Fecal samples (20 mg) were mixed with 1000 *μ*L of D2O, mixed thoroughly by vortexing, and then centrifuged at 16000 x *g* for 20 min. The supernatants were removed and filtered through 0.22*μ* centrifuge filters at 16000 x *g* for 20 minutes. 540 *μ*l of the filtrate was mixed with 60 *μ*l of Chenomix Internal Standard mixture (containing DSS, Imidazole, and NaN3 in D2O). Aliquots of 550 *μ*l were then transferred into 5mm NMR tubes. All 1H NMR spectra were recorded on a Bruker Avance III 950 MHz NMR spectrometer equipped with a cryoprobe (Bruker Biospin, Rheinstetten, Germany) located at the David H. Murdoch Research Institute at Kannapolis, NC, USA. Standard NMR spectra were acquired at 27°C with a standard one dimensional pulse sequence of a NOESY scheme (1dnoesypr) with water suppression using a relaxation delay of 2 s and a mixing time of 50 ms. A total of 256 transients were collected into 32768 data points for each spectrum with a spectral width of 16 ppm. Free induction decays were zero filled and multiplied by an exponential function equivalent to a 0.5 Hz line-broadening factor prior to Fourier transformation. 1H NMR spectra were manually phased and baseline-corrected by using the software package Topspin 3.0 (Bruker Biospin, Rheinstetten, Germany). The 1H NMR spectra were referenced to the DSS at *δ* 0.0. The spectra were converted into bins of 0.04 ppm over the range of *δ* 0.5-10.0 using Chenomx Software (Chenomx, Edmonton, Alberta, Canada) after excluding the water residue signal and imidazole signal. The spectra were normalized to a constant total sum of all intensities within the specified range prior to multivariate data analyses.