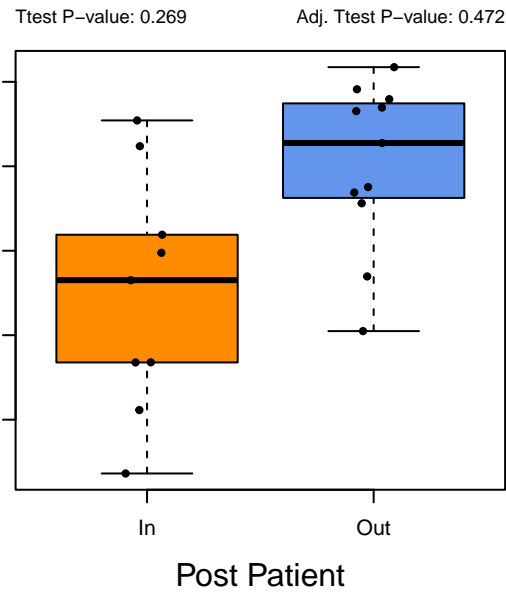
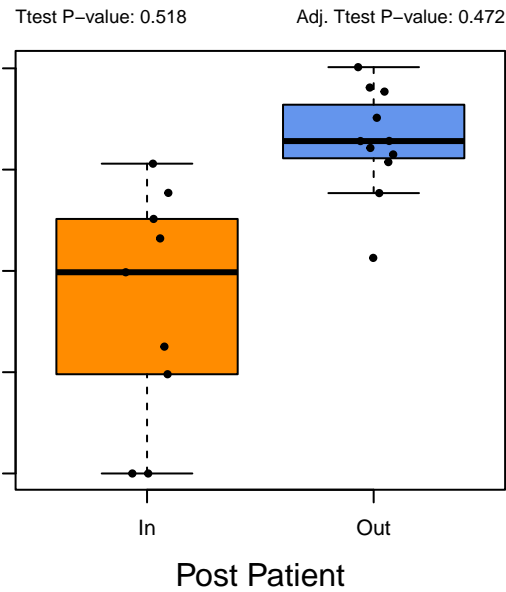


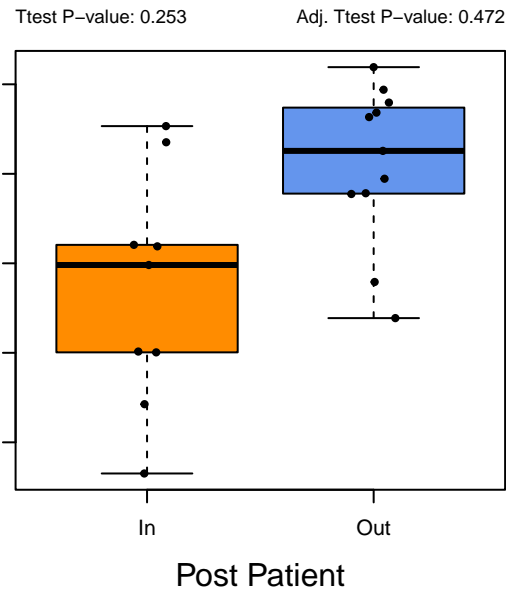
PWY-6607: guanosine nucleotides degradator



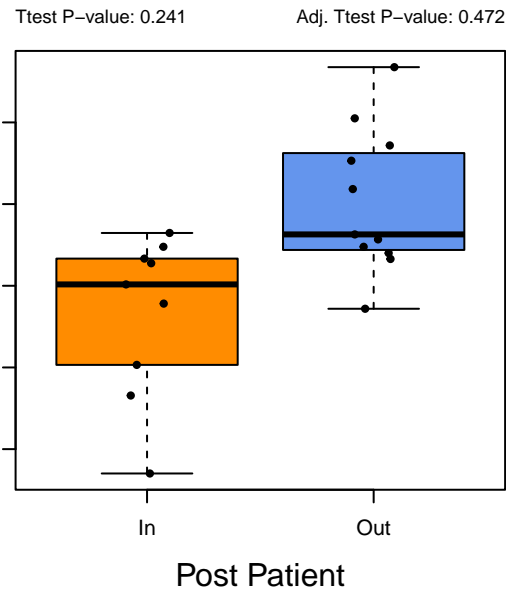
PWY-8131: 5'-deoxyadenosine degradation



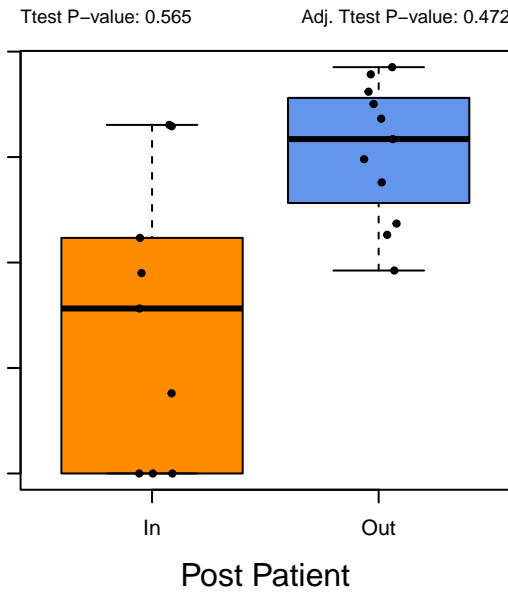
superpathway of guanosine nucleotides degra



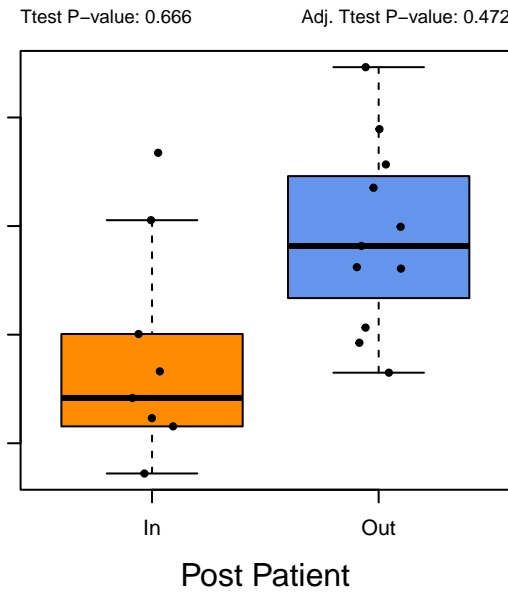
pathway of L-lysine, L-threonine and L-methio



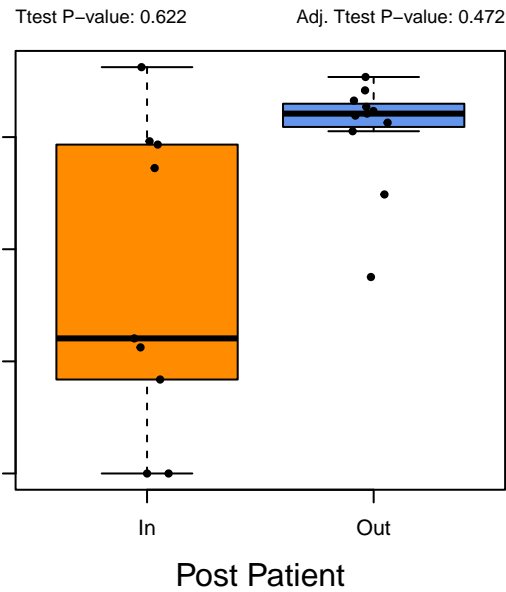
PWY-7013: (S)-propane-1,2-diol degradation



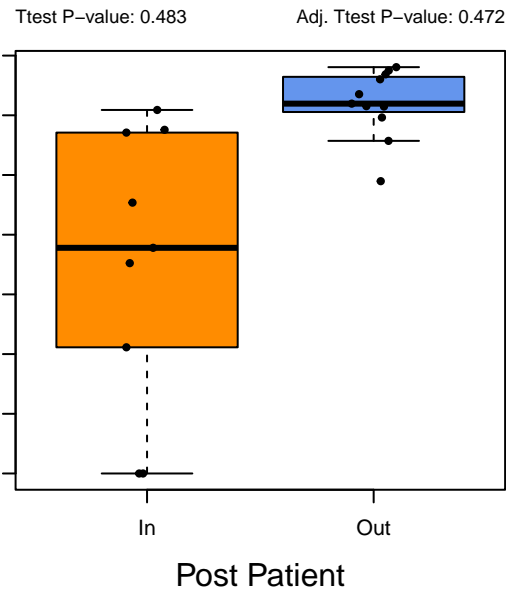
PWY-2942: L-lysine biosynthesis III



ALACTARDEG-PWY: D-galactarate degradati

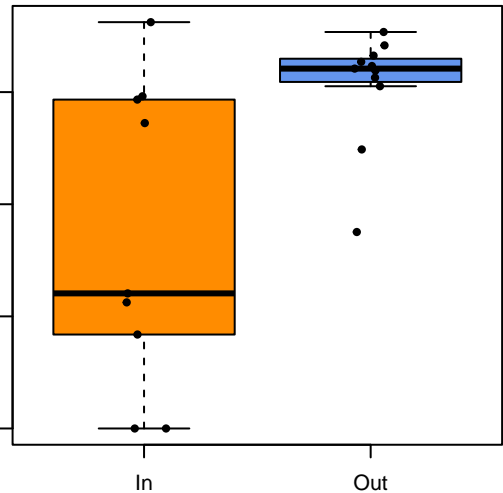


WY-5676: acetyl-CoA fermentation to butanoa



883: anaerobic energy metabolism (invertateER-PWY: superpathway of D-glucarate and D

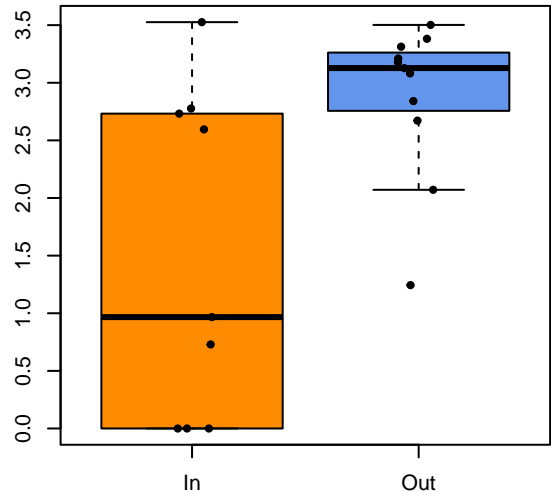
Ttest P-value: 0.622 Adj. Ttest P-value: 0.472



Post Patient

PWY0-1261: anhydromuropeptides recycling GLUCARDEG-PWY: D-glucarate degradation

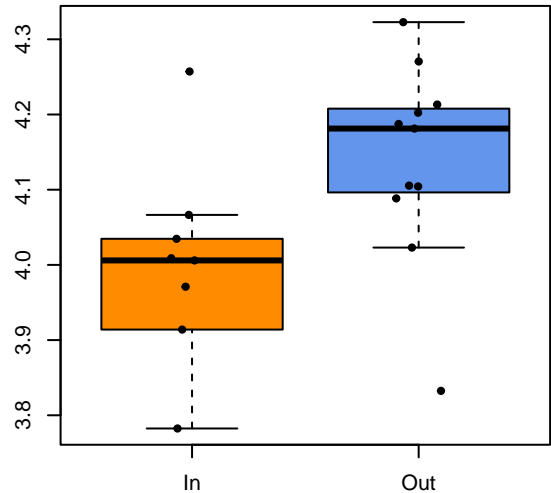
Ttest P-value: 0.919 Adj. Ttest P-value: 0.472



Post Patient

VALSYN-PWY: L-valine biosynthesis

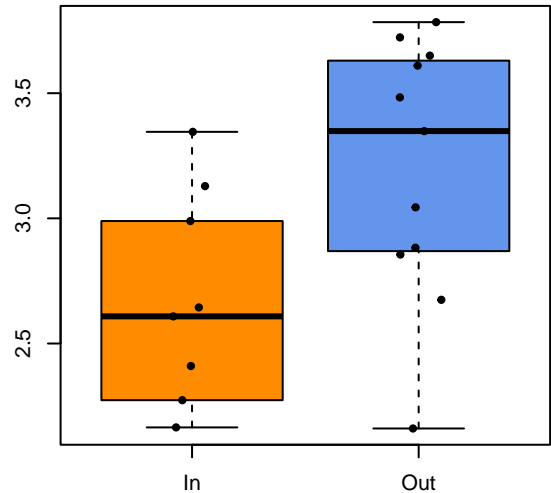
Ttest P-value: 0.86 Adj. Ttest P-value: 0.472



Post Patient

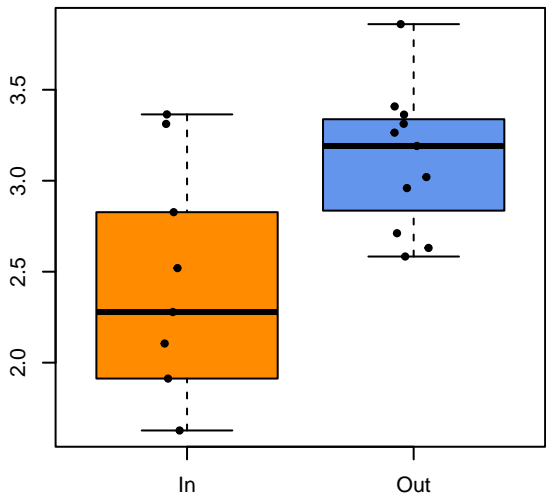
4-PWY: purine nucleobases degradation I (anaeYN-PWY: dTDP-&beta;-L-rhamnose biosynth

Ttest P-value: 0.566 Adj. Ttest P-value: 0.472



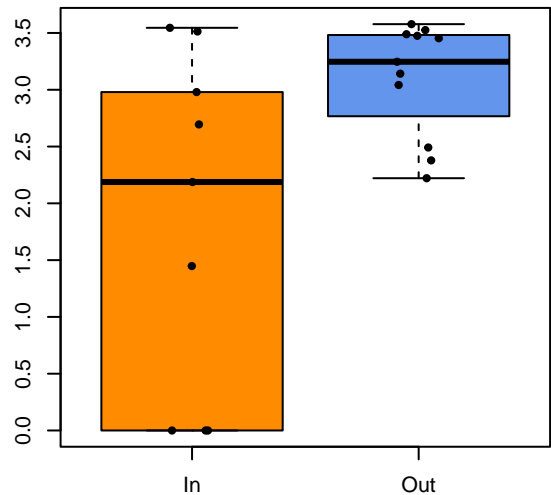
Post Patient

Ttest P-value: 0.353 Adj. Ttest P-value: 0.472



Post Patient

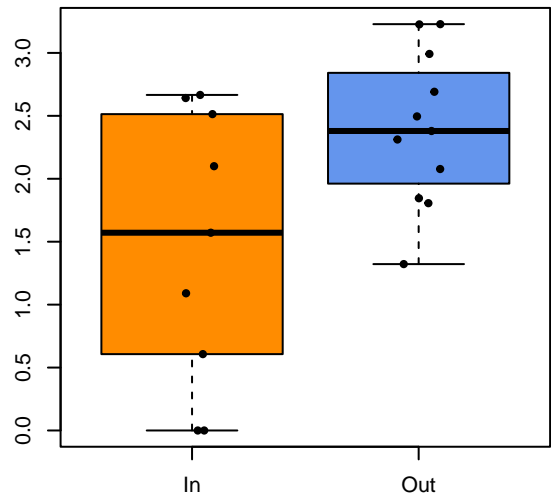
Ttest P-value: 0.989 Adj. Ttest P-value: 0.472



Post Patient

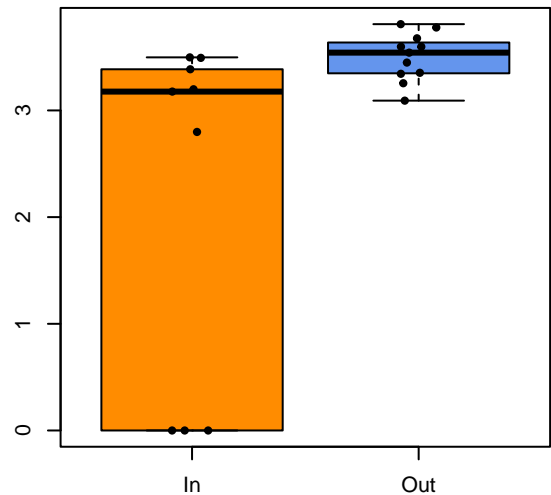
7977: L-methionine biosynthesis IV|unclass

Ttest P-value: 0.512 Adj. Ttest P-value: 0.472

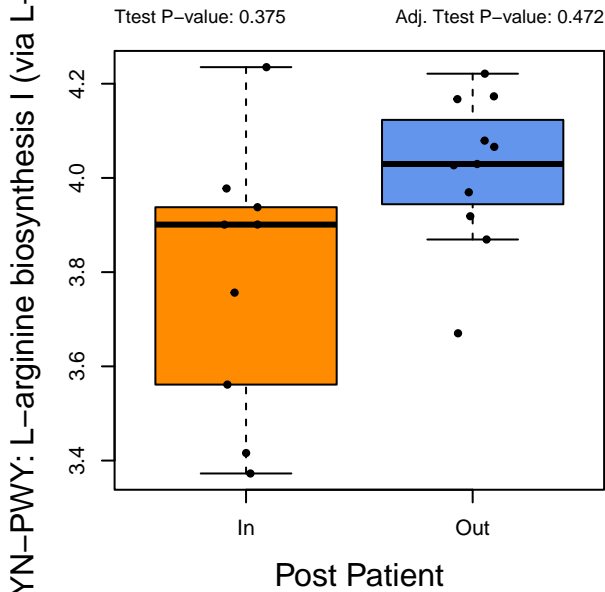
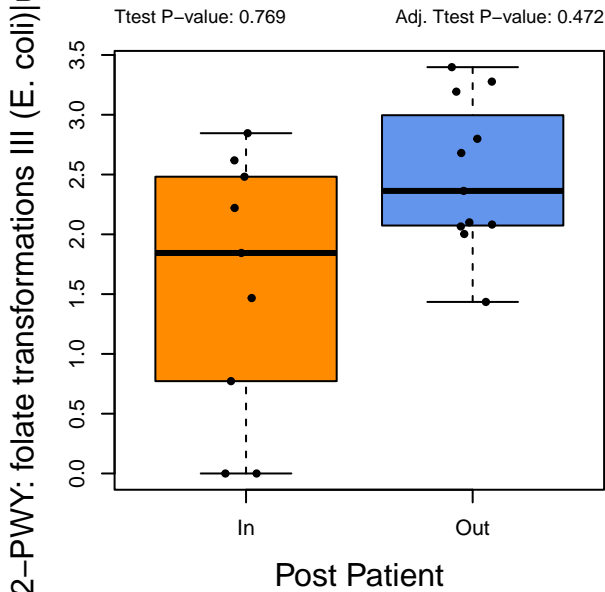
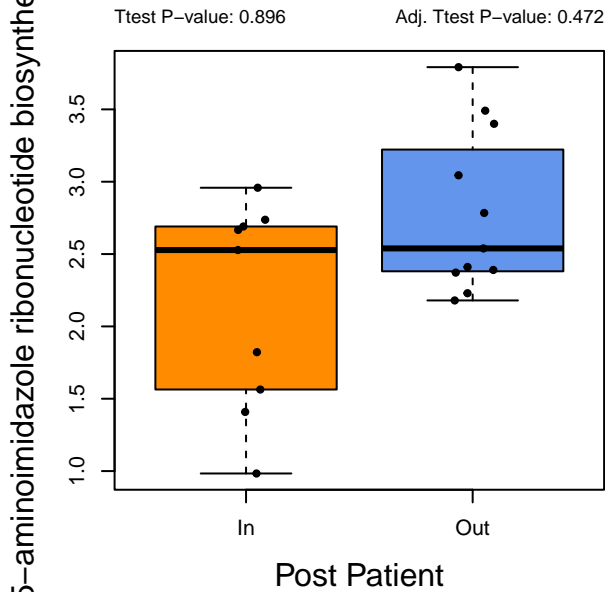
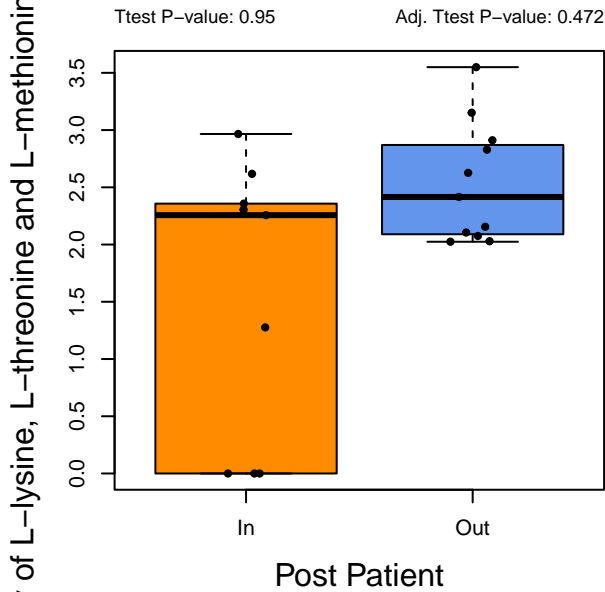
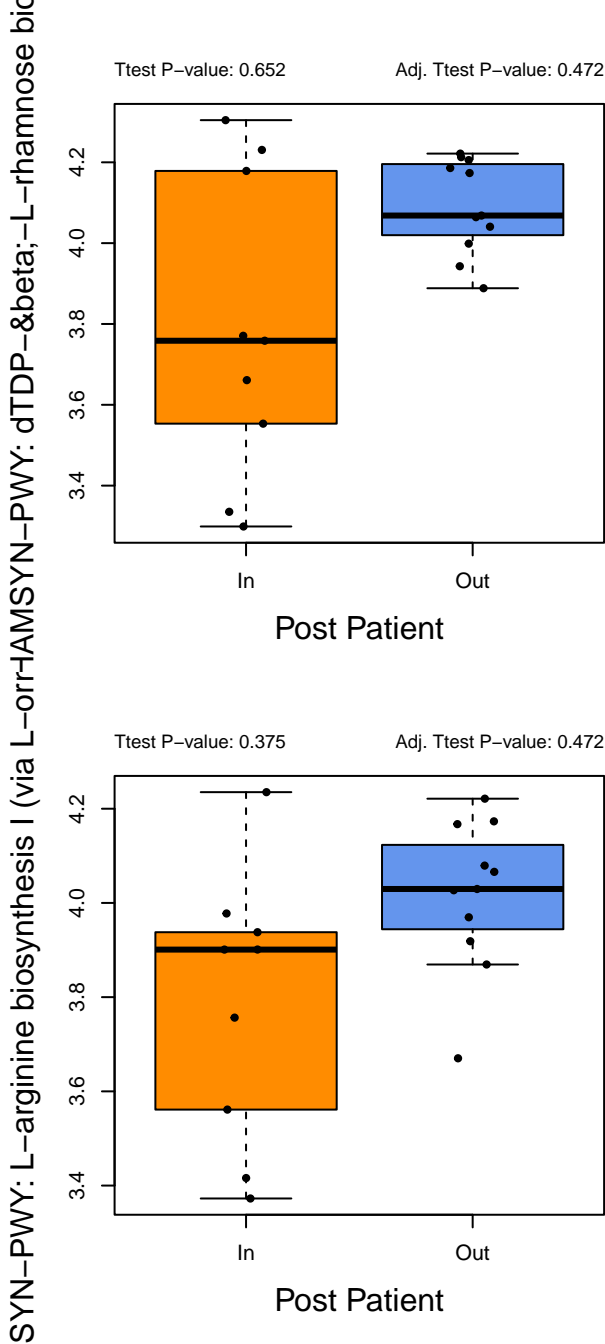
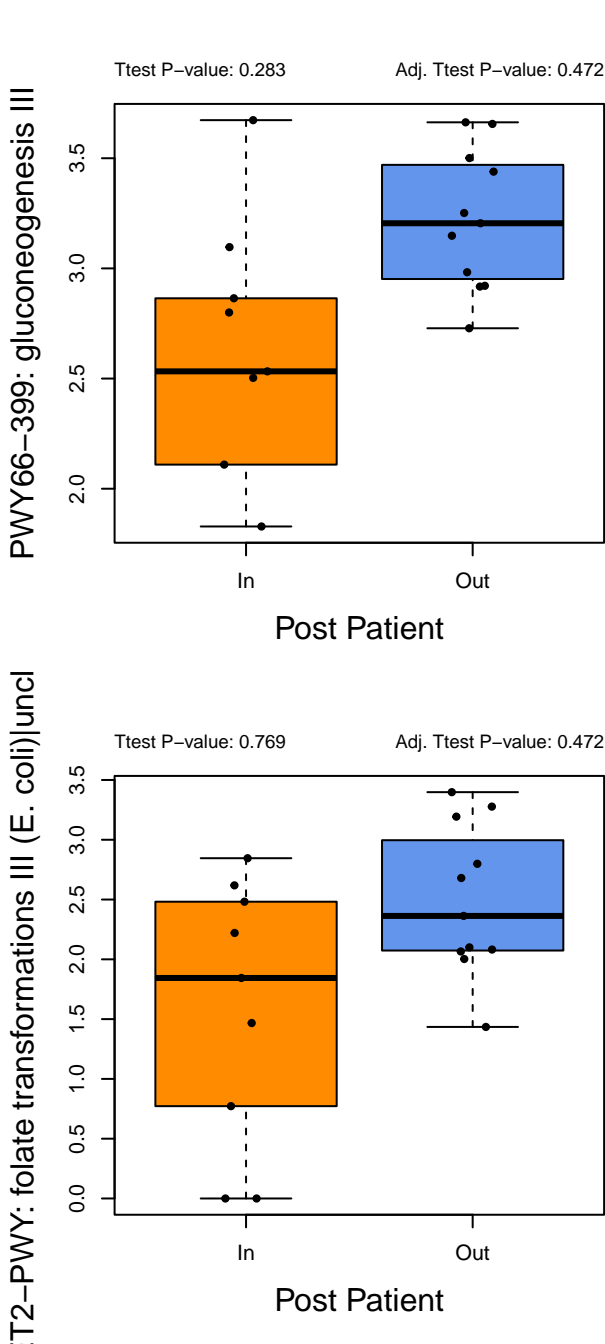
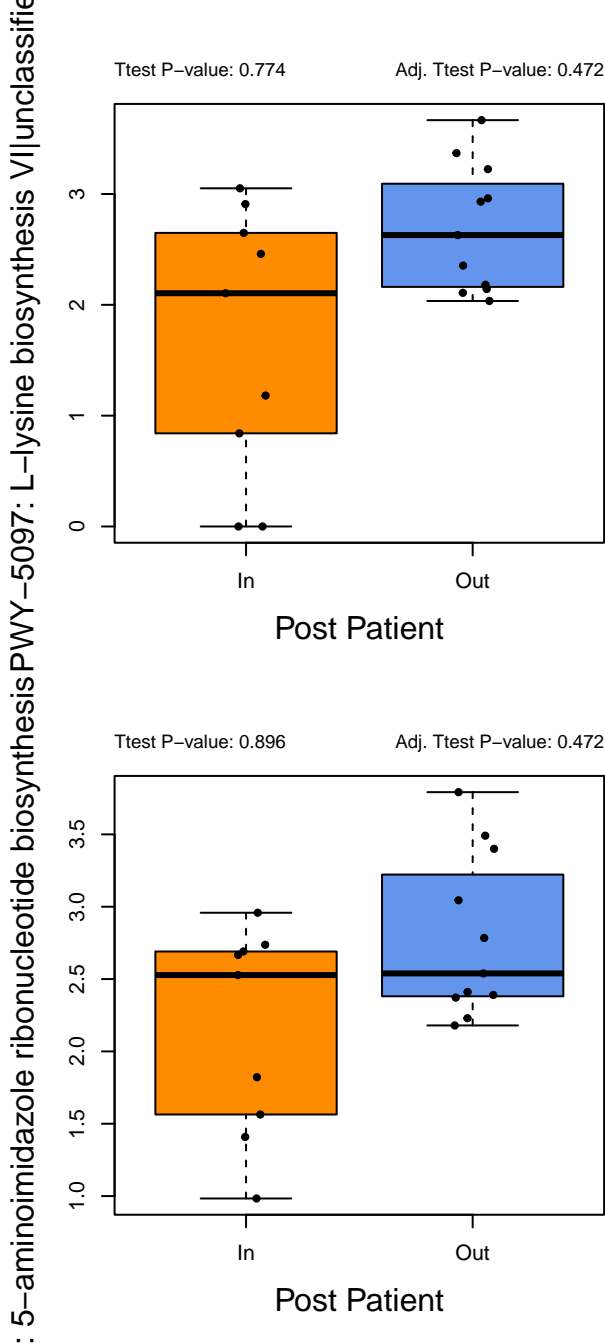
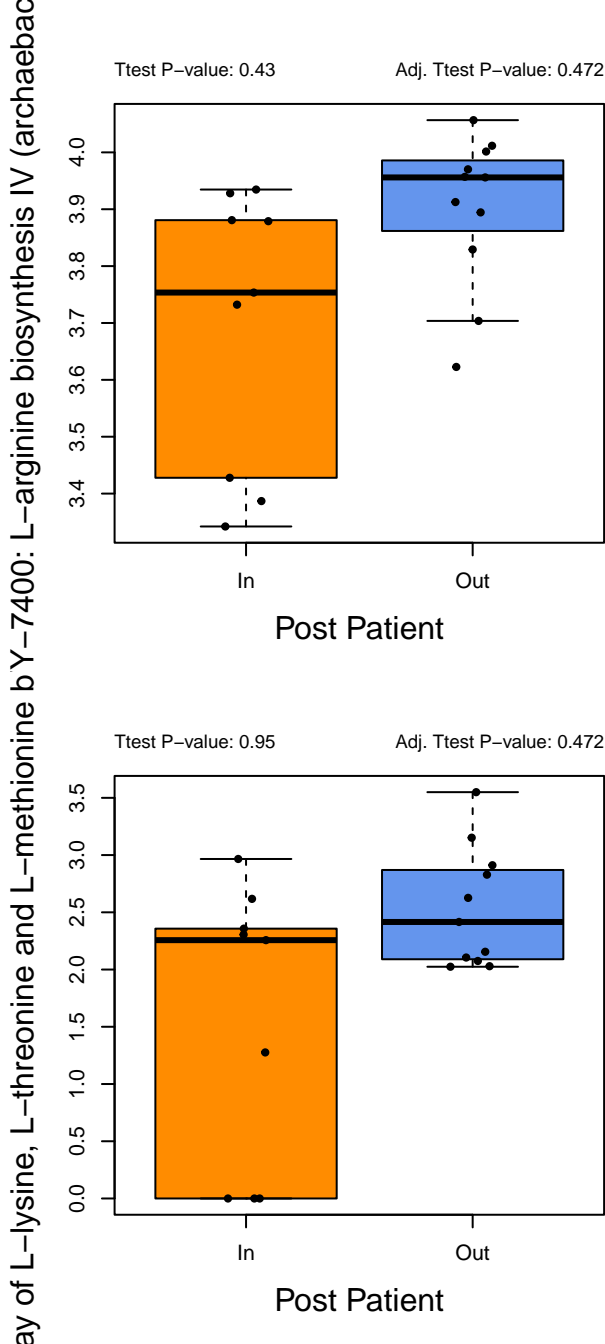


Post Patient

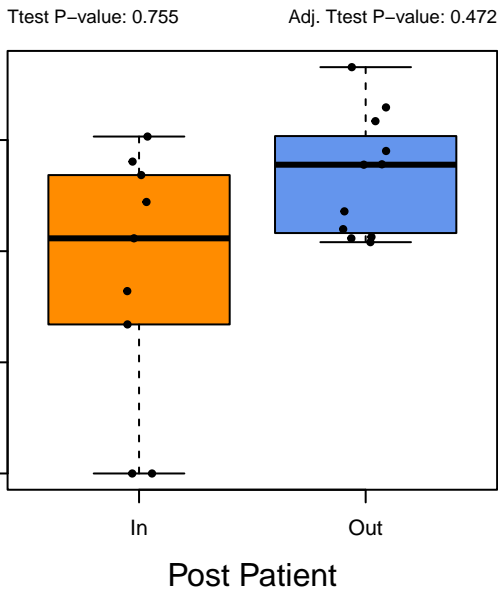
Ttest P-value: 0.436 Adj. Ttest P-value: 0.472



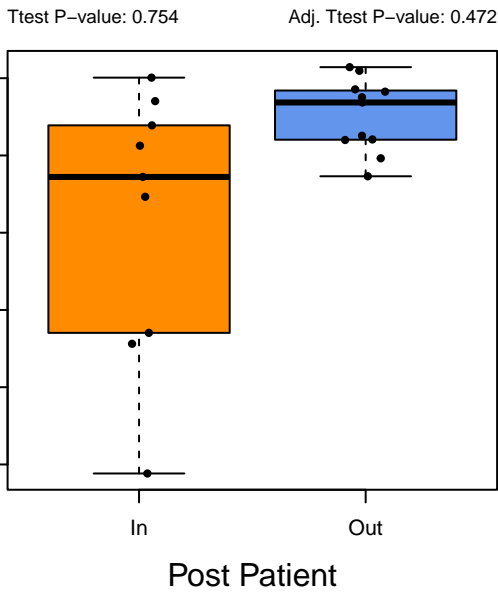
Post Patient



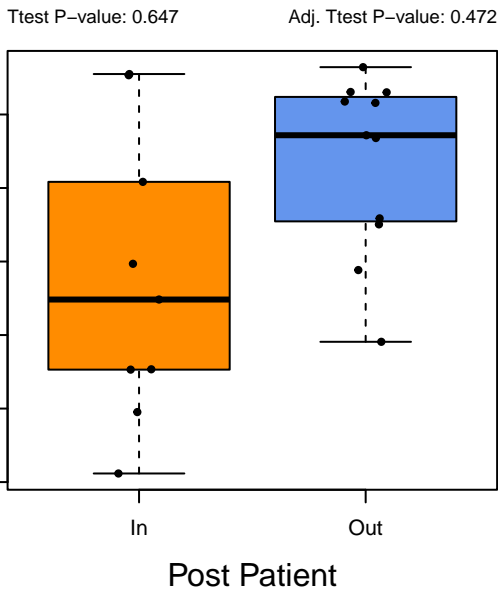
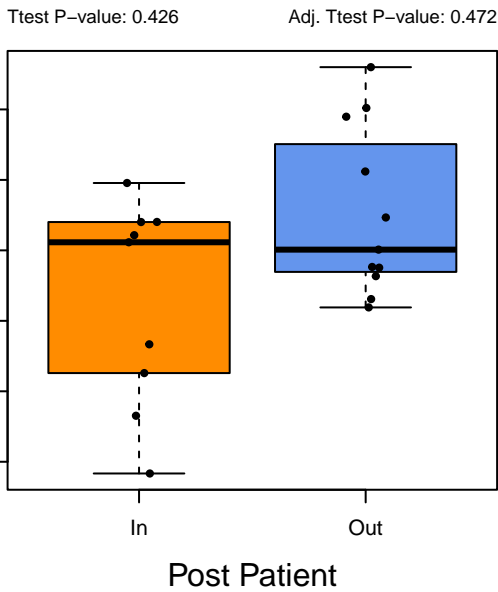
PWY-2942: L-lysine biosynthesis III|unclassified



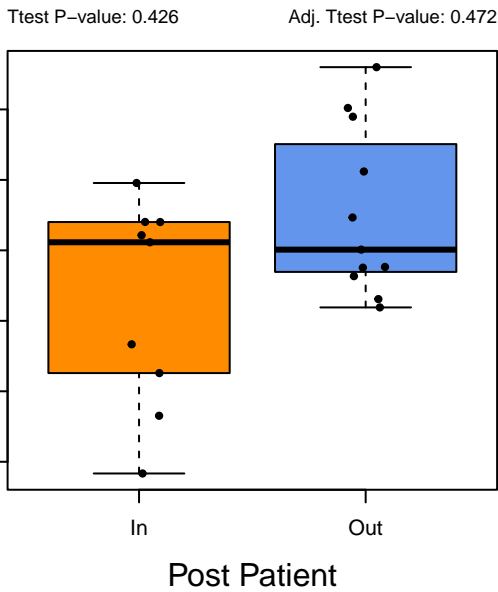
PWY-7977: L-methionine biosynthesis IV



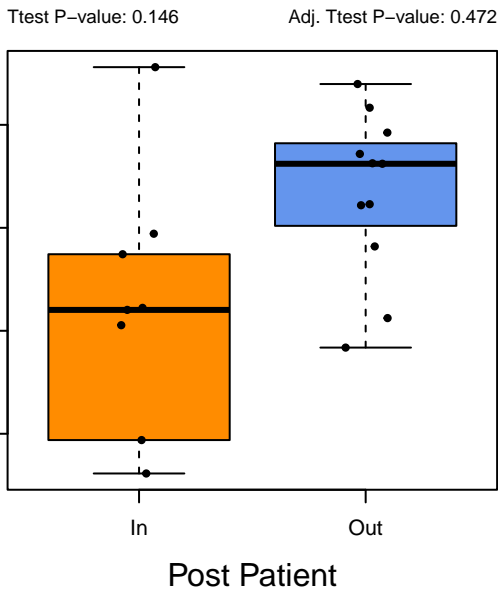
5-aminoimidazole ribonucleotide biosynthesis /Y-6353: purine nucleotides degradation II (aer



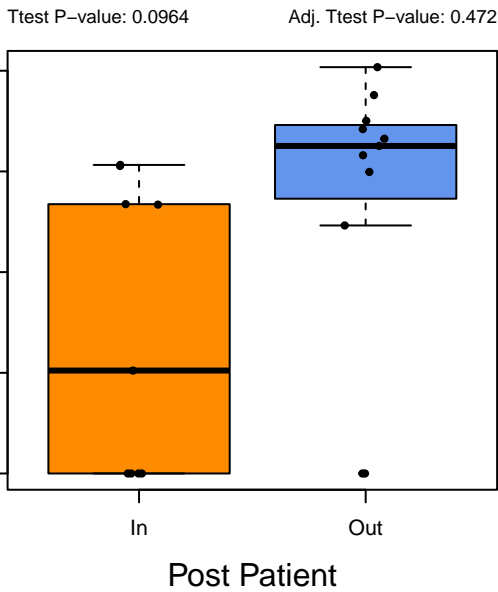
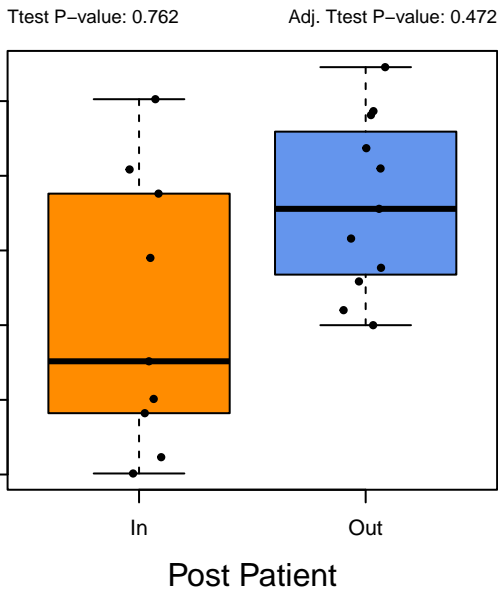
pathway of 5-aminoimidazole ribonucleotide bios

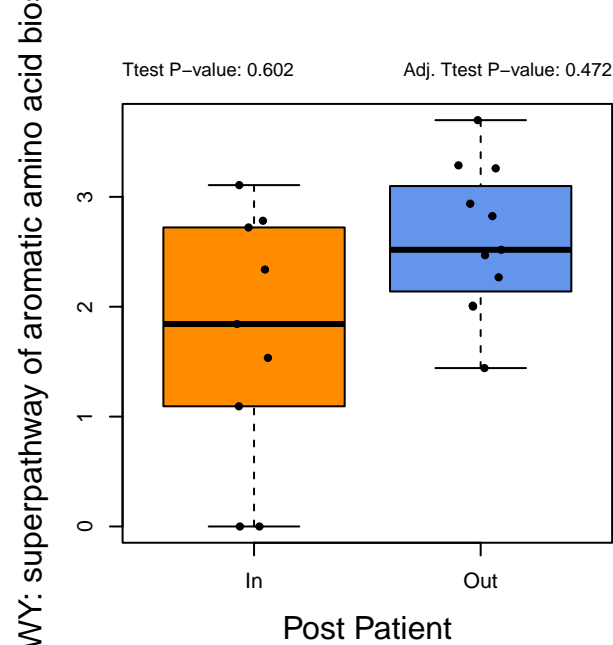
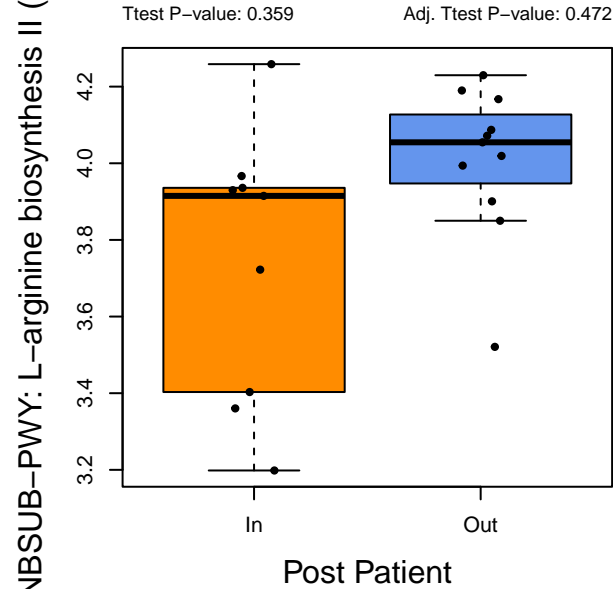
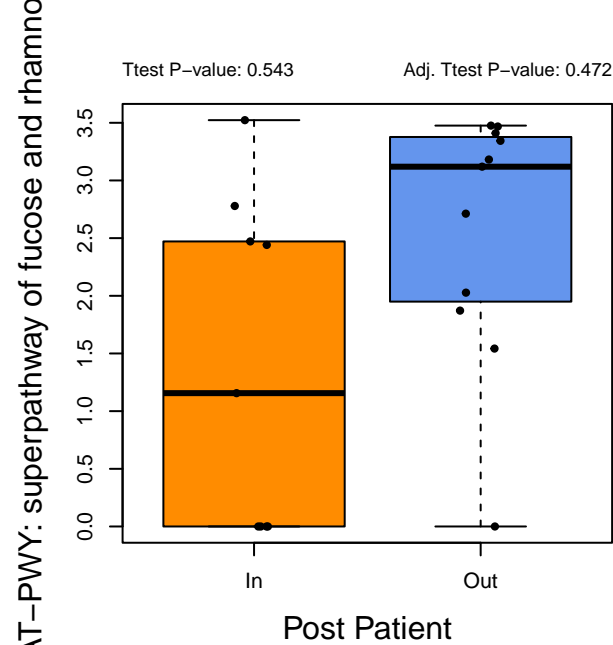
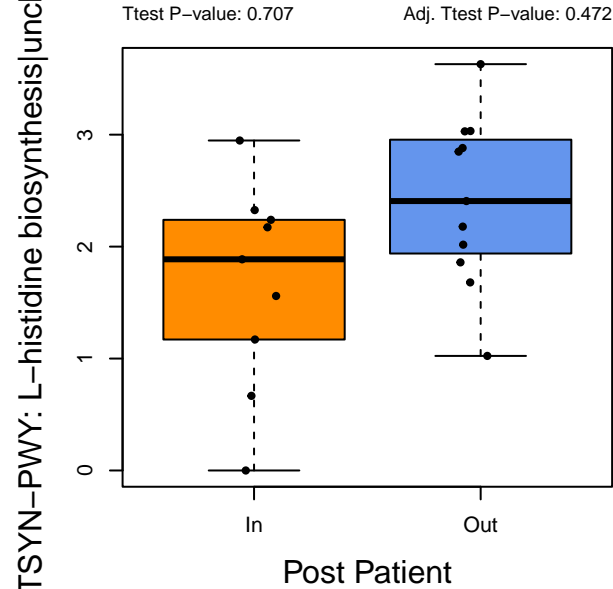
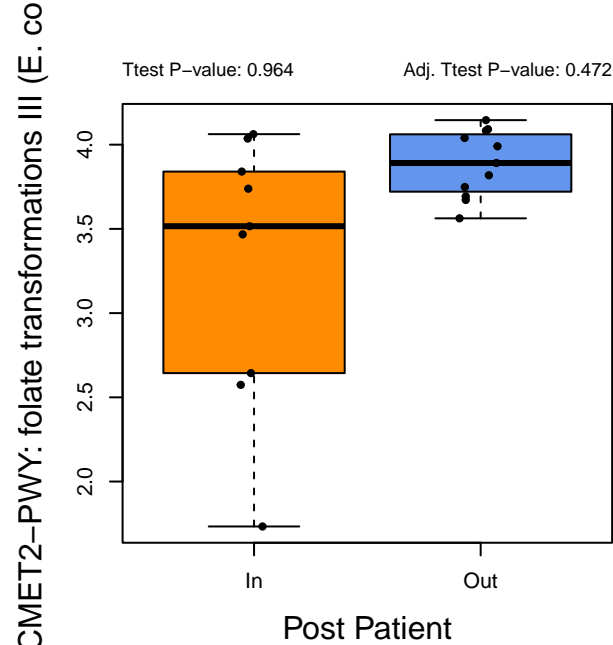
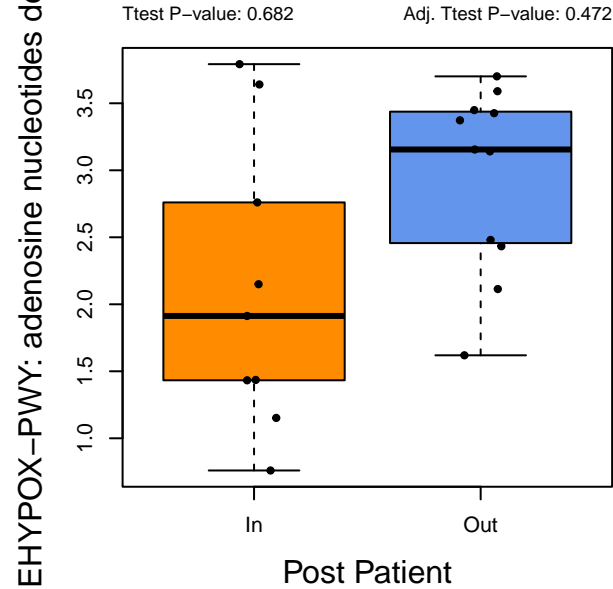
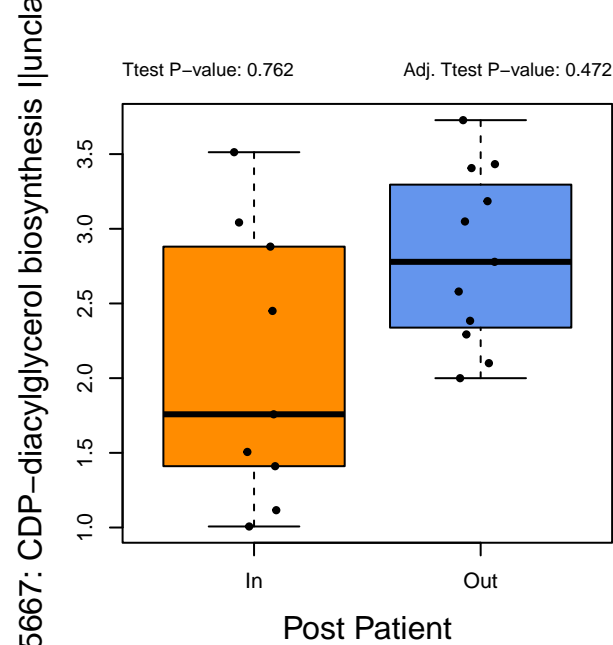
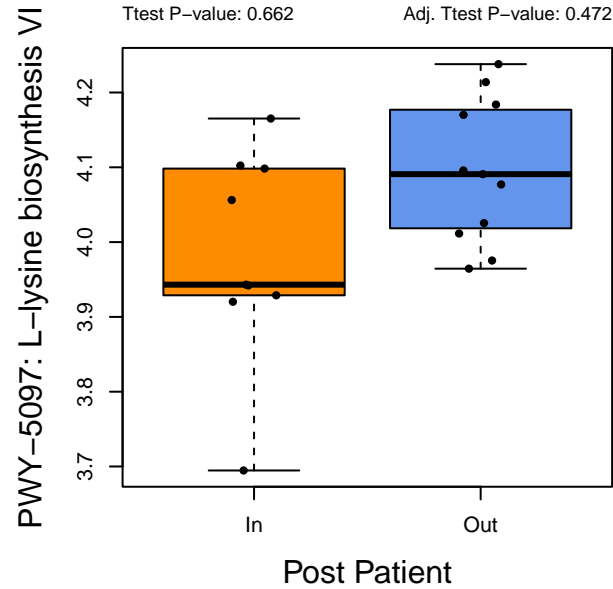


PWY-4984: urea cycle



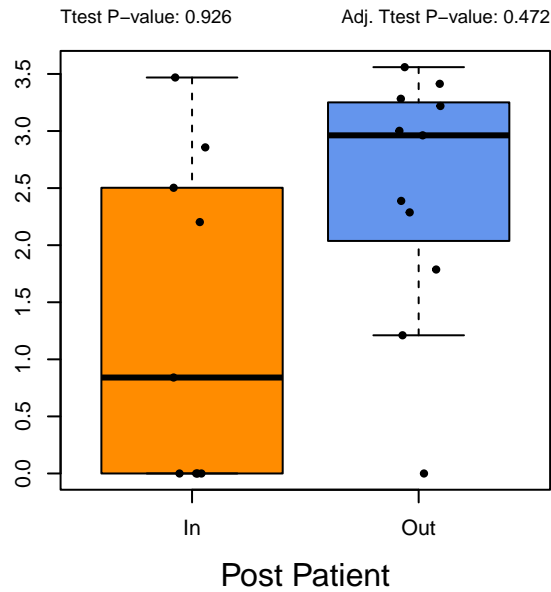
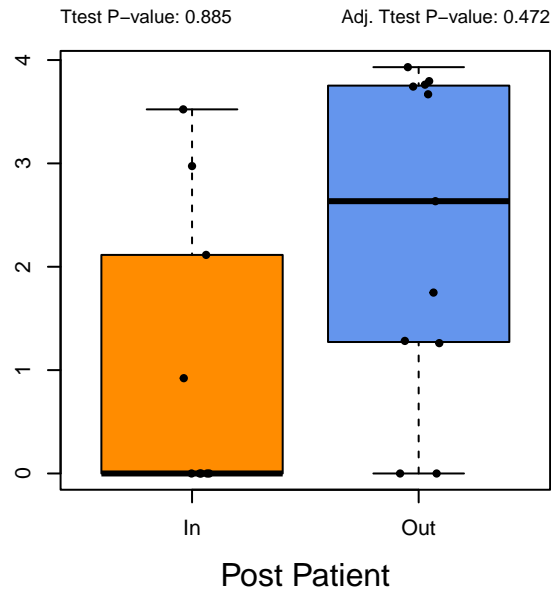
0-1319: CDP-diacylglycerol biosynthesis II|unc17: myo-, chiro- and scyllo-inositol degradation



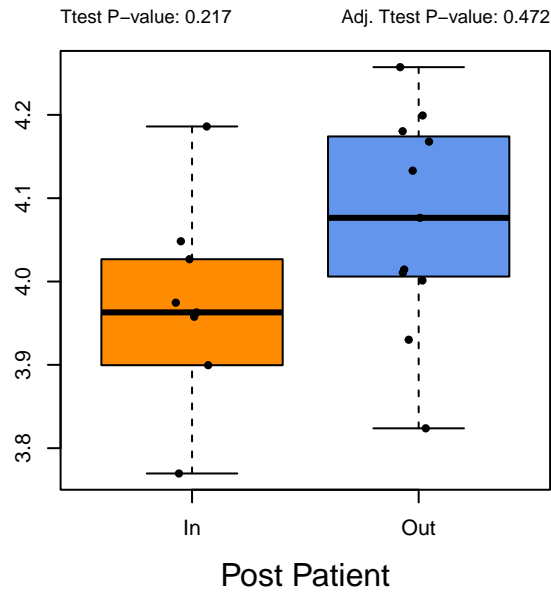
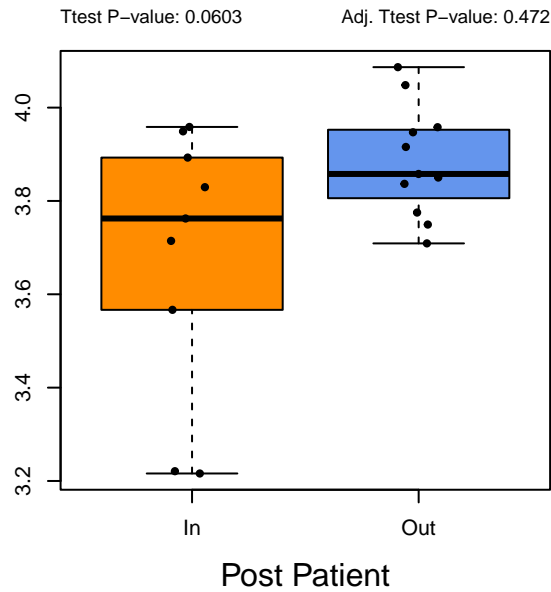


ETH-ACETATE-PWY: methanogenesis from acetate

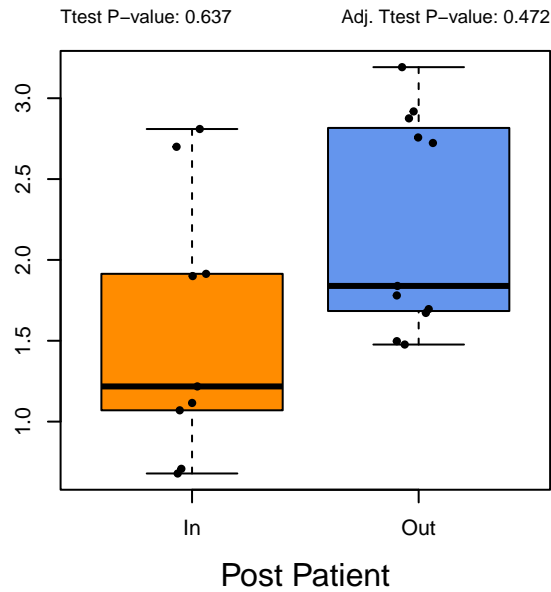
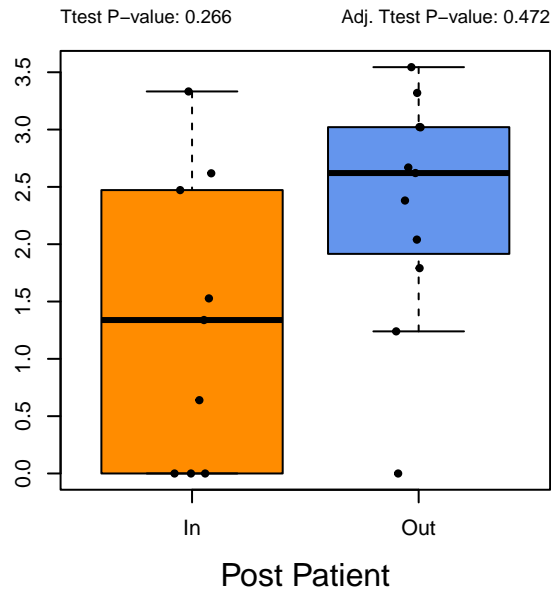
FUCCAT-PWY: fucose degradation



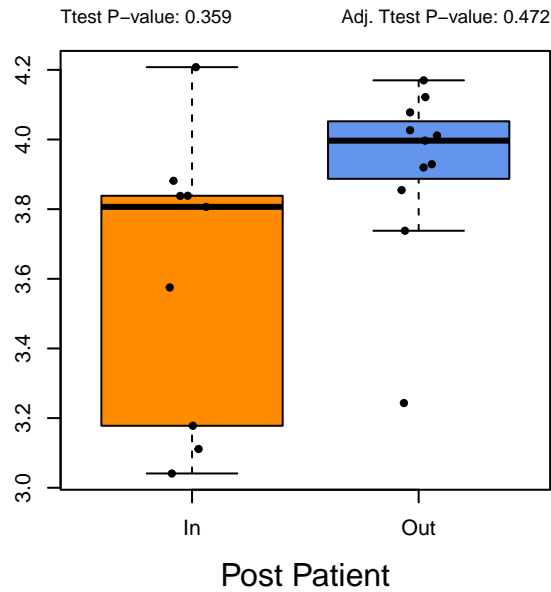
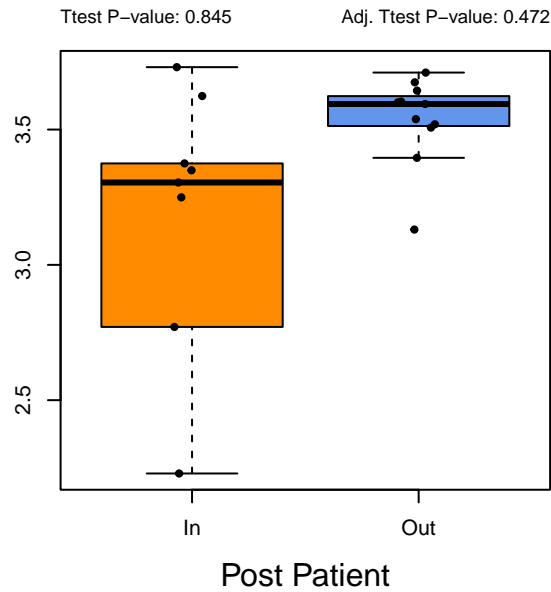
GLN-PWY: superpathway of L-serine and glycine



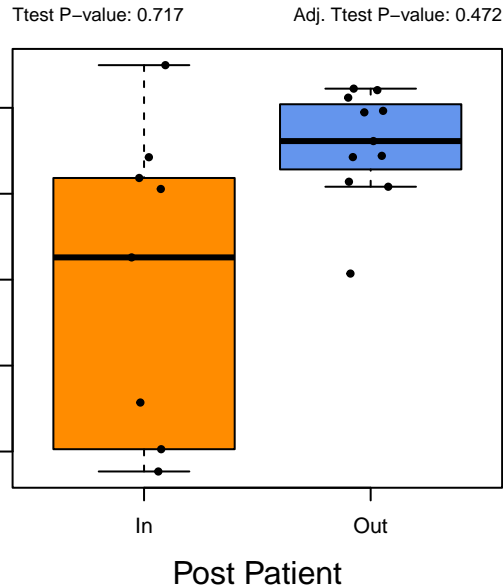
GLY-5497: purine nucleobases degradation II (anaerobic)



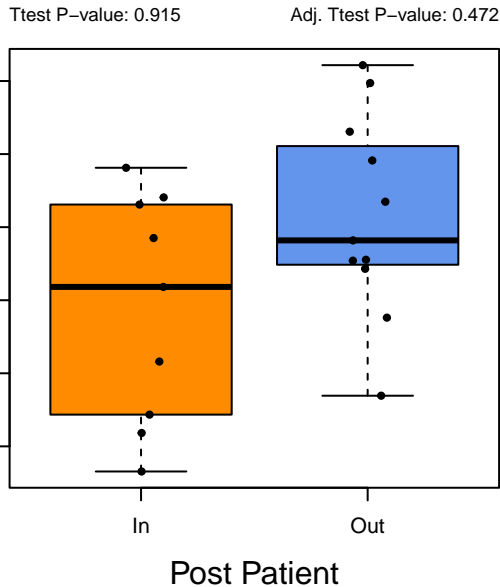
GLUTORN-PWY: superpathway of N-acetylneuraminate degradation



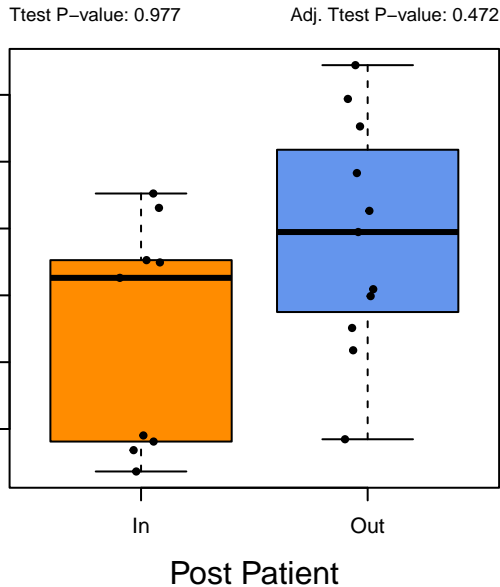
GA-SYN-PWY: superpathway of branched chairway of UDP-glucose-derived O-antigen build



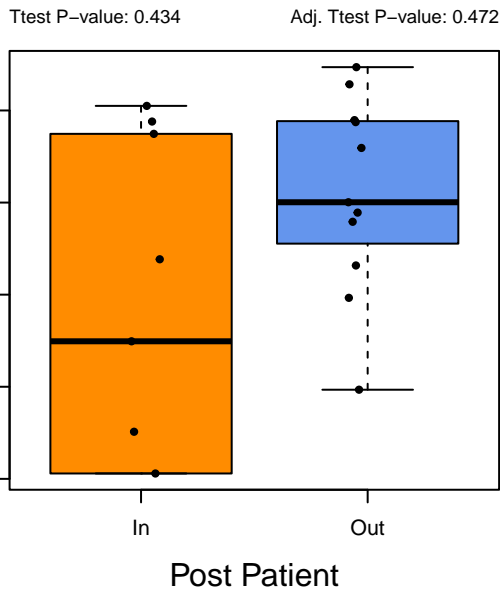
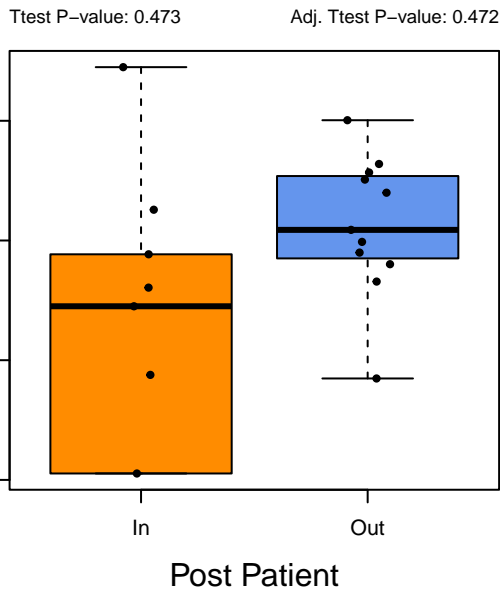
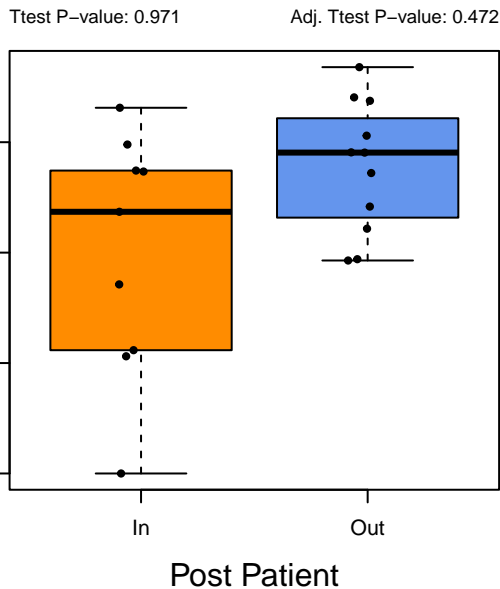
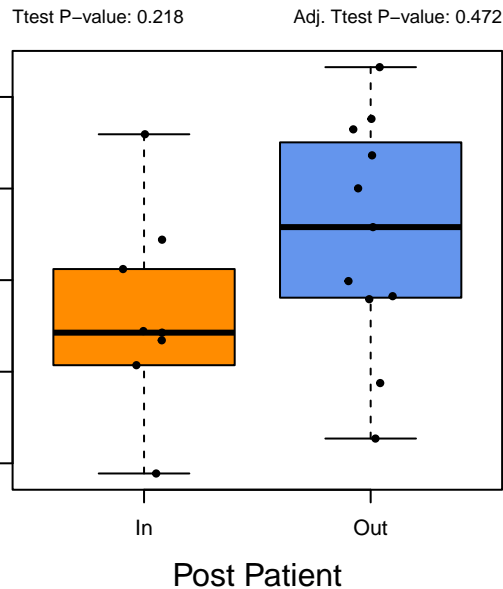
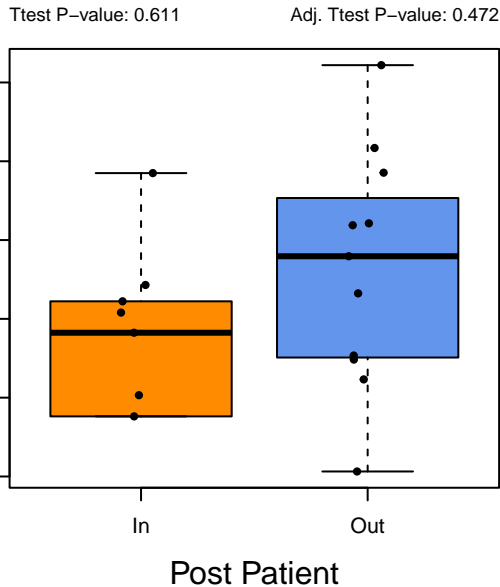
VIN-PWY: Calvin-Benson-Bassham cycle



LPWY: superpathway of glycerol degradation to WY-6823: molybdopterin biosynthesis

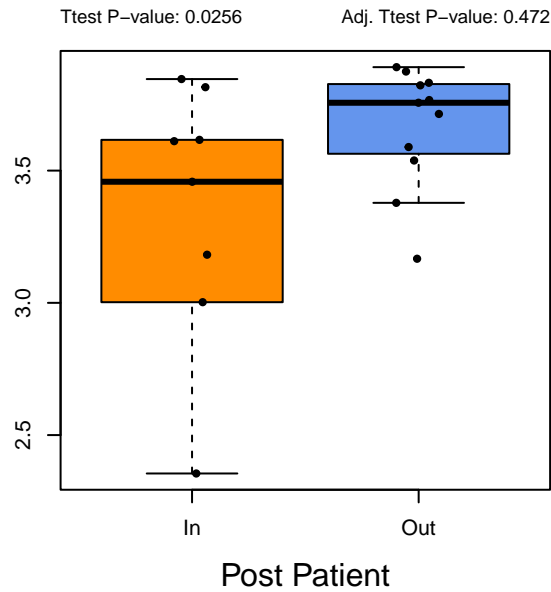
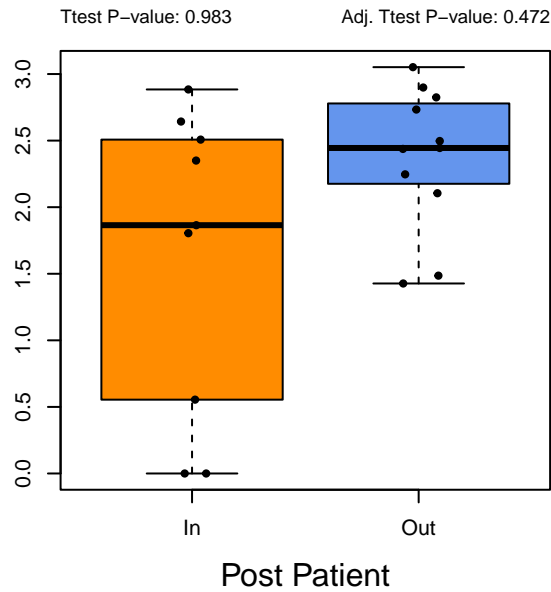


-7345: superpathway of anaerobic sucrose degr7111: pyruvate fermentation to isobutanol (eng

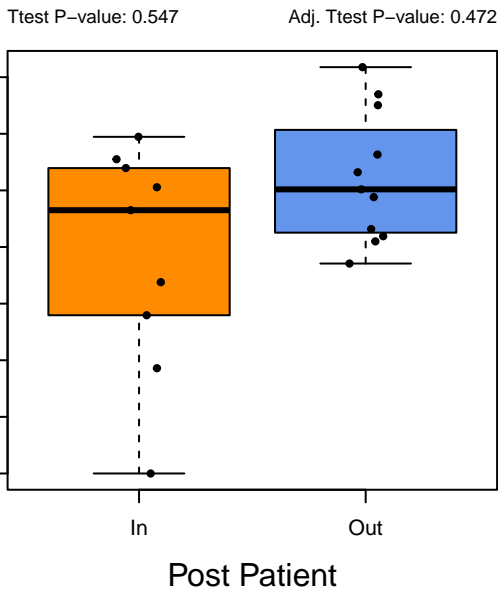
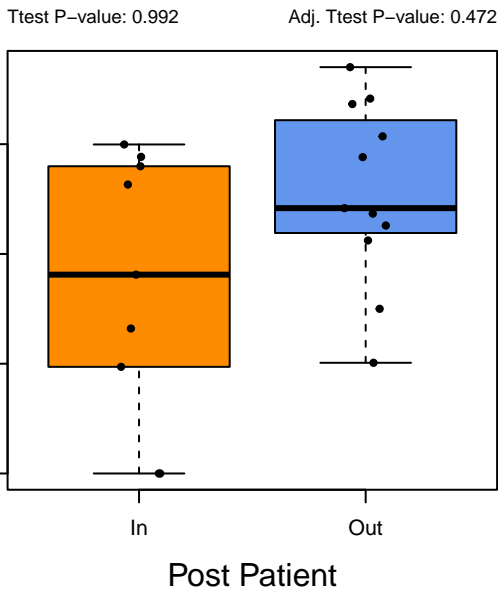


of UDP-glucose-derived O-antigen building blc

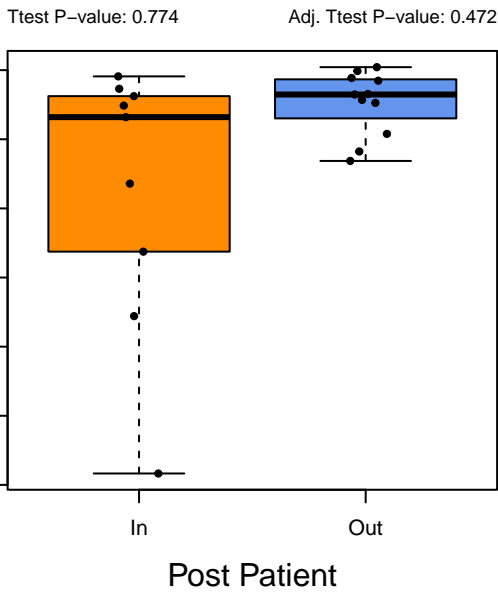
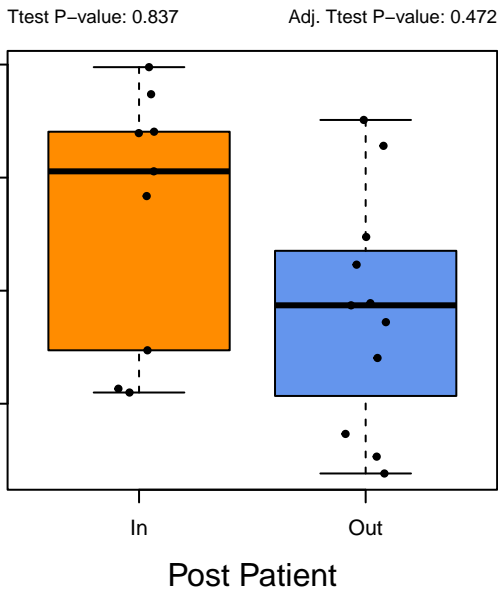
PWY0-1477: ethanolamine utilization



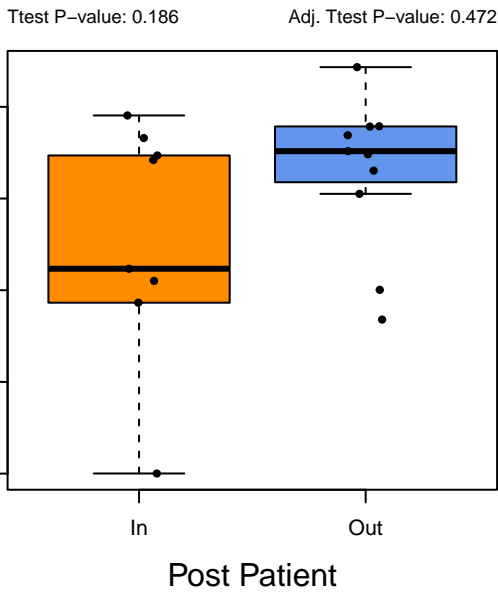
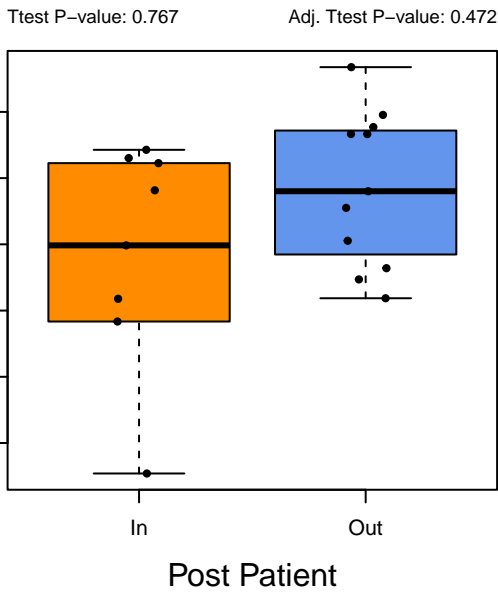
PWY: L-arginine biosynthesis I (via L-ornithine)-6700: queuosine biosynthesis I (de novo)lunda



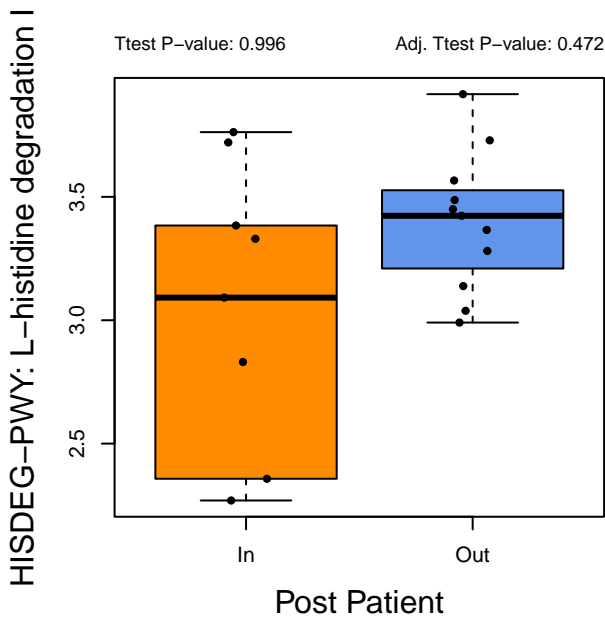
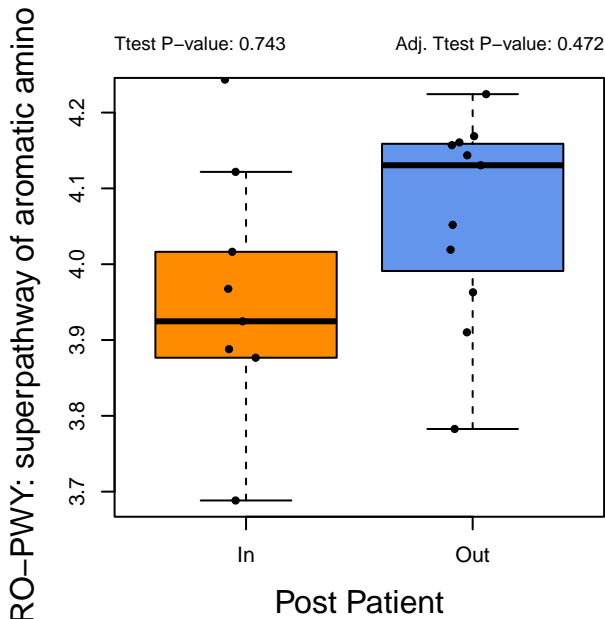
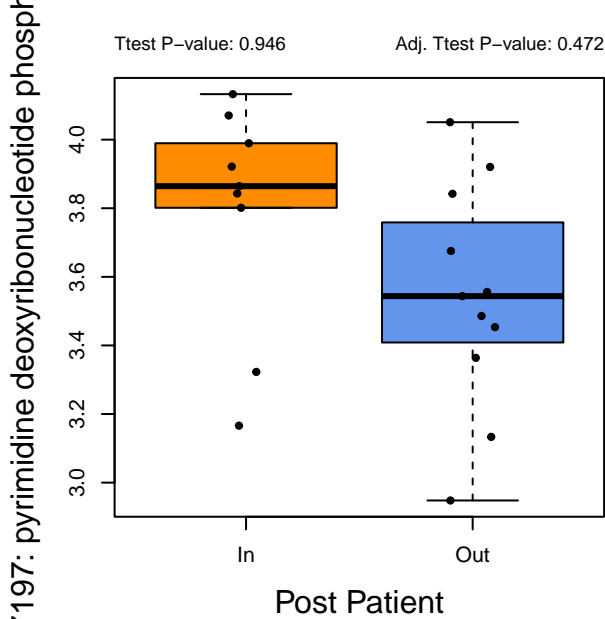
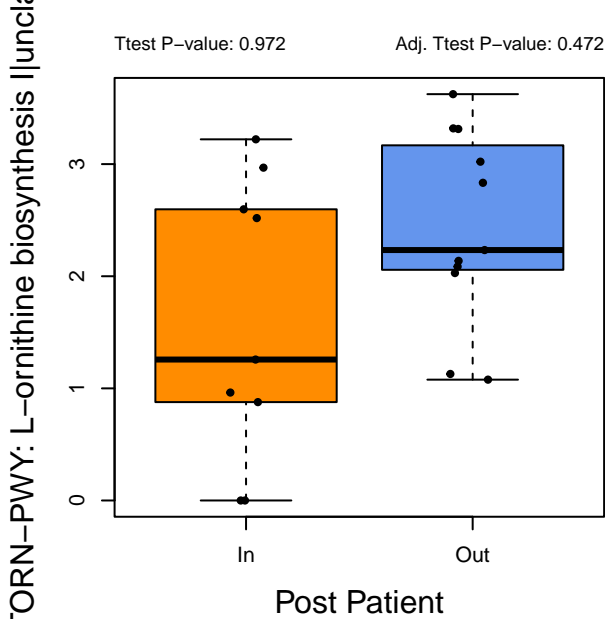
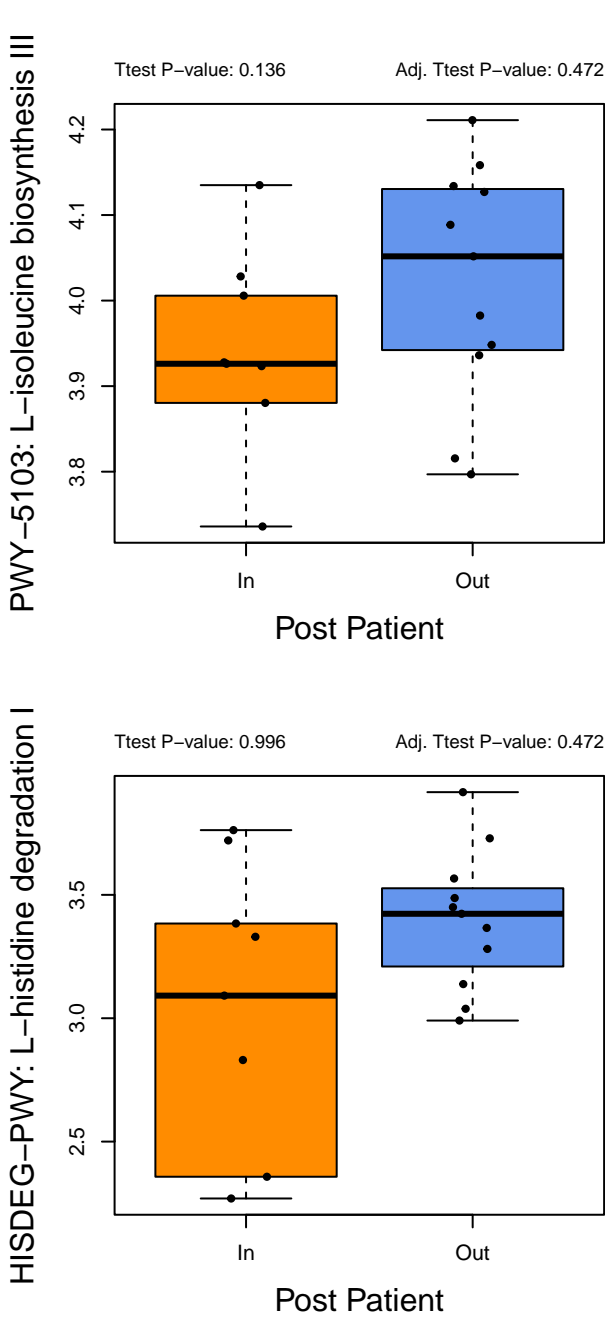
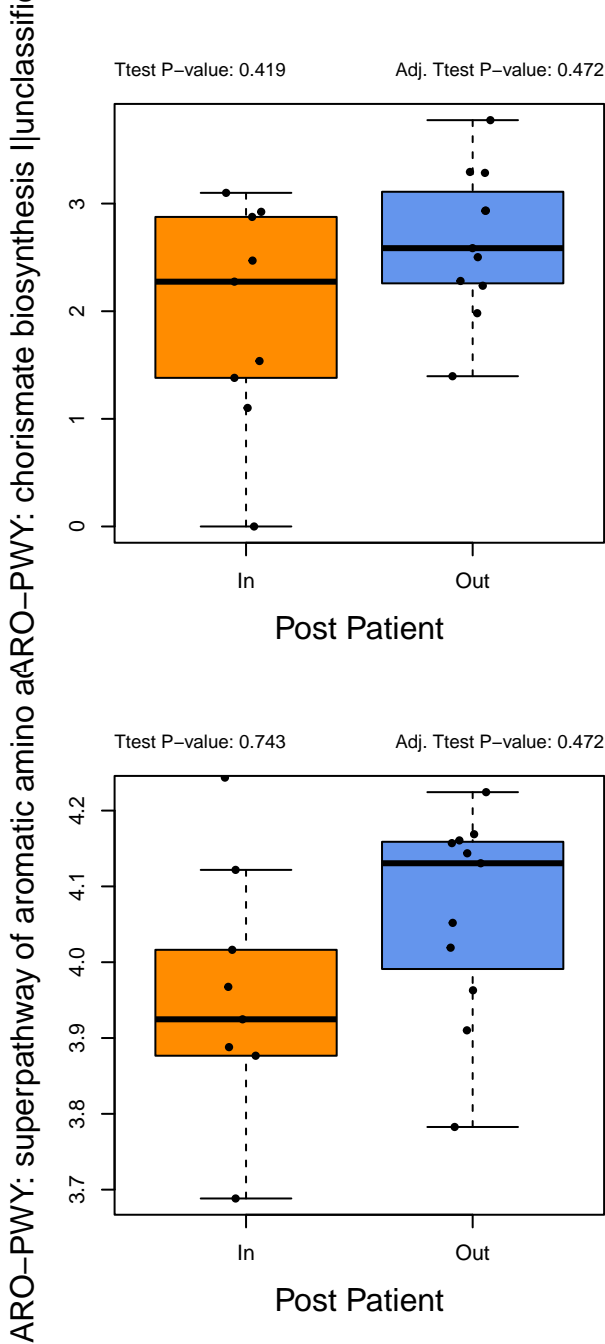
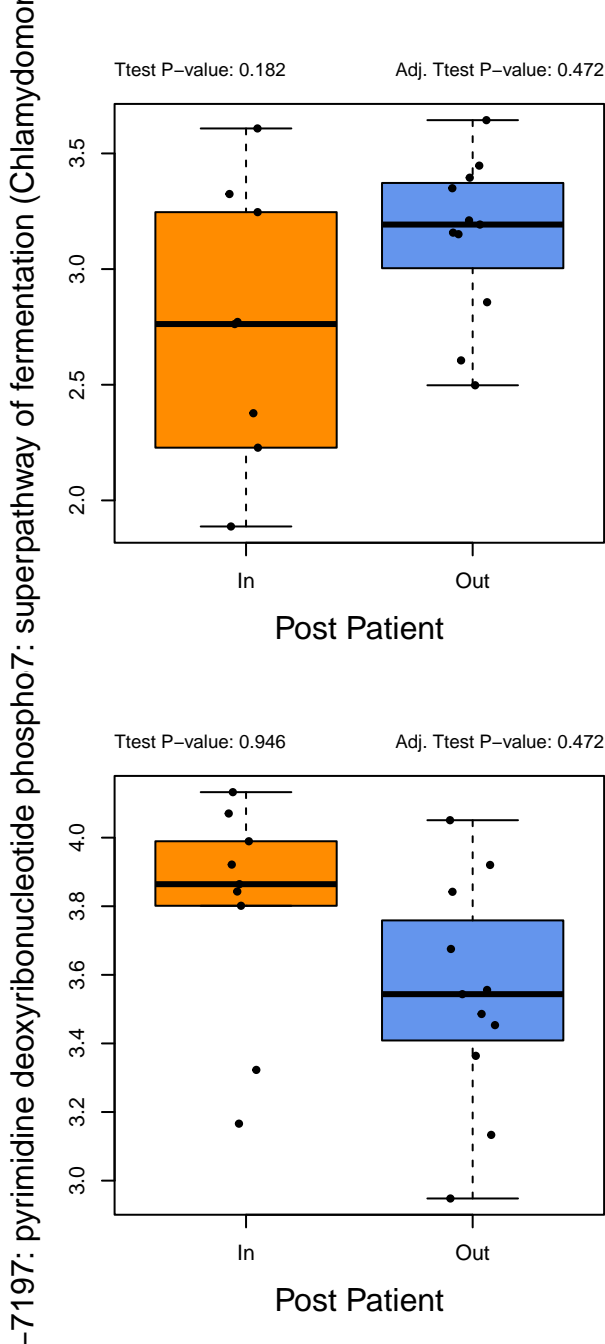
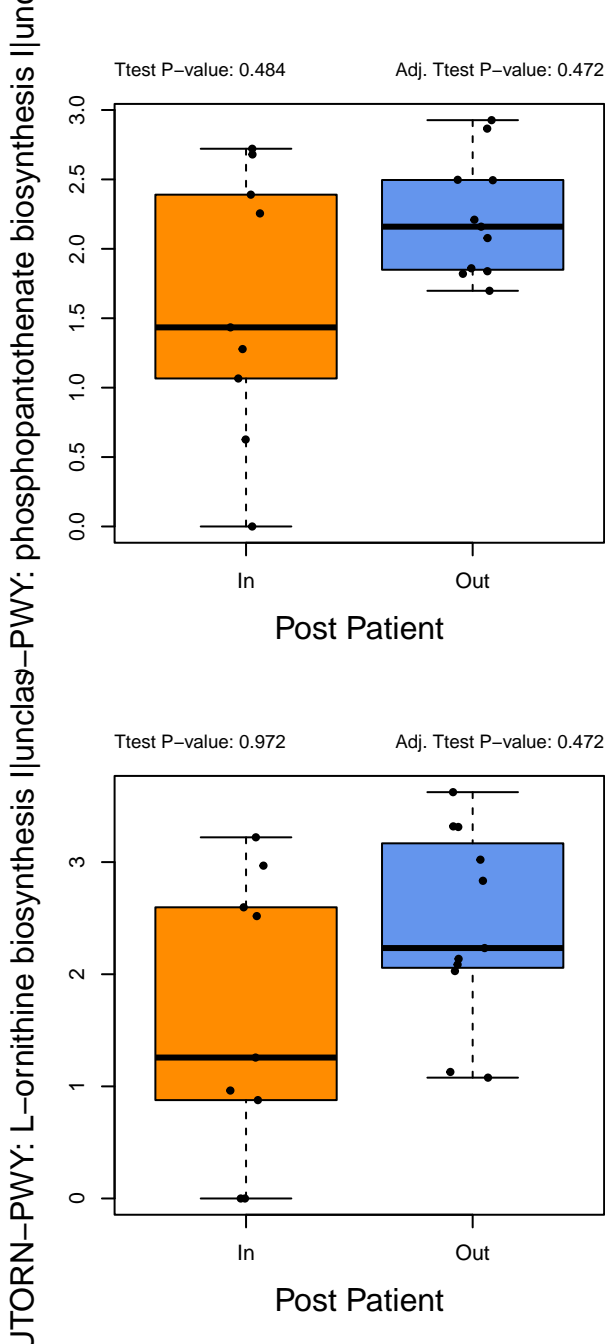
TOSECAT-PWY: lactose and galactose degradJCSYN-PWY: NAD de novo biosynthesis I (from



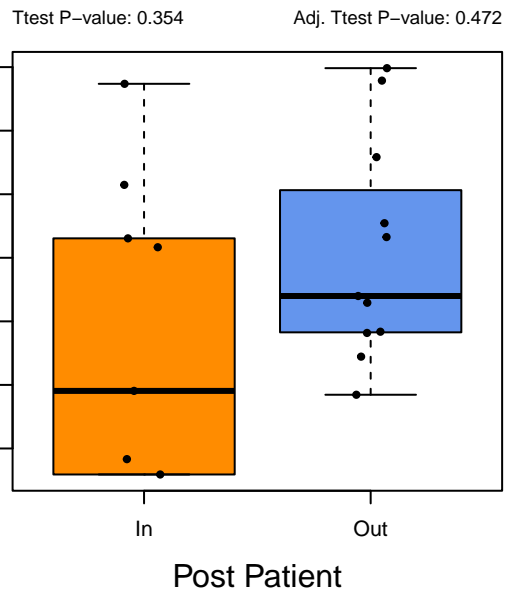
H-PWY: glycogen biosynthesis I (from ADP-D-45: pyrimidine deoxyribonucleotides de novo bio



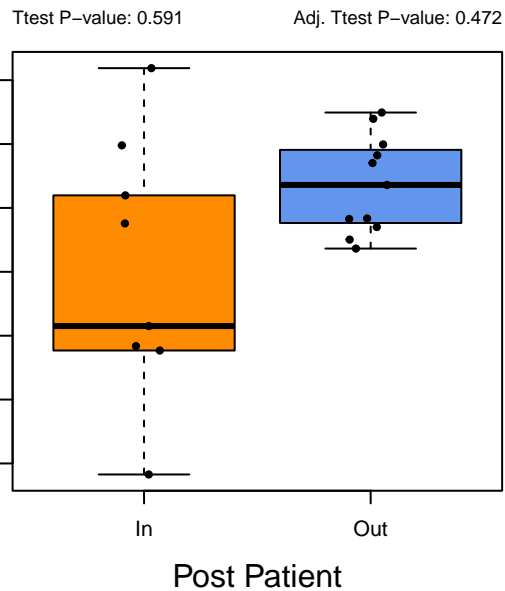




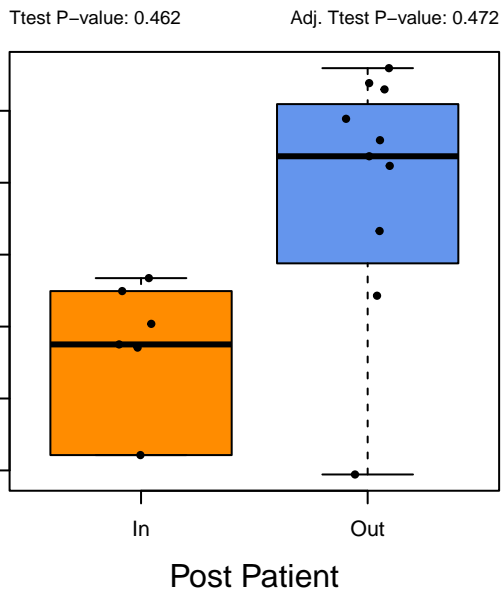
PWY-6731: starch degradation III



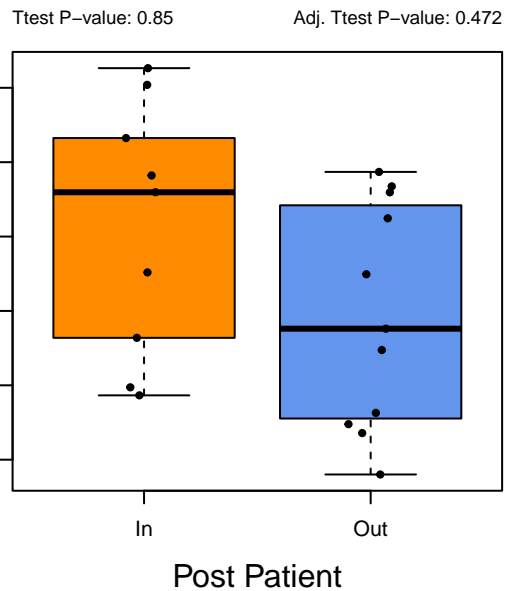
PWY-5941: glycogen degradation II



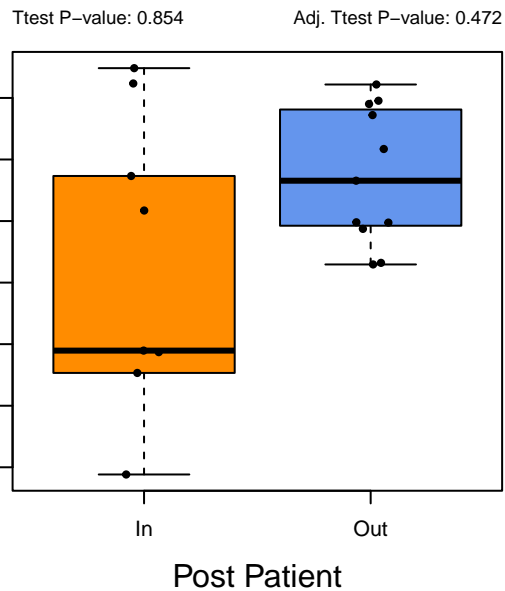
PWY-6901: superpathway of glucose and xylose degradation



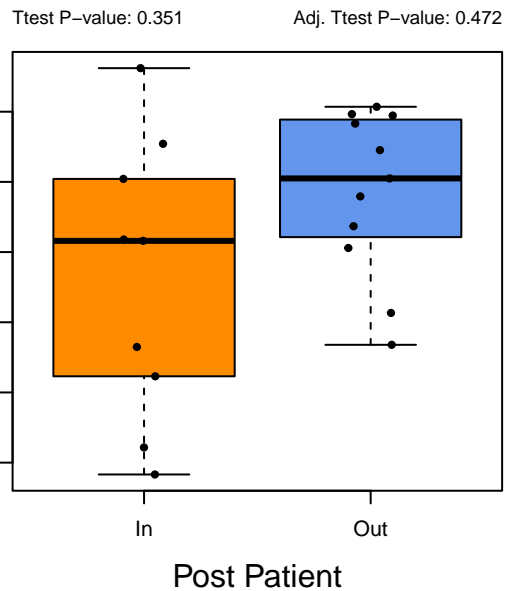
PWY-7199: pyrimidine deoxyribonucleosides salvage



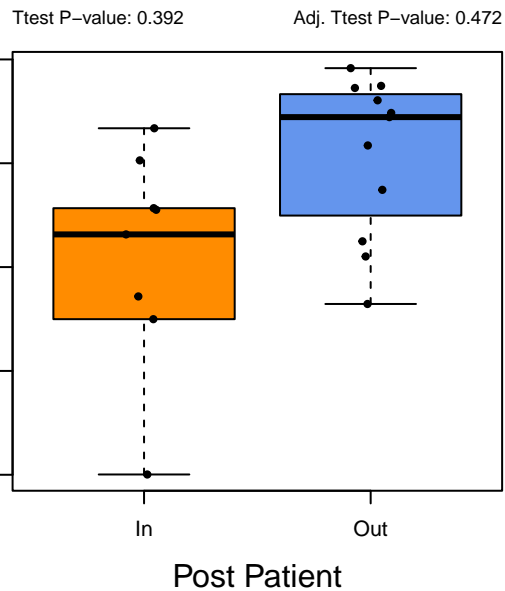
PWY-7238: sucrose biosynthesis II



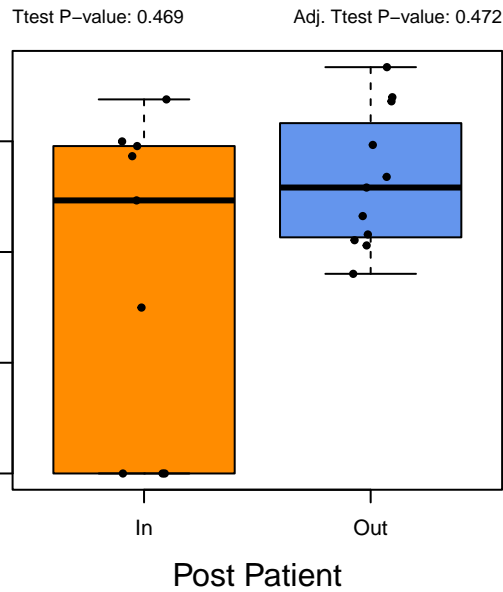
HISTSYN-PWY: L-histidine biosynthesis



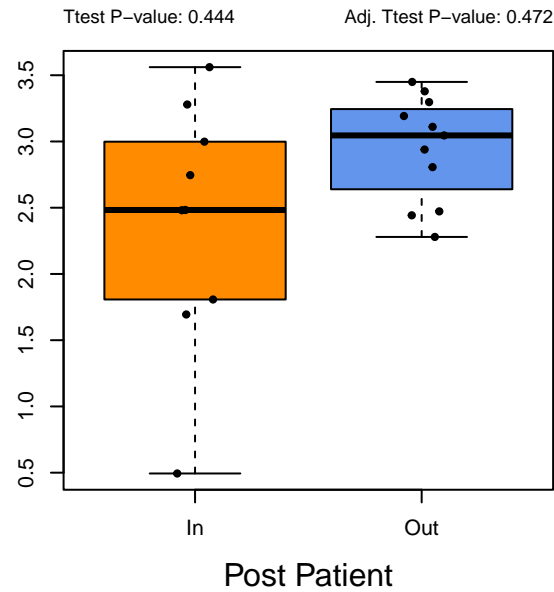
PWY-6901: superpathway of glucose and xylose degradation



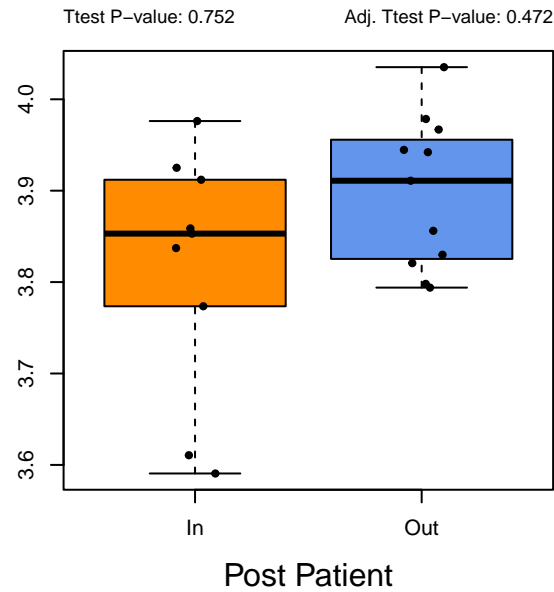
osphate formation from pyritiamine and oxythiPP-PWY: methylerythritol phosphate pathway



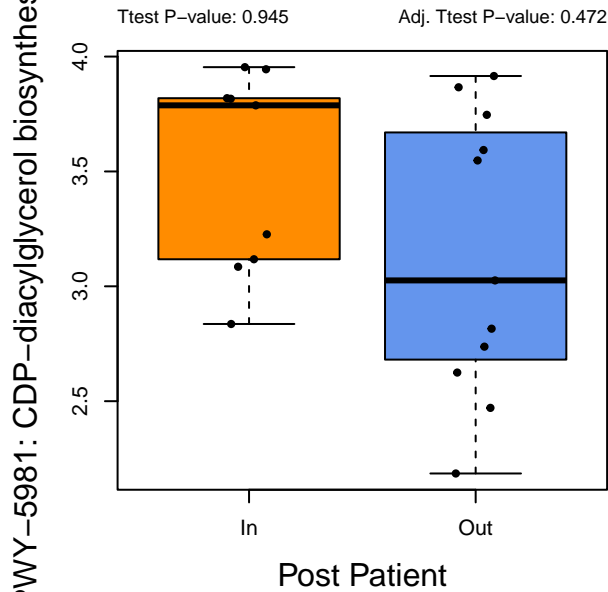
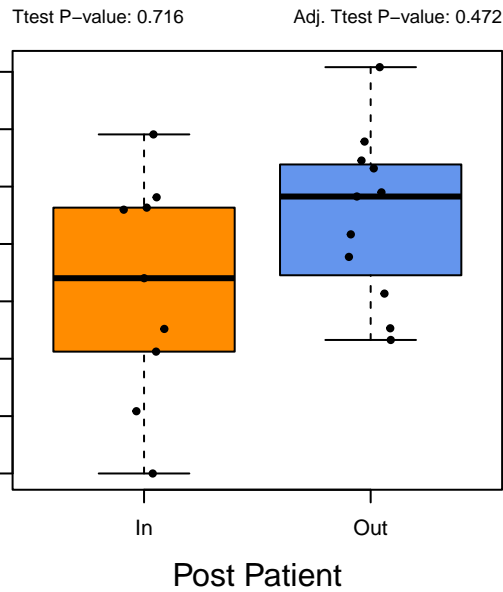
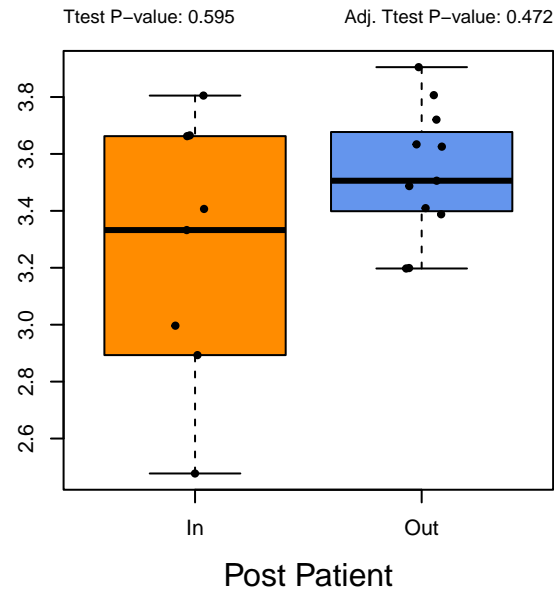
PWY-5981: CDP-diacylglycerol biosynthesis INY-6305: superpathway of putrescine biosynth



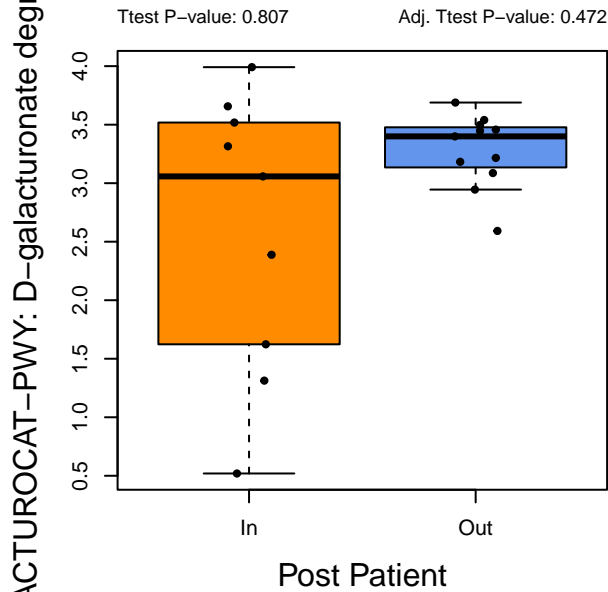
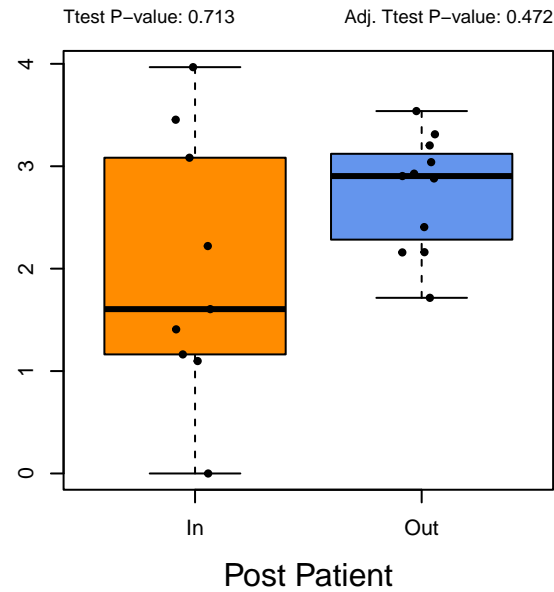
Y-3001: superpathway of L-isoleucine biosynth

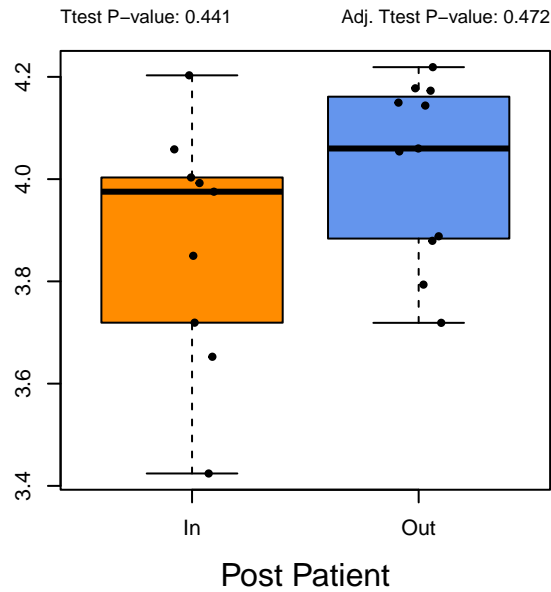
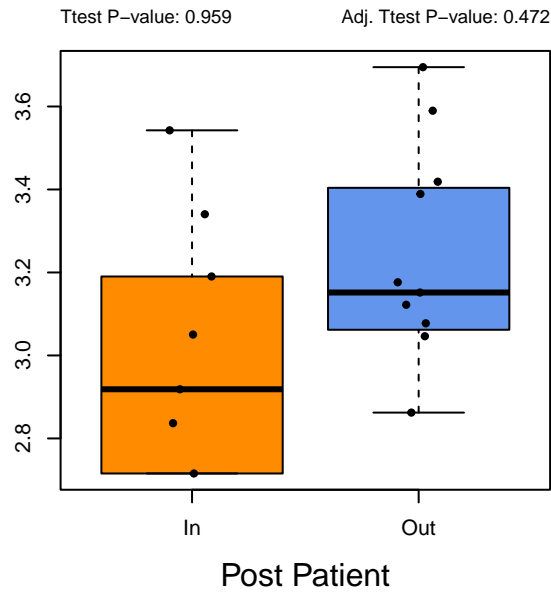
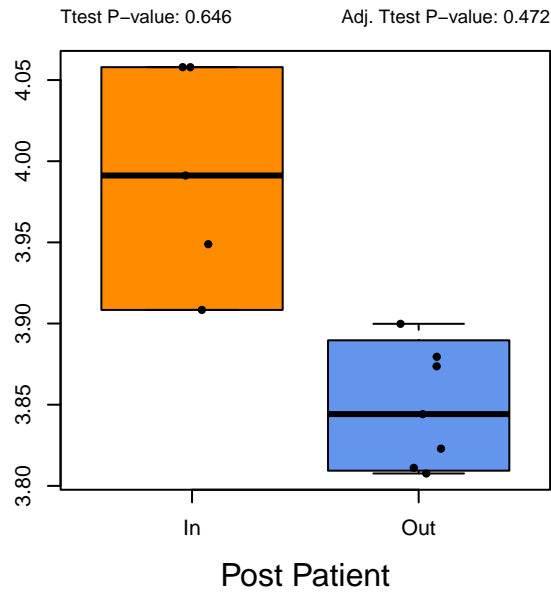
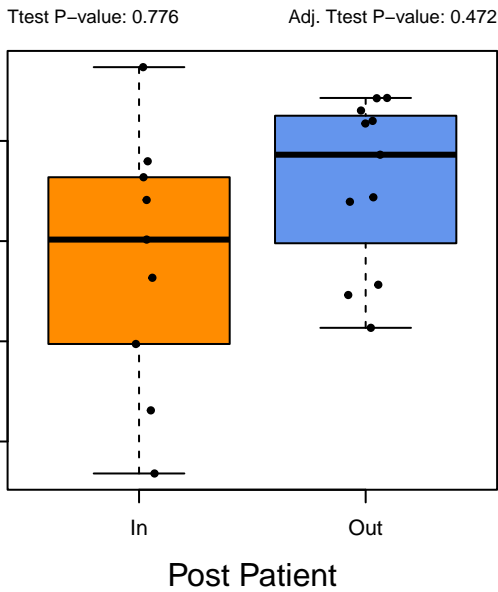
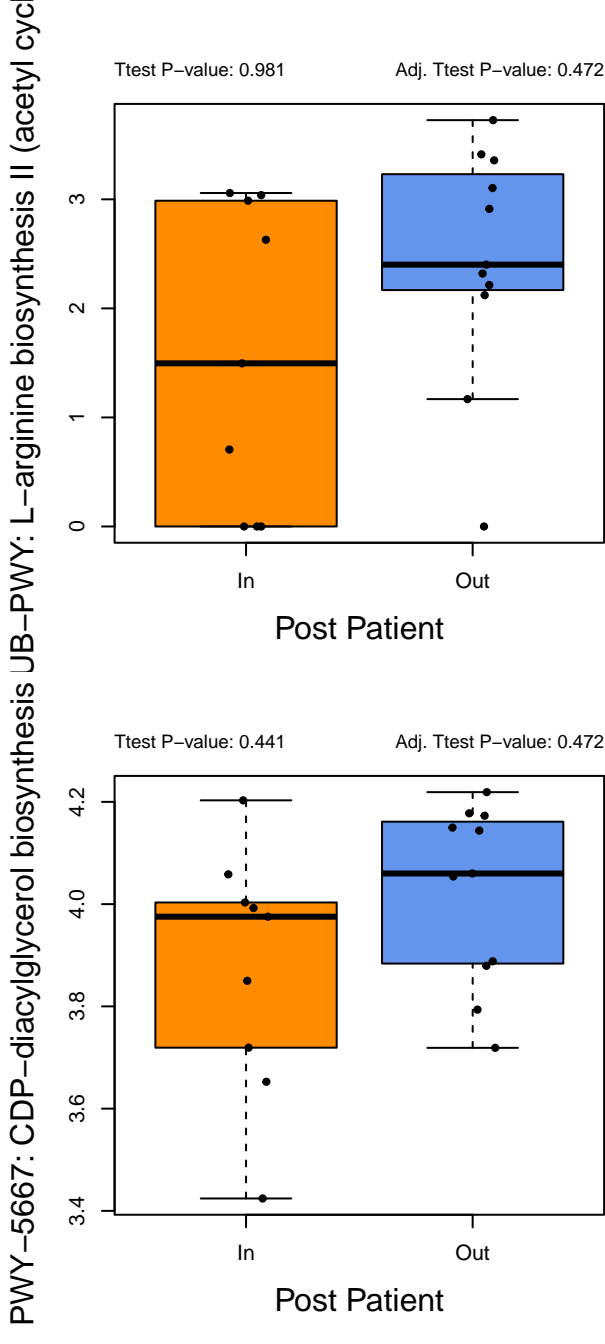
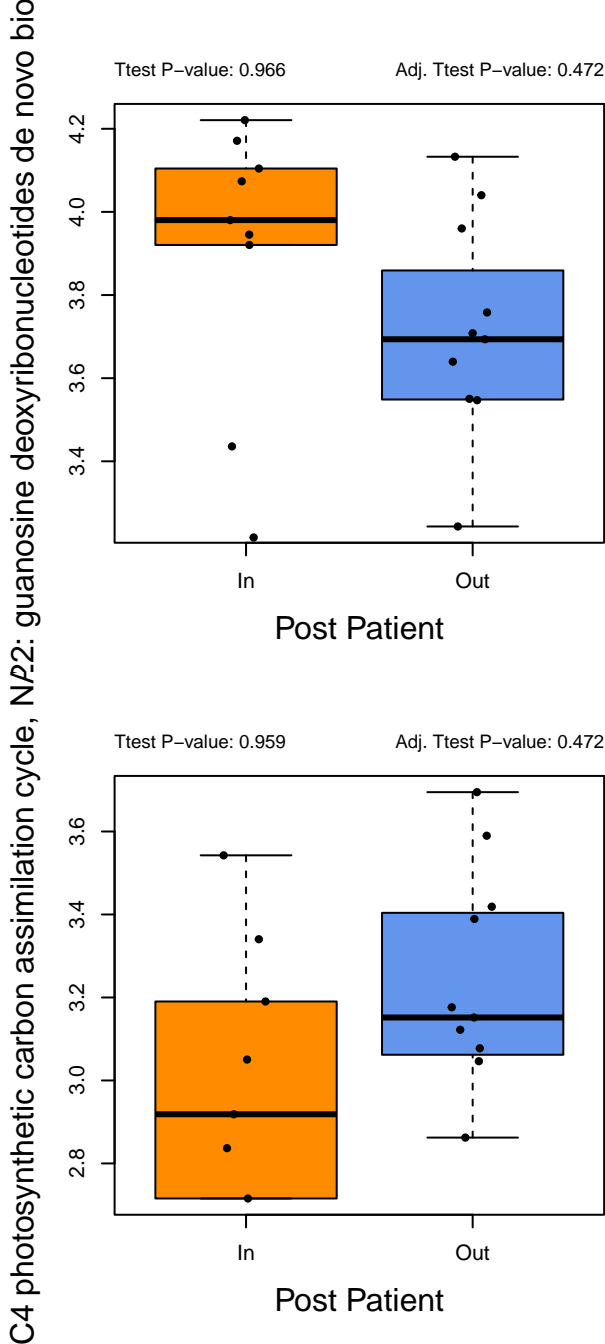
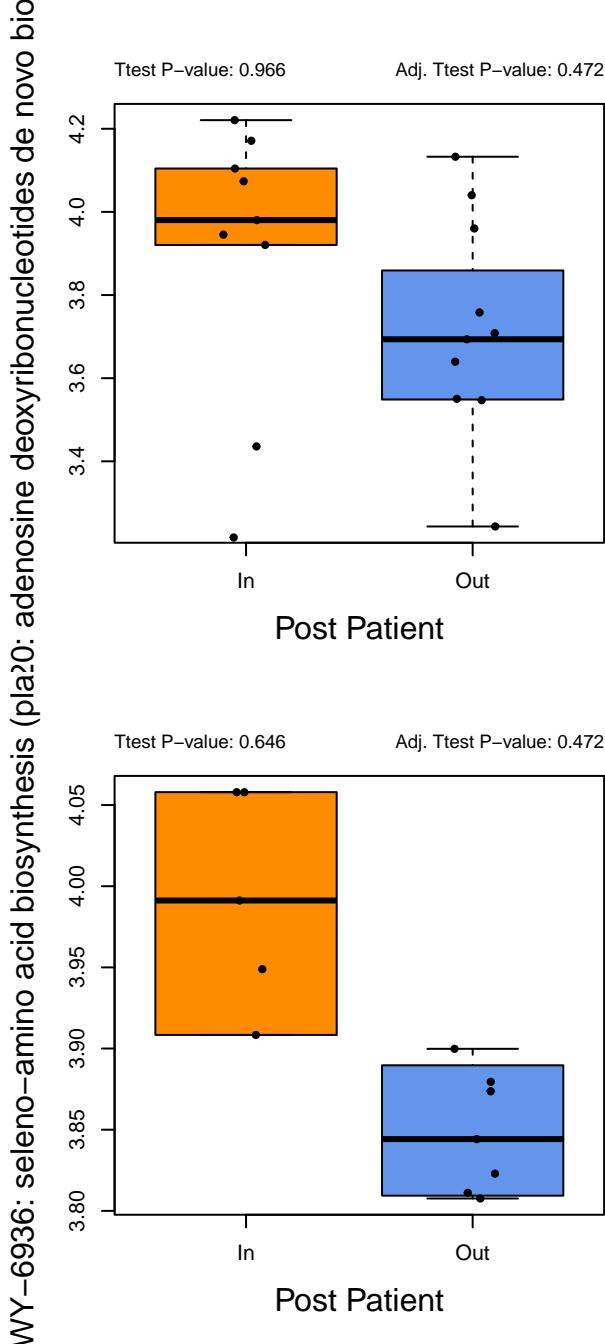
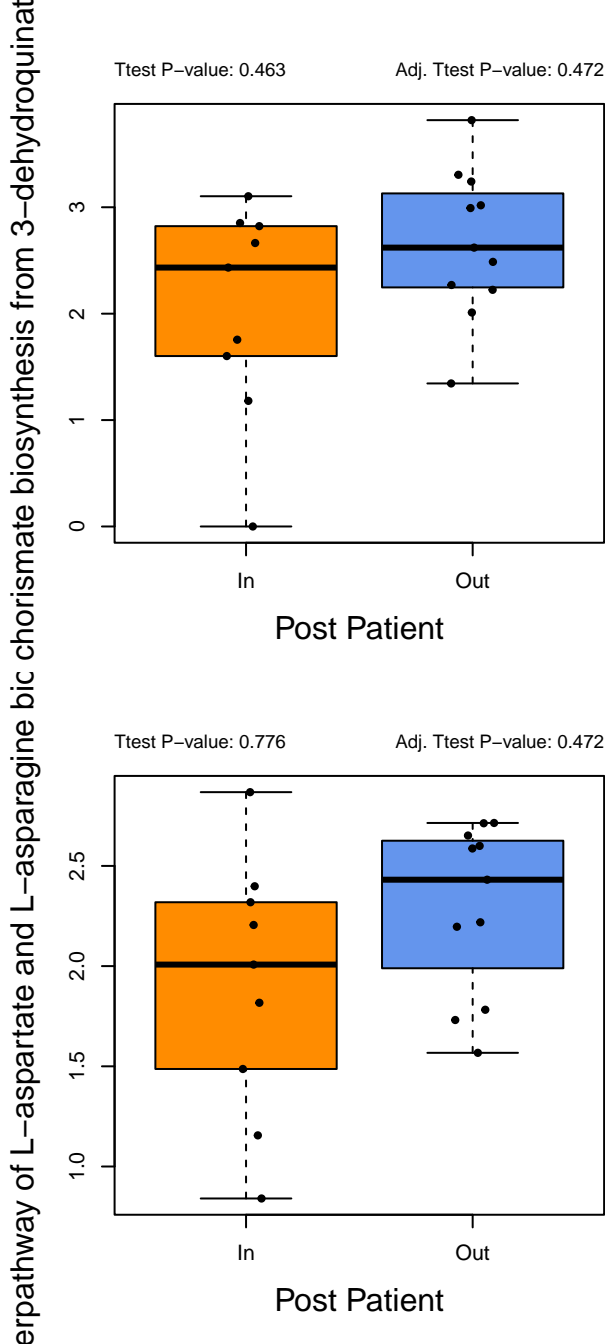


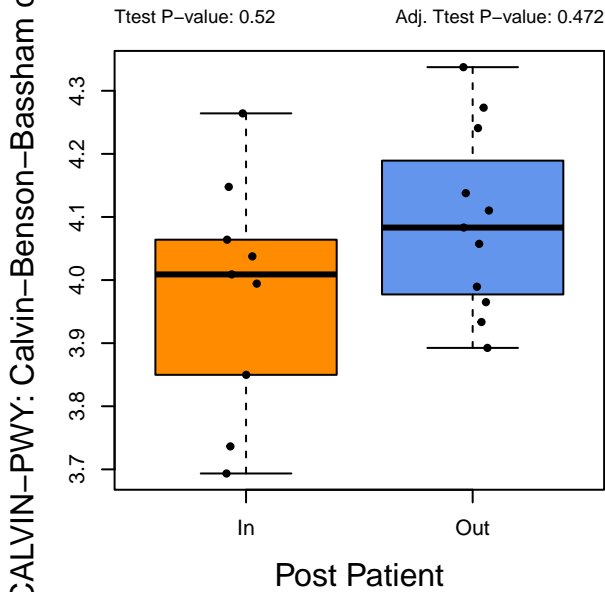
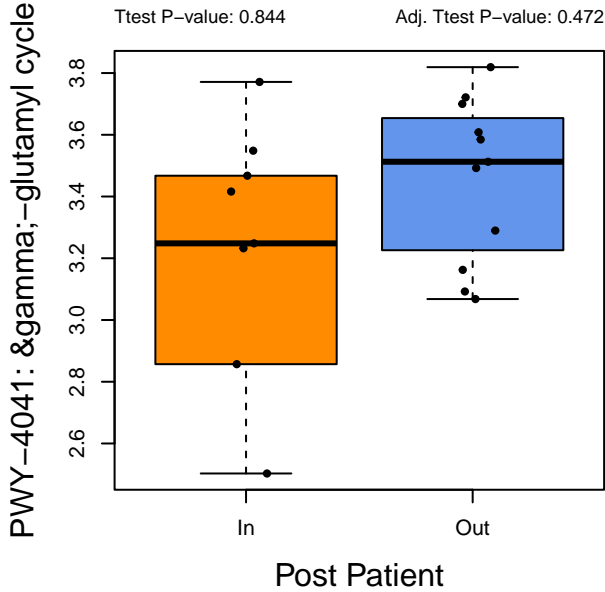
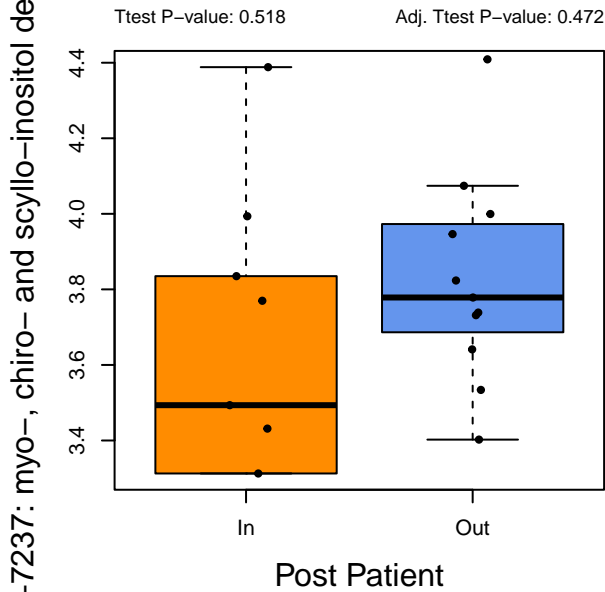
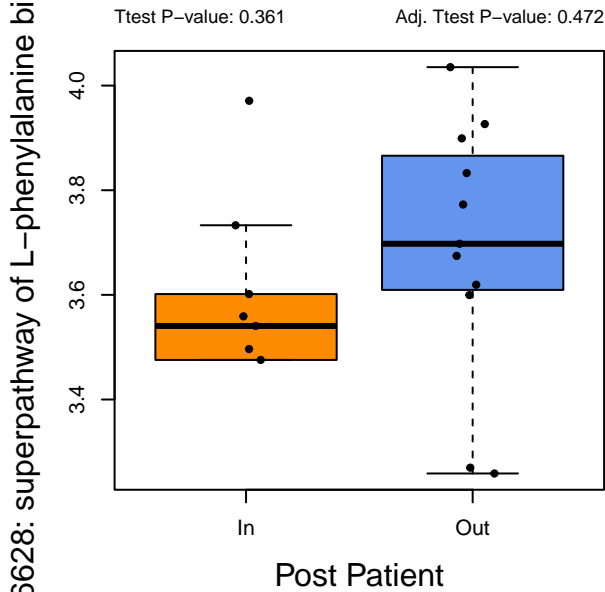
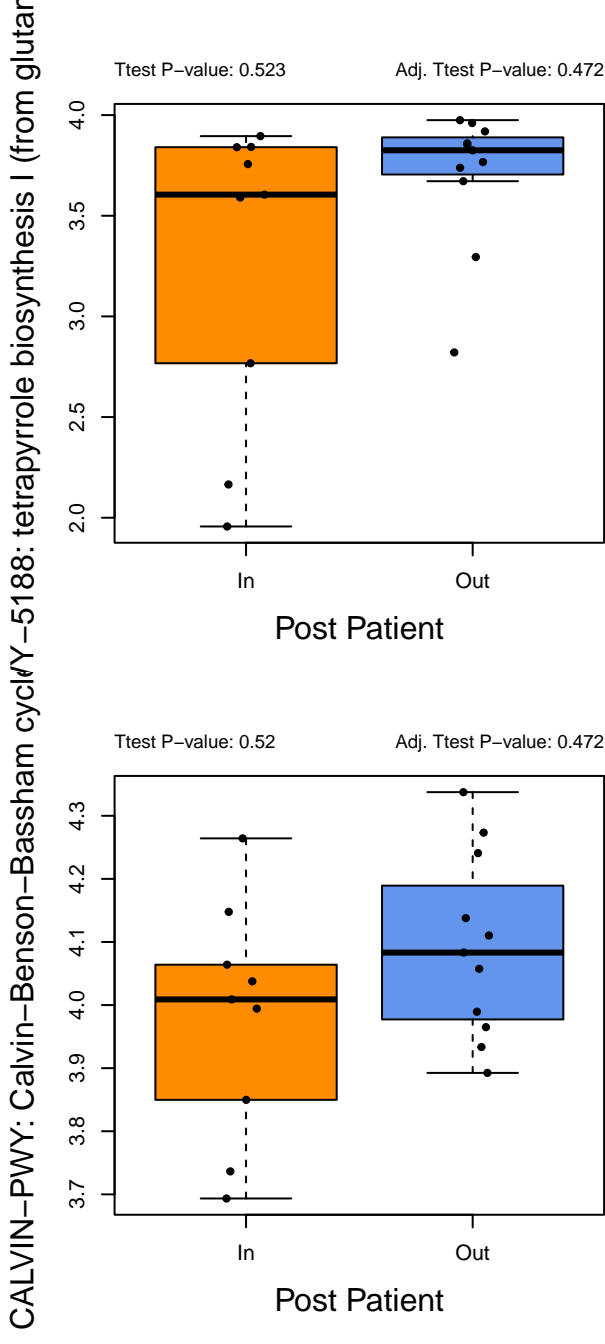
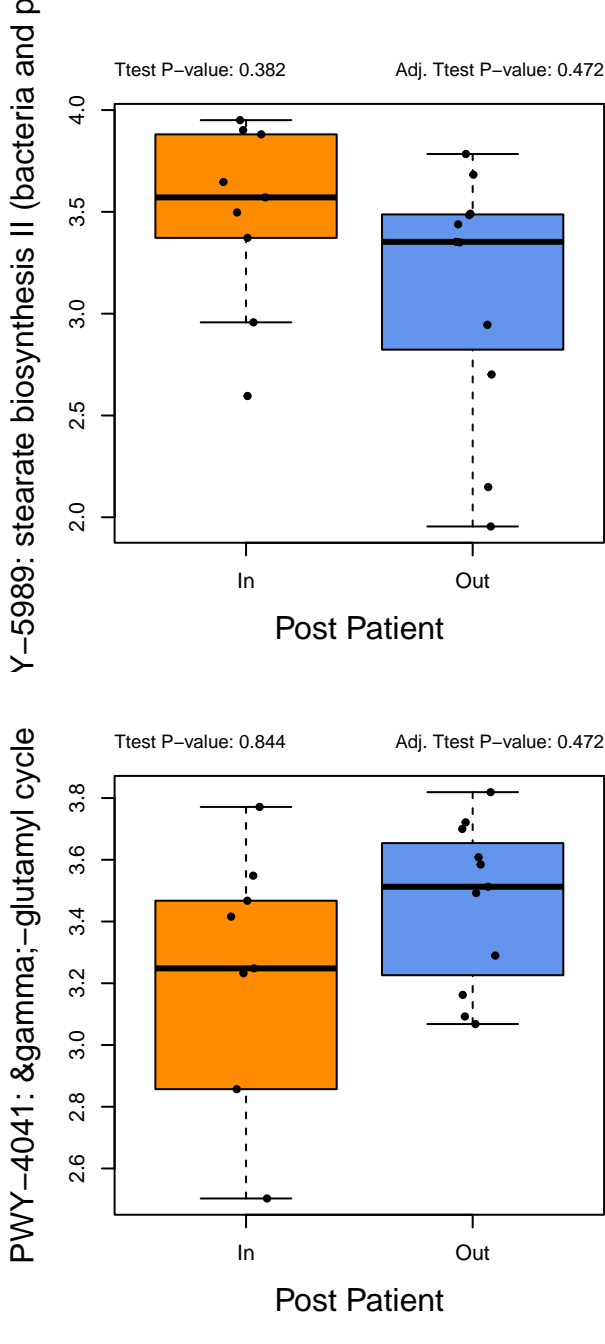
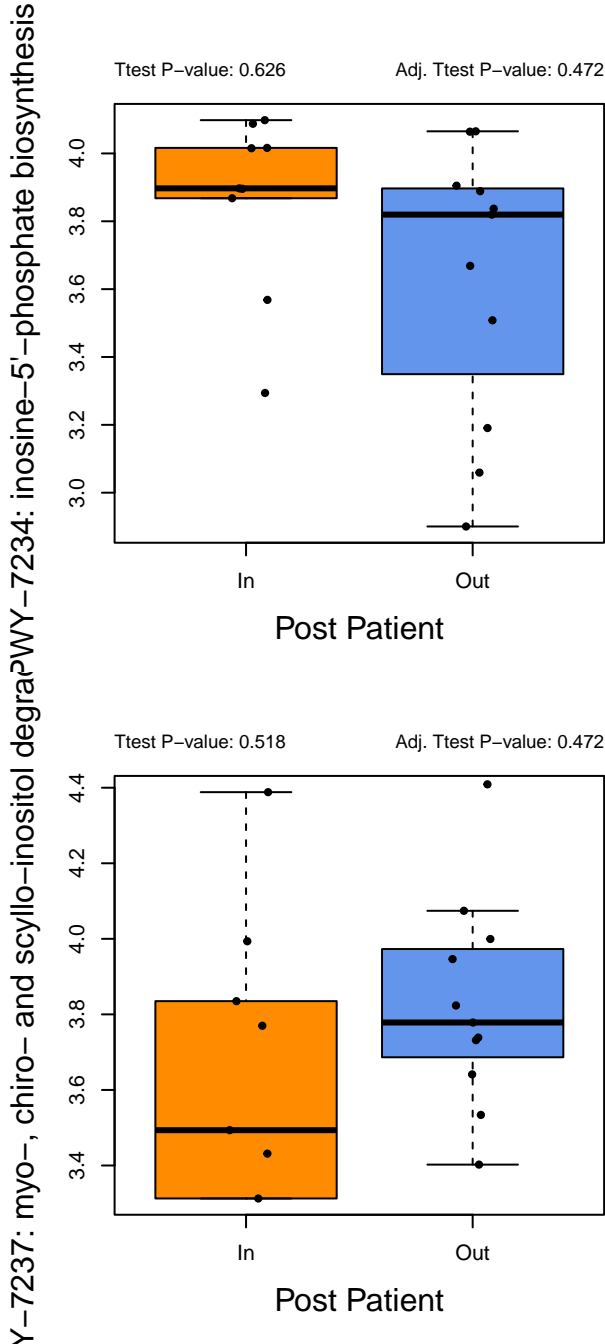
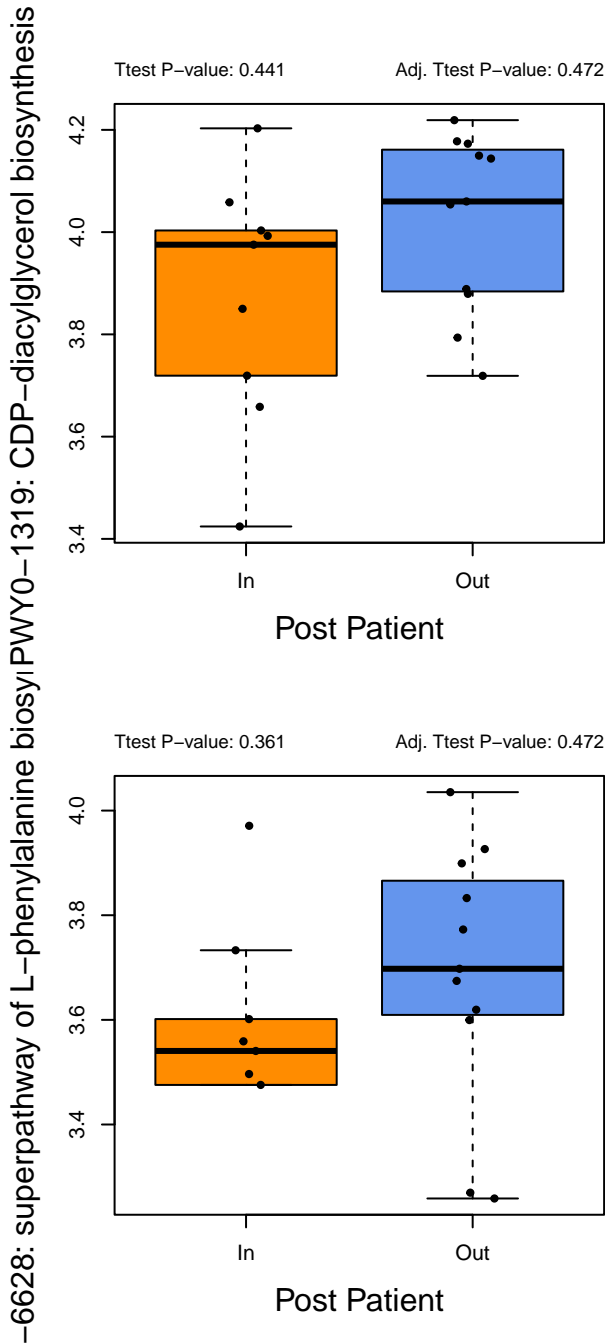
LACTUROCAT-PWY: D-galacturonate degraday of N-acetylglucosamine, N-acetylmannosami

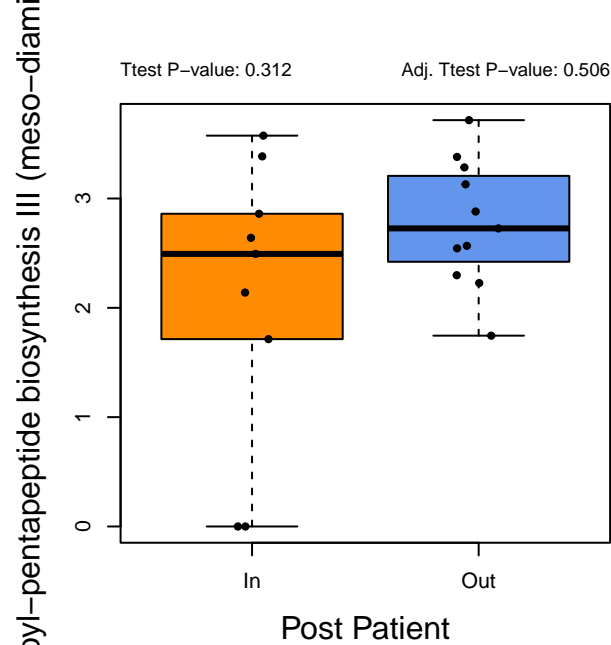
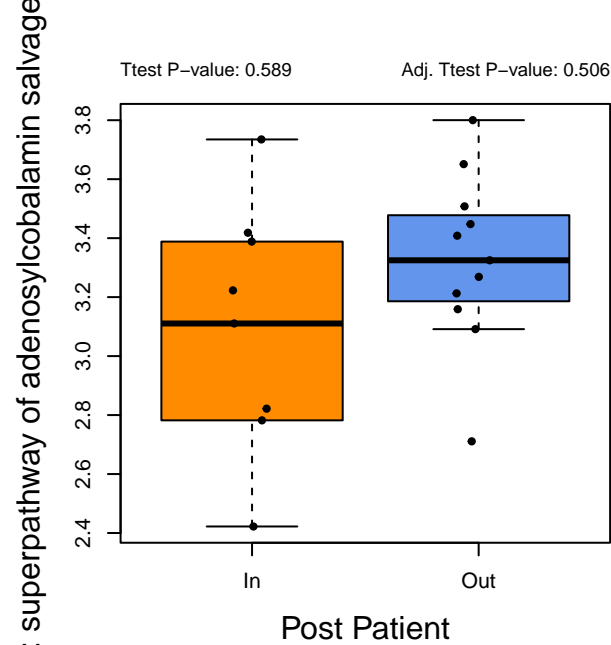
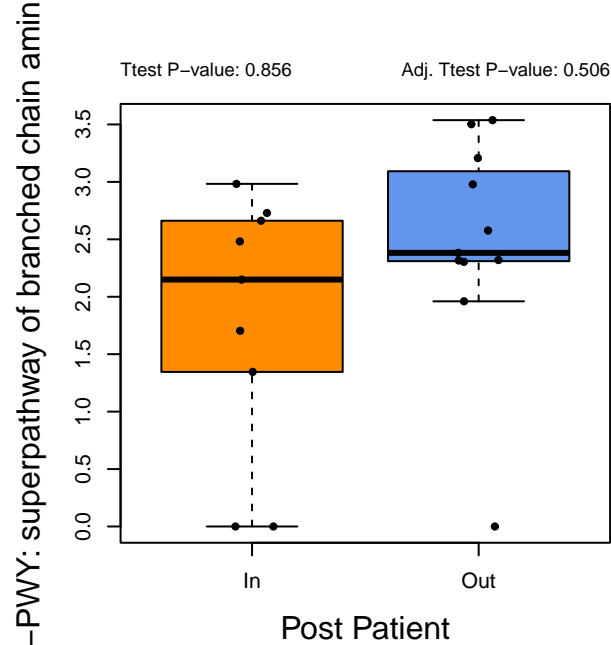
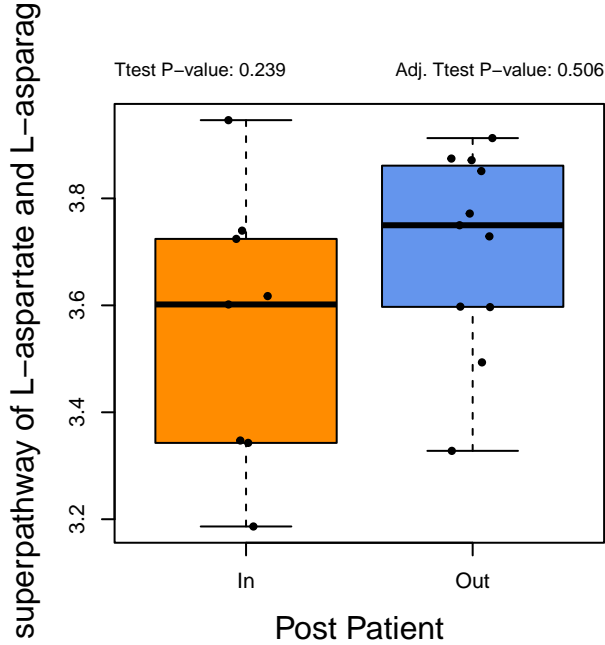
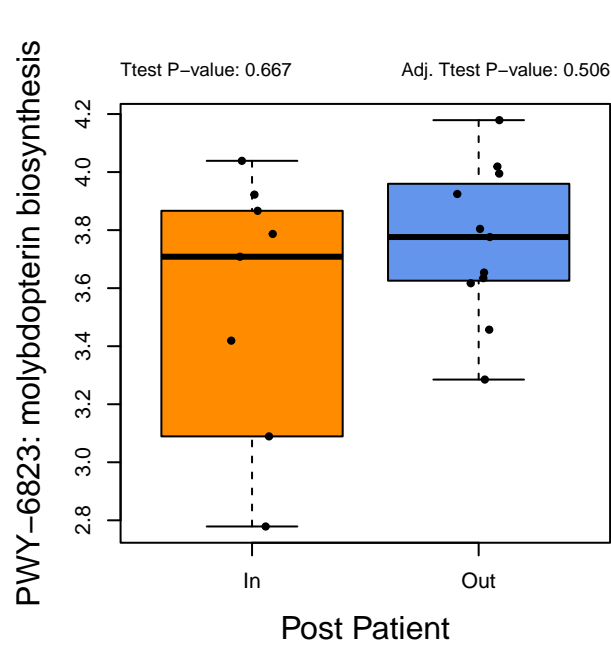
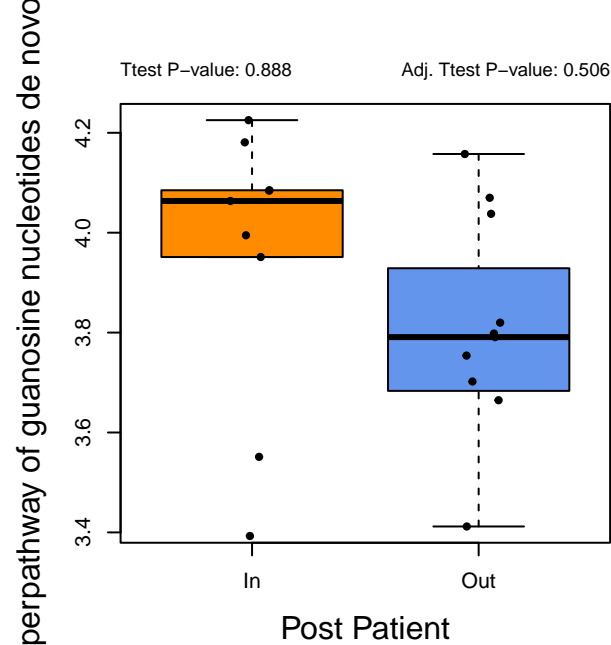
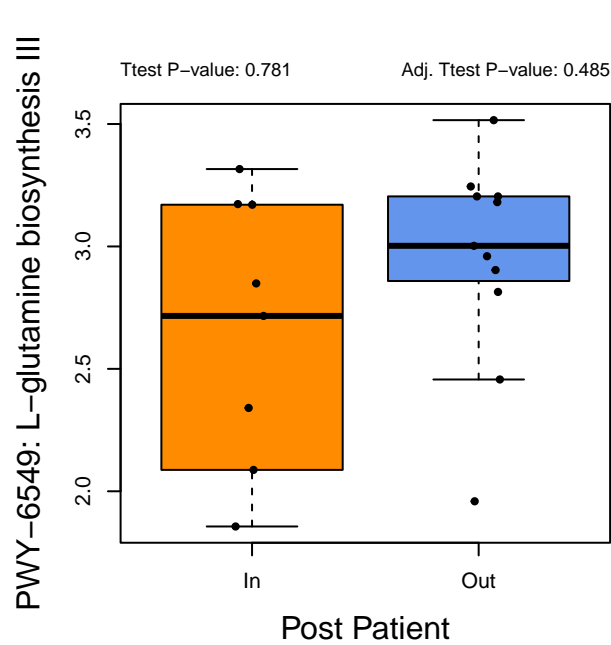
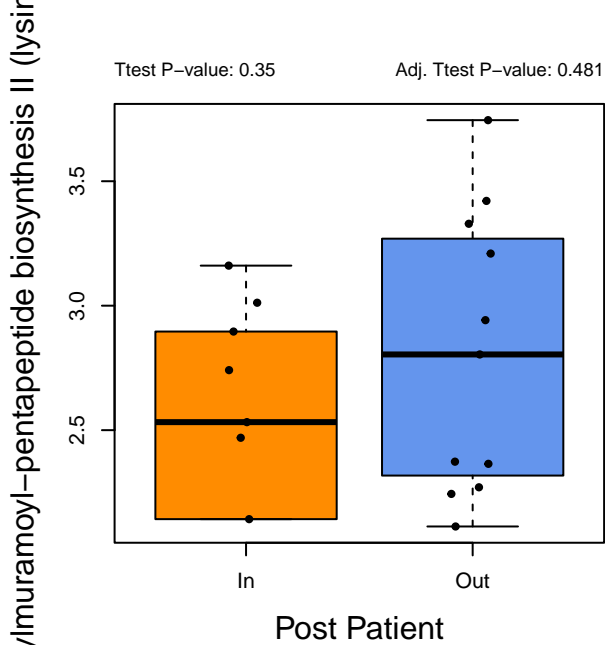


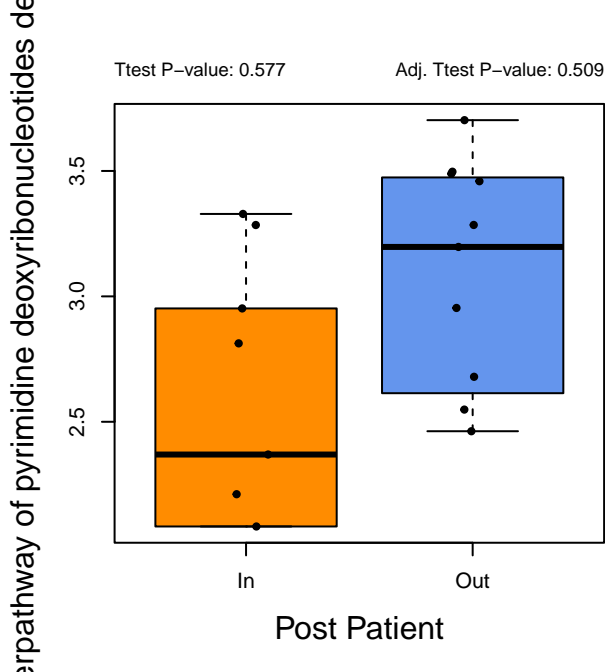
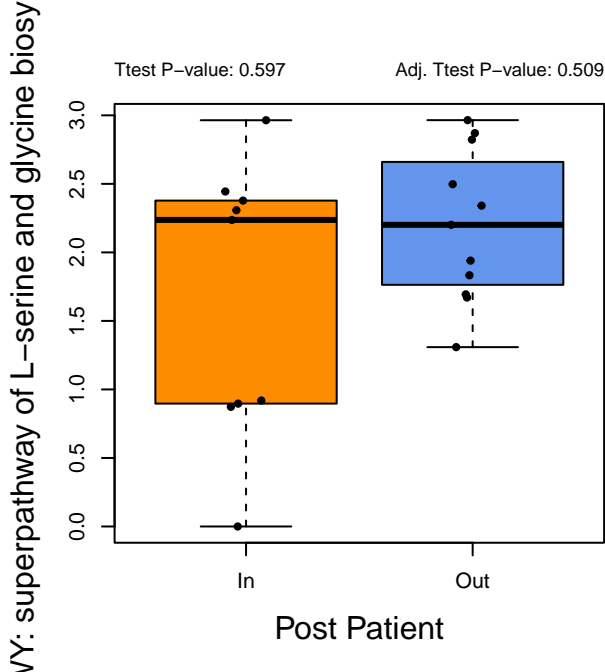
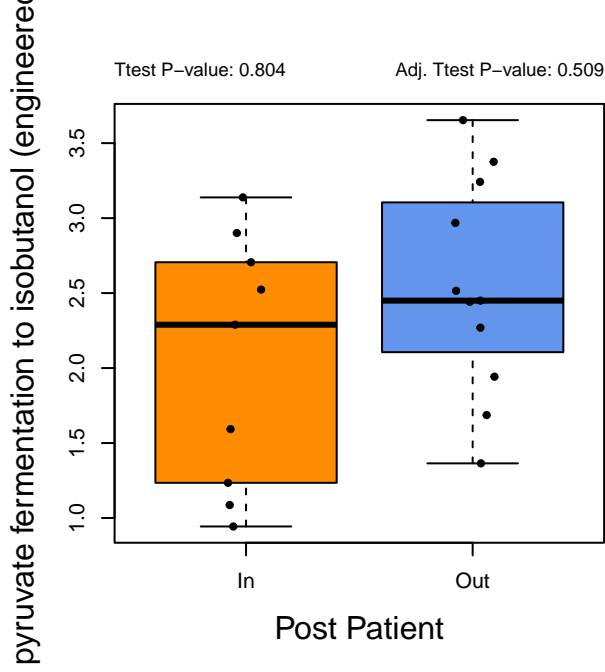
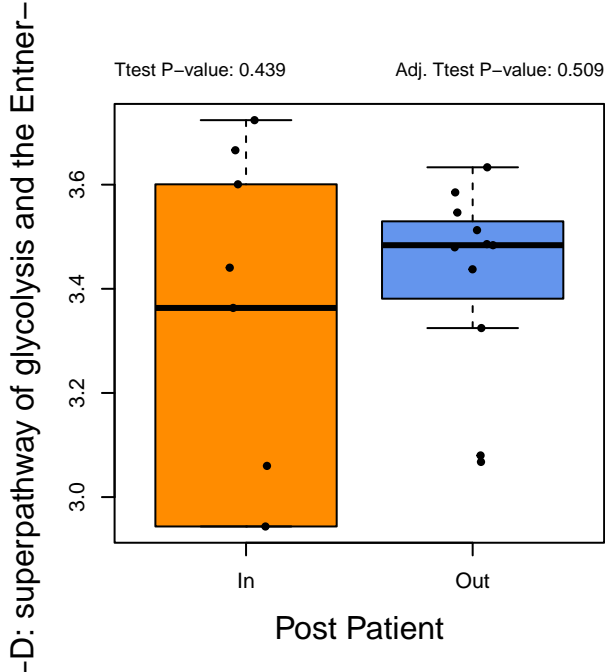
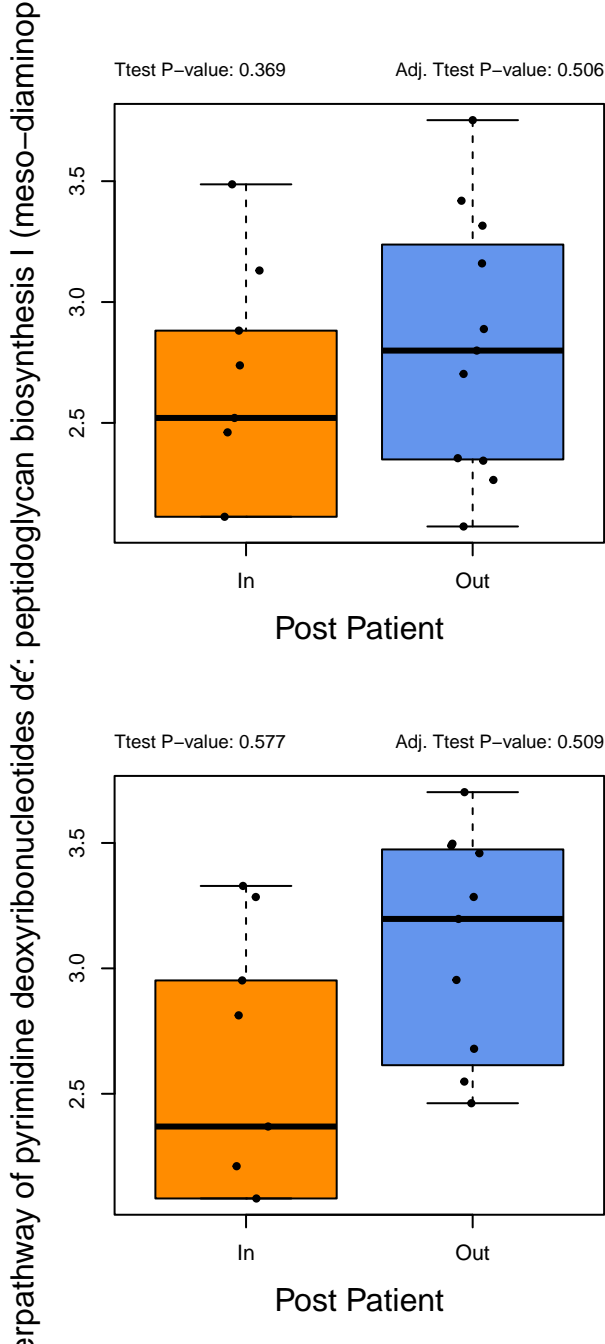
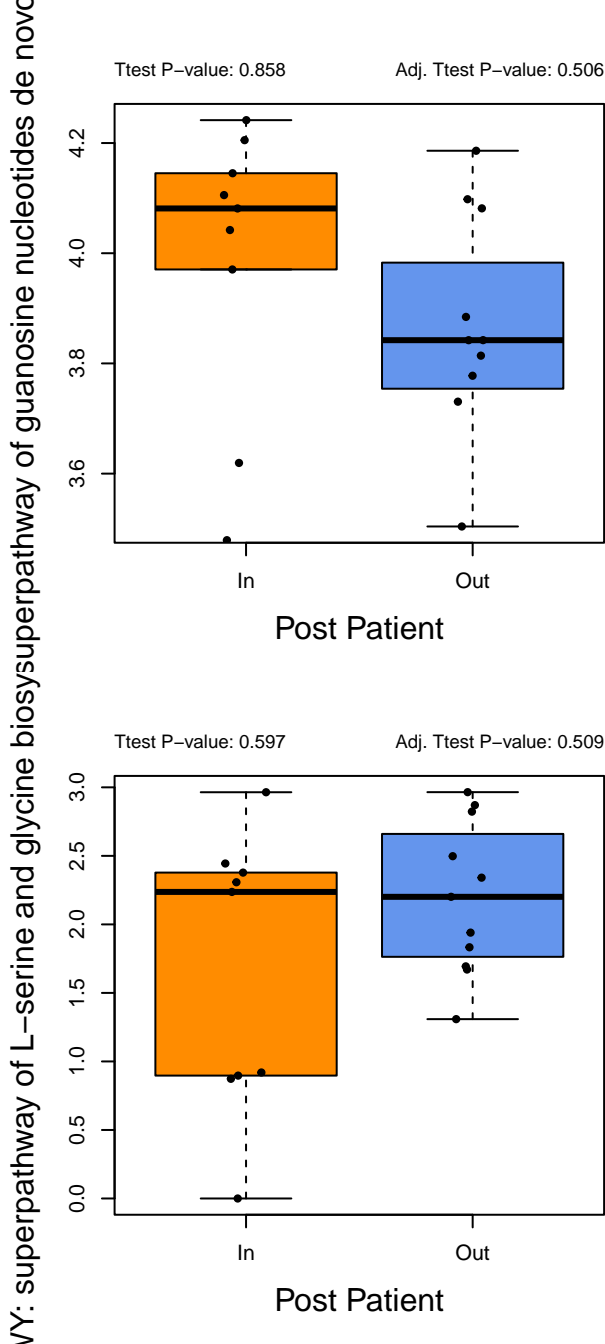
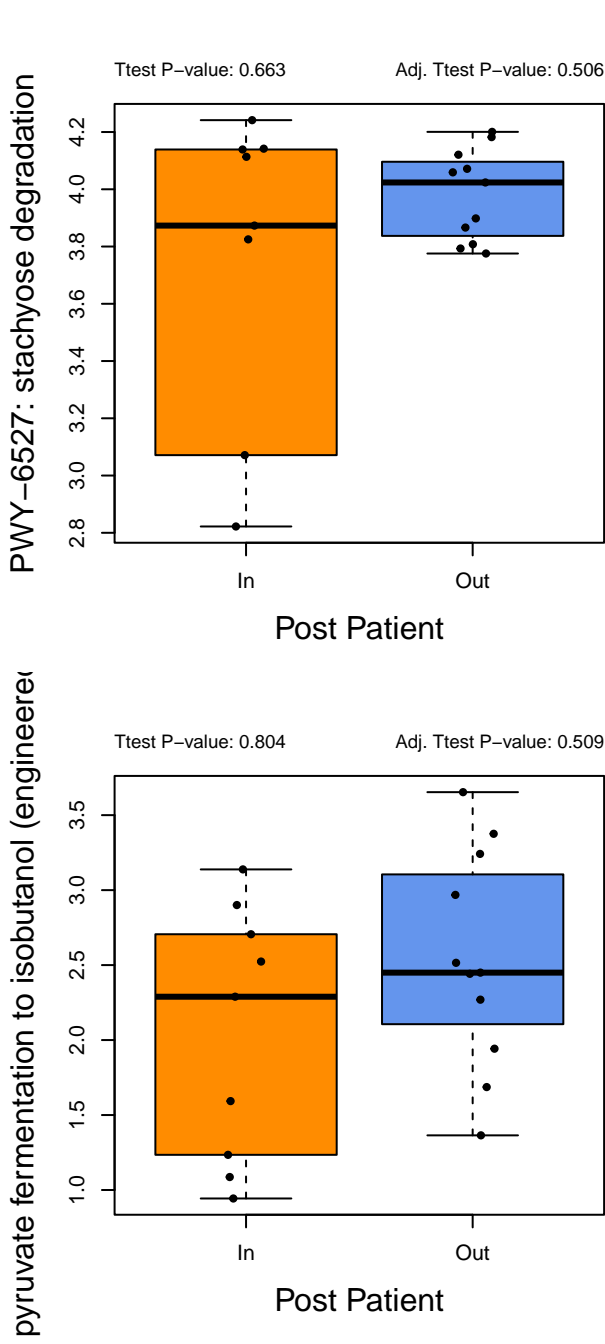
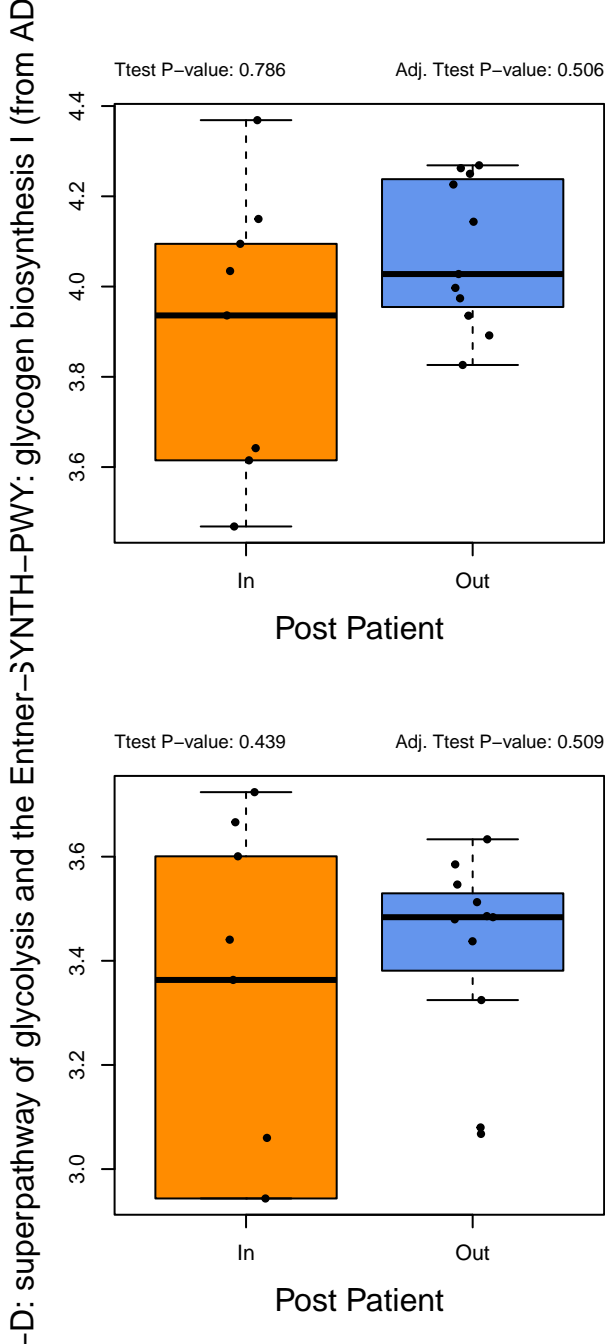
PWY-6531: mannitol cycle

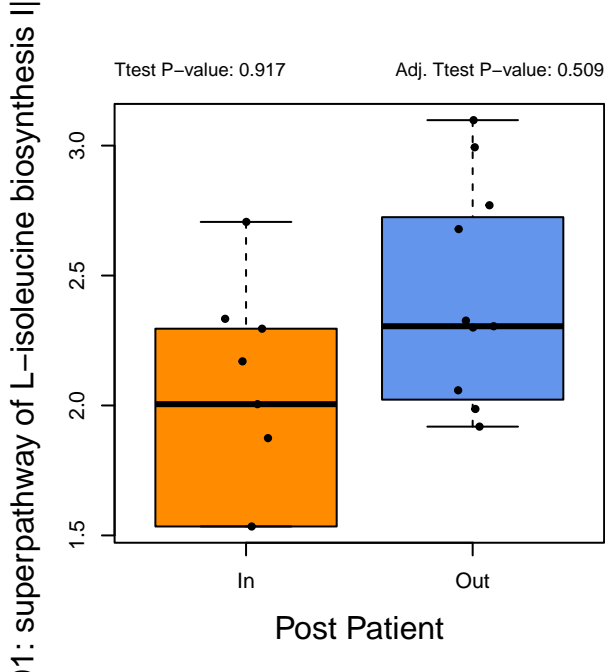
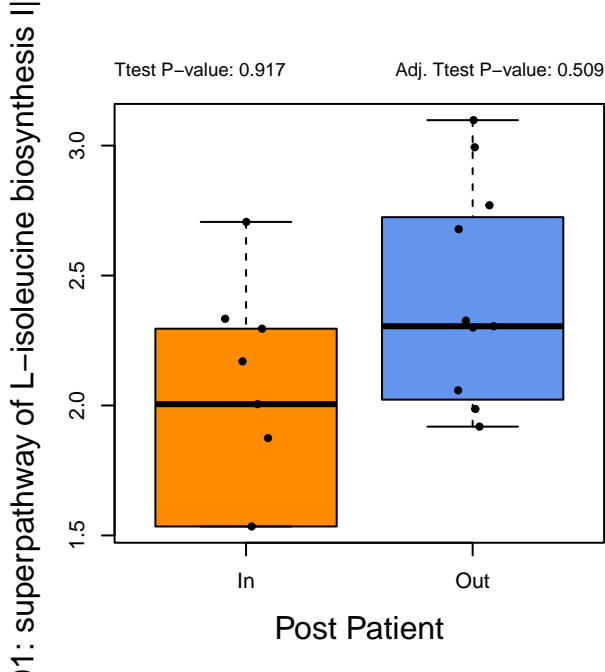
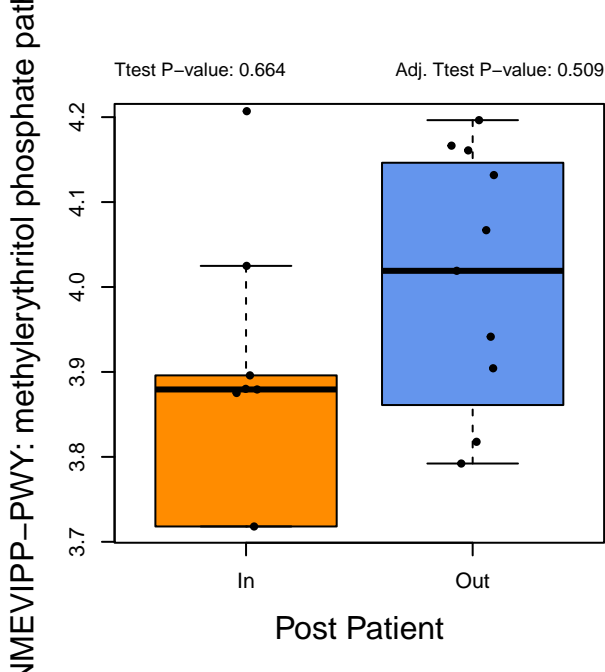
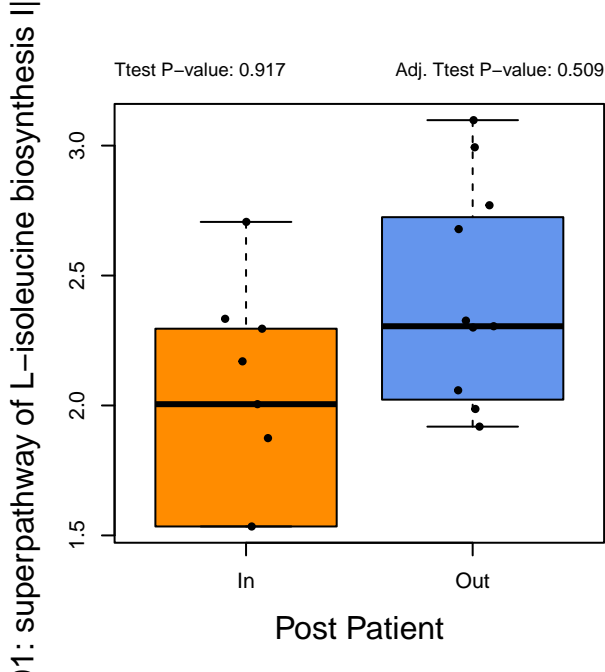
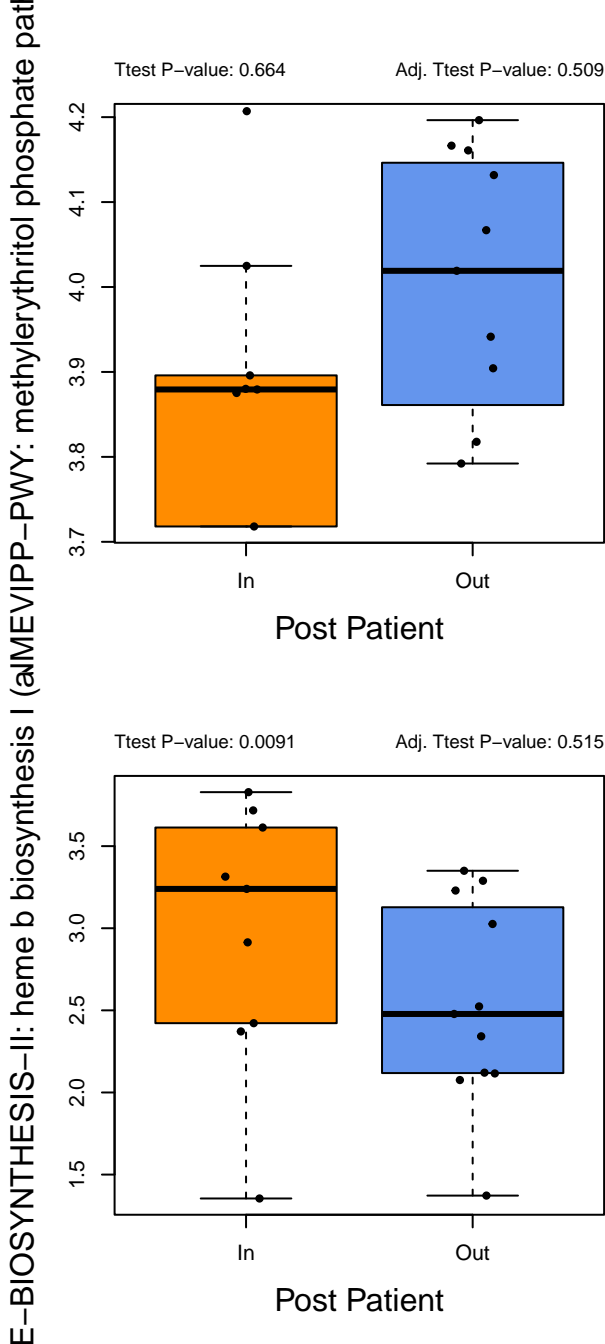
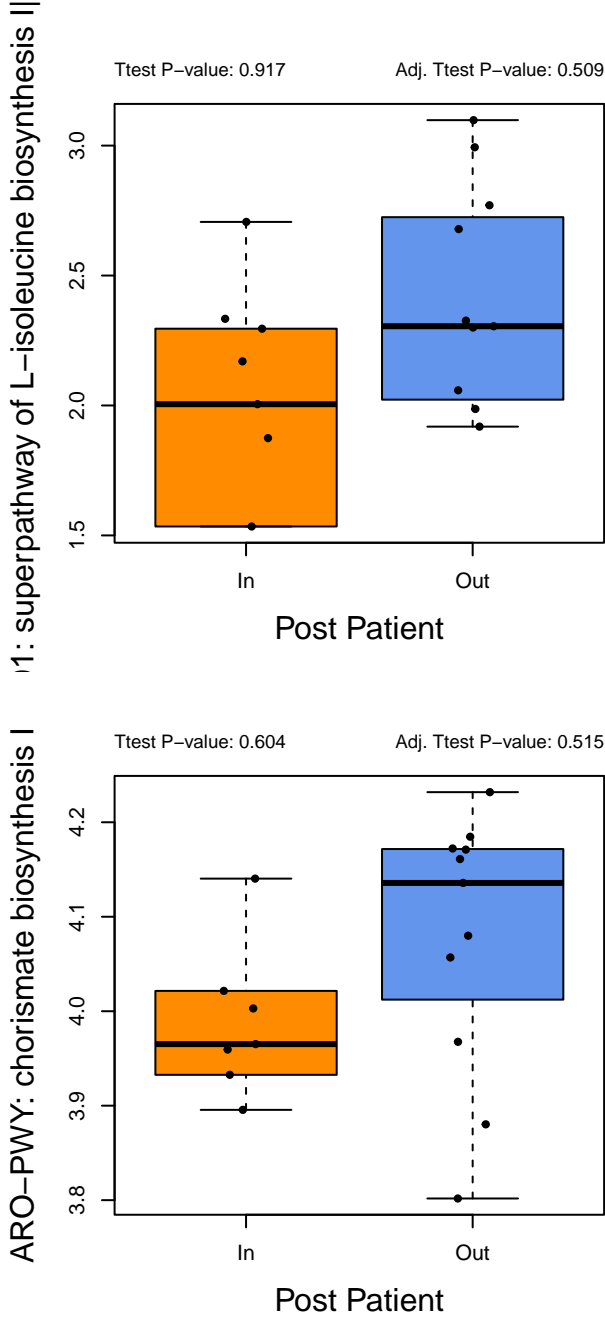
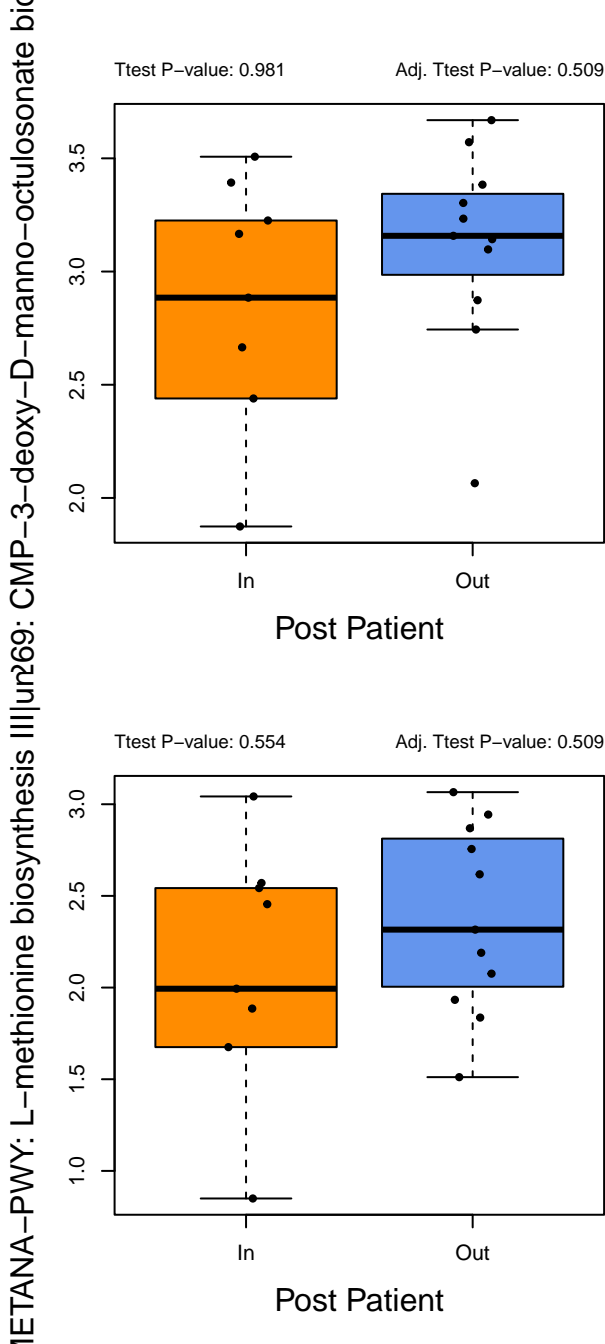
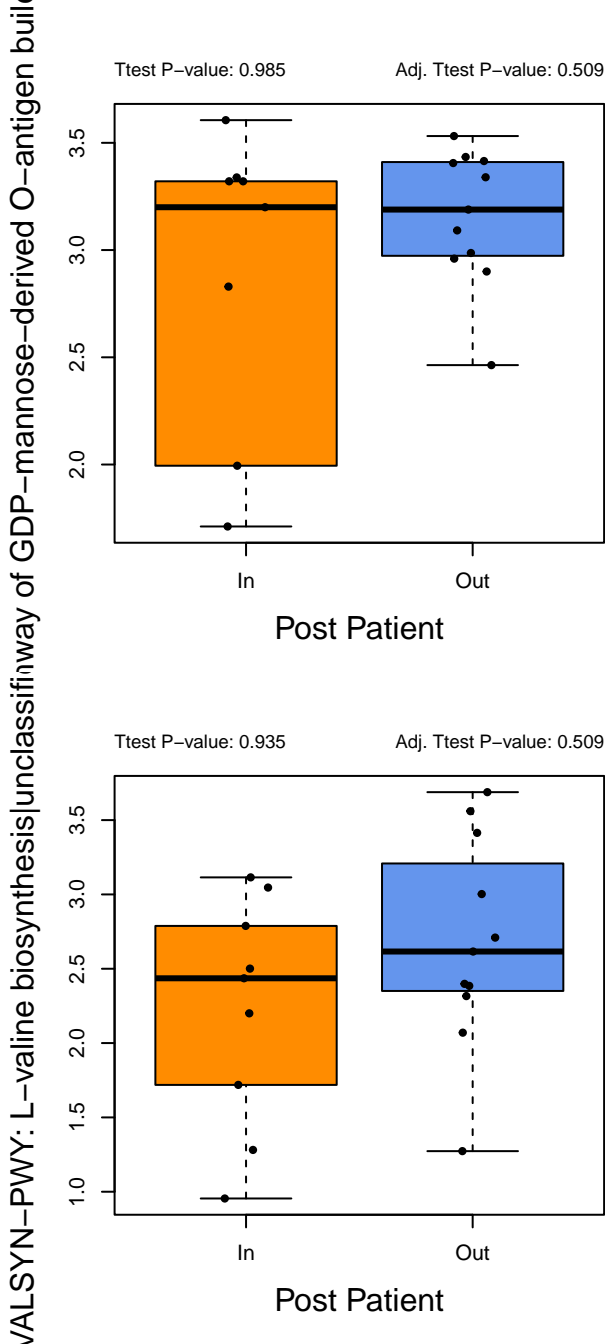






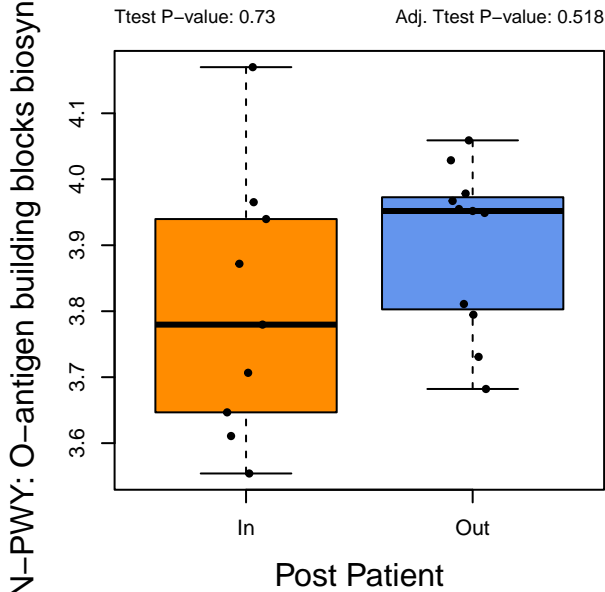
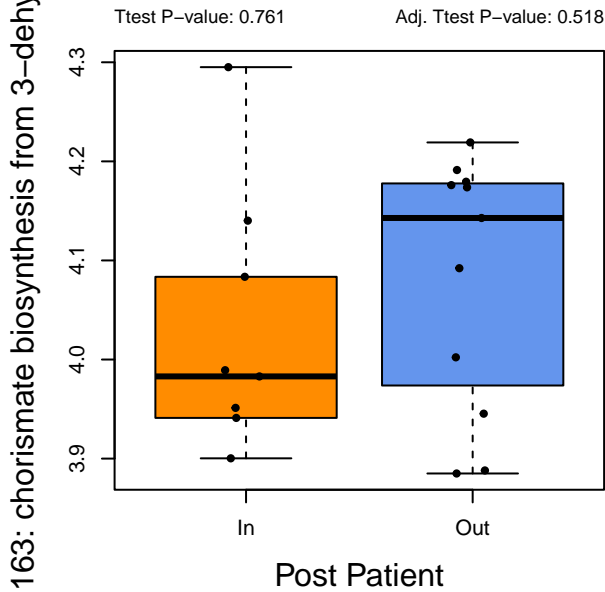
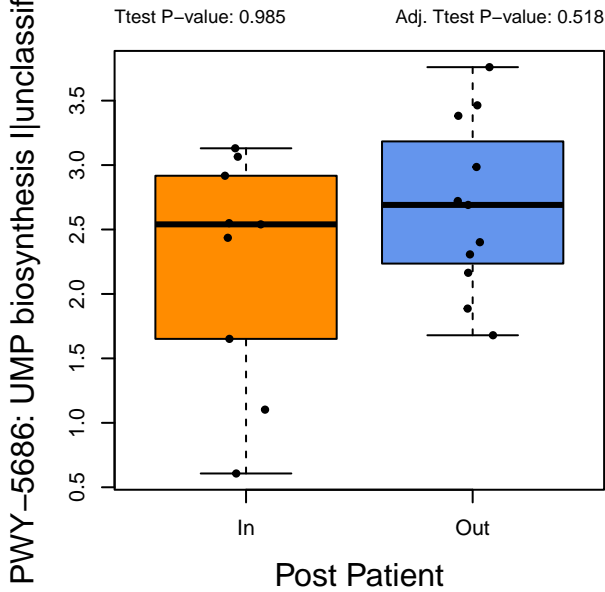
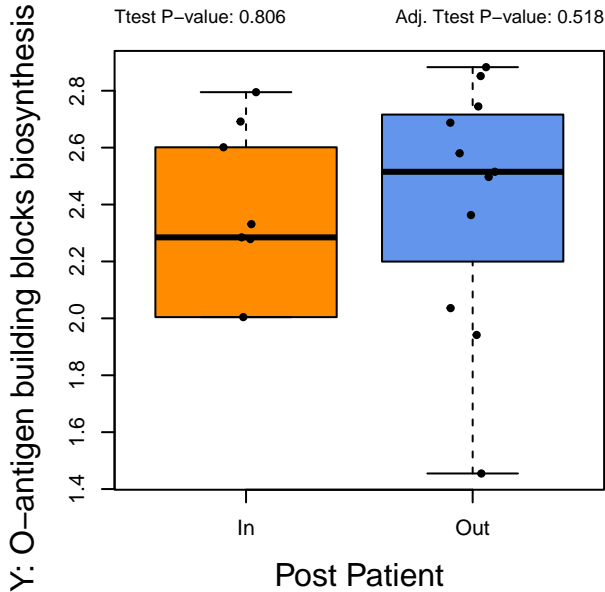
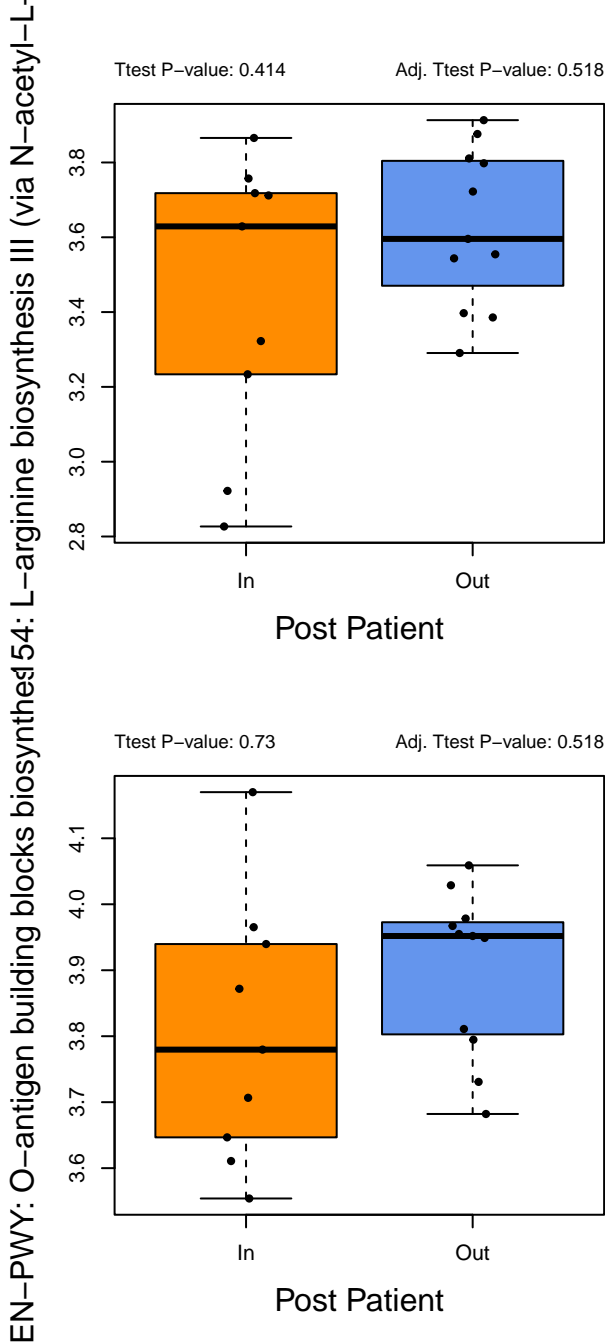
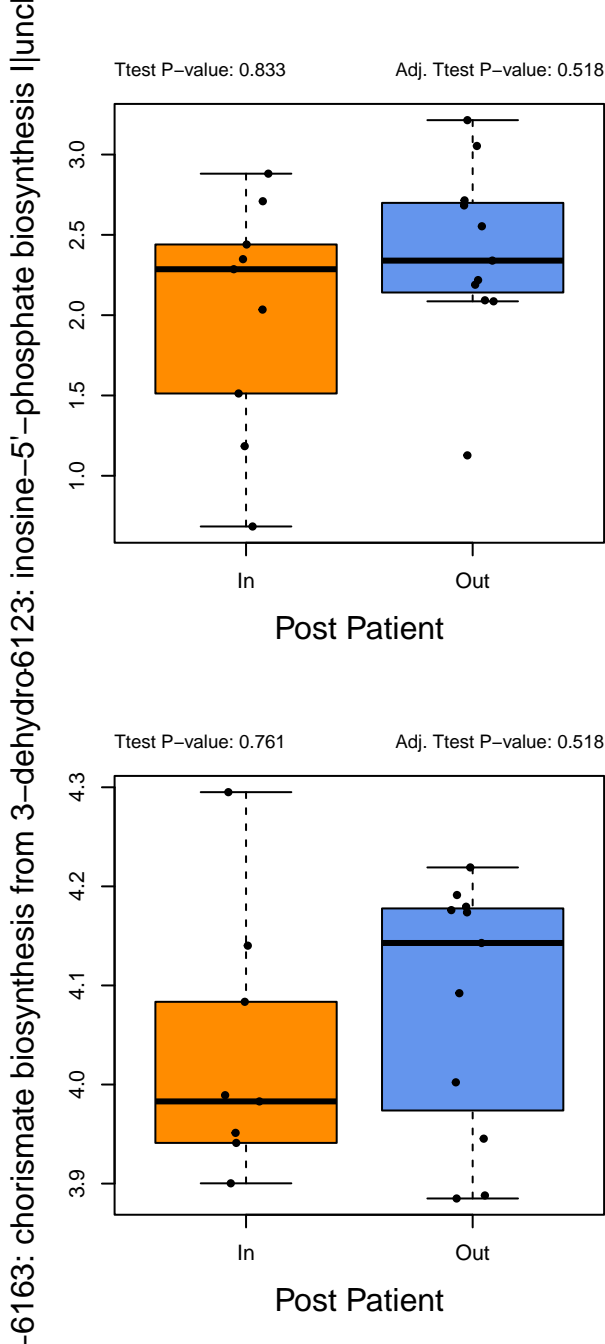
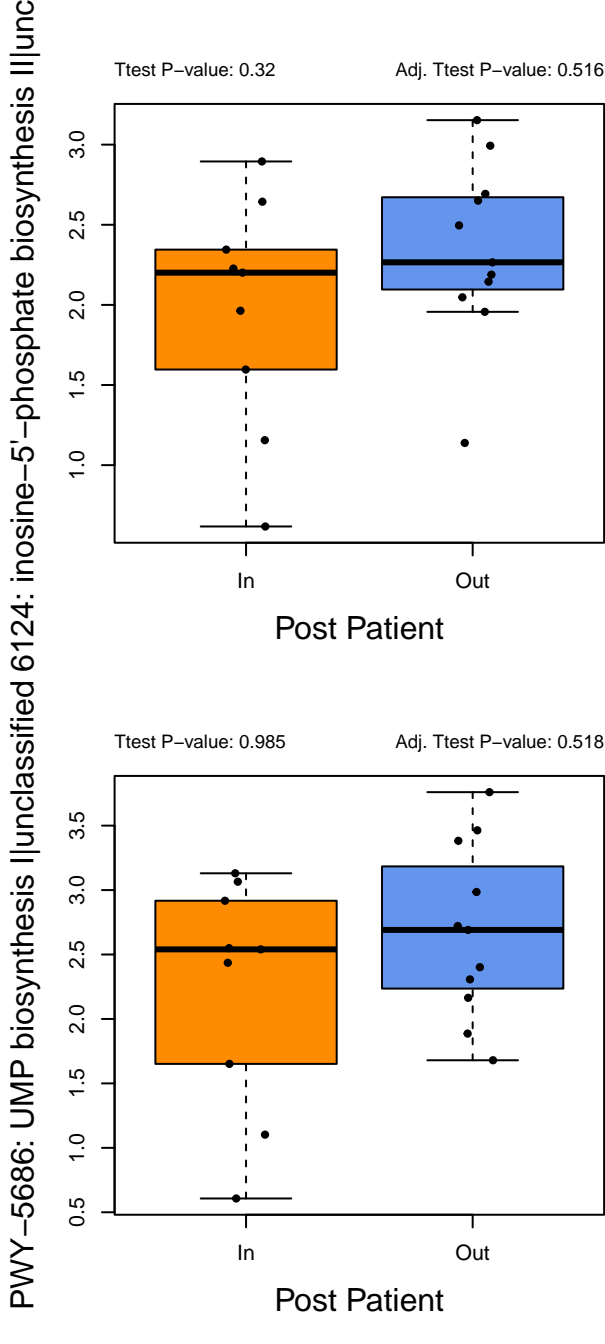
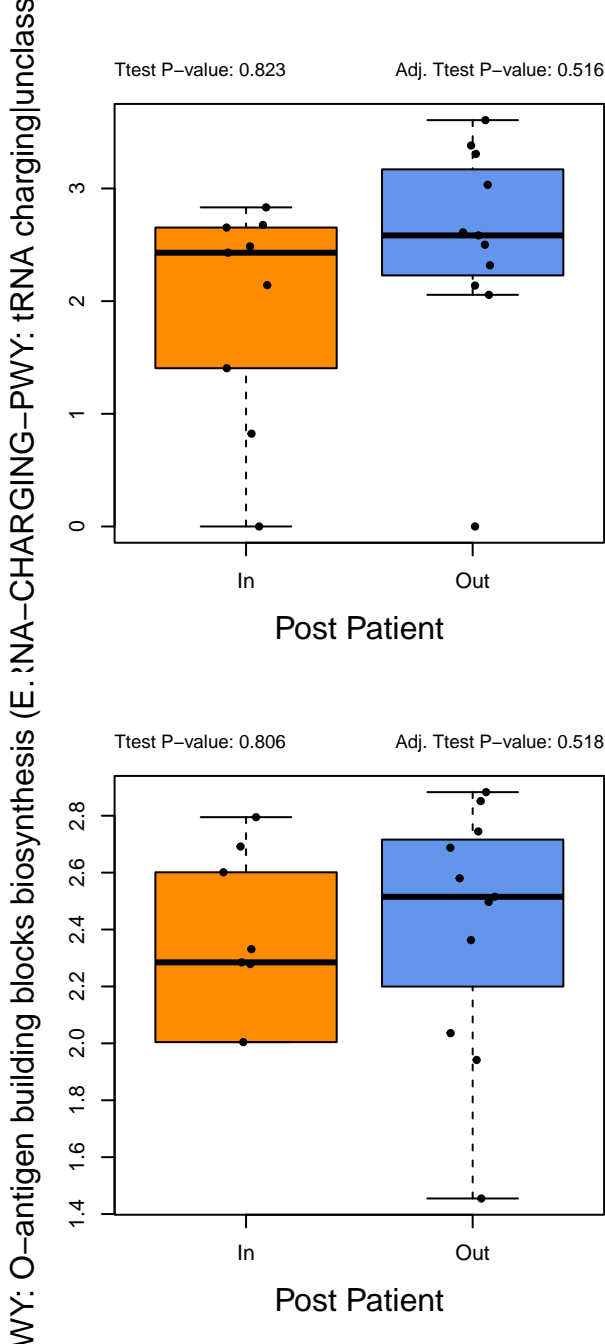


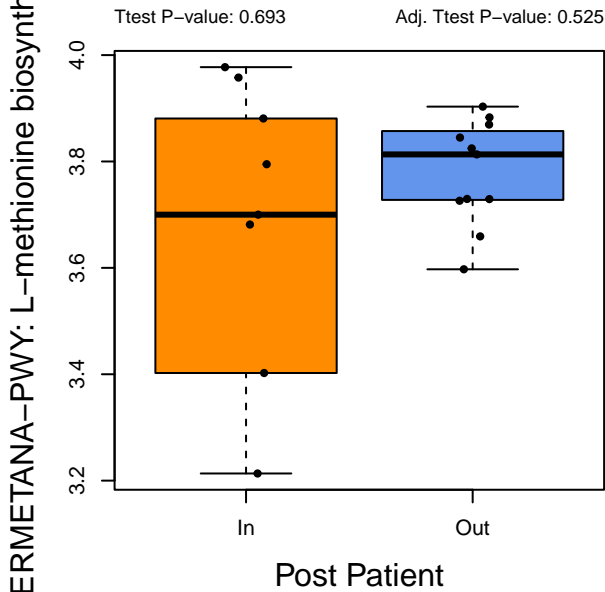
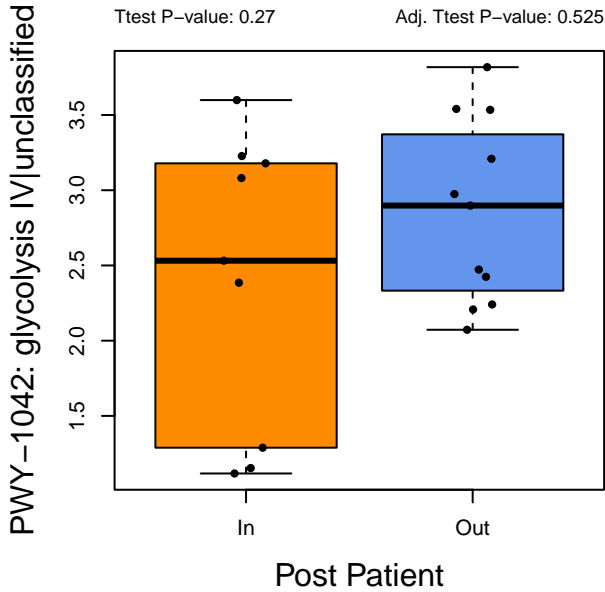
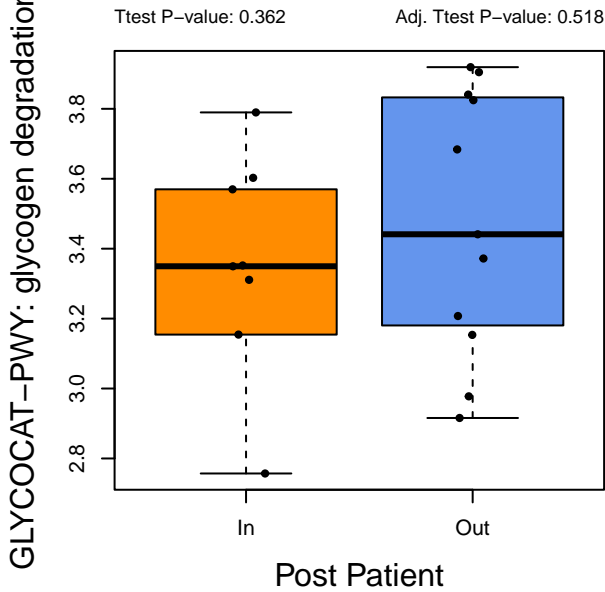
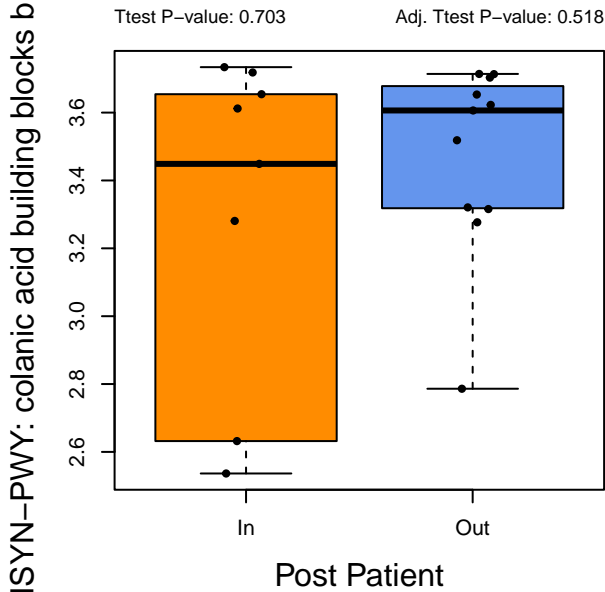
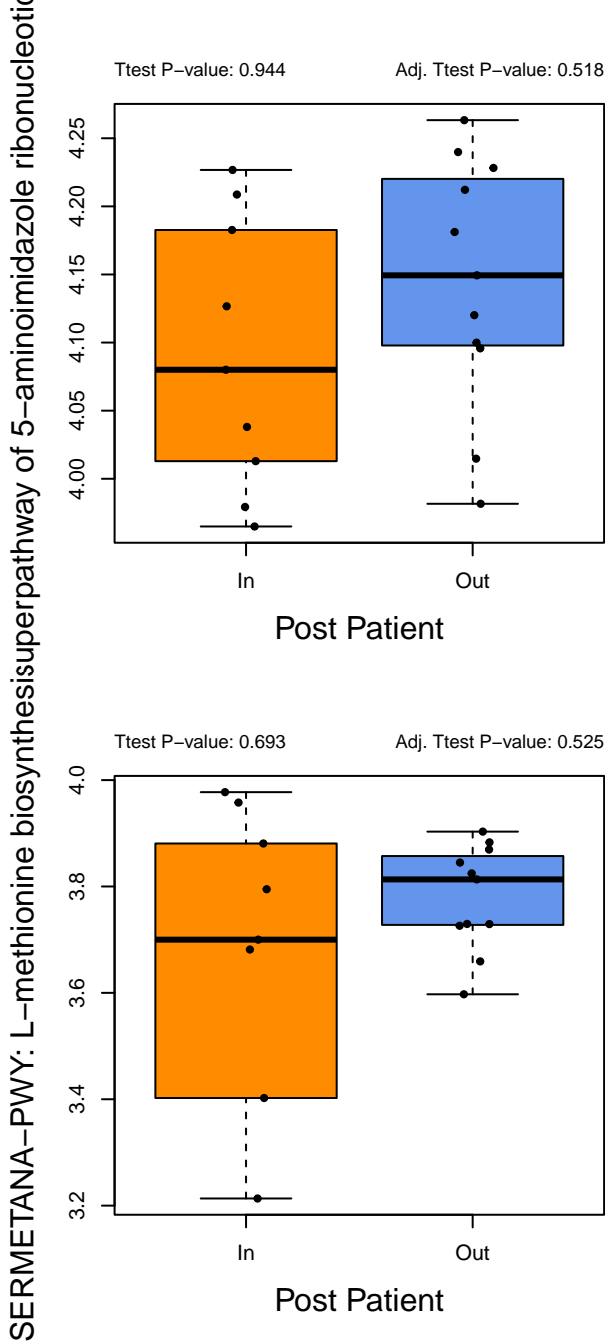
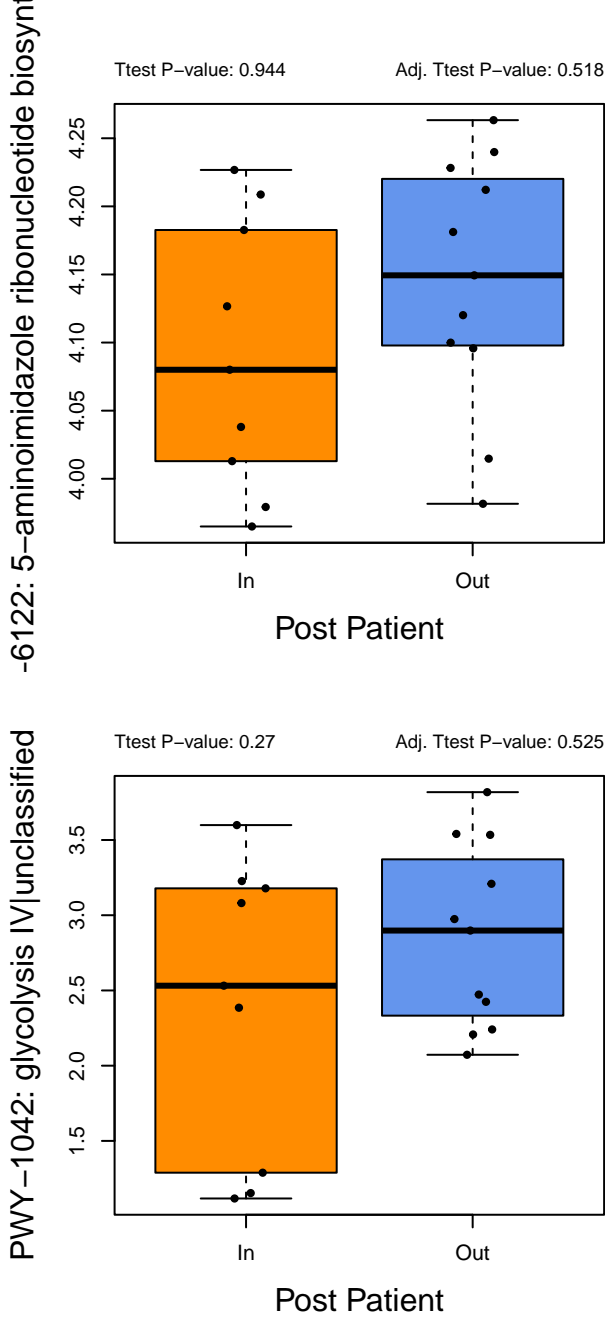
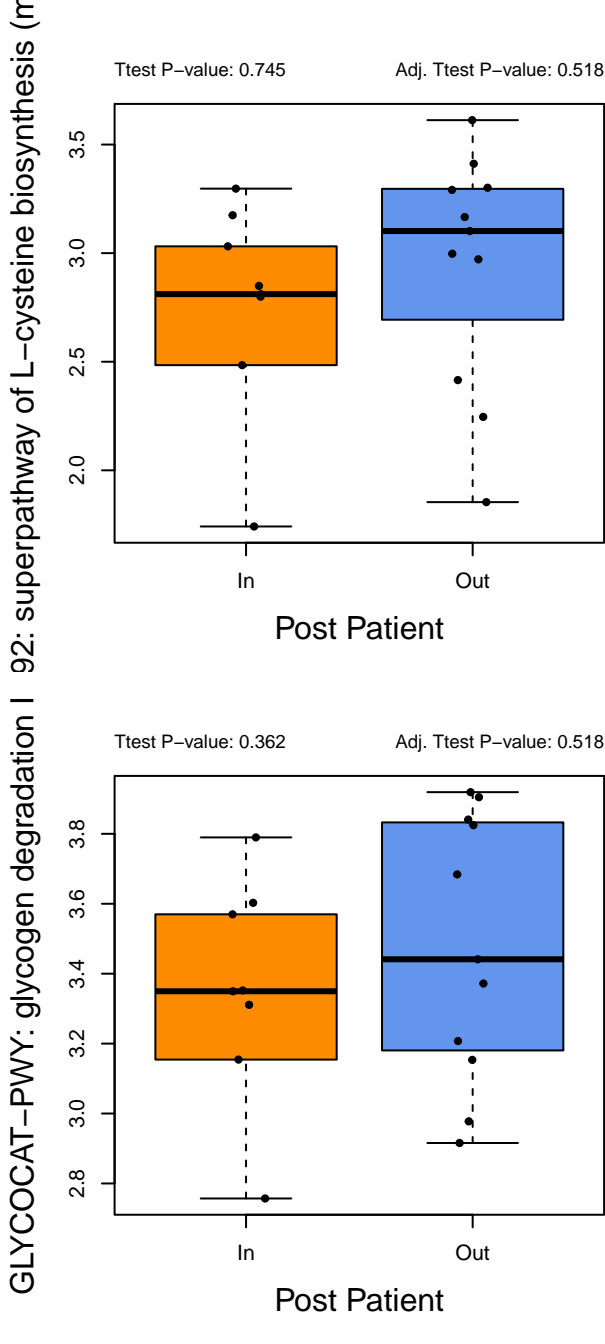
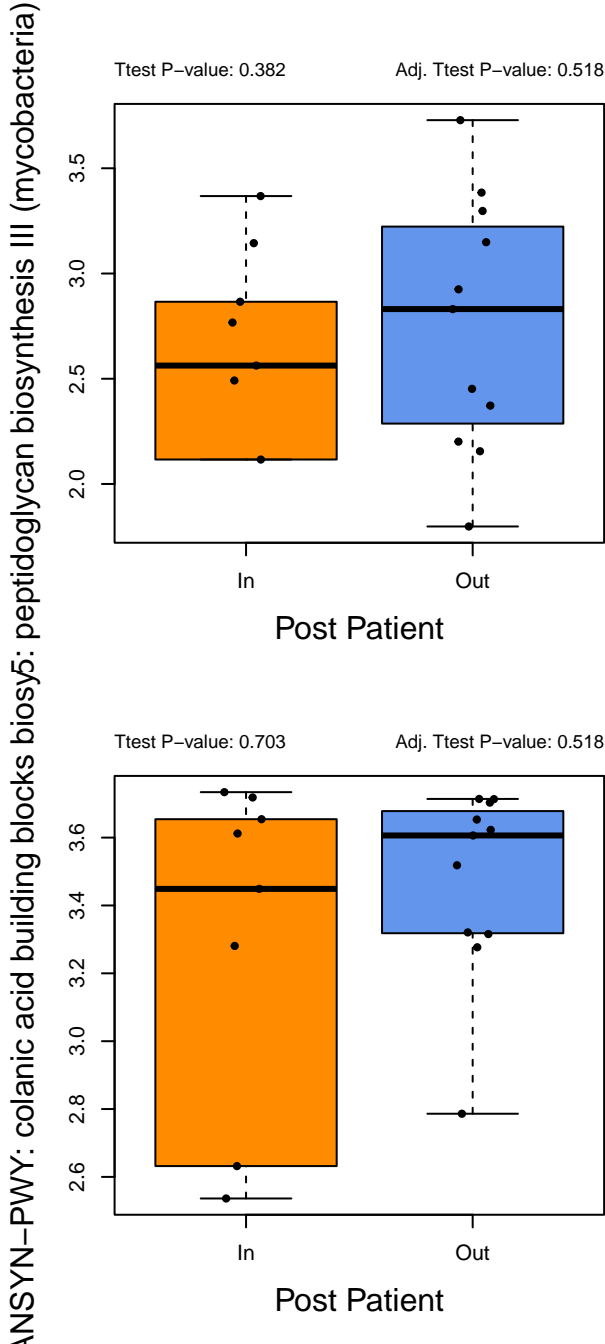




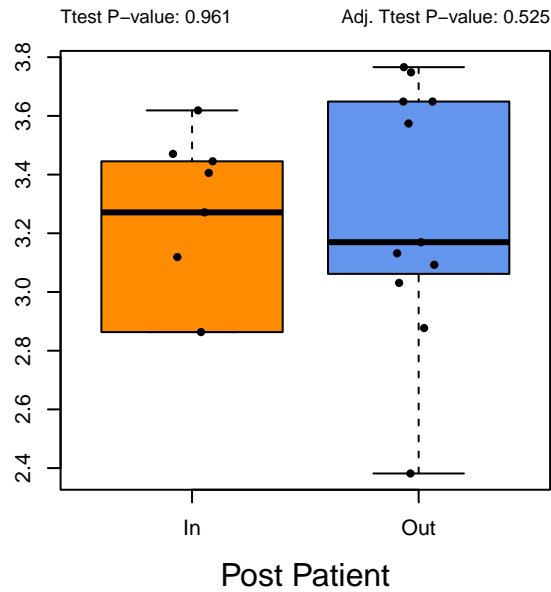




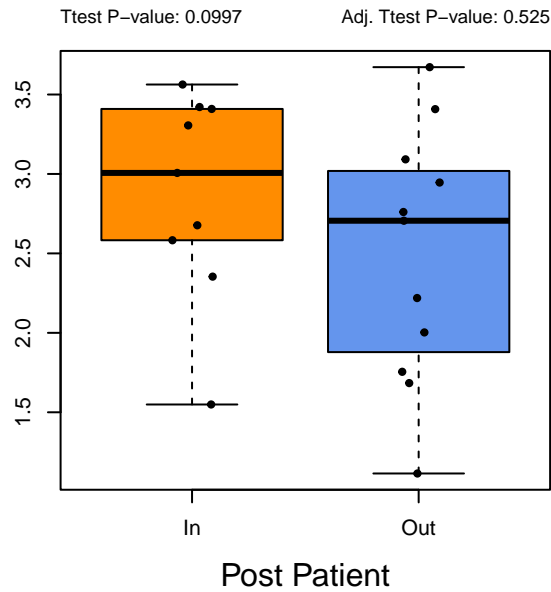




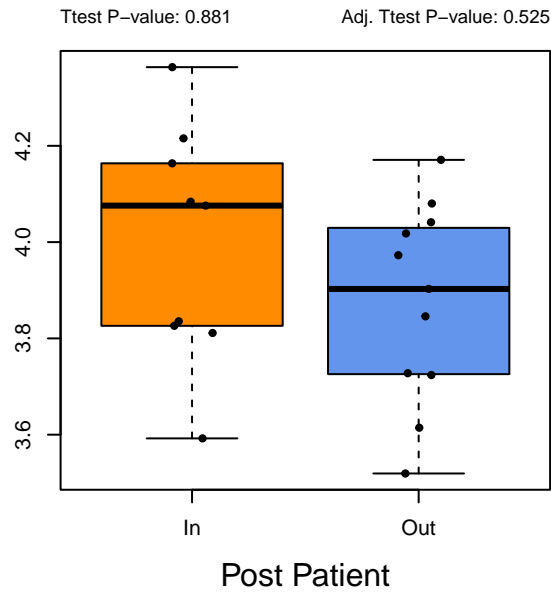
WY-7761: NAD salvage pathway II (PNC IV cy7: C4 photosynthetic carbon assimilation cycle,



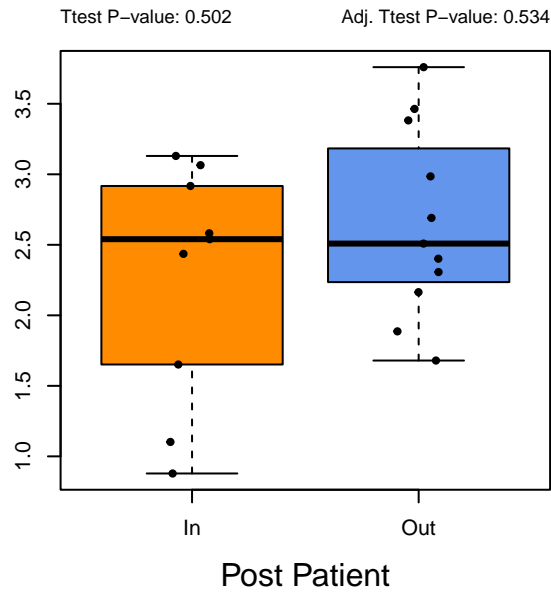
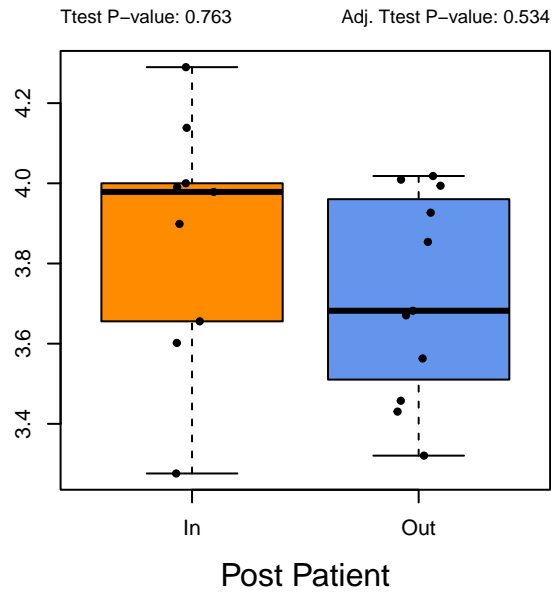
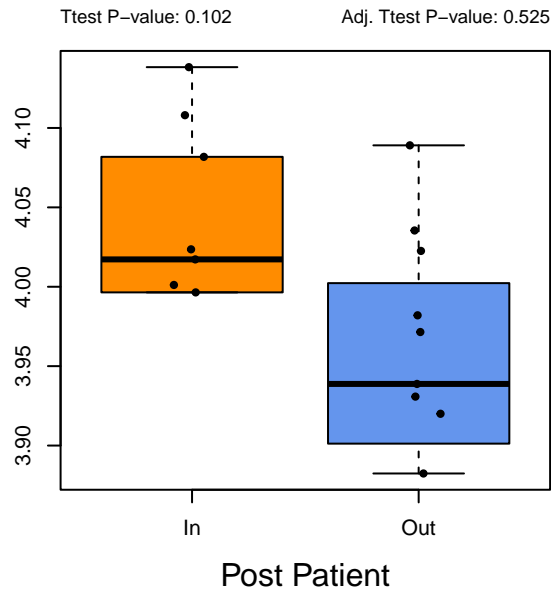
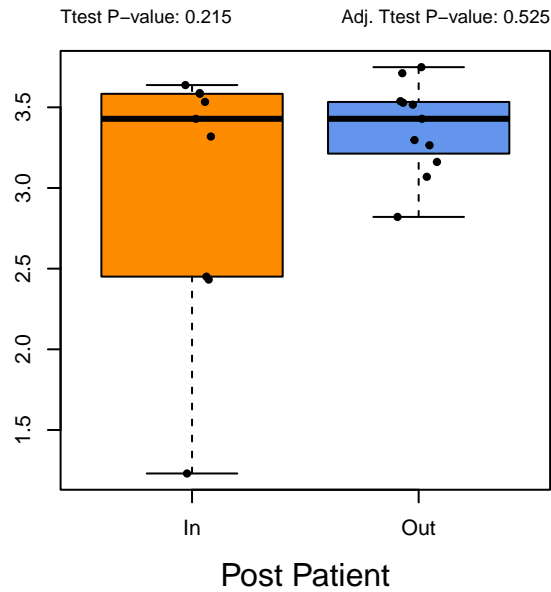
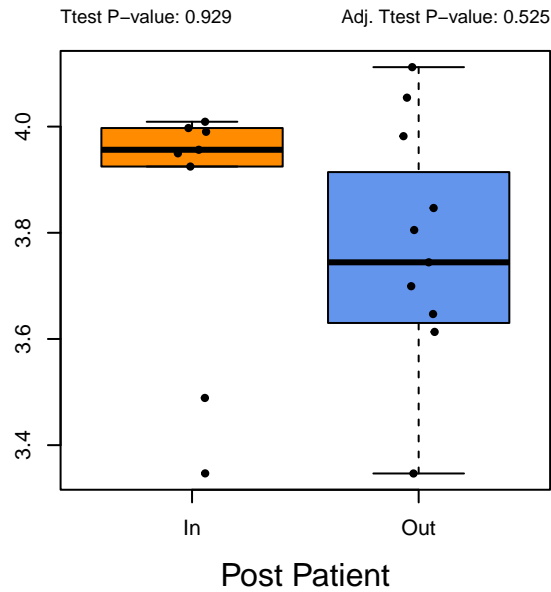
PWY-5695: inosine 5'-phosphate degradator-922: mevalonate pathway I (eukaryotes and ba



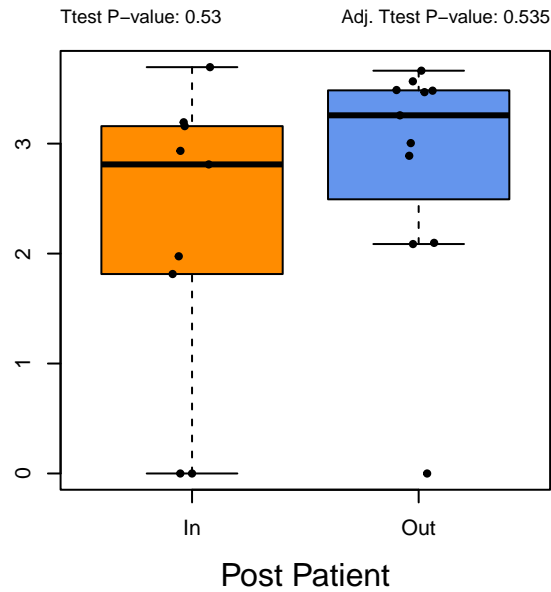
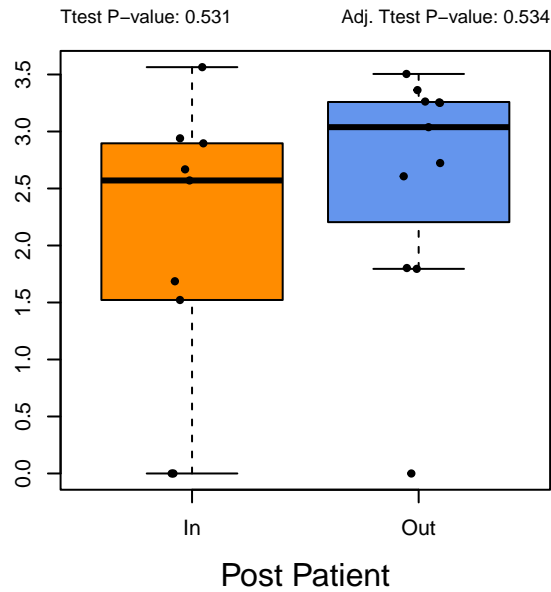
2ANTO-PWY: phosphopantothenate biosynthes SYN-PWY: UDP-N-acetyl-D-glucosamine bi



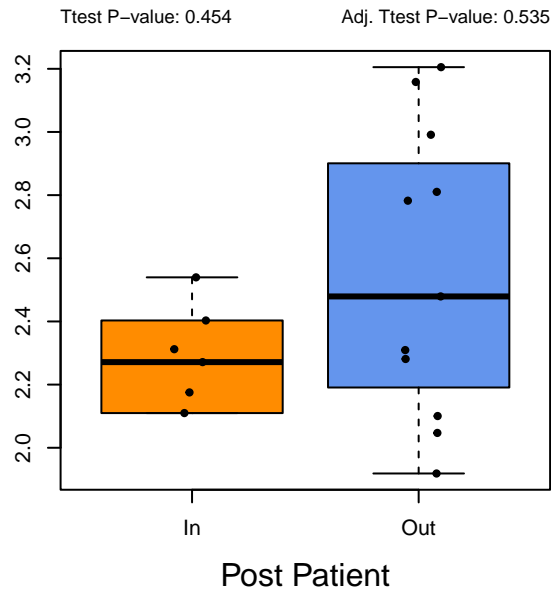
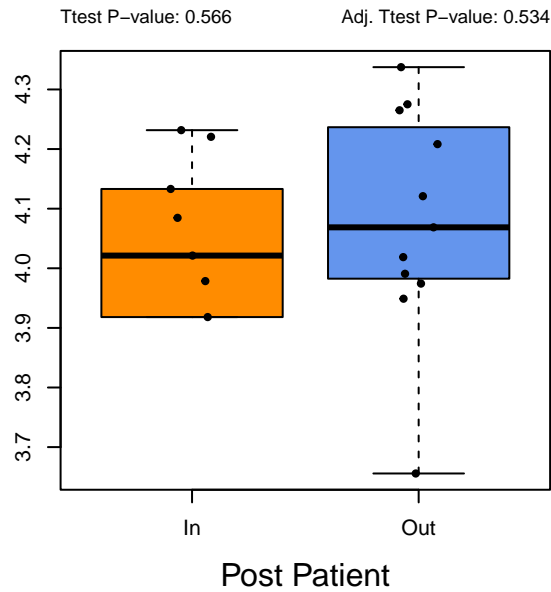
PWY-7791: UMP biosynthesis III|unclassified7208: superpathway of pyrimidine nucleobases



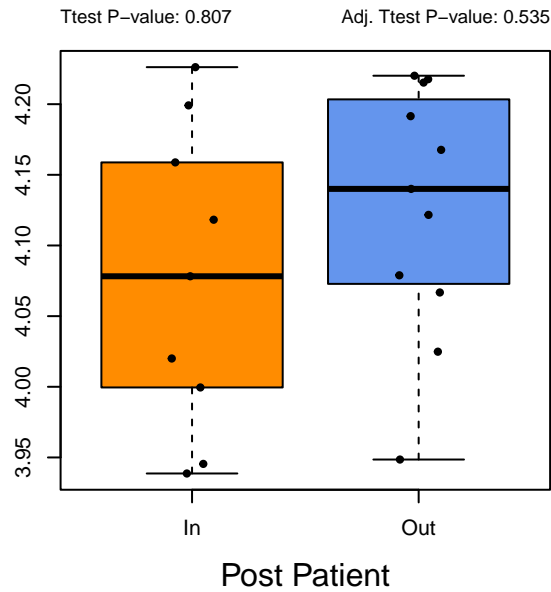
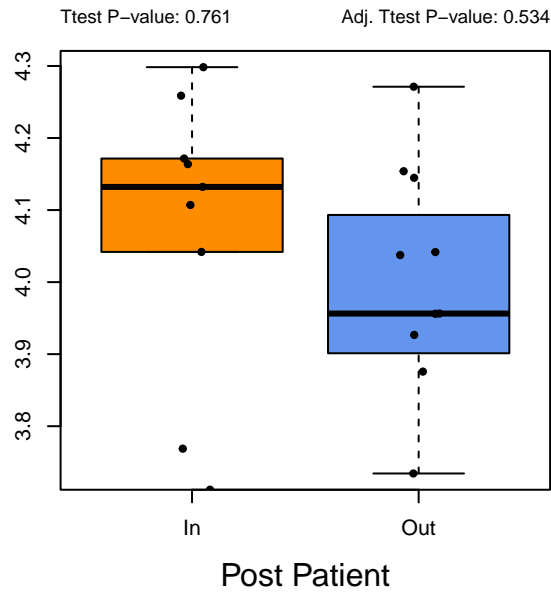
INE-SYN: superpathway of arginine and polyanMSYN-PWY: superpathway of polyamine biosynthesis



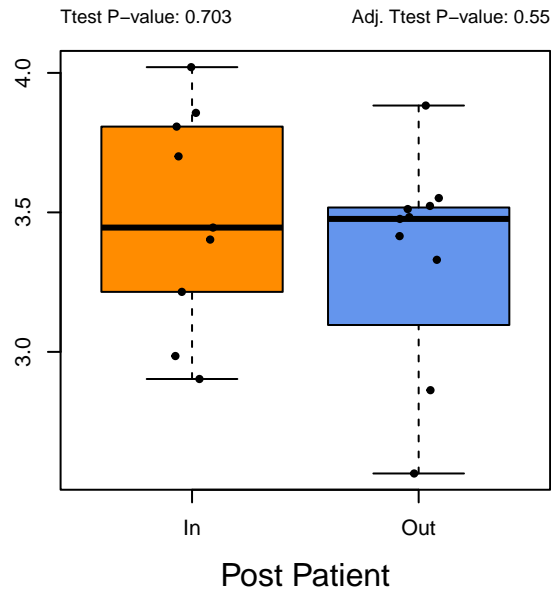
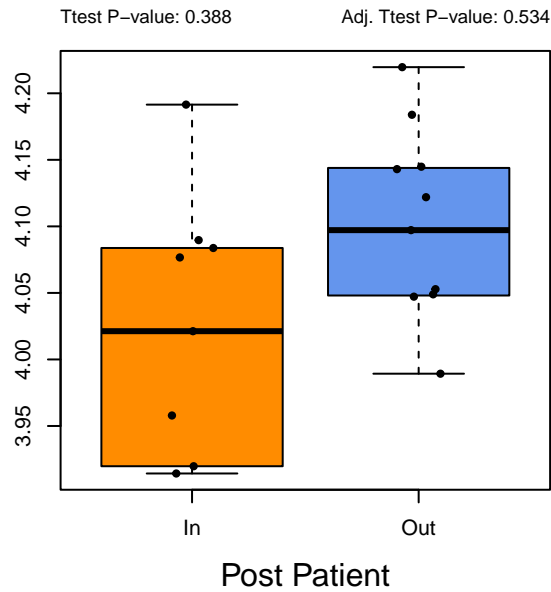
9): pyruvate fermentation to acetate and lactate II 78: pentose phosphate pathway (non-oxidative)

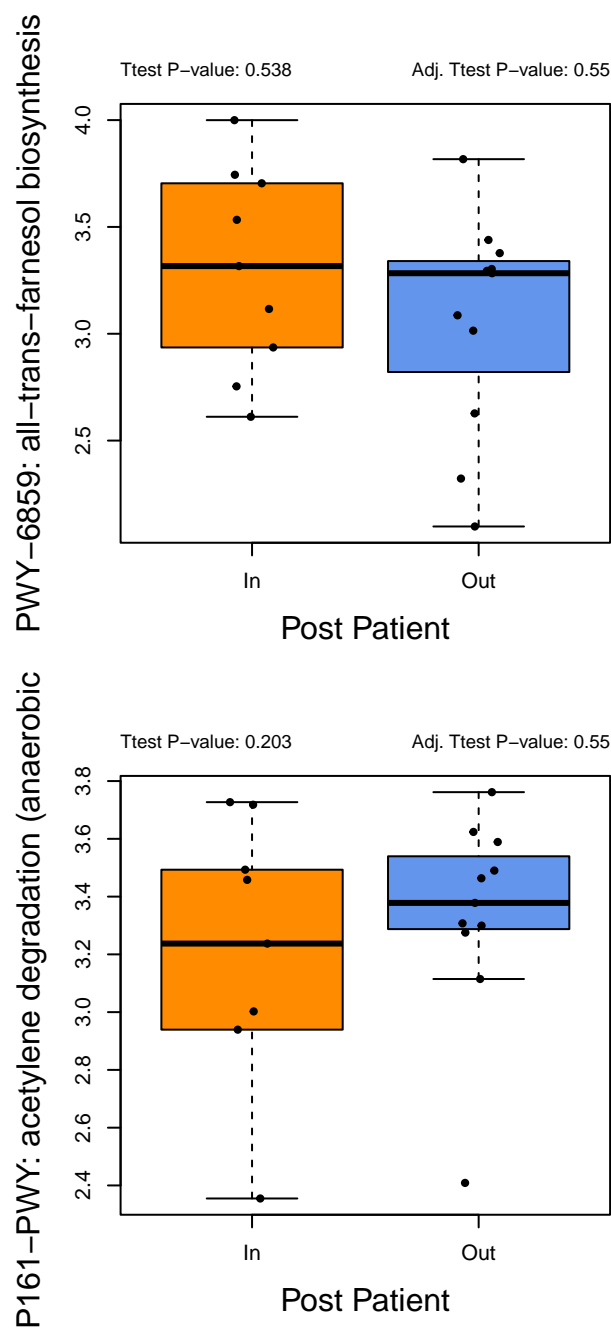
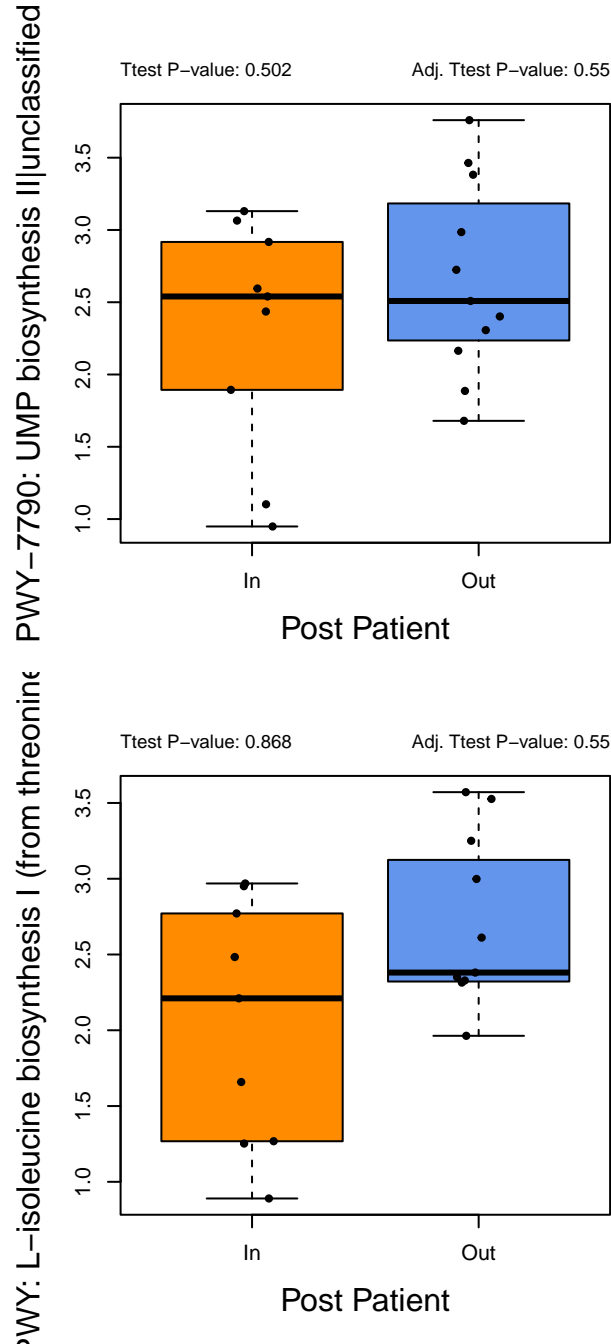
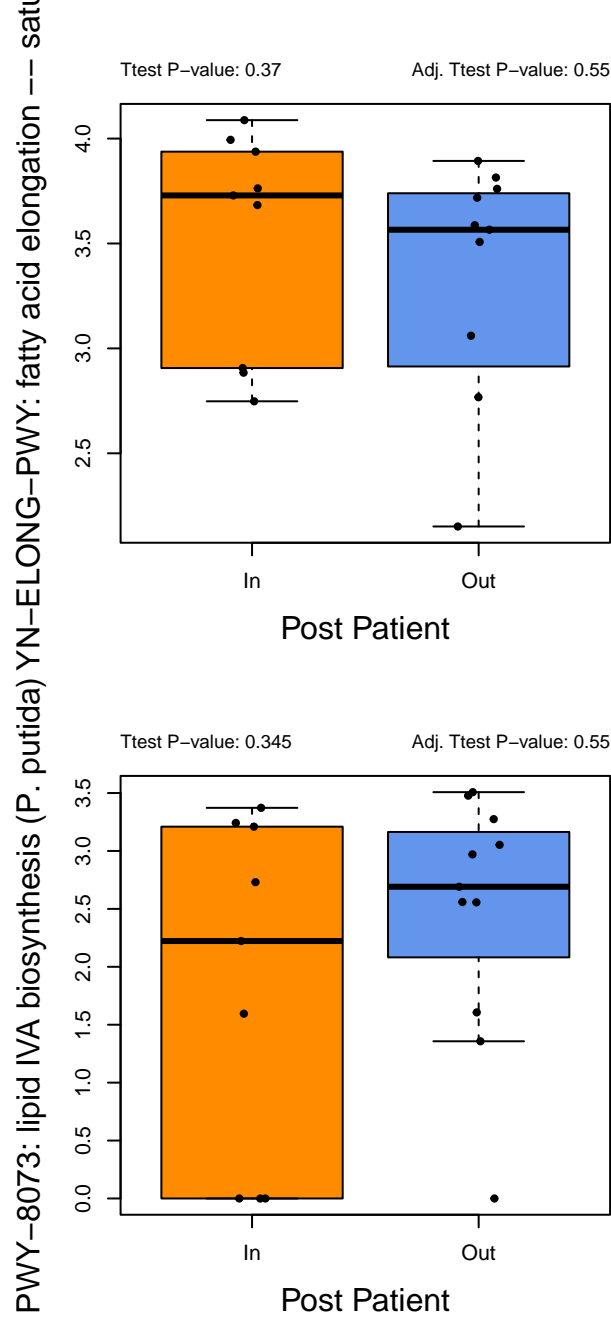
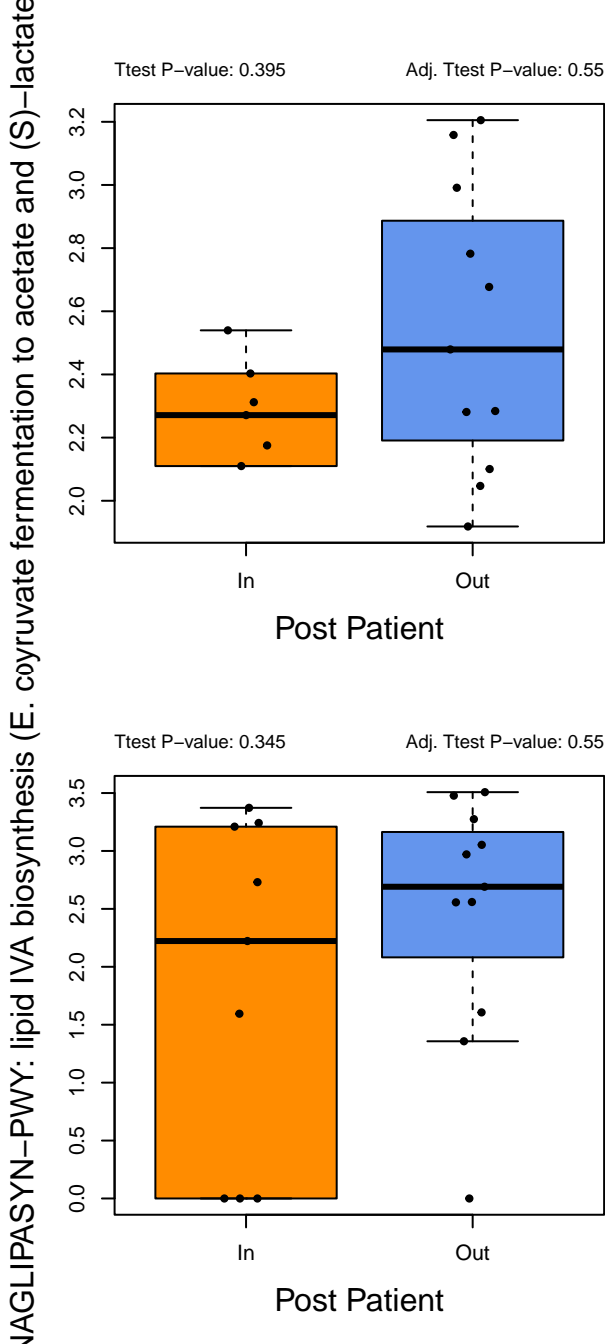


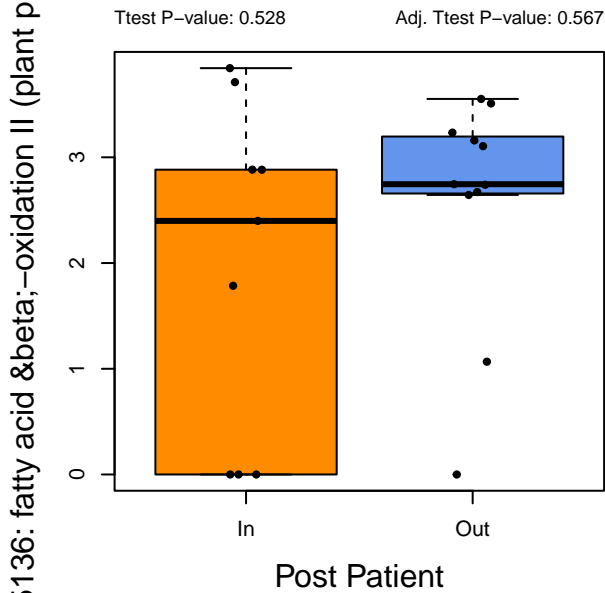
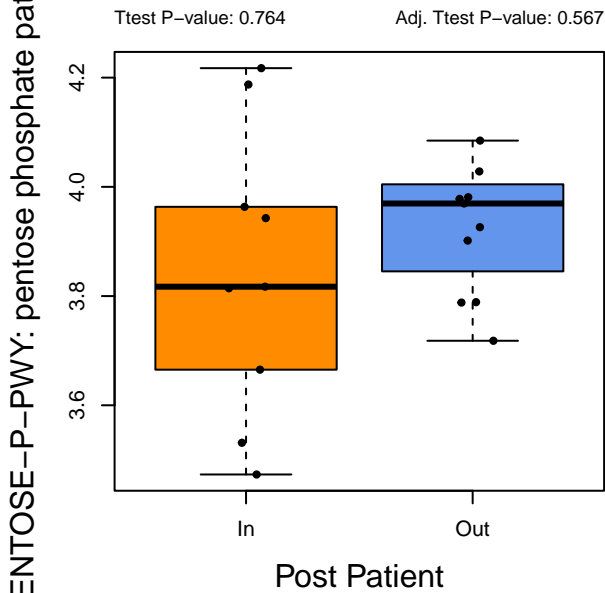
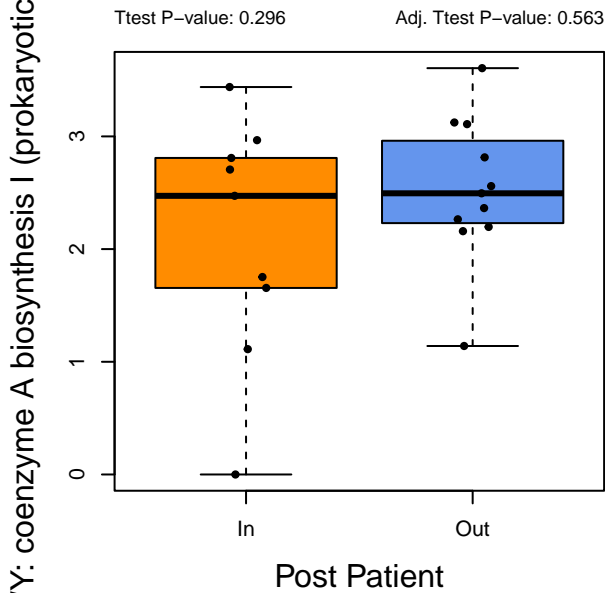
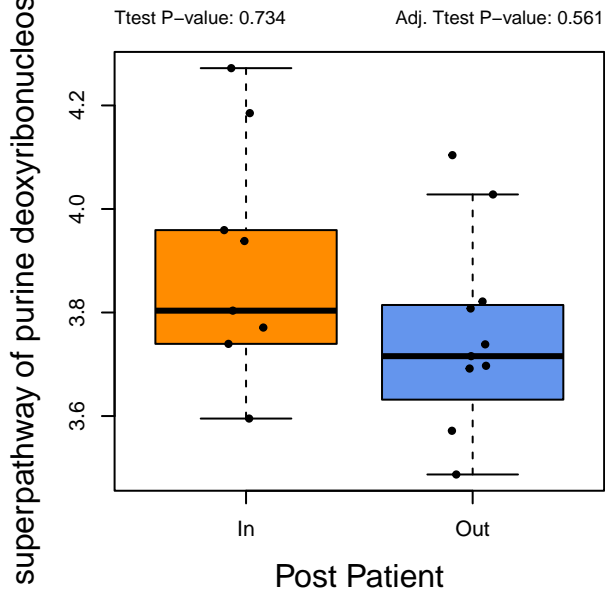
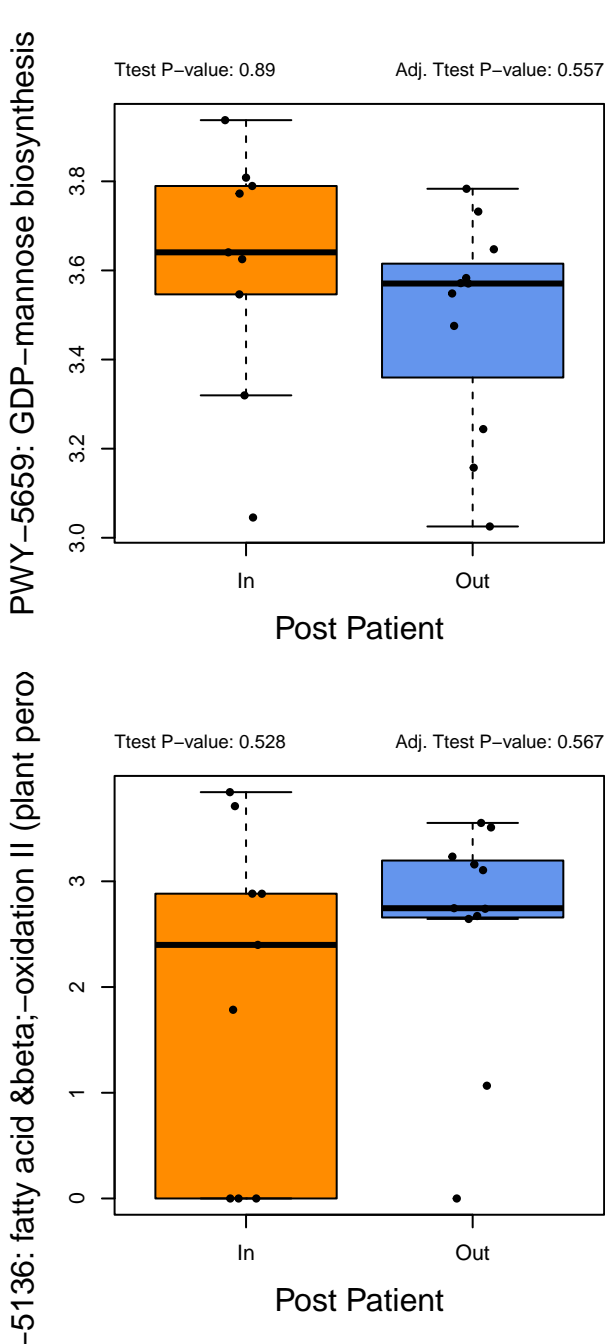
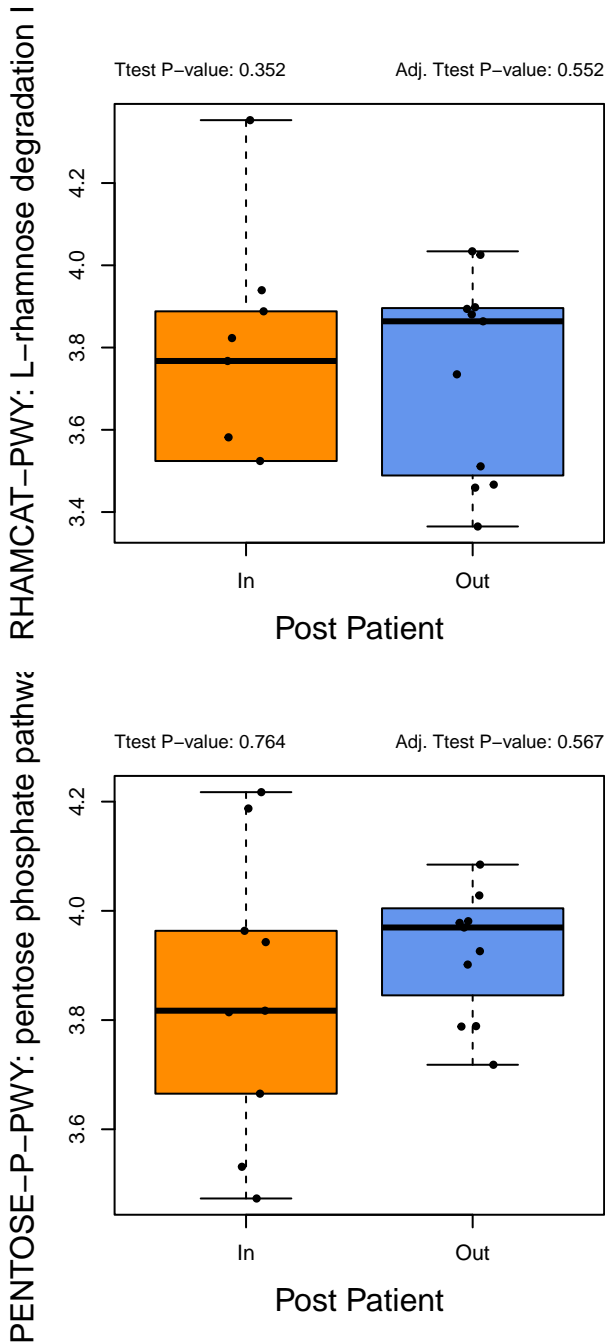
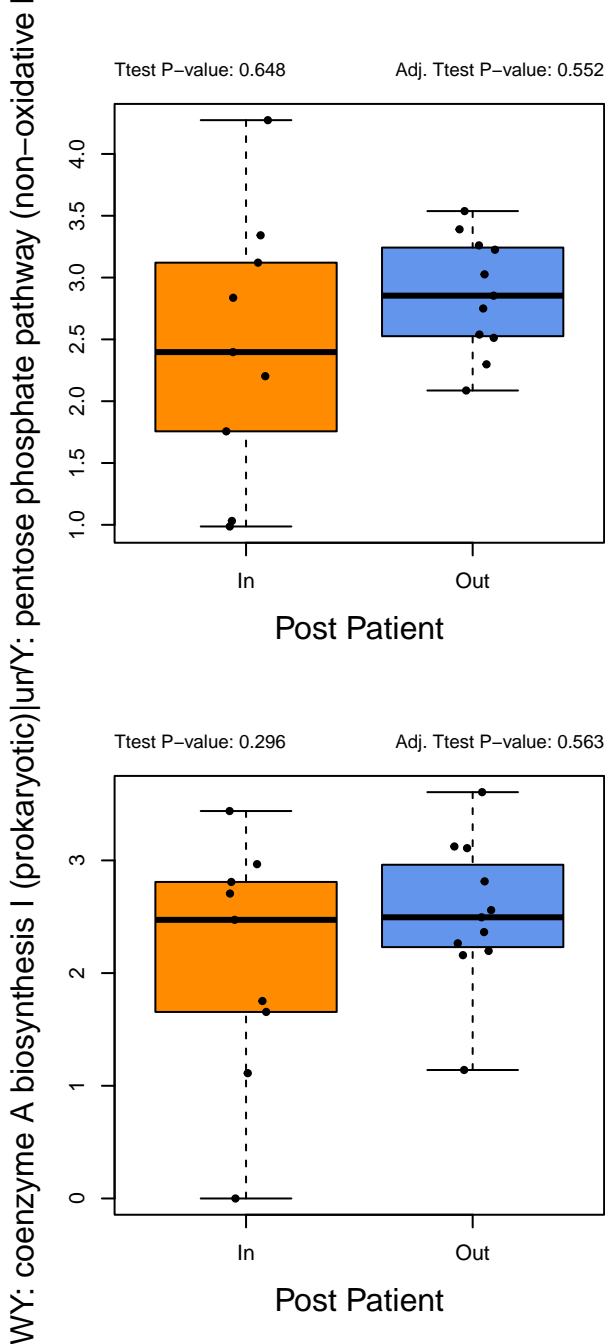
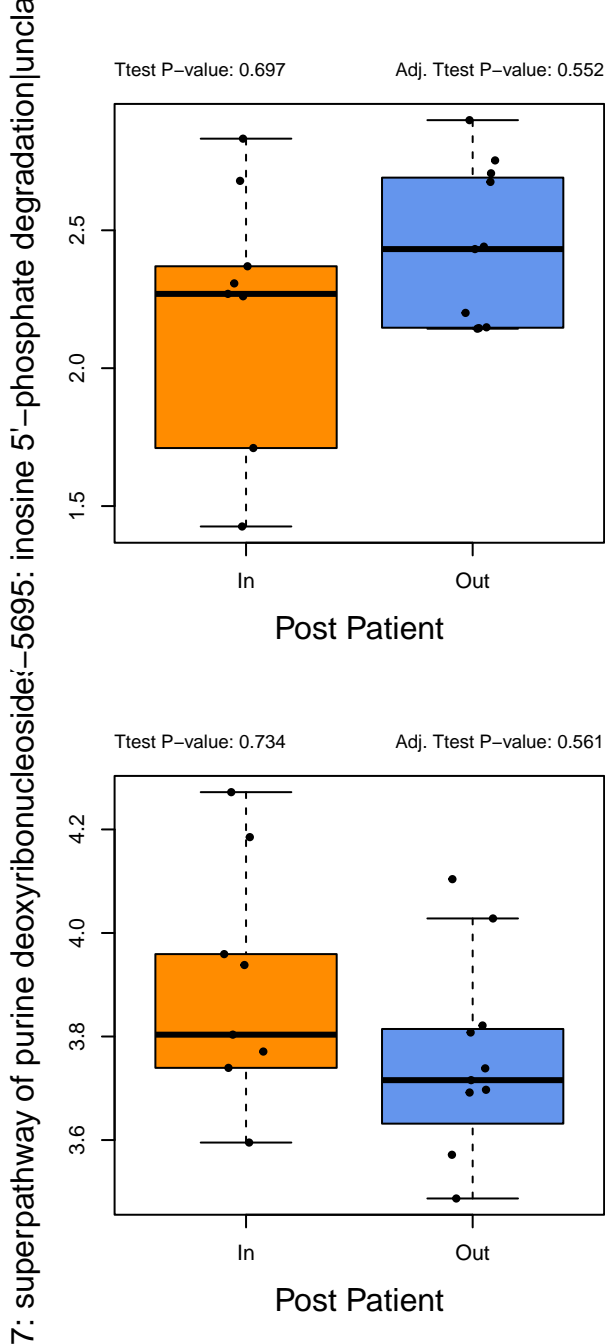
-6121: 5-aminoimidazole ribonucleotide biosynsuperpathway of adenosine nucleotides de novo

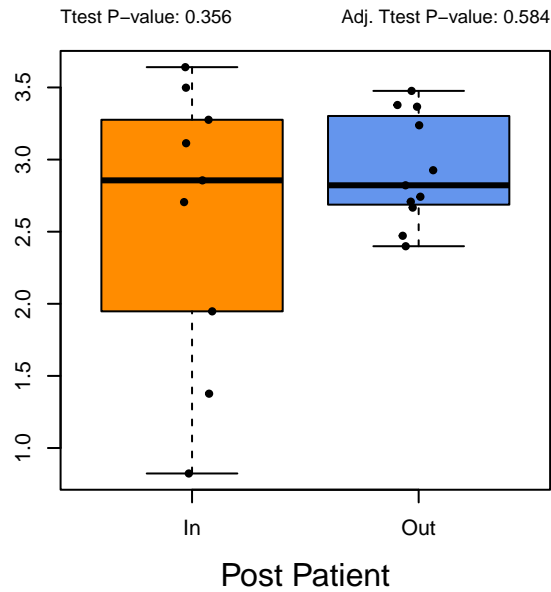
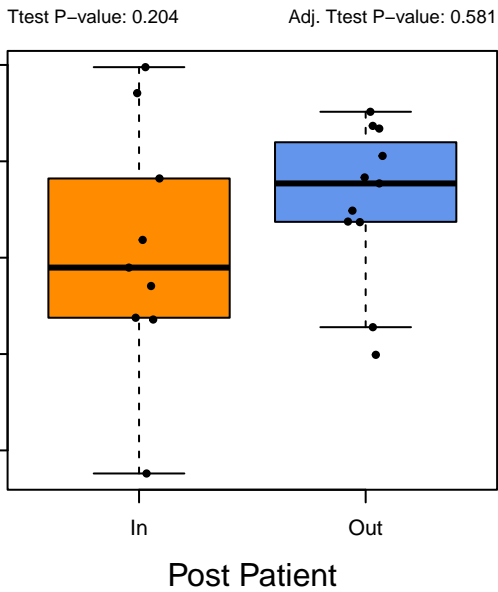
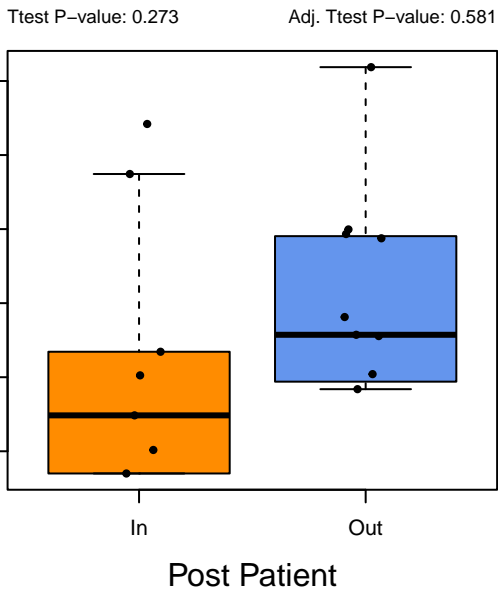
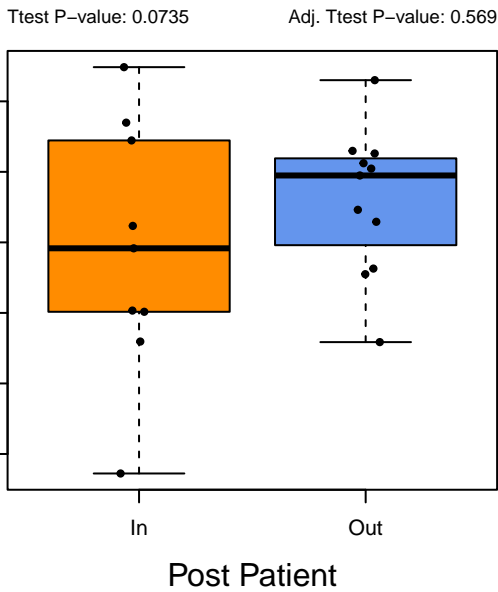
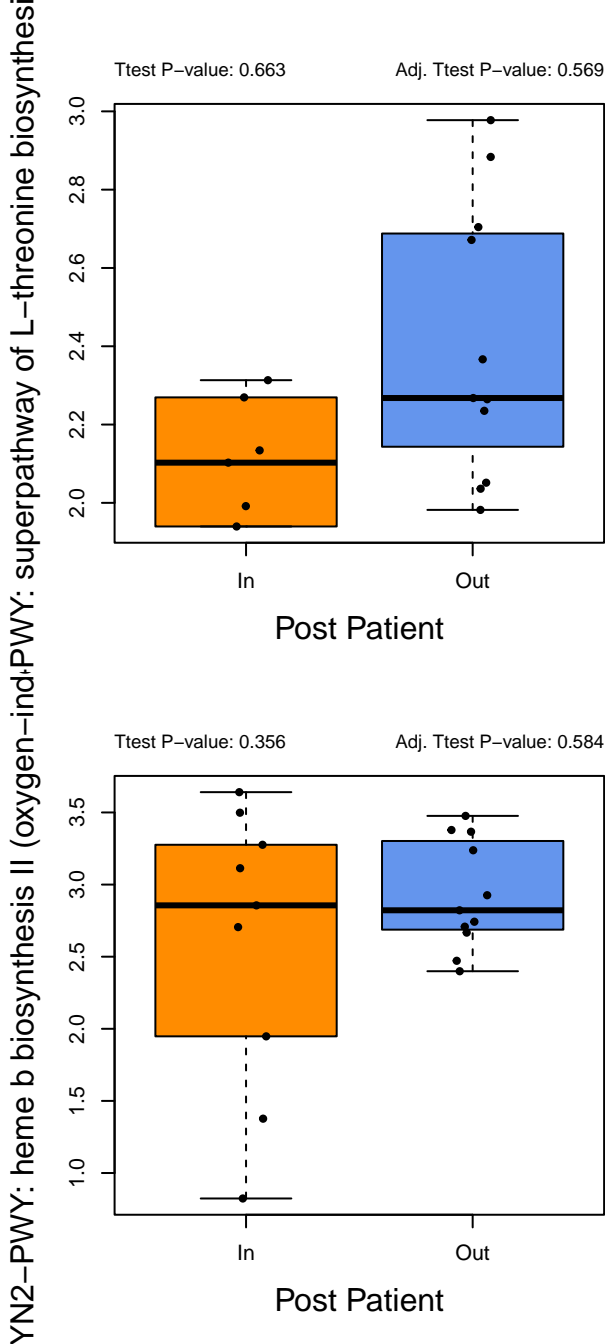
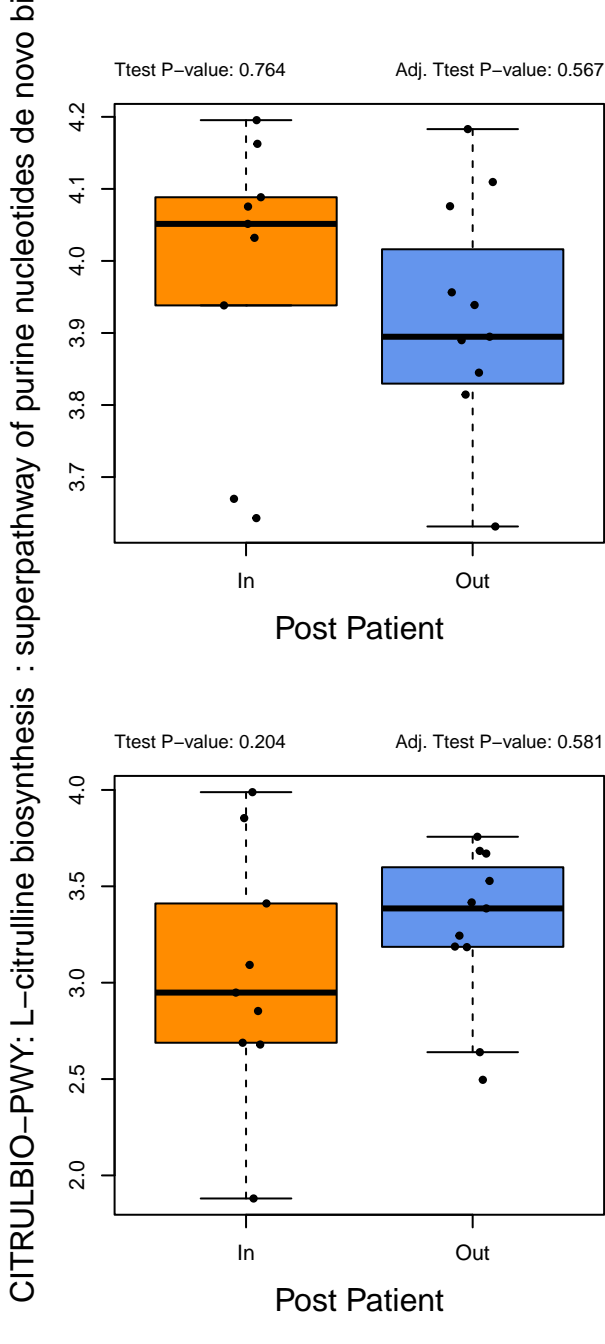
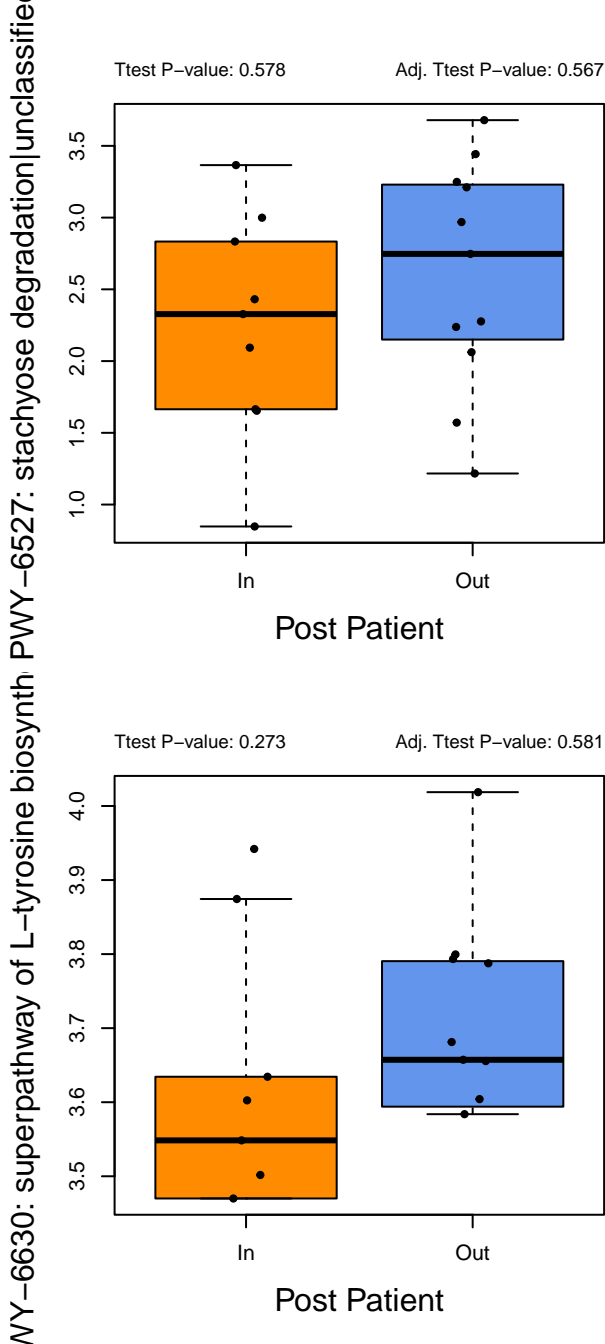
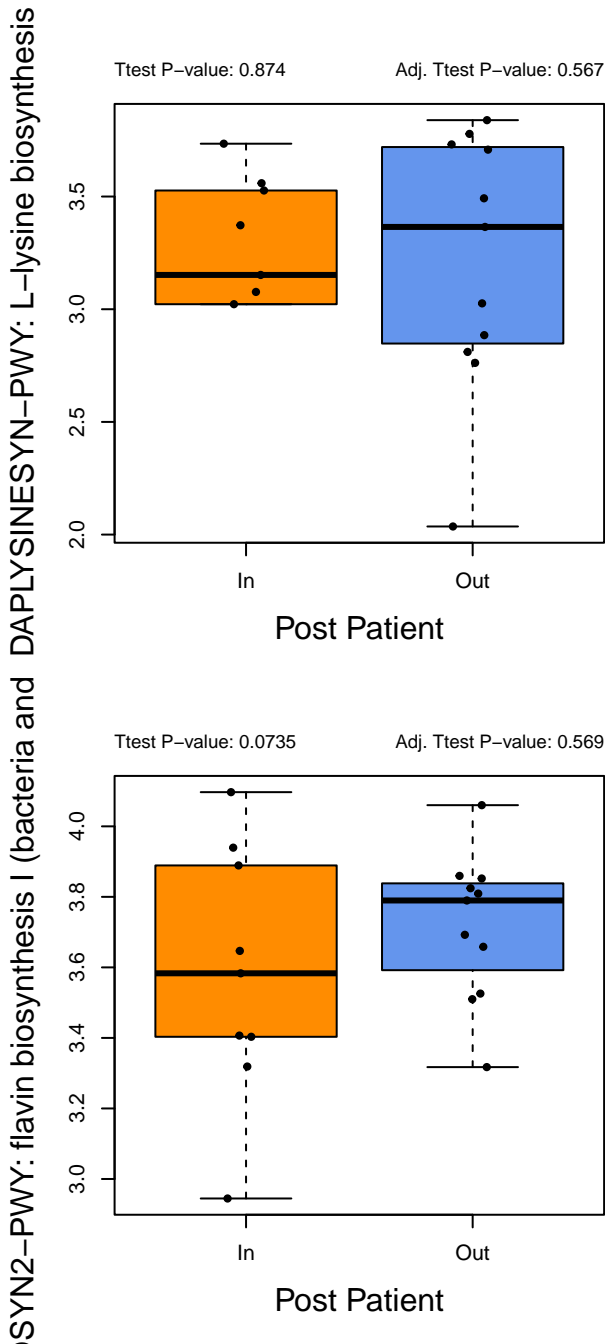


ISOPRENSYN-PWY: polyisoprenoid biosynthesilmuramoyl-pentapeptide biosynthesis III (meso

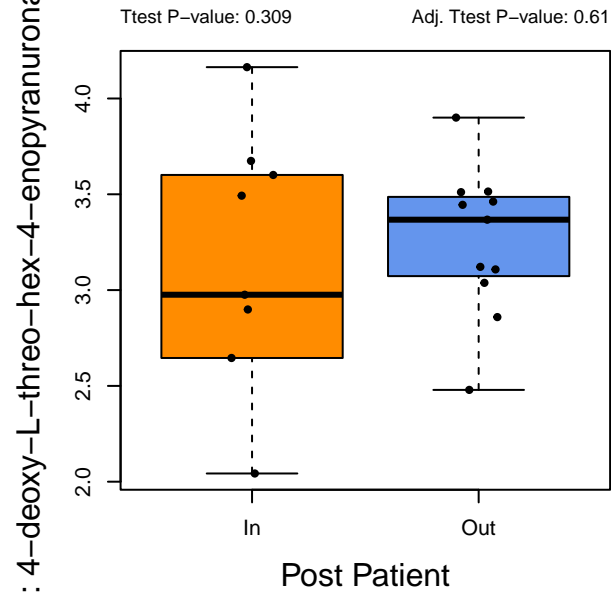
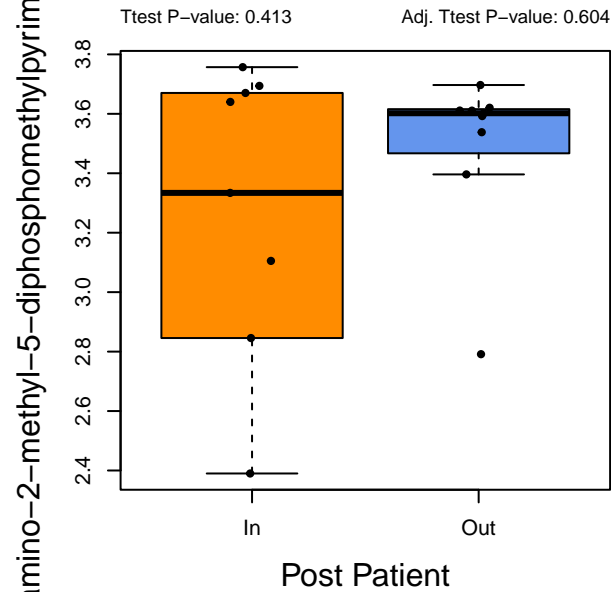
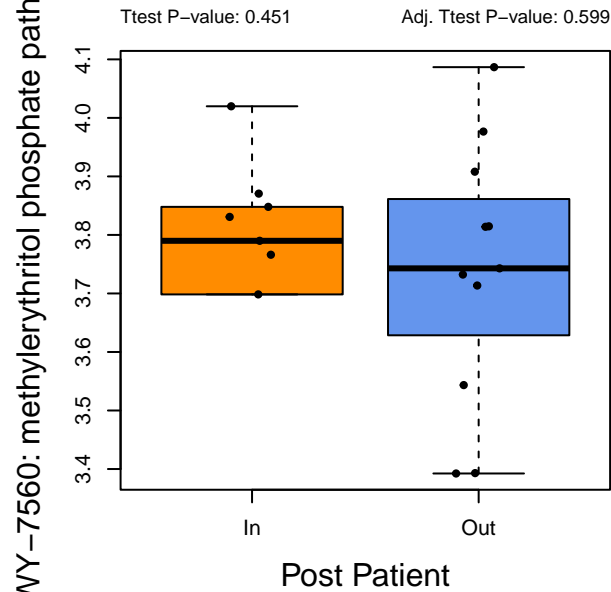
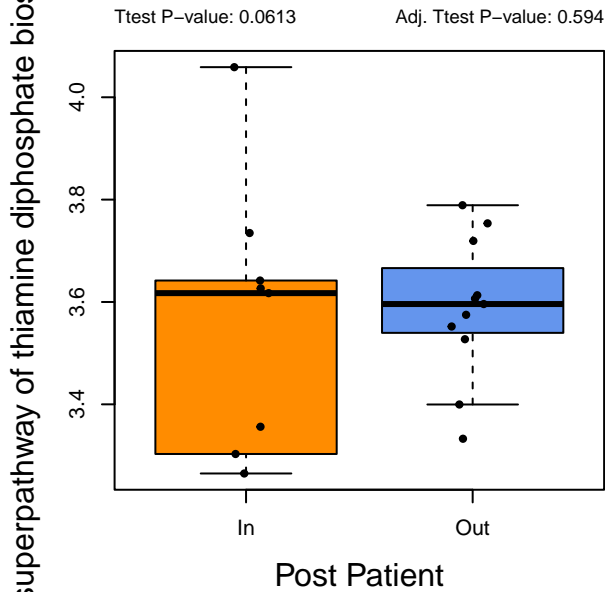
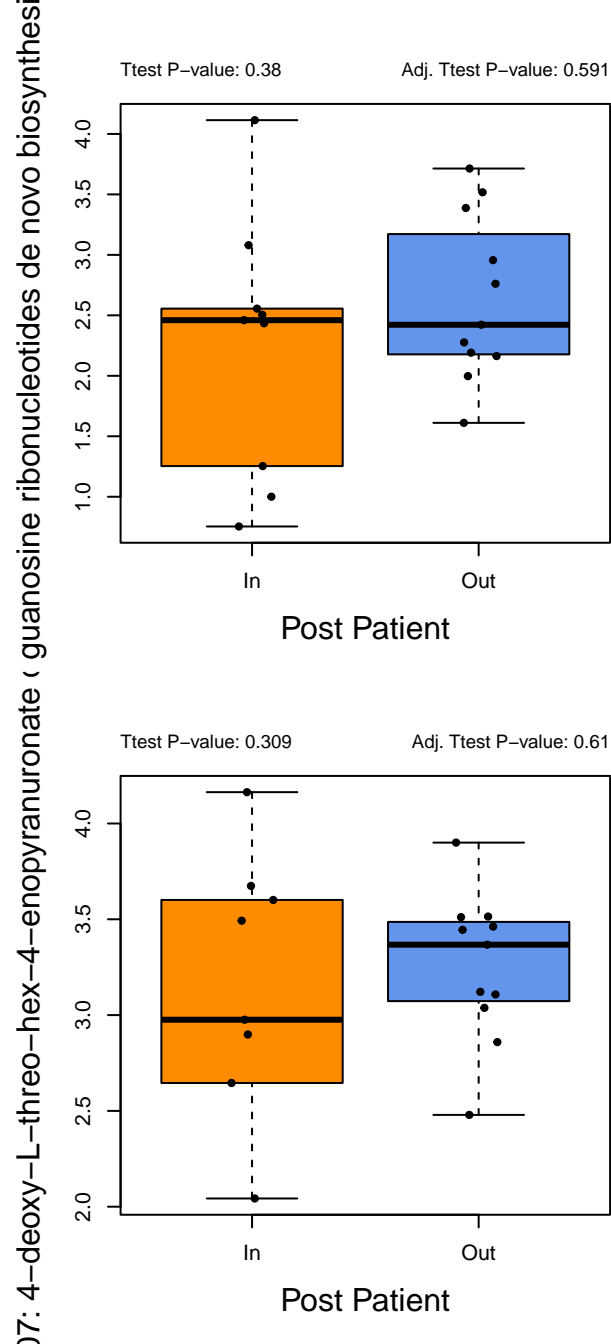
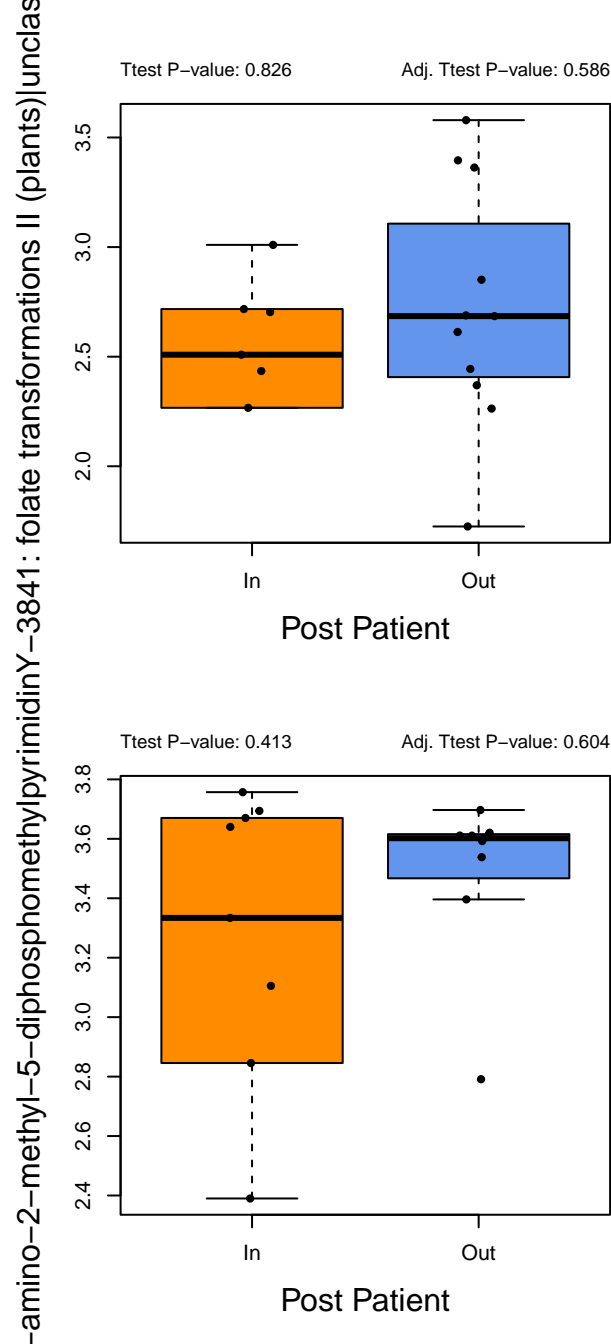
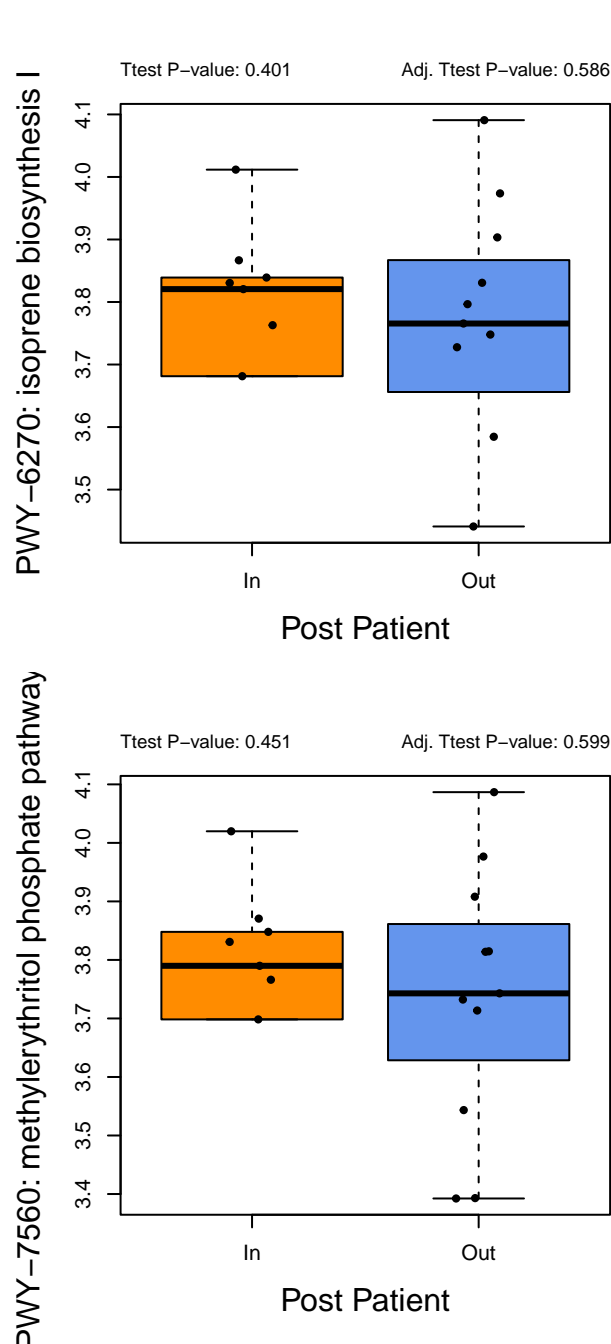
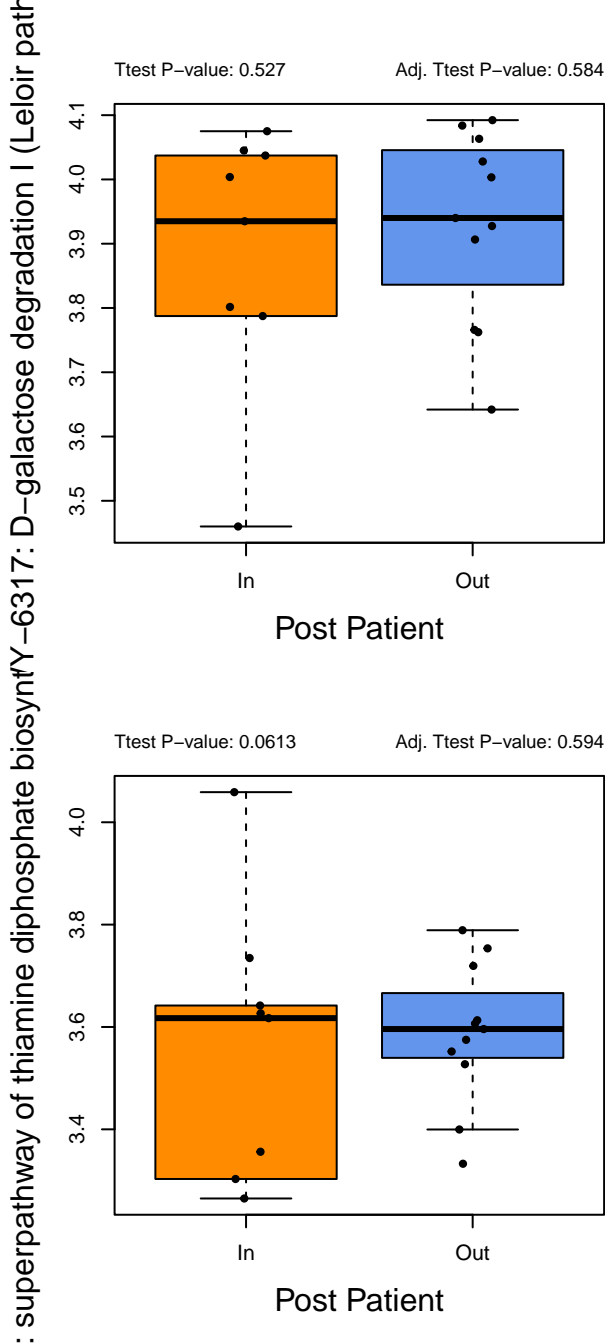


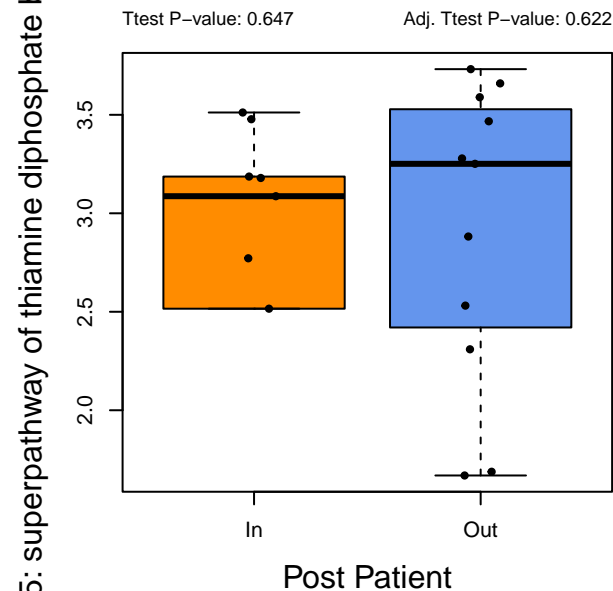
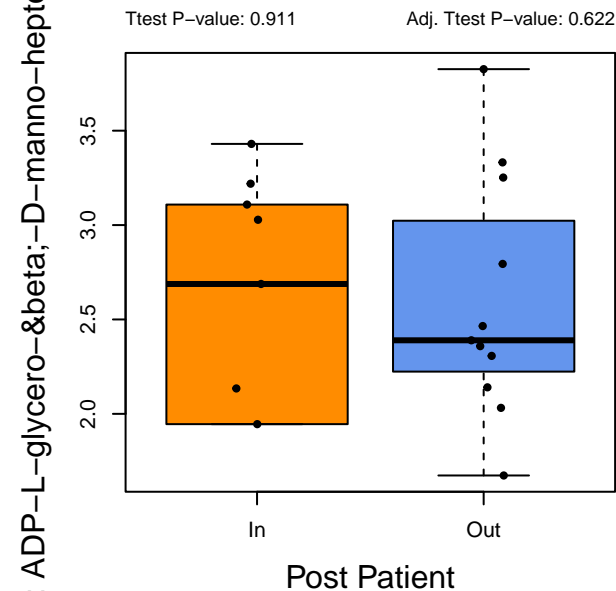
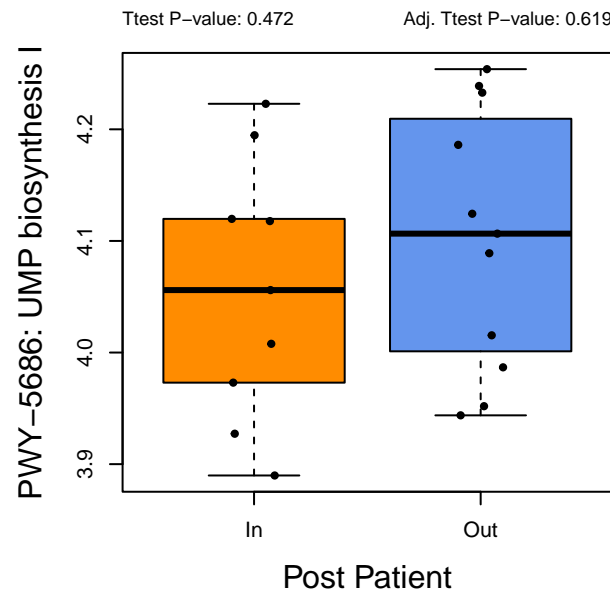
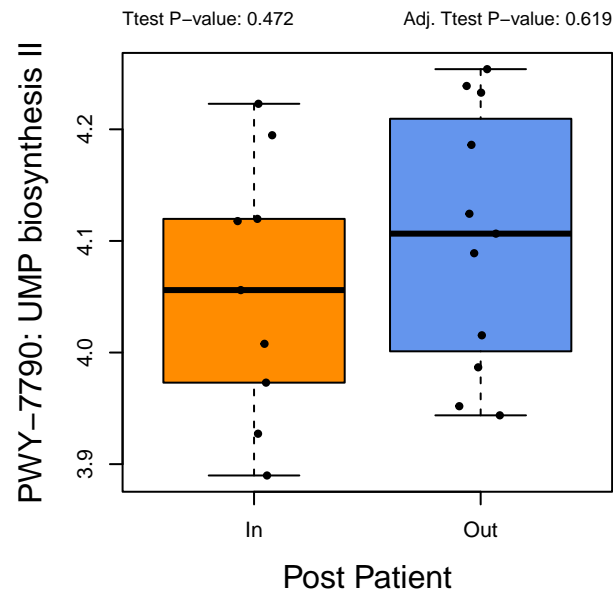
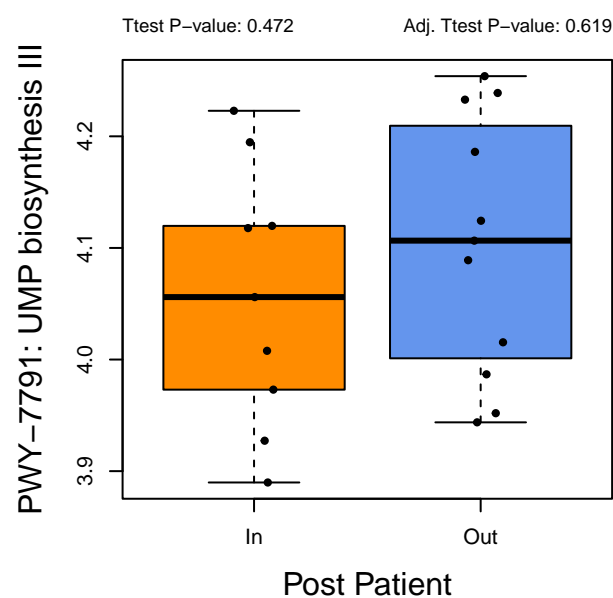
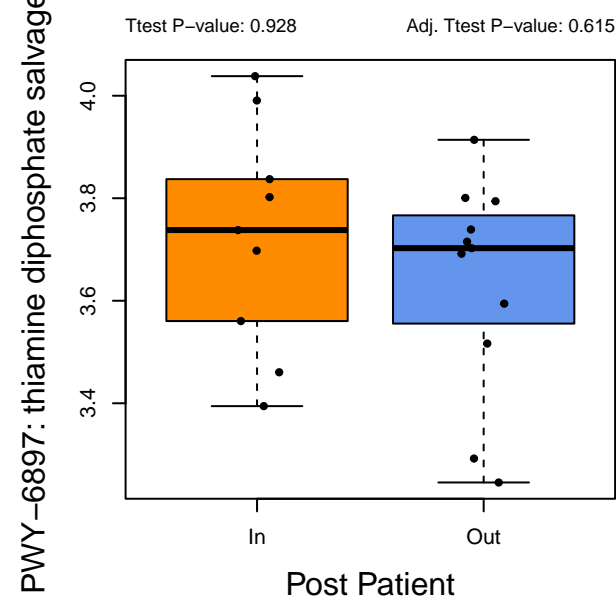
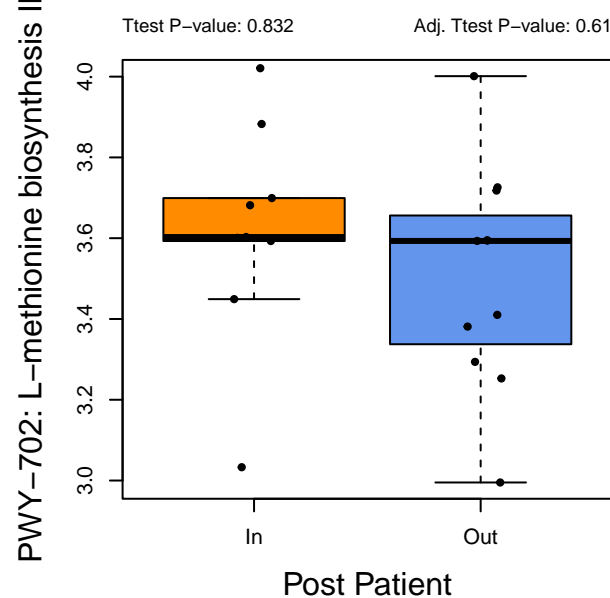
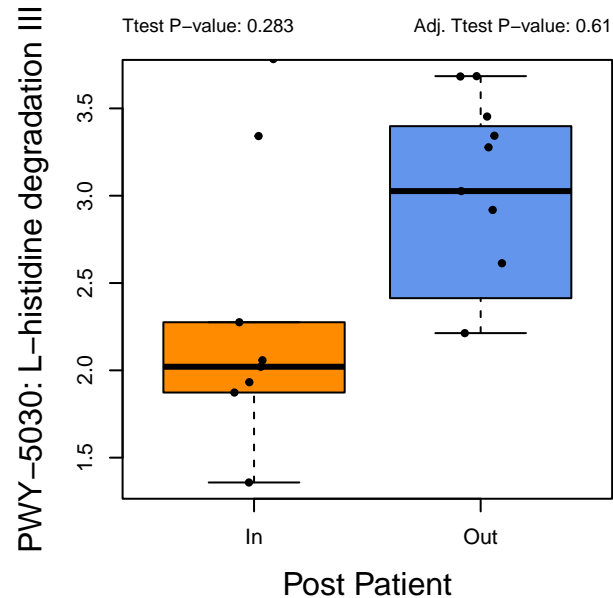


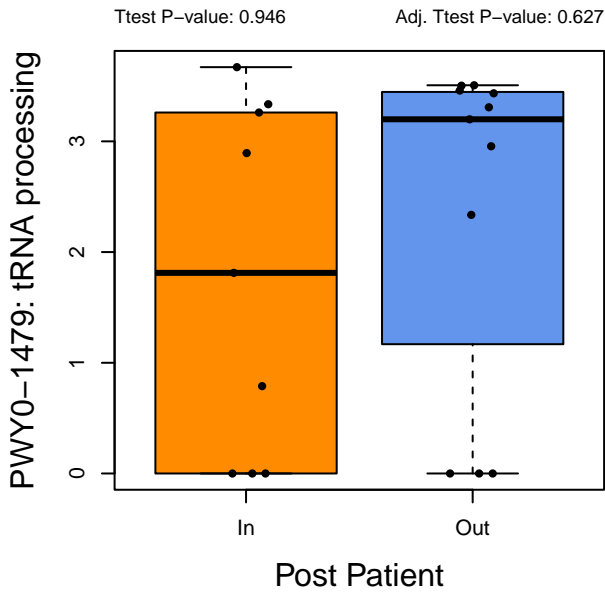
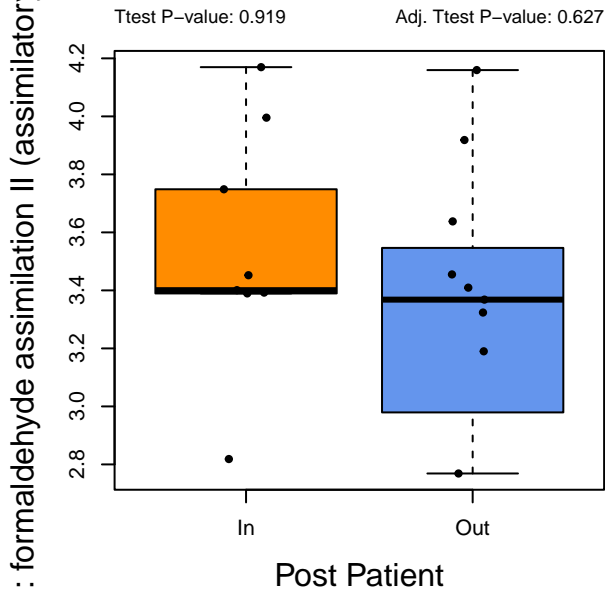
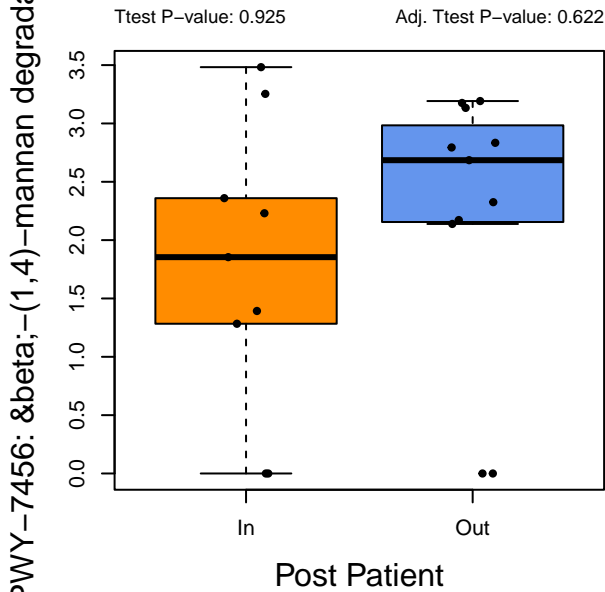
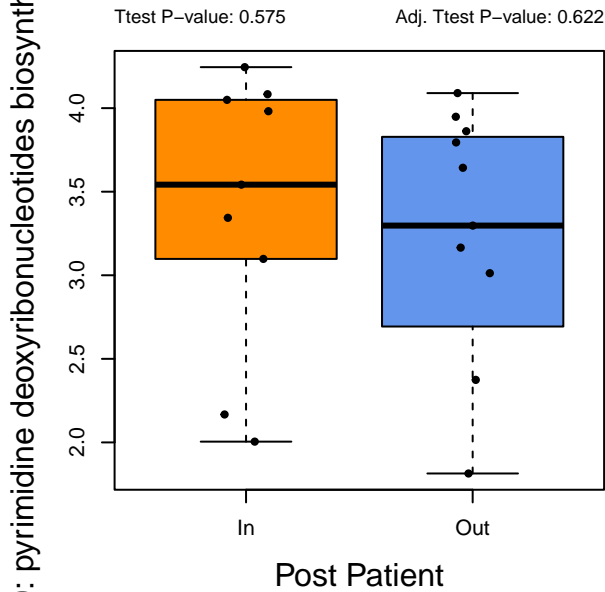
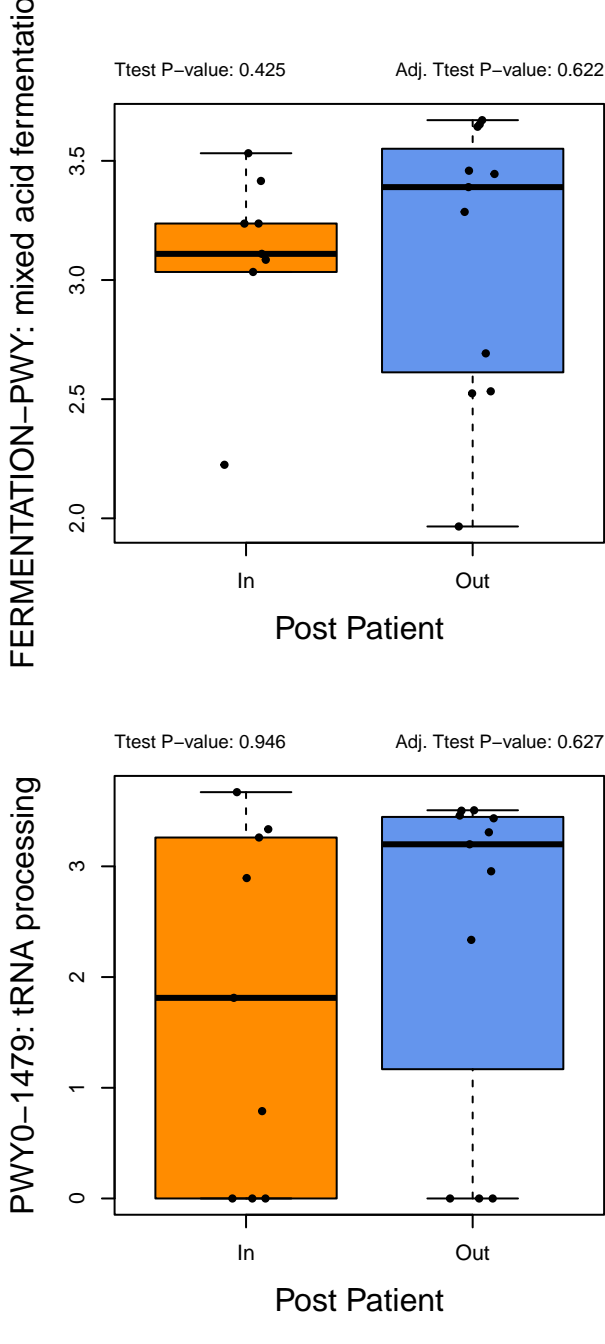
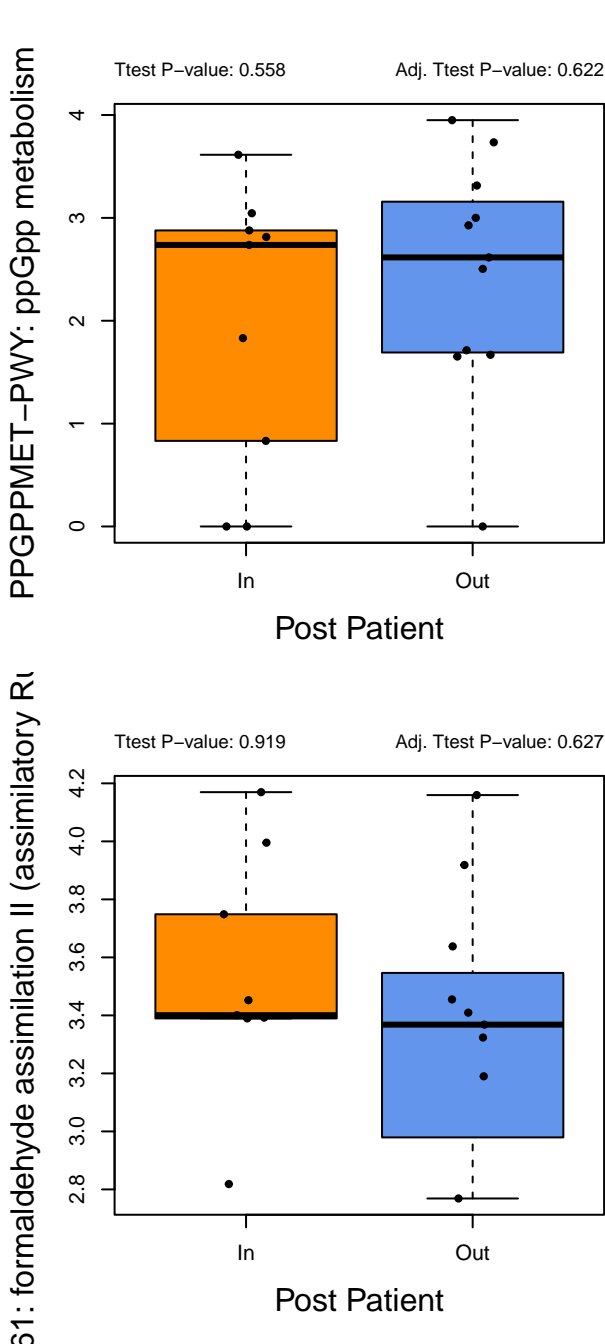
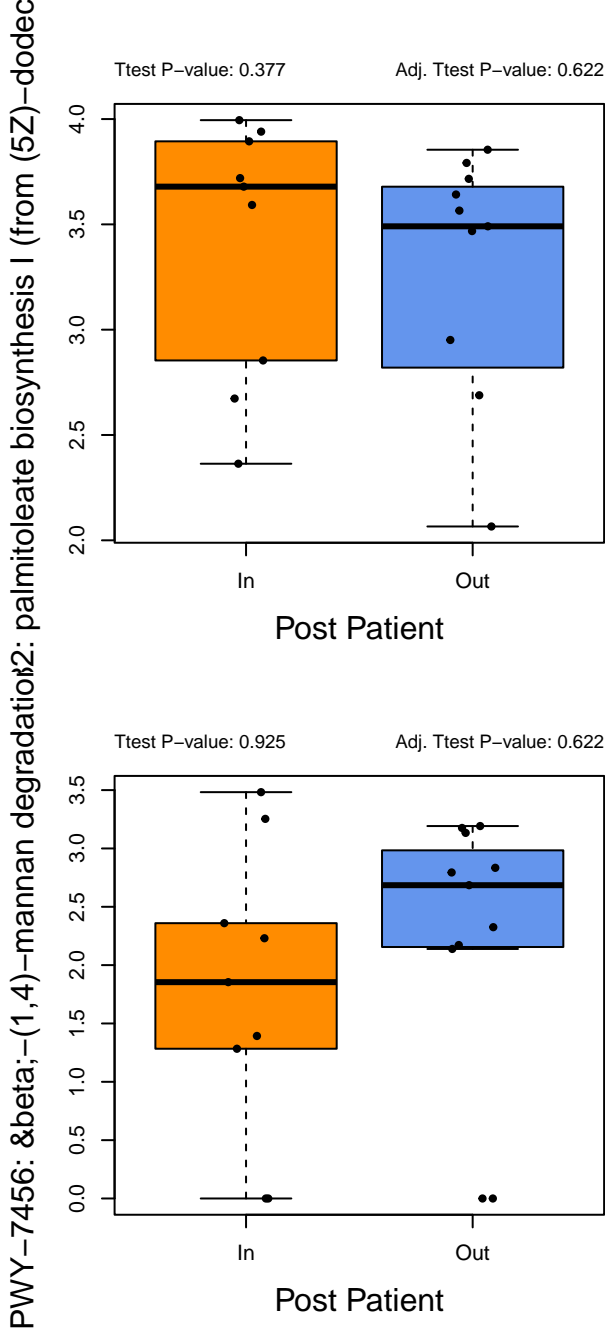
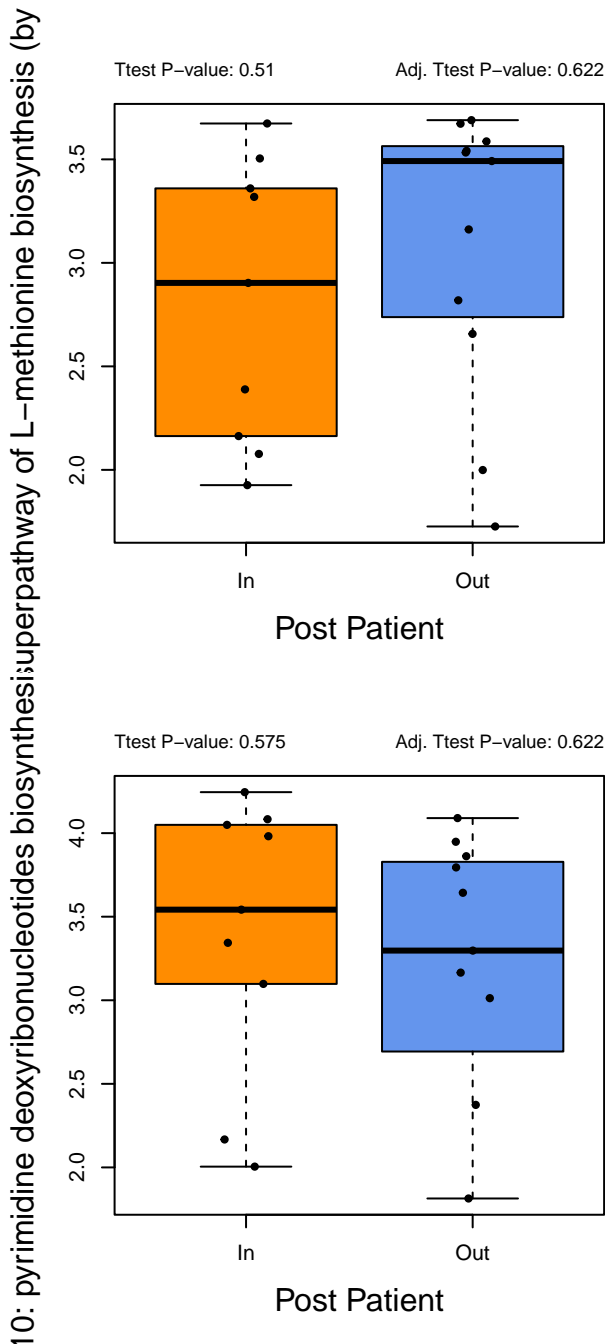


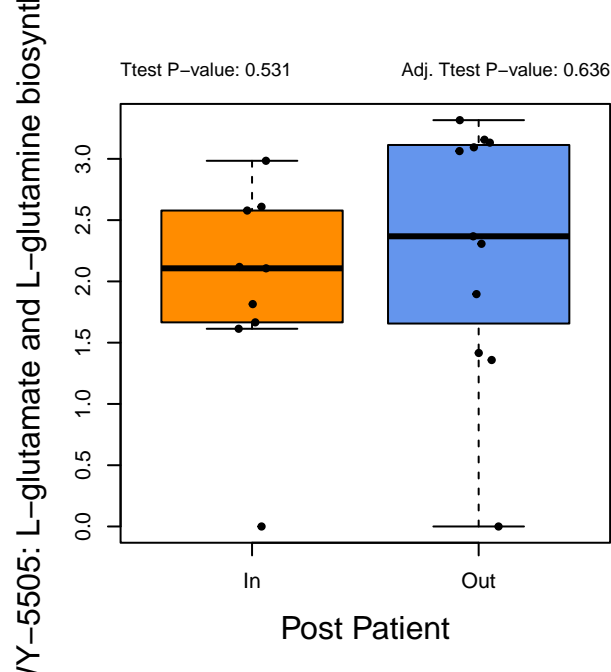
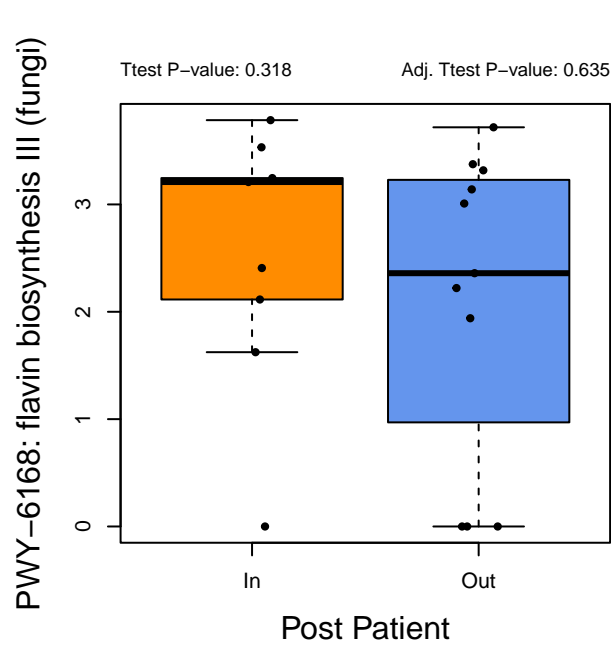
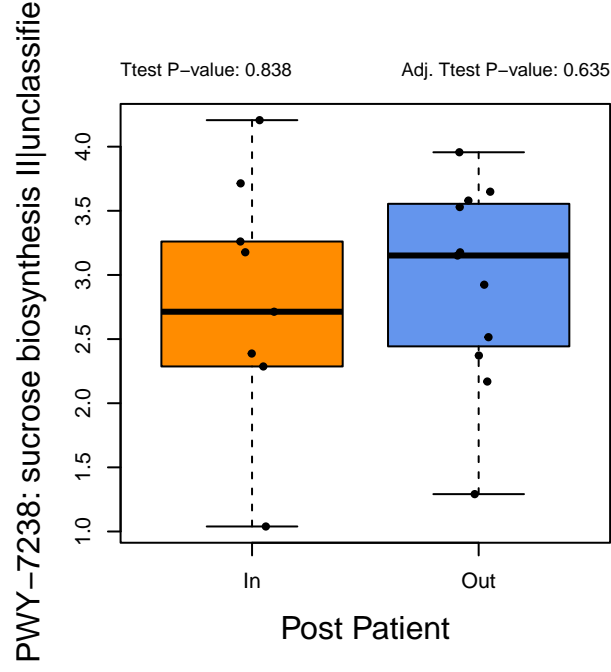
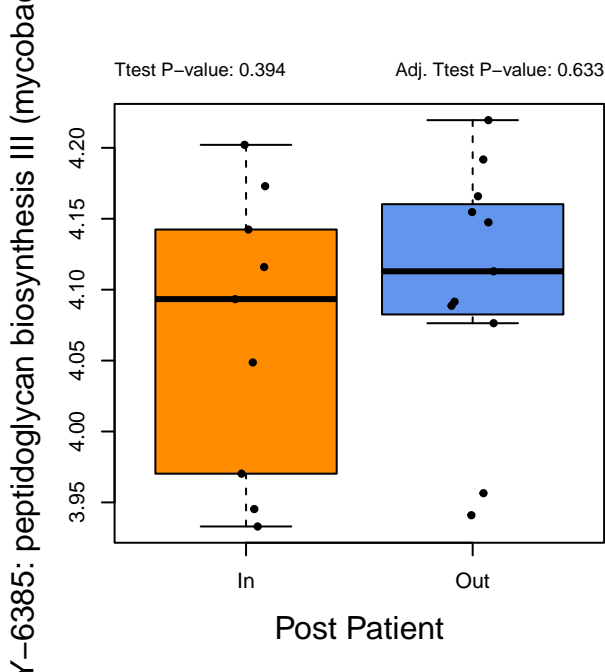
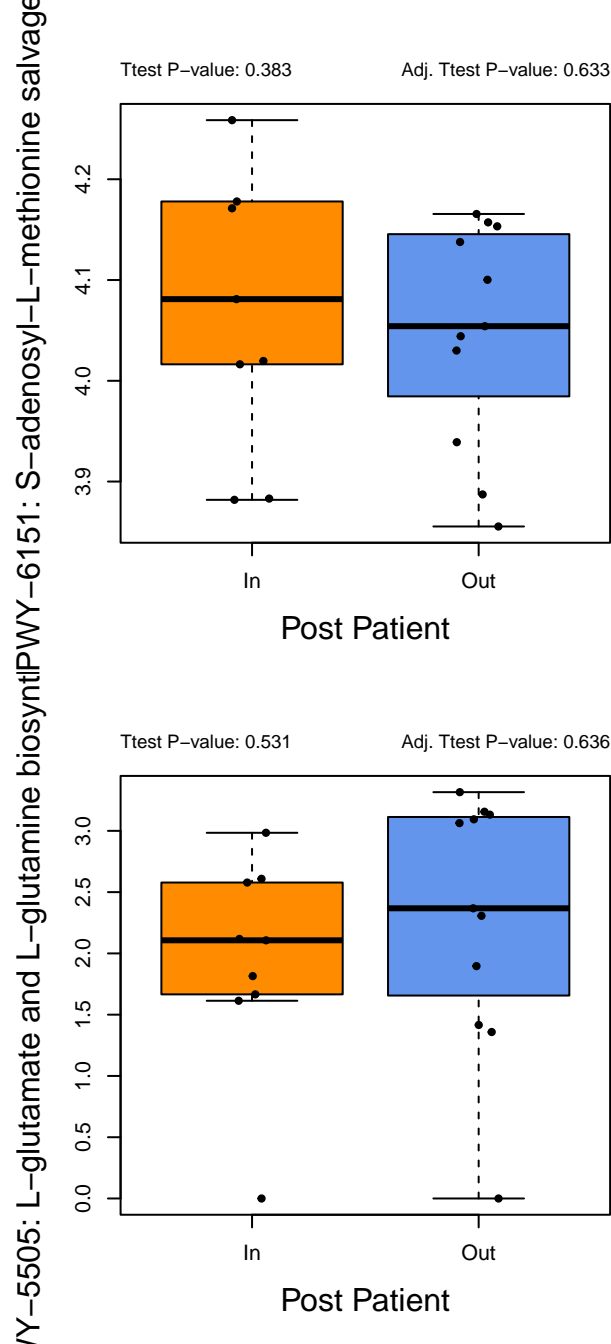
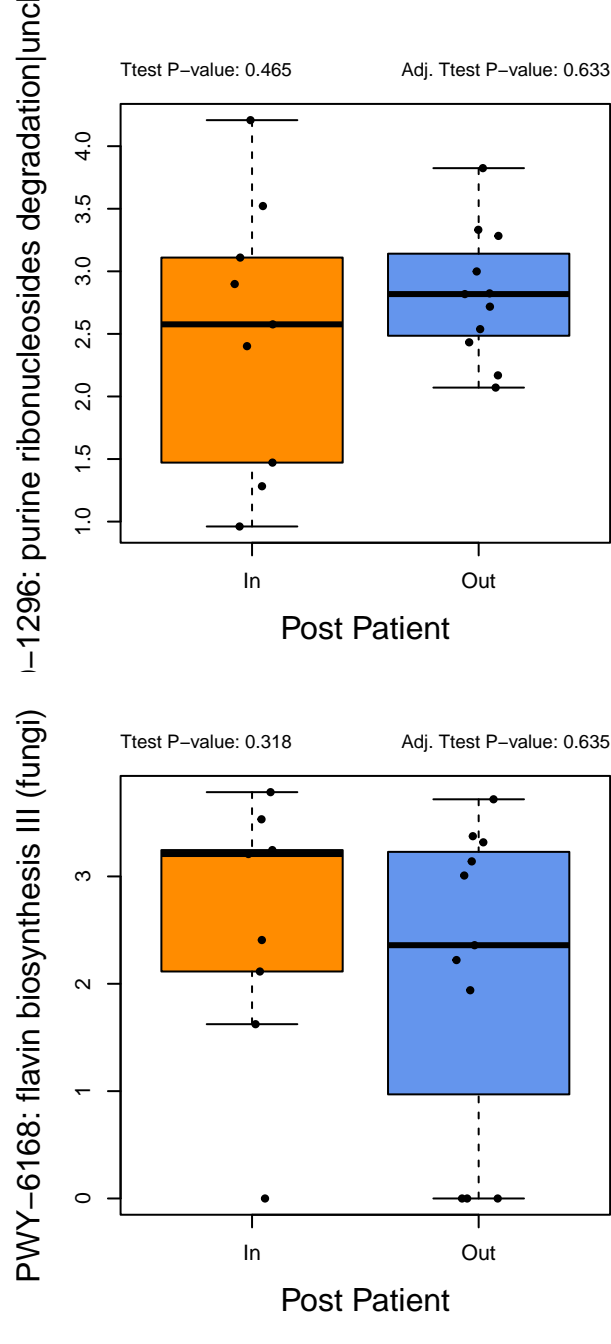
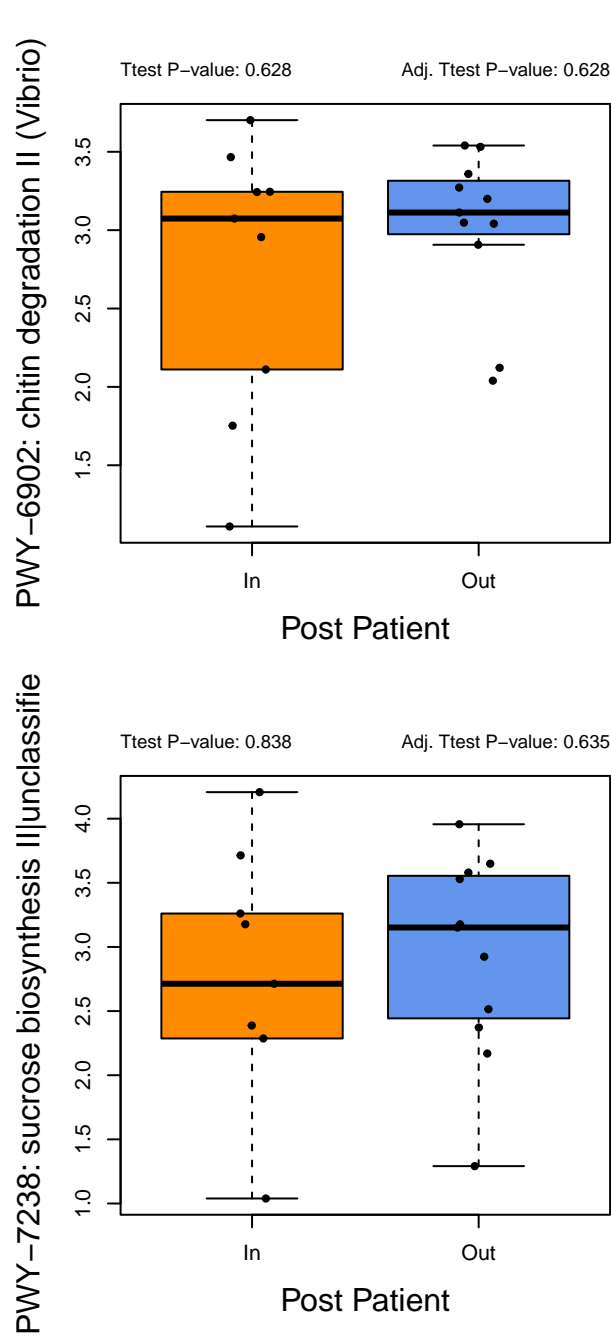
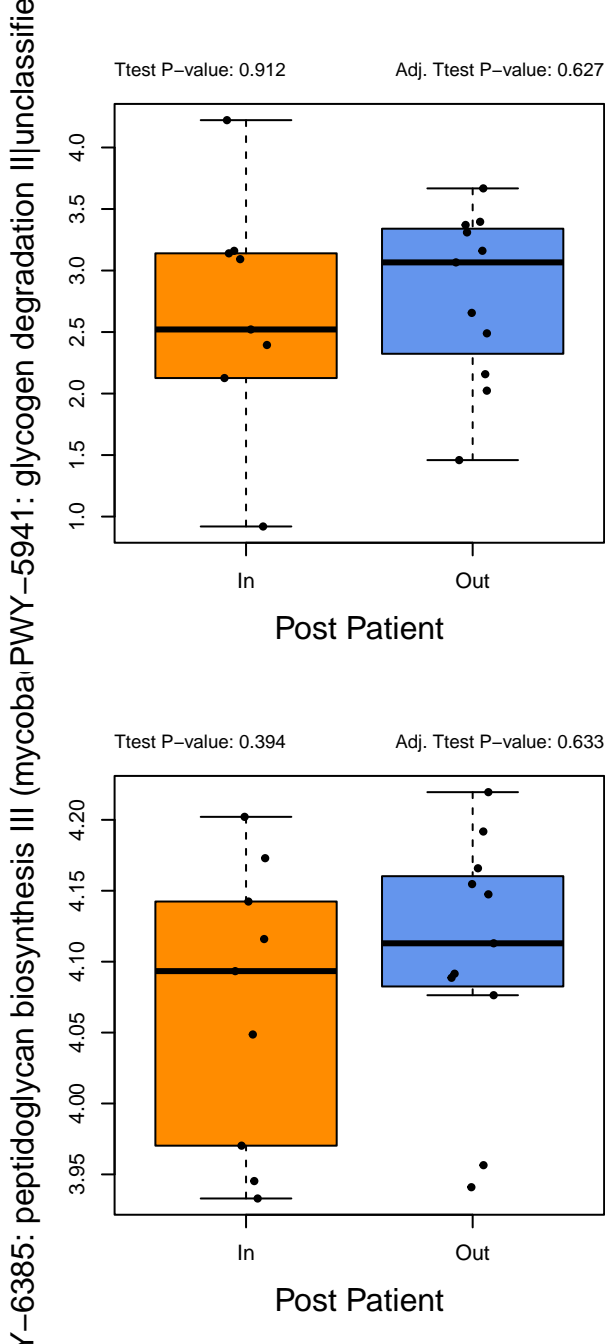


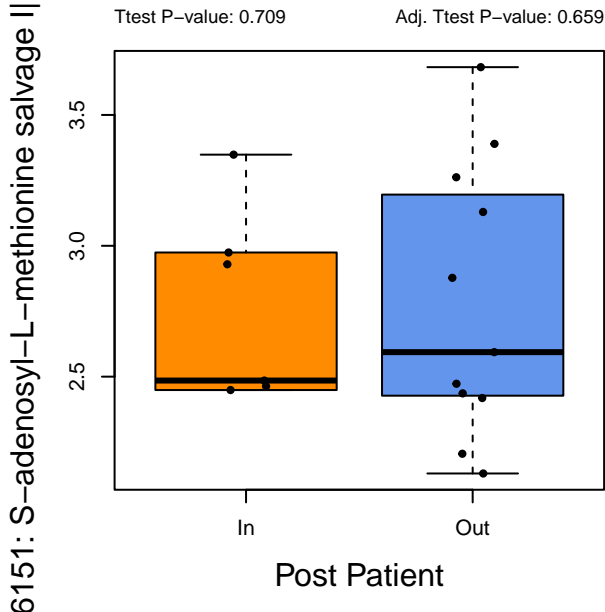
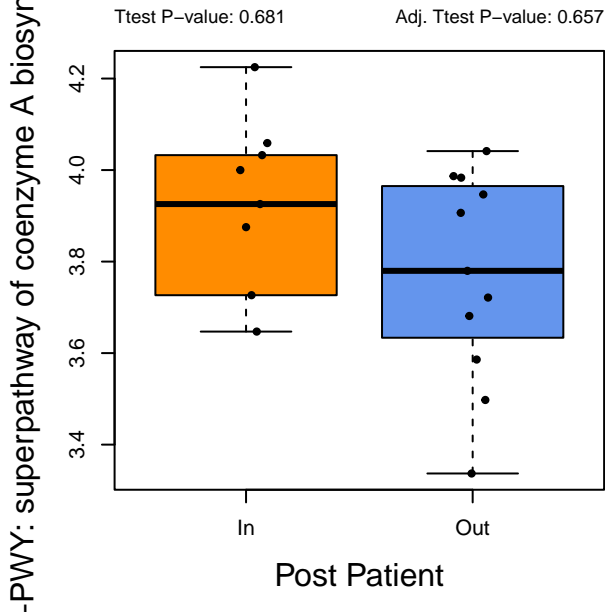
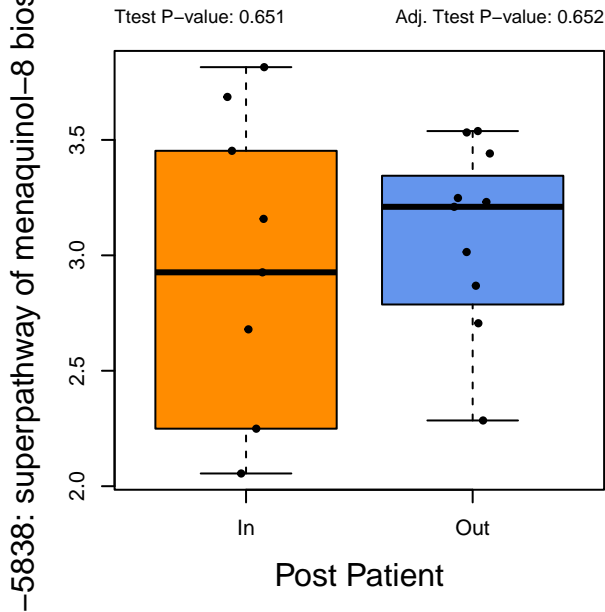
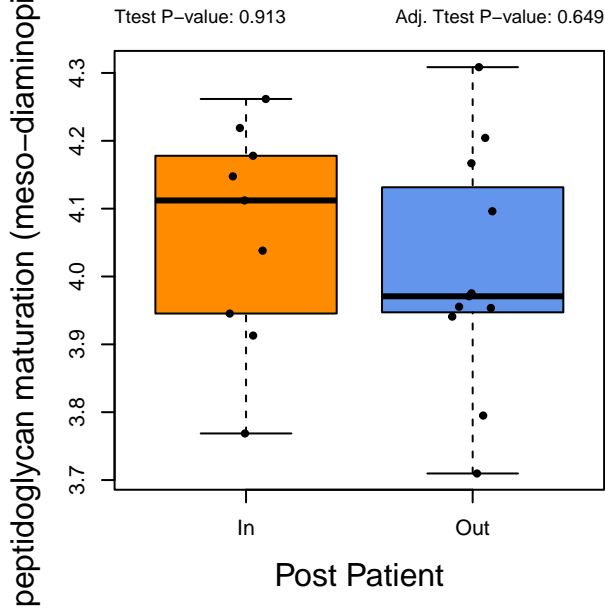
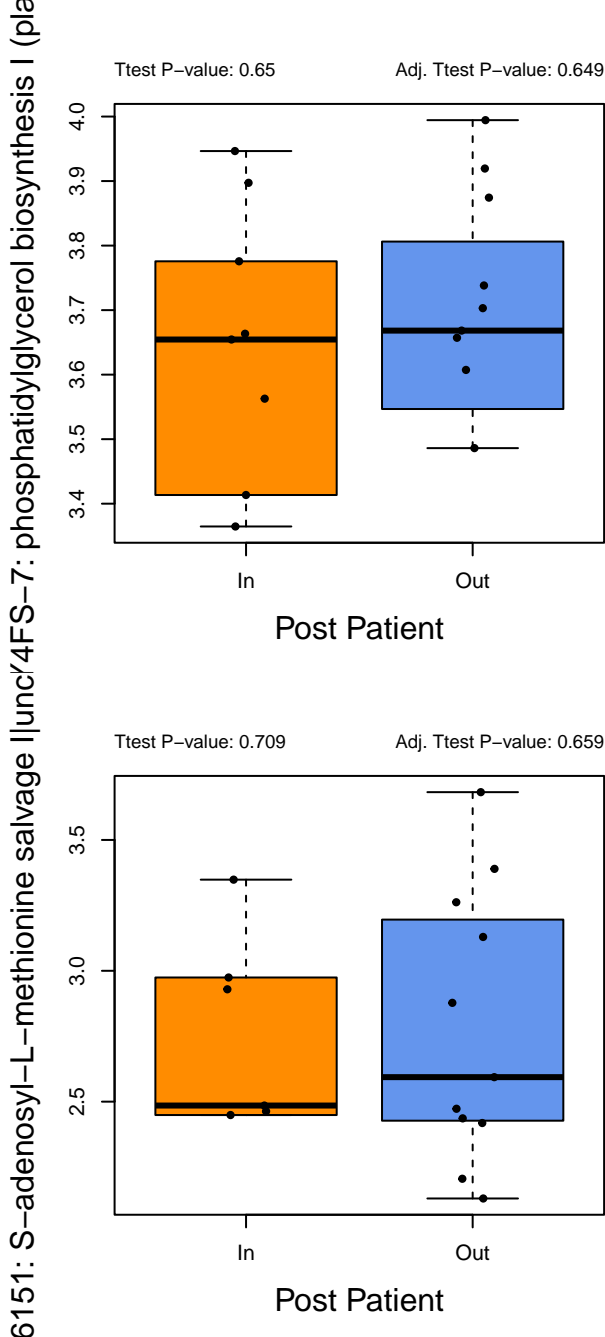
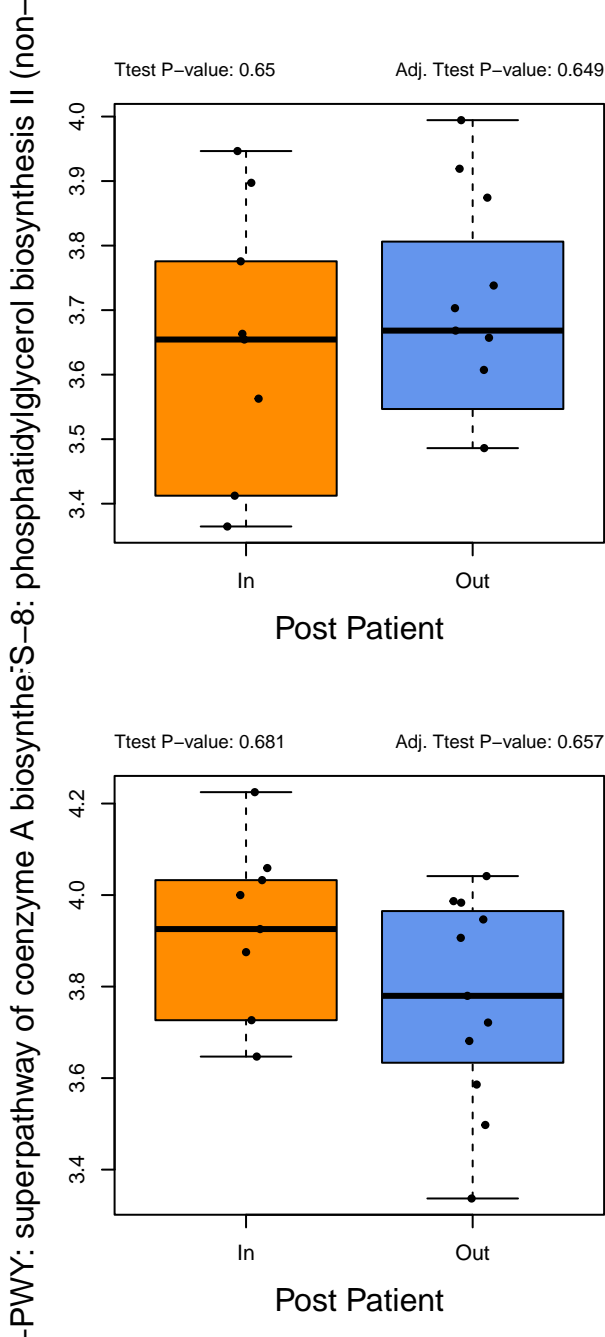
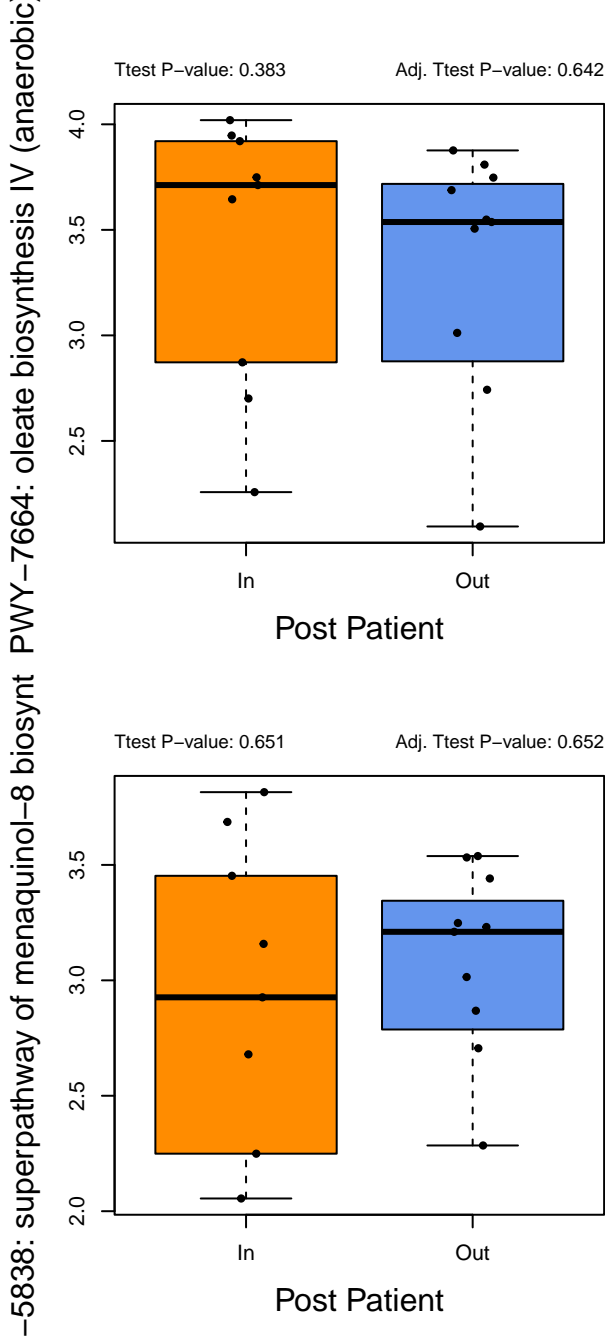
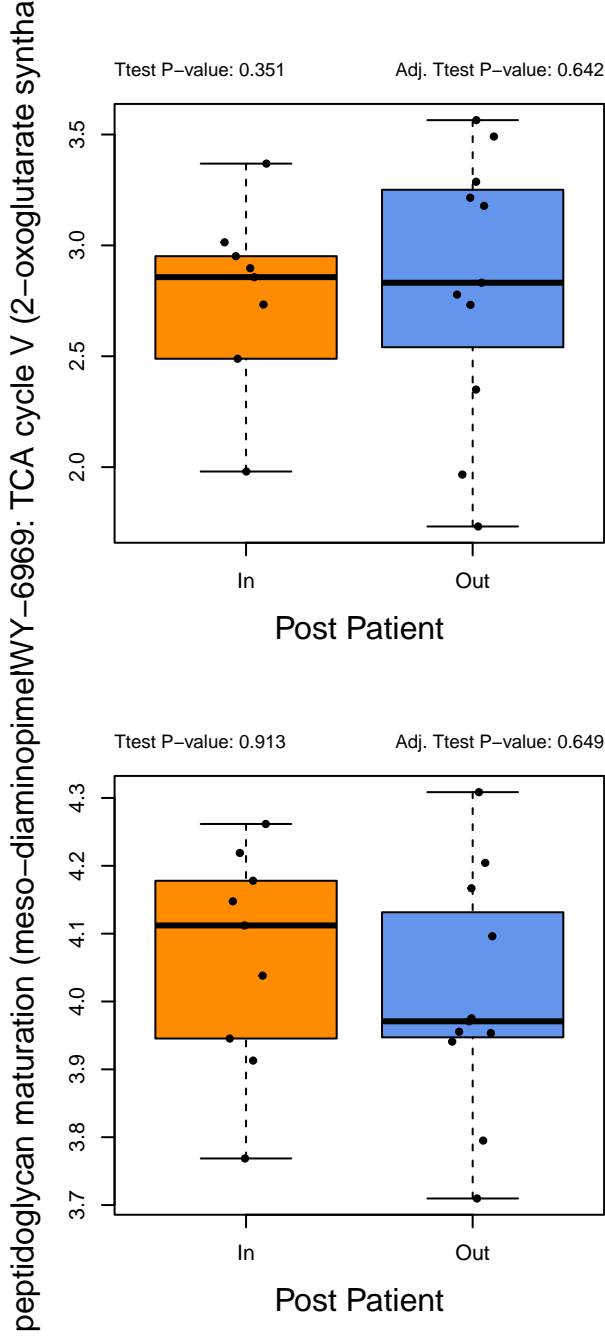




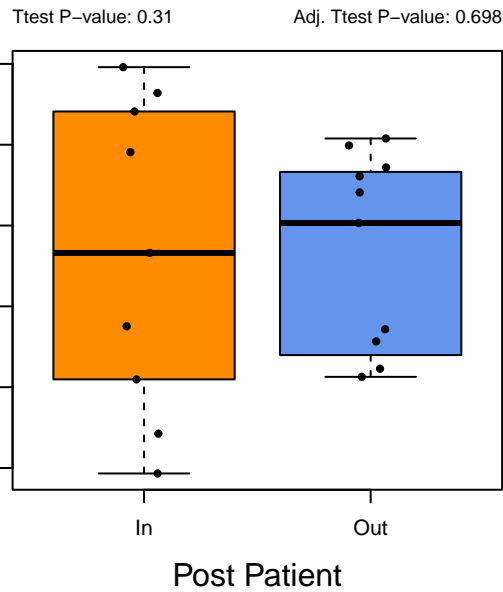




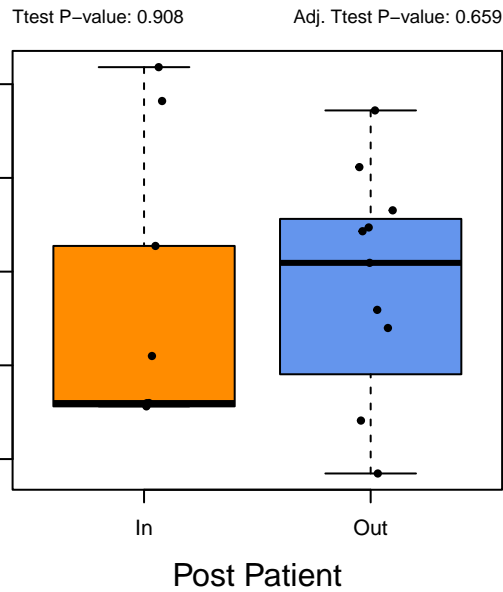




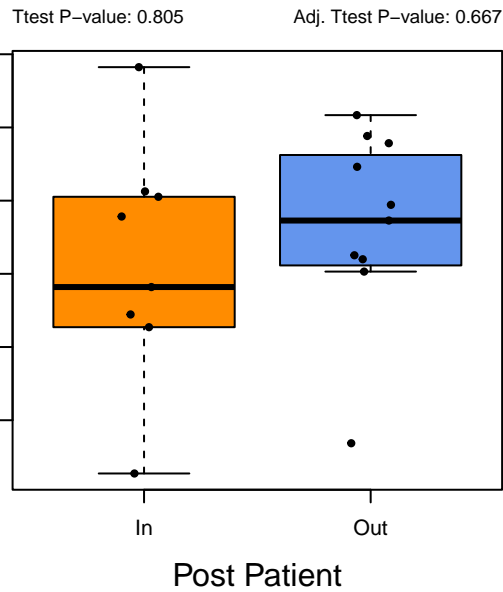
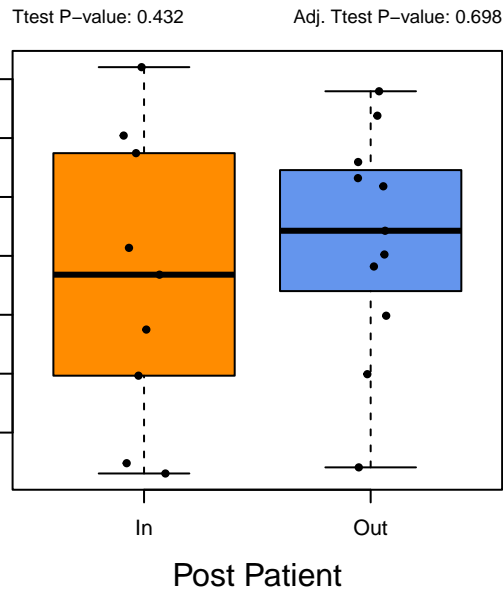
superpathway of pyrimidine deoxyribonucleosic



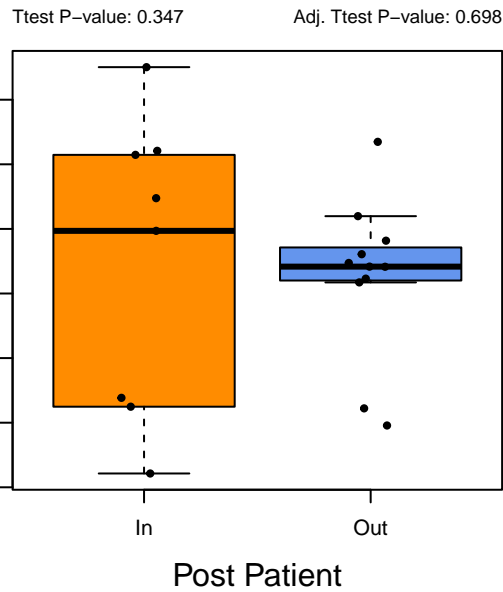
TRNA-CHARGING-PWY: tRNA charging



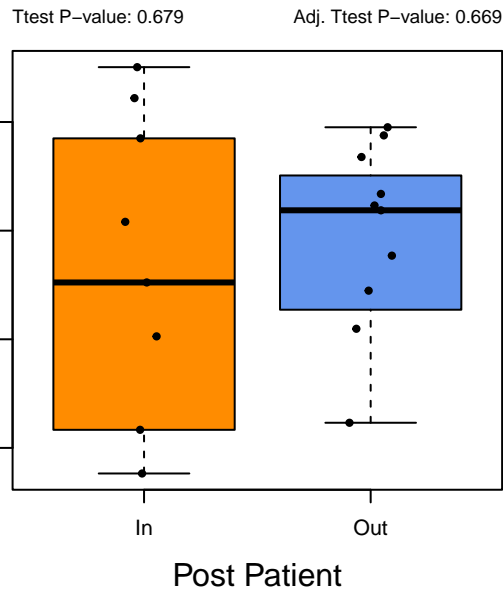
LPWY: peptidoglycan biosynthesis I (meso-diauperpathway of pyrimidine ribonucleotides de no



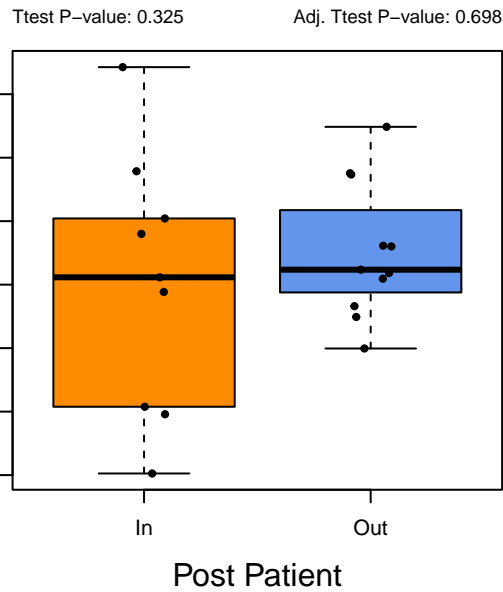
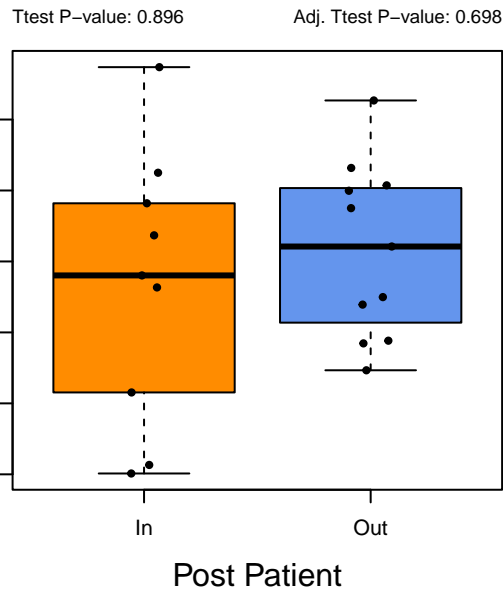
PWY-8004: Entner-Doudoroff pathway I

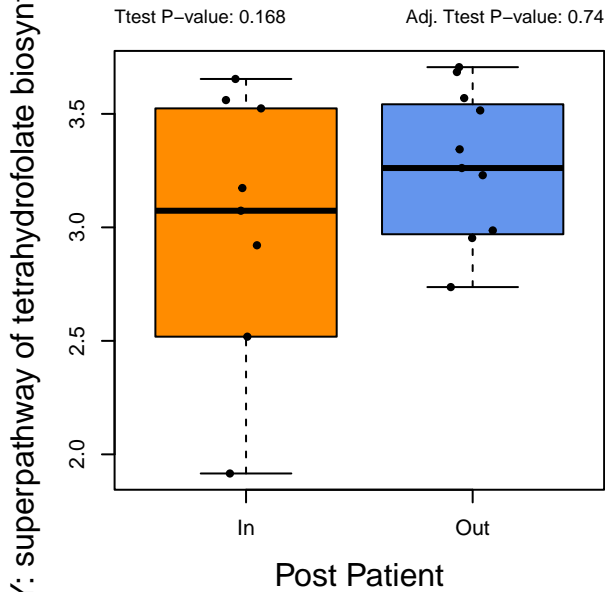
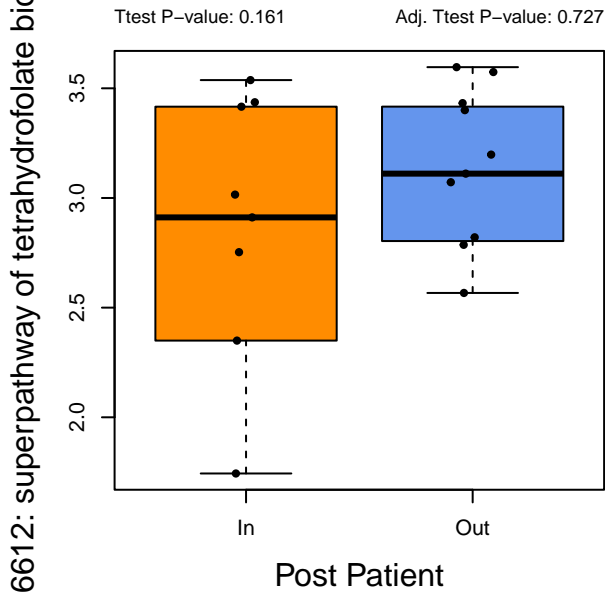
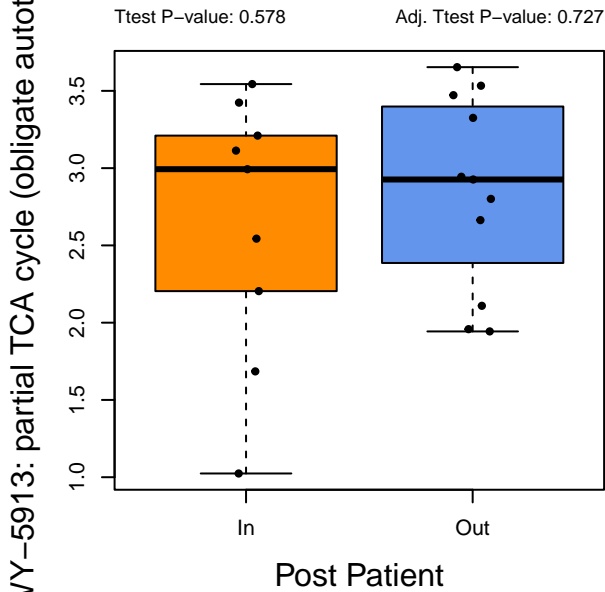
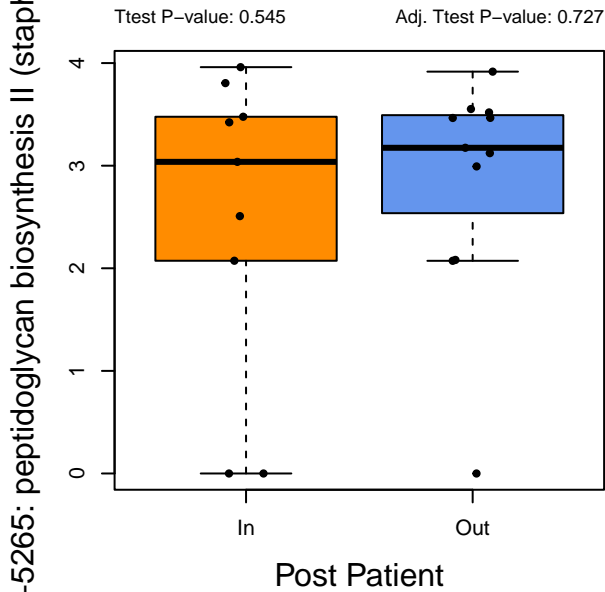
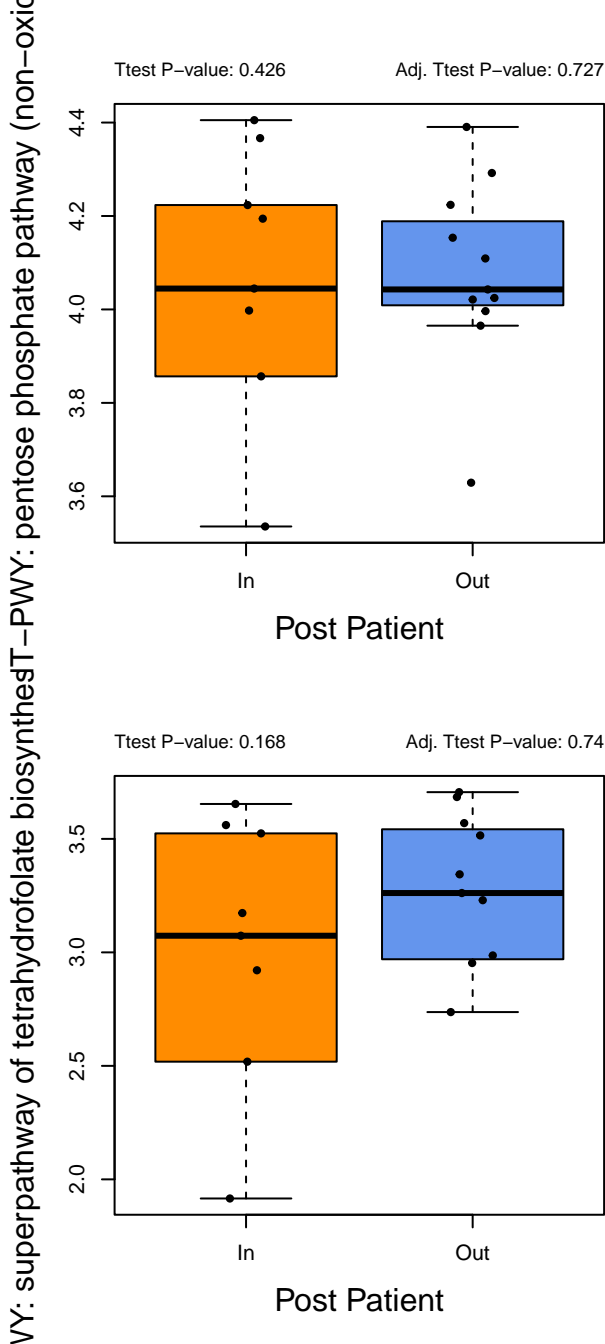
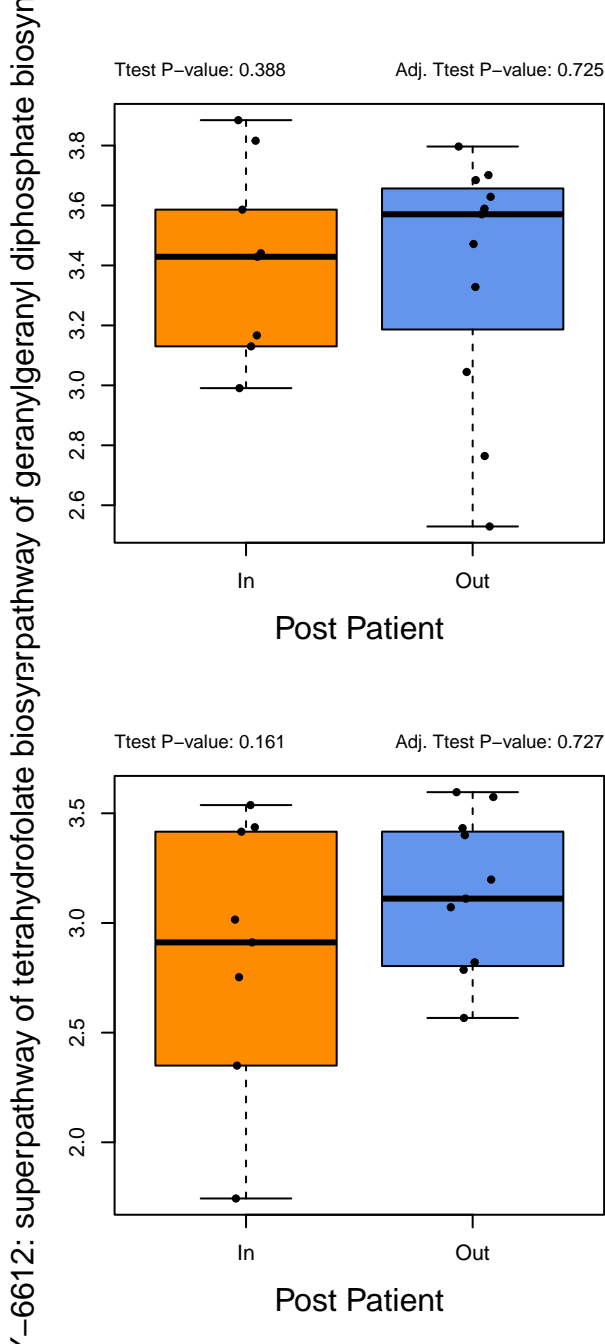
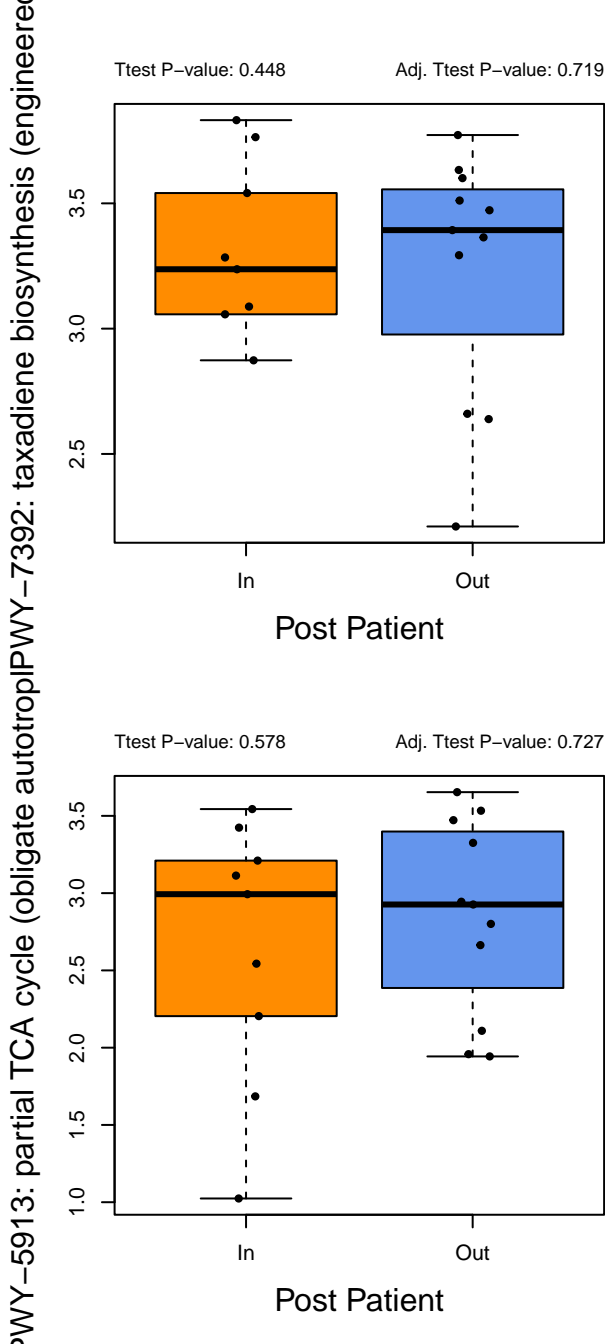
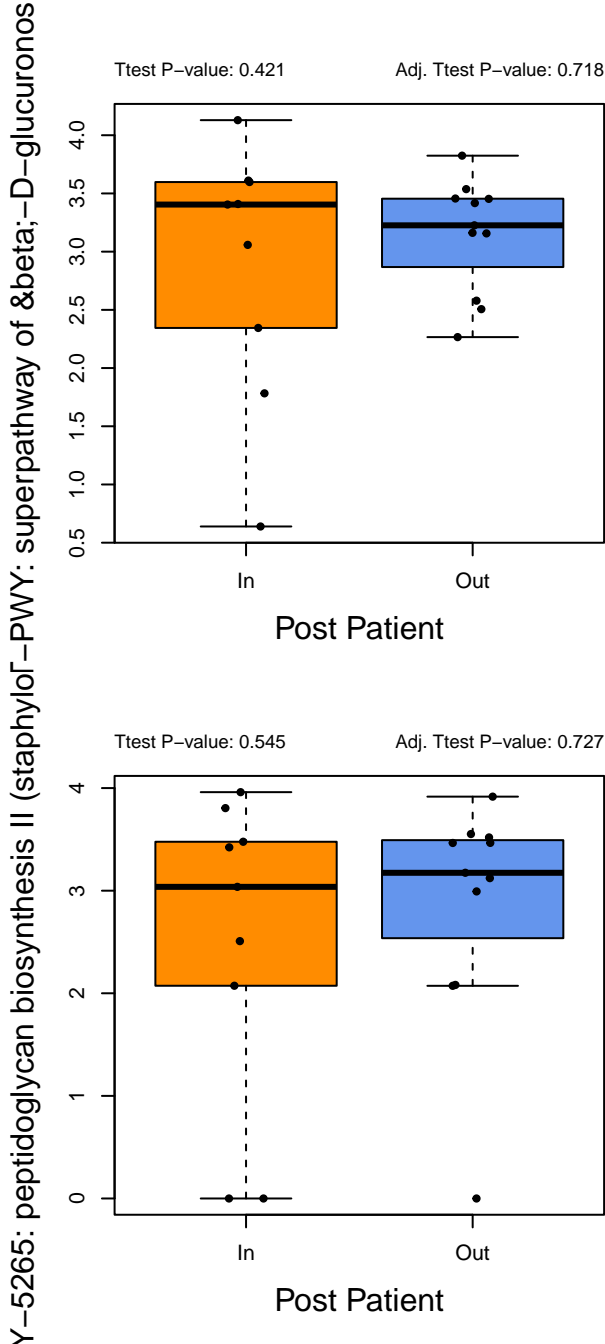


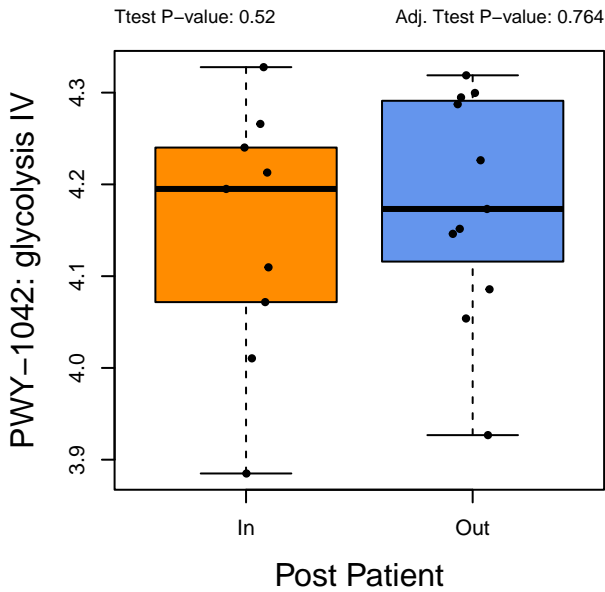
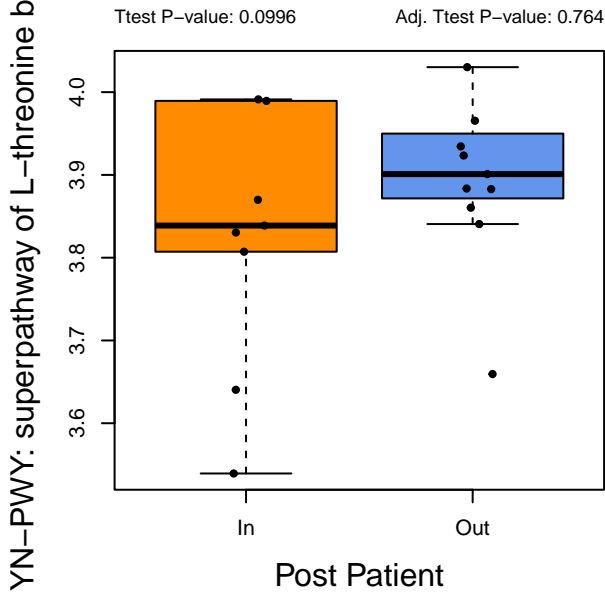
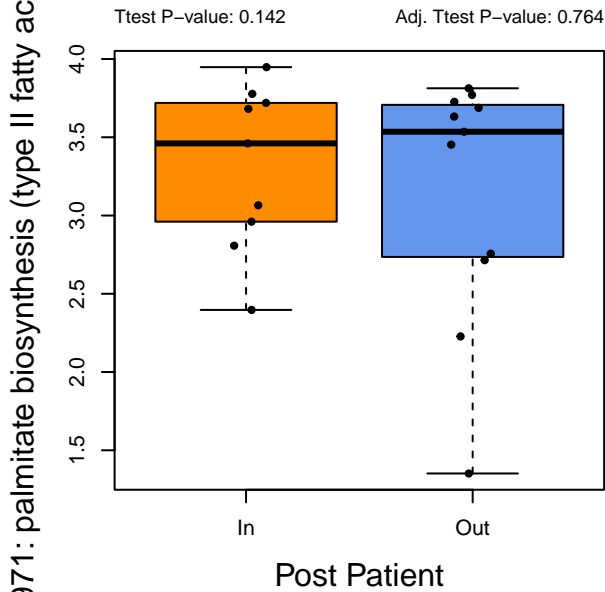
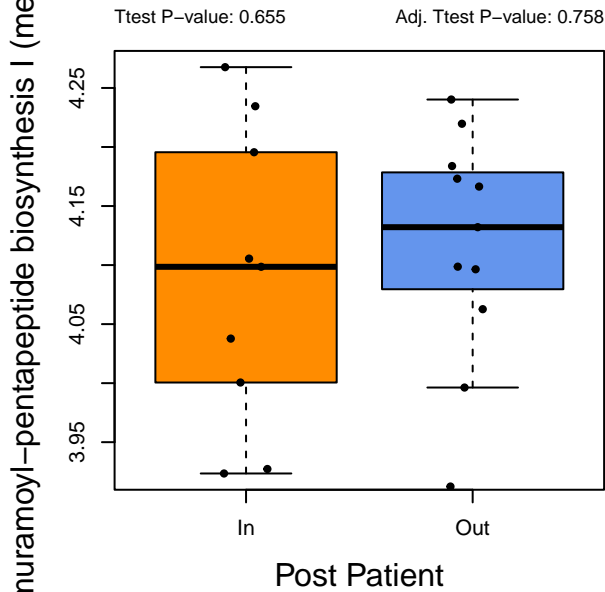
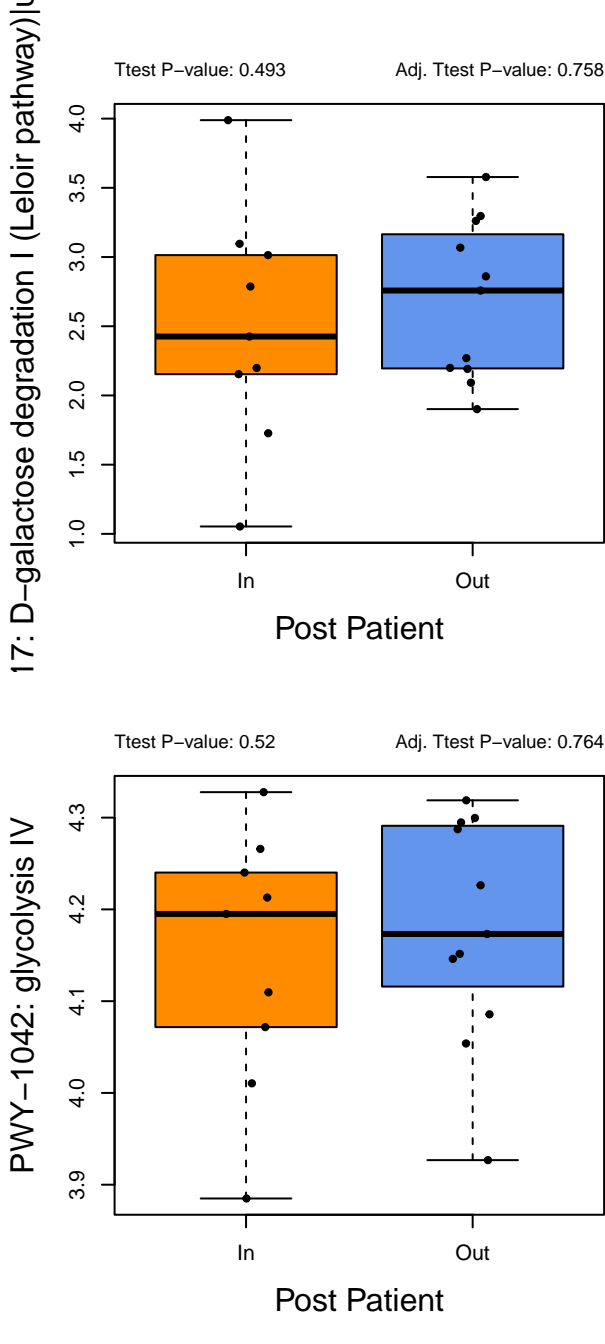
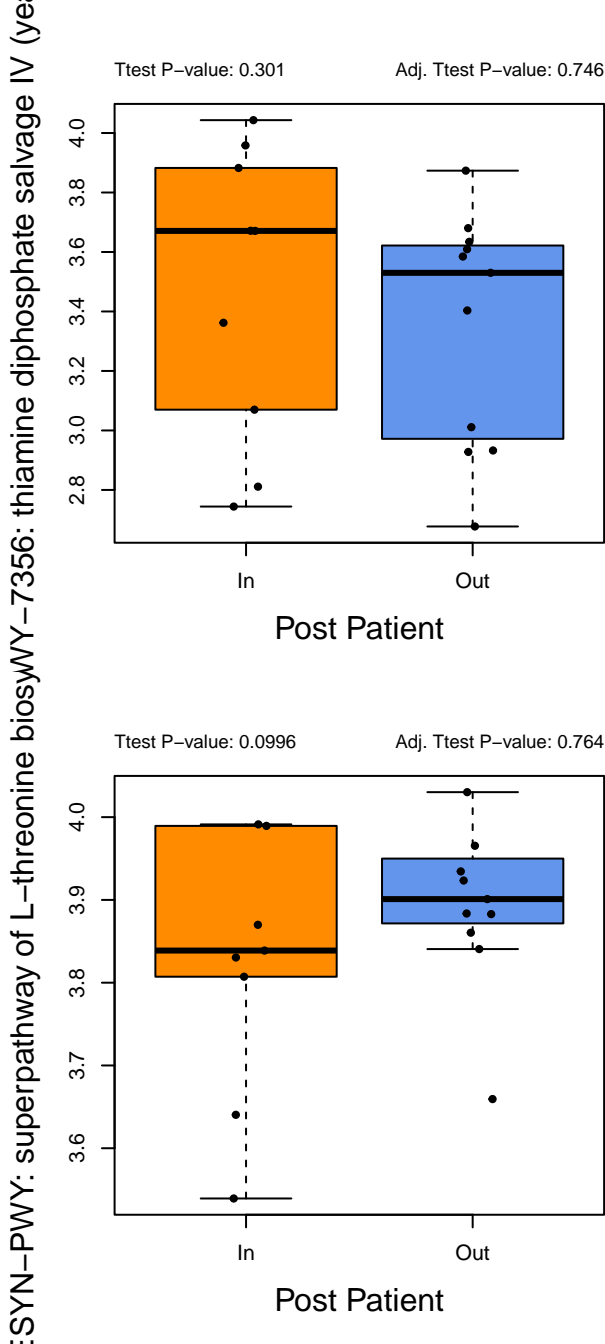
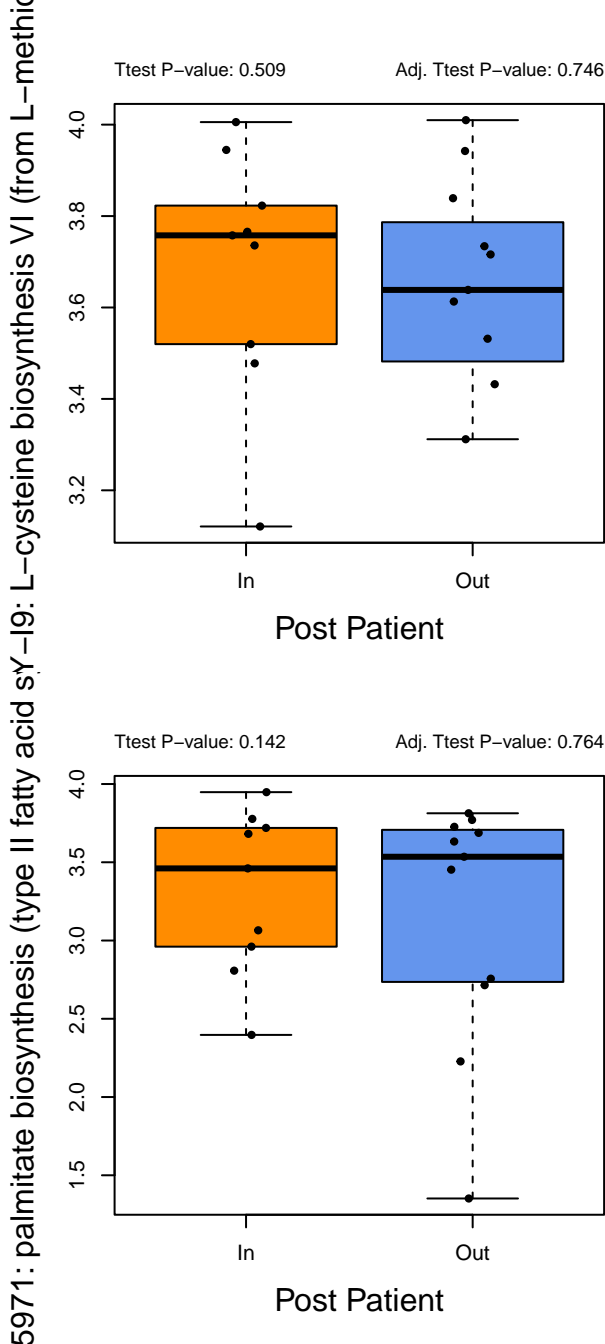
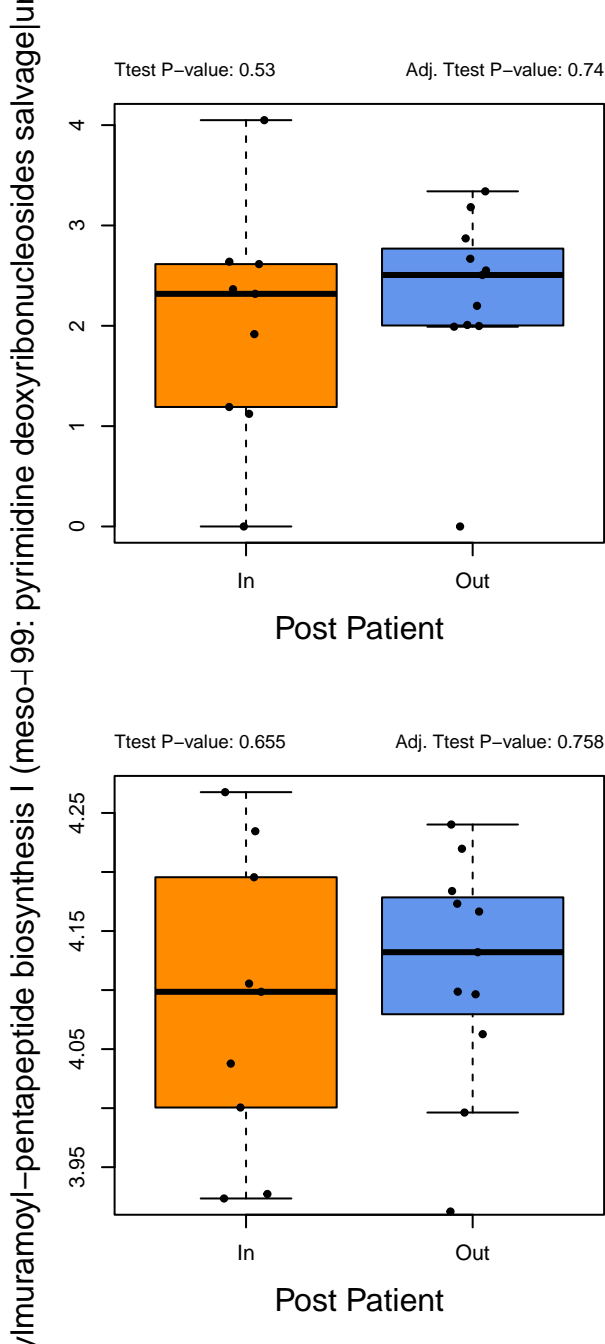
61: superpathway of demethylmenaquinol-8 bio



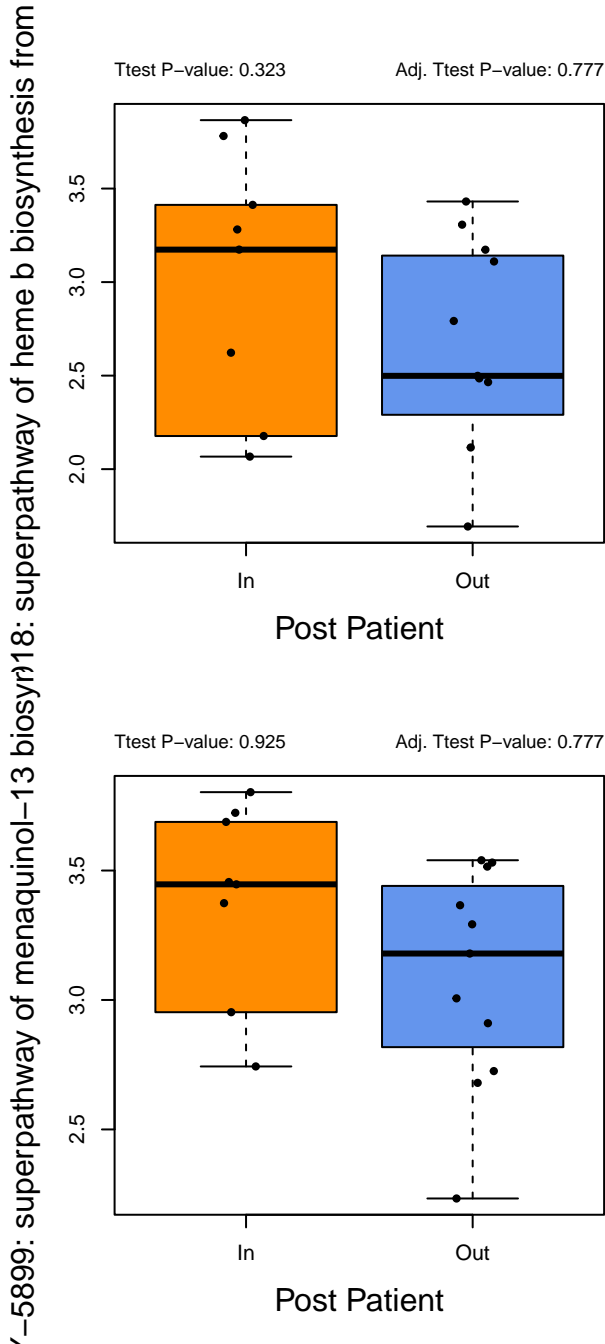
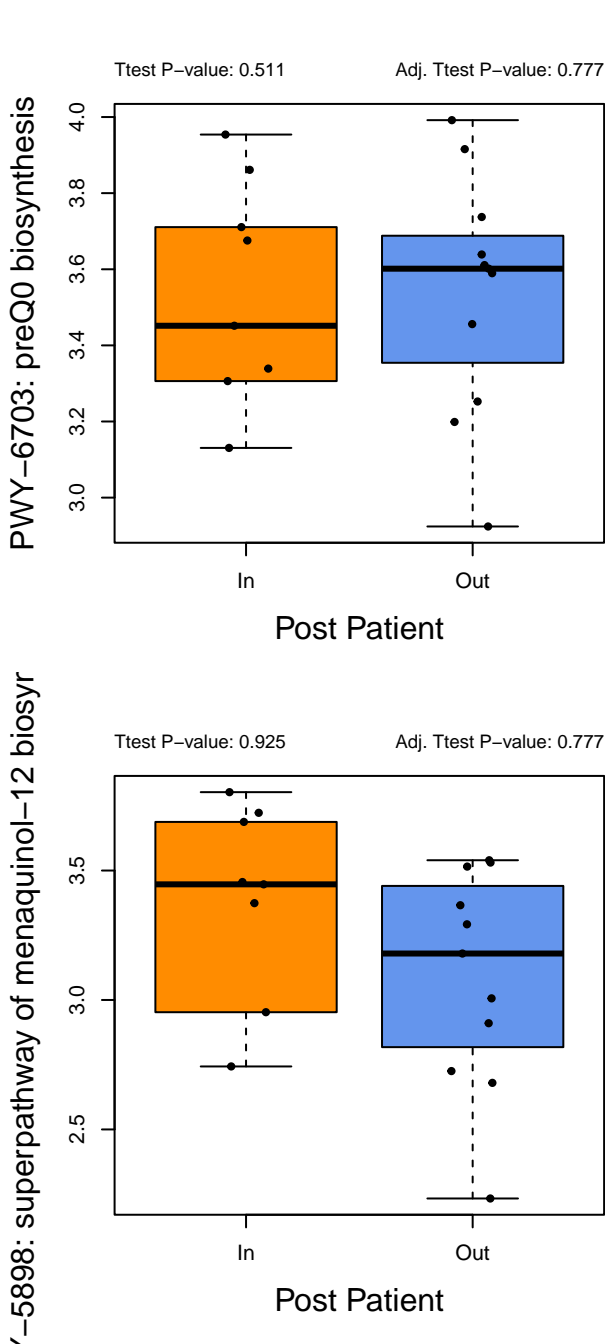
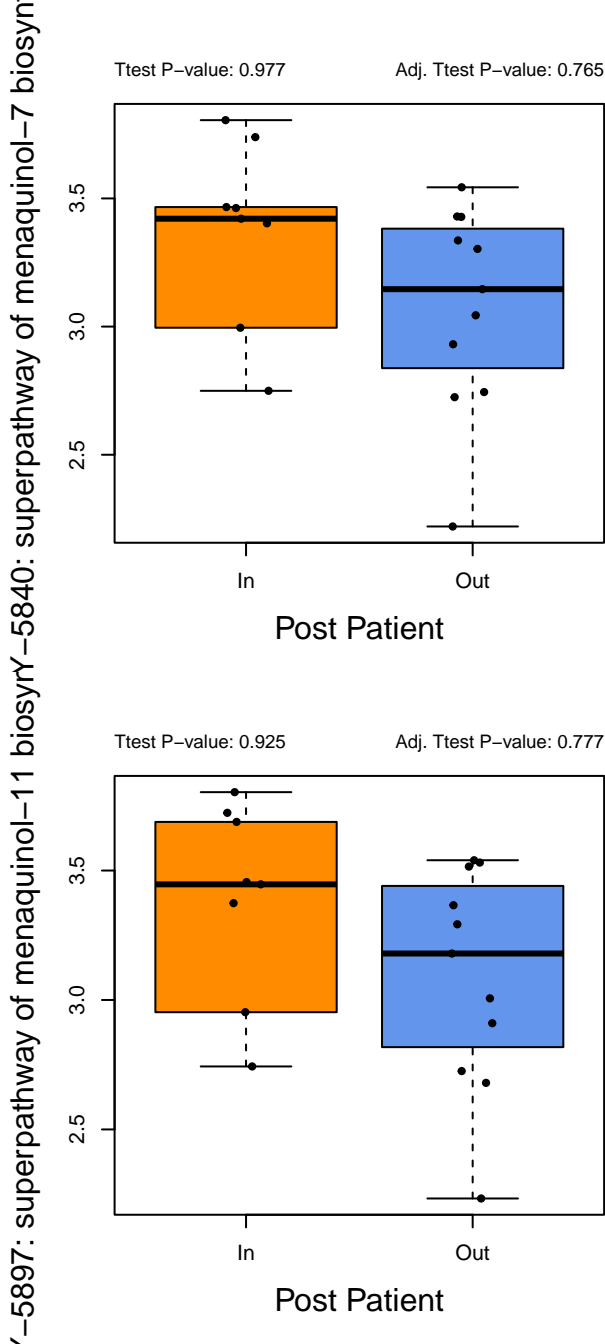
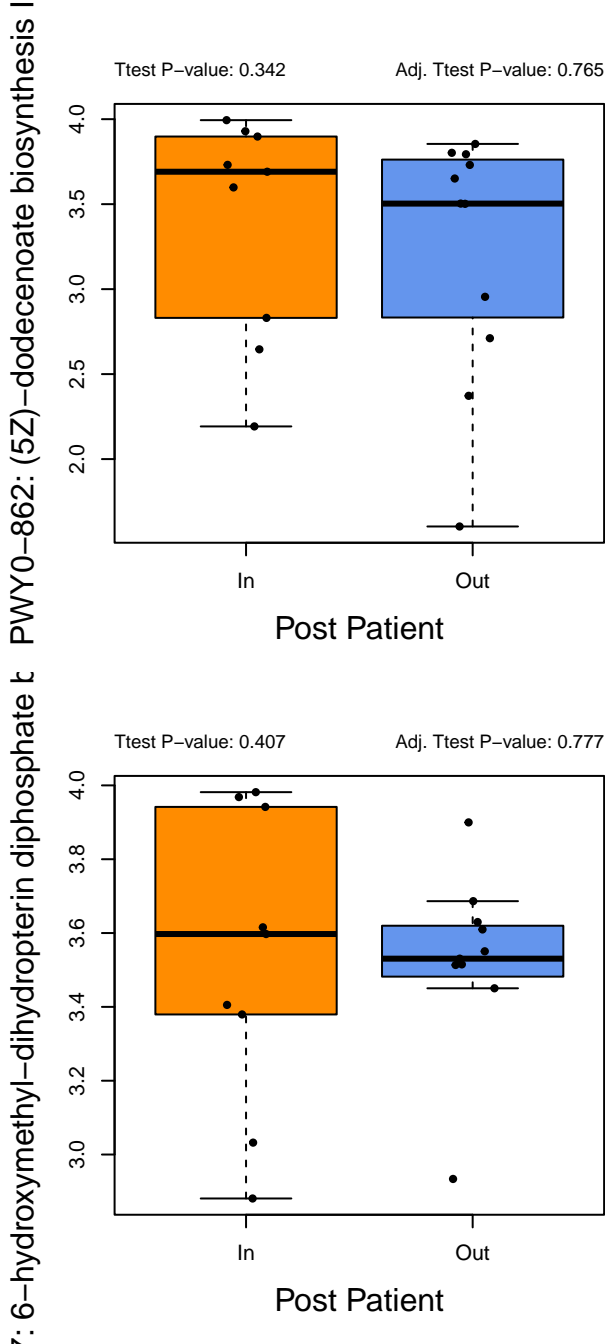
COLYSIS-PWY: glycolysis III (from glucose)lur-6609: adenine and adenosine salvage IIIlucial



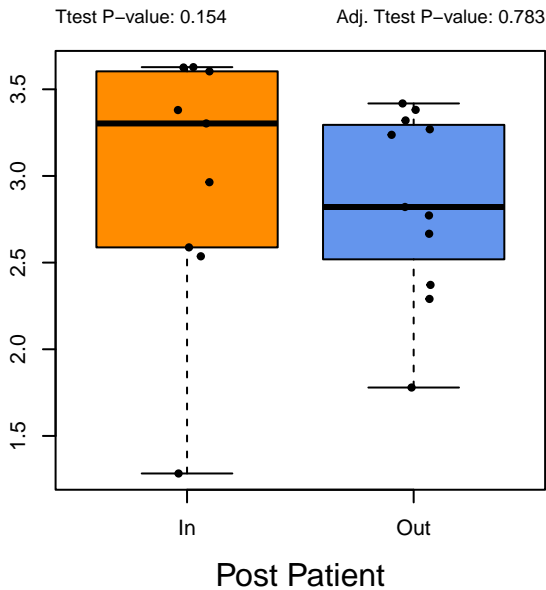
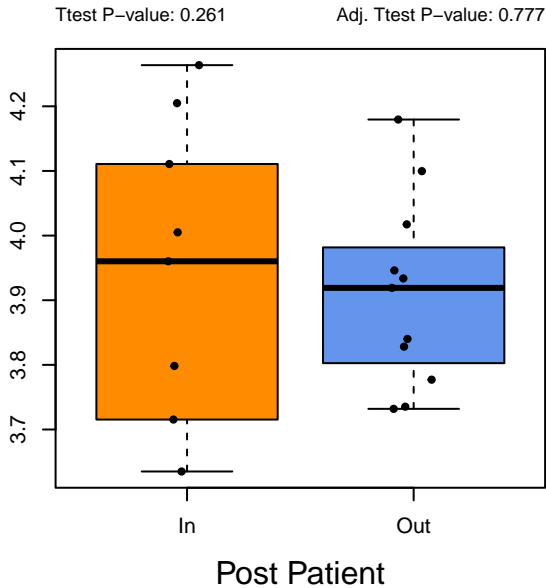




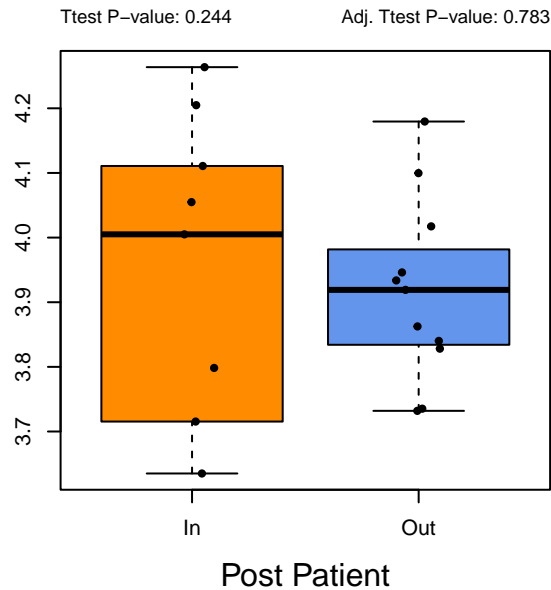
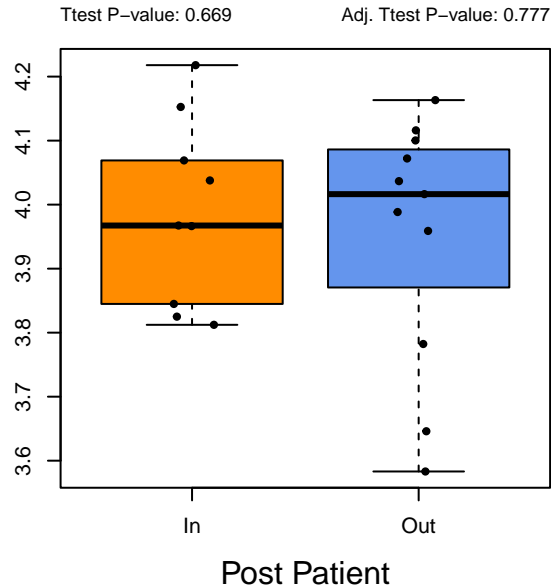




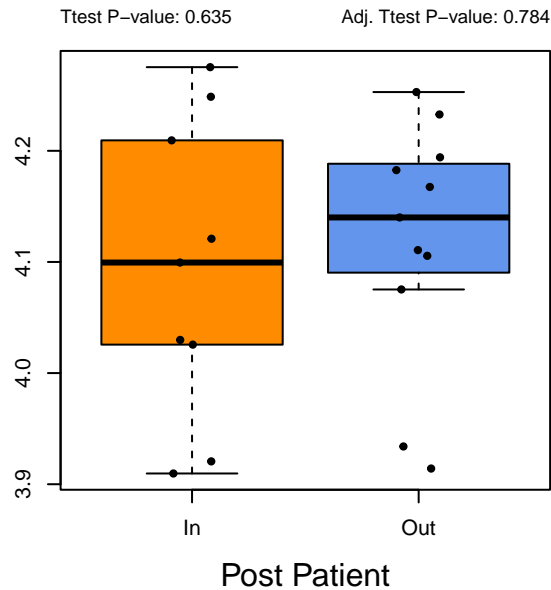
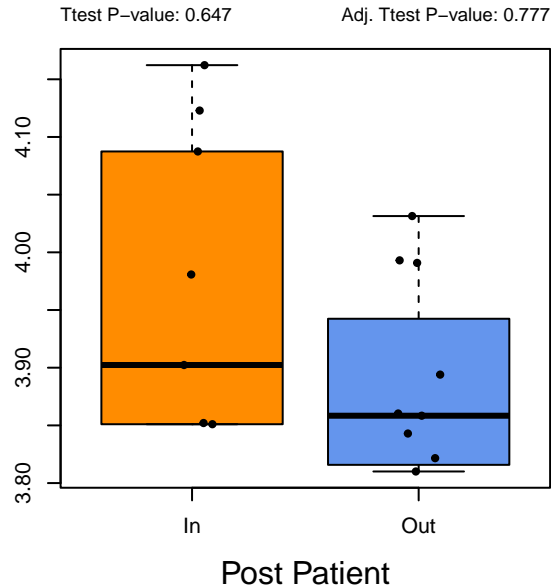
Y-5837: 2-carboxy-1,4-naphthoquinol biosyntPWY: pyruvate fermentation to acetate and (S)



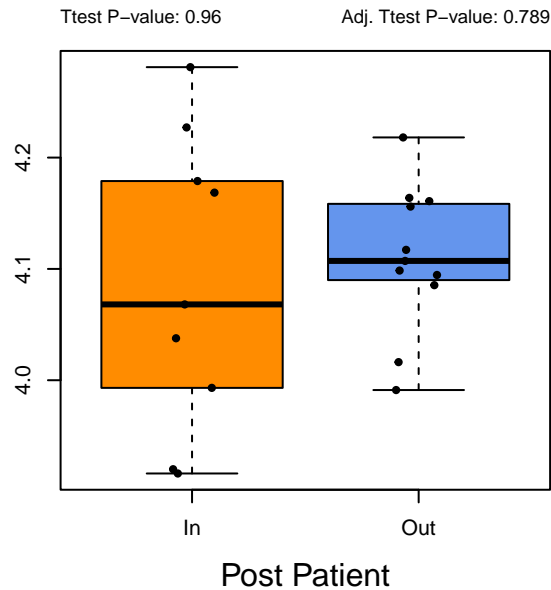
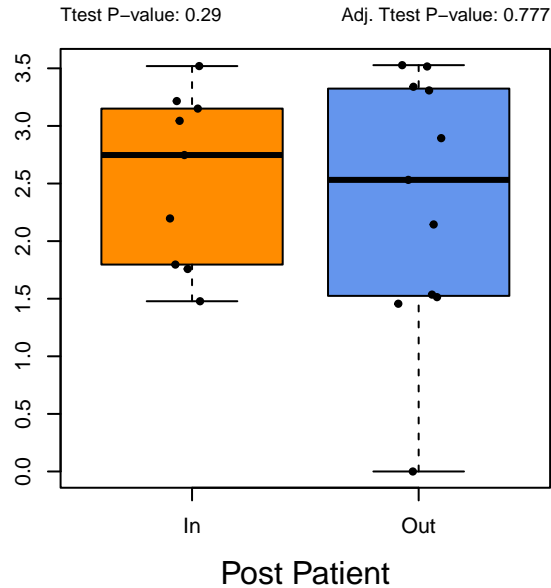
Y-5100: pyruvate fermentation to acetate and la PWY-6700: queuosine biosynthesis I (de novo)



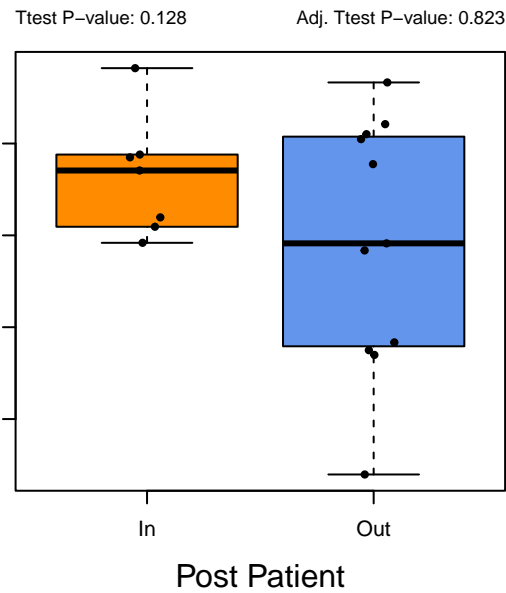
N-acetylmuramoyl-pentapeptide biosynthesis I PWY-7663: gondoate biosynthesis (anaerobic)



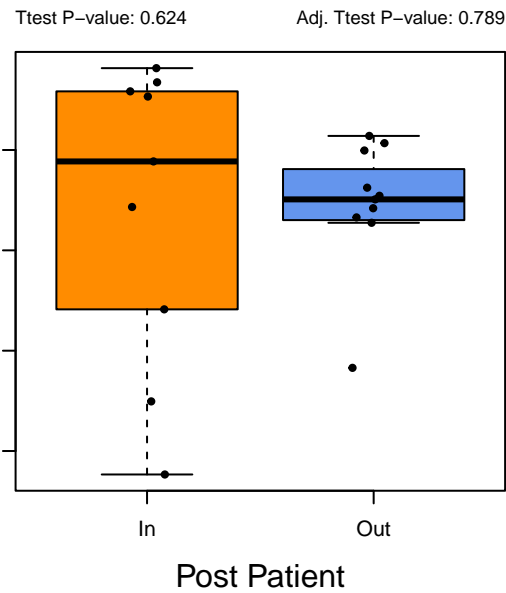
NAGLYCOLYSIS-PWY: glycolysis III (from glucathway of sulfur amino acid biosynthesis (Saccharo



