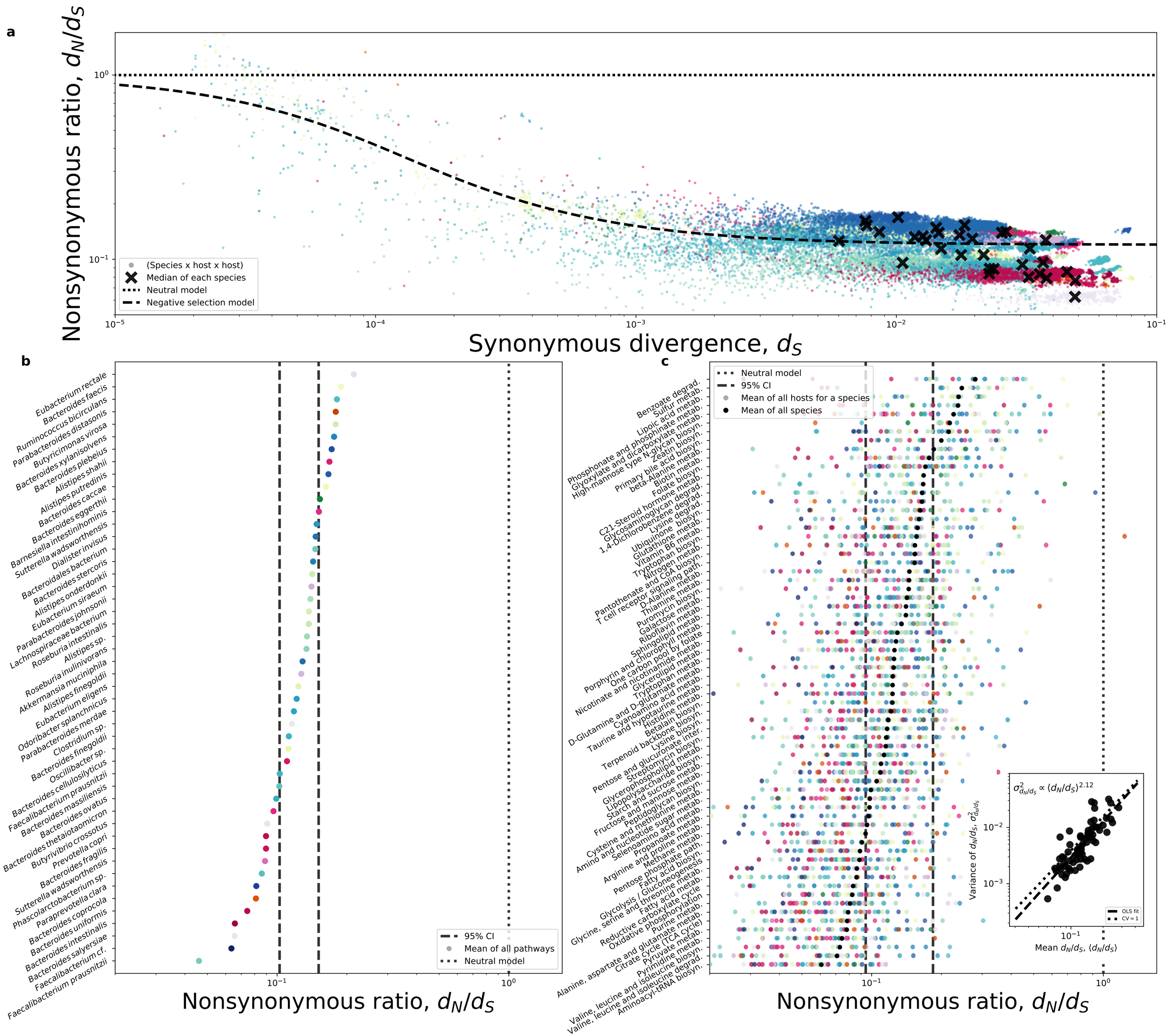
a
Nonsynonymous ratio, d_N/d_S
Synonymous divergence, d_S
(Species x host x host)
Median of each species
Neutral model
Negative selection model
b
Eubacterium rectale
Bacteroides faecis
Ruminococcus bicirculans
Parabacteroides distasonis
Butyricimonas virosa
Bacteroides xylanisolvens
Bacteroides plebeius
Alistipes shahii
Alistipes putredinis
Bacteroides caccae
Bacteroides eggerthii
Barnesiella intestinihominis
Sutterella wadsworthensis
Dialister invisus
Bacteroidales bacterium
Bacteroides stercoris
Bacteroides onderdonkii
Alistipes onderdonkii
Eubacterium siraeum
Parabacteroides johnsonii
Lachnospiraceae bacterium
Roseburia intestinalis
Alistipes sp.
