Focal function simulations Phylogenetic regression (sig. taxa) Phylogenetic regression (specificity) 1.25 pseudo1; abun\*1.5 -1.5 1.5 pseudo1; abun\*1.25 1.5 pseudo1; abun\*1.05 pseudo0.7; abun\*1.5 pseudo0.7; abun\*1.25 pseudo0.7; abun\*1.05 -1.5 1.5 pseudo0.3; abun\*1.5 pseudo0.3: abun\*1.25 -Median focal pseudo0.3; abun\*1.05 · pseudo0; abun\*1.5 -129.5 206 432 84 137.75 231 264.75 gene rank 114.5 503 304.25 178 pseudo0; abun\*1.25 + 143.75 321 291.5 287.75 1000 pseudo0: abun\*1.05 131 295 203.25 179 413 128 750 **POMS** Wilcoxon test (corrected) 500 pseudo1; abun\*1.5 -2.5 308 325 337 281.25 405.5 14 pseudo1; abun\*1.25 · 14 331.5 364 389 419 496 250 457 819.5 pseudo1; abun\*1.05 -14 367 424 600 297 pseudo0.7; abun\*1.5 -271 317 284.25 349 14 0 352.5 pseudo0.7; abun\*1.25 -14 326 400 525.75 392 pseudo0.7; abun\*1.05 -373 430.5 512 732.5 986.5 14 191.5 279 274 pseudo0.3; abun\*1.5 -24 170 104 pseudo0.3; abun\*1.25 -24 279 290.5 223 412 758 pseudo0.3; abun\*1.05 -24 1026 349 407 614 pseudo0; abun\*1.5 -51 186.5 9.25 1.25 1.5 6 pseudo0; abun\*1.25 -76 1.5 pseudo0; abun\*1.05 -250 500 1000 1595 250 500 1000 100 100 1595 Number of metagenome-assembled genomes