlashWeave	ANCOM-BC2	F ₁	9.237628e-08
American_gut	ANCOM-BC	ANCOM-BC2	F ₁	1.710075e-05
IBD	FlashWeave	ANCOM-BC	recall	2.461854e-07
IBD	FlashWeave	ANCOM-BC2	recall	4.905493e-07
IBD	ANCOM-BC	ANCOM-BC2	recall	4.446508e-05
IBD	FlashWeave	ANCOM-BC	precision	7.470392e-01
IBD	FlashWeave	ANCOM-BC2	precision	1.132316e-01
IBD	ANCOM-BC	ANCOM-BC2	precision	5.159449e-02
IBD	FlashWeave	ANCOM-BC	fpr	4.419181e-06
IBD	FlashWeave	ANCOM-BC2	fpr	3.113627e-06
IBD	ANCOM-BC	ANCOM-BC2	fpr	1.277121e-05
IBD	FlashWeave	ANCOM-BC	fdr	7.470392e-01
IBD	FlashWeave	ANCOM-BC2	fdr	1.132316e-01
IBD	ANCOM-BC	ANCOM-BC2	fdr	5.159449e-02
IBD	FlashWeave	ANCOM-BC	F ₁	1.178606e-10
IBD	FlashWeave	ANCOM-BC2	F ₁	6.676913e-09
IBD	ANCOM-BC	ANCOM-BC2	F ₁	3.698954e-05
ECAM	FlashWeave	ANCOM-BC	recall	1.723519e-04
ECAM	FlashWeave	ANCOM-BC2	recall	3.238580e-04
ECAM	ANCOM-BC	ANCOM-BC2	recall	3.202470e-03
ECAM	FlashWeave	ANCOM-BC	precision	4.017405e-05
ECAM	FlashWeave	ANCOM-BC2	precision	3.958774e-02

ECAM	ANCOM-BC	ANCOM-BC2	precision	2.757646e-01
ECAM	FlashWeave	ANCOM-BC	fpr	1.645344e-04
ECAM	FlashWeave	ANCOM-BC2	fpr	8.335371e-05
ECAM	ANCOM-BC	ANCOM-BC2	fpr	4.598958e-05
ECAM	FlashWeave	ANCOM-BC	fdr	4.017405e-05
ECAM	FlashWeave	ANCOM-BC2	fdr	3.958774e-02
ECAM	ANCOM-BC	ANCOM-BC2	fdr	2.757646e-01
ECAM	FlashWeave	ANCOM-BC	F_1	6.136682e-06
ECAM	FlashWeave	ANCOM-BC2	F_1	2.323820e-05
ECAM	ANCOM-BC	ANCOM-BC2	F_1	1.301055e-03
PD	FlashWeave	ANCOM-BC	recall	8.513138e-03
PD	FlashWeave	ANCOM-BC2	recall	5.510235e-03
PD	ANCOM-BC	ANCOM-BC2	recall	2.455075e-03
PD	FlashWeave	ANCOM-BC	precision	1.714909e-01
PD	FlashWeave	ANCOM-BC2	precision	1.290427e-01
PD	ANCOM-BC	ANCOM-BC2	precision	3.878948e-03
PD	FlashWeave	ANCOM-BC	fpr	2.339813e-02
PD	FlashWeave	ANCOM-BC2	fpr	1.121834e-02
PD	ANCOM-BC	ANCOM-BC2	fpr	3.989928e-03
PD	FlashWeave	ANCOM-BC	fdr	1.714909e-01
PD	FlashWeave	ANCOM-BC2	fdr	1.290427e-01
PD	ANCOM-BC	ANCOM-BC2	fdr	3.878948e-03
PD	FlashWeave	ANCOM-BC	F_1	2.180398e-04
PD	FlashWeave	ANCOM-BC2	F_1	1.605259e-04
PD	ANCOM-BC	ANCOM-BC2	F_1	8.697787e-04

Table A1: Results of paired t-test on the output of methods.

The following Figure A1 compares evaluation metrics for the simulated data and PD data with 5% and 20% of differentially abundant features.

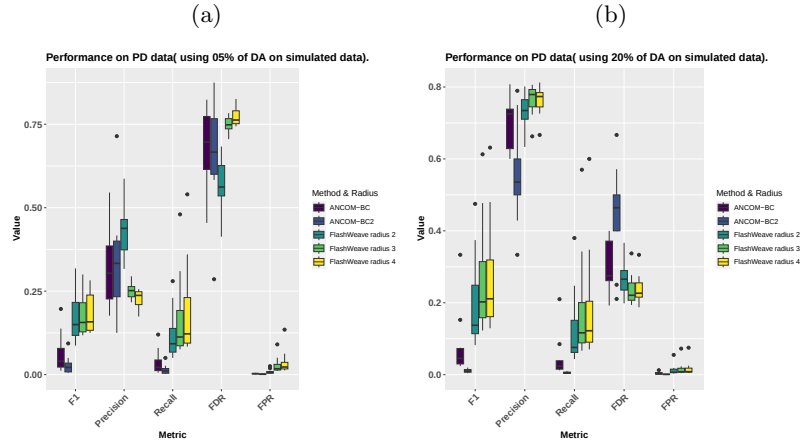


Fig. A1: Box plot of evaluation metrics with 5% and 20% differentially abundant features in simulated data from PD data for comparison of FlashWeave's performance with ANCOM-BC and ANCOM-BC2.