Roseburia inulinivorans
Akkermansia muciniphila
Alistipes finegoldii
Eubacterium eligens
Odoribacter splanchnicus
Parabacteroides merdae
Clostridium sp.
Bacteroides finegoldii
Bacteroides sp.
Oscillibacter sp.
Bacteroides cellulosilyticus
Faecalibacterium prausnitzii
Bacteroides massiliensis
Bacteroides ovatus
Bacteroides thetaiotaomicron
Butyrivibrio crossotus
Prevotella copri
Bacteroides fragilis
Bacteroides wadsworthensis
Sutterella wadsworthensis
Phascolarctobacterium sp.
Paraprevotella clara
Bacteroides coprocola
Bacteroides uniformis
Bacteroides intestinalis
Bacteroides salyersiae
Faecalibacterium cf.
Faecalibacterium prausnitzii
95% CI
Mean of all pathways
Neutral model
Nonsynonymous ratio, d_N/d_S
c
Neutral model
95% CI
Mean of all hosts for a species
Mean of all species
Benzoate degrad.
Sulfur metab.
Lipoic acid metab.
Phosphonate and phosphinate metab.
Glyoxylate and dicarboxylate metab.
High-mannose type N-glycan biosyn.
Zeatin biosyn.
Primary bile acid biosyn.
beta-Alanine metab.
Biotin metab.
Folate biosyn.
C21-Steroid hormone metab.
Glycosaminoglycan degrad.
1,4-Dichlorobenzene degrad.
Lysine degrad.
Ubiquinone biosyn.
Glutathione metab.
Vitamin B6 metab.
Tryptophan biosyn.
Nitrogen metab.
Pantothenate and CoA biosyn.
T cell receptor signaling path.
D-Alanine metab.
Thiamine metab.
Puromycin biosyn.
Galactose metab.
Riboflavin metab.
Sphingolipid metab.
Porphyrin and chlorophyll metab.
One carbon pool by folate
Nicotinate and nicotinamide metab.
Glycerolipid metab.
Tryptophan metab.
D-Glutamine and D-glutamate metab.
Cyanoamino acid metab.
Taurine and hypotaurine metab.
Histidine metab.
Betalain biosyn.
Terpenoid backbone biosyn.
Lysine biosyn.
Pentose and glucuronate inter.
Streptomycin biosyn.
Glycerophospholipid metab.
Lipopolysaccharide biosyn.
Starch and sucrose metab.
Fructose and mannose metab.
Peptidoglycan biosyn.
Cysteine and methionine metab.
Amino and nucleotide sugar metab.
Selenoamino acid metab.
Propanoate metab.
Arginine and proline metab.
Methane metab.
Pentose phosphate path.
Fatty acid biosyn.
Glycolysis / Gluconeogenesis
Glycine, serine and threonine metab.
Fatty acid metab.
Reductive carboxylate cycle
Oxidative phosphorylation
Purine metab.
Alanine, aspartate and glutamate metab.
Citrate cycle (TCA cycle)
Pyruvate metab.
Pyrimidine metab.
Valine, leucine and isoleucine biosyn.
Valine, leucine and isoleucine degrad.
Aminoacyl-tRNA biosyn.
$\sigma^2_{d_N/d_S} \propto \langle d_N/d_S \rangle^{2.12}$
Variance of d_N/d_S, $\sigma^2_{d_N/d_S}$
Mean d_N/d_S, $\langle d_N/d_S \rangle$
OLS fit
CV = 1
Nonsynonymous ratio, d_N/d_S