Significant metadata correlation heatmap FDR-values: < 0.001 = ***, < 0.01 = **, < 0.1 = * ASV301 Erysipelatoclostridiaceae -ASV203 Frisingicoccus ASV16 Bifidobacterium -ASV772 Butyricicoccus ASV10 Ruminococcus ASV335 Clostridia vadinBB60 group -ASV324 Defluviitaleaceae UCG-011 ASV274 Ruminococcaceae ASV49 [Eubacterium] coprostanoligenes group -ASV1 Muribaculaceae ASV242 Erysipelatoclostridium ASV147 Lachnoclostridium -ASV139 Lachnospiraceae UCG-006 Effect size ASV196 UBA1819 ASVs agglomerated by Genus ASV428 Pygmaiobacter 0.5 ASV223 Dorea 00 ASV355 Marvinbryantia **ASV105 Bacteroides** 0.0 ASV73 Anaerostipes -ASV36 NK4A214 group --0.5ASV665 Anaerofustis ASV313 Paludicola ASV200 Parasutterella **ASV157 Parabacteroides** ASV538 A2 Confounding status ASV334 Erysipelotrichaceae Confounded ASV524 Christensenellaceae R-7 group -ASV512 Enterococcus Deconfounded ASV326 Gastranaerophilales ASV72 [Eubacterium] siraeum group -ASV44 Roseburia ASV2 Lachnospiraceae NK4A136 group ASV468 Candidatus Saccharimonas ASV35 Clostridium sensu stricto 1 ASV31 Clostridia UCG-014 ASV509 Escherichia-Shigella ASV399 Monoglobus ASV24 Romboutsia ASV328 Clostridia ASV28 Jeotgalicoccus -ASV100 Oscillibacter **SCFAs** Cytokines Cognition **Treatments** Membrane receptors NR2B. CCL20. NR1 GAT1 TNFR1 NR2A Antibiotic SCFA_AA Learning_index_Rmaze Treated_CCL SCFA_CA SCFA_BA

Variables