

Supplementary Table 1. Validation of Vitamin D metabolite measurements.

Analyses for all 8 Vitamin D metabolites were validated for LOQ, linearity, accuracy, repeatability, reproducibility and robustness. All analytes showed good recoveries with acceptable accuracy and within $\pm 15\%$ reproducibility.

Vitamin D Metabolites	LOQ	Linearity Range	Accuracy	Reproducibility CV%
25(OH)D ₃	0.5 ng/mL	0.5-100 ng/mL	102-118%	6.80
25(OH)D ₂	0.25 ng/mL	0.25-50 ng/mL	97-112%	13.26
24-R-25(OH) ₂ D ₂	0.05 ng/mL	0.05-10 ng/mL	92-101%	7.47
24-R-25(OH) ₂ D ₃	0.05 ng/mL	0.05-10 ng/mL	94-102%	5.68
3-epi-25(OH)D ₂	0.05 ng/mL	0.05-10 ng/mL	97-104%	10.25
1,25(OH) ₂ D ₃	0.01 ng/mL	0.01-0.20 ng/mL	89-105%	12.26
1,25(OH) ₂ D ₂	0.01 ng/mL	0.01-0.20 ng/mL	90-100%	13.90
3-epi-25(OH)D ₃	0.05 ng/mL	0.05-10 ng/mL	67-106%	13.72

LOQ, limit of quantification; CV, coefficient of variation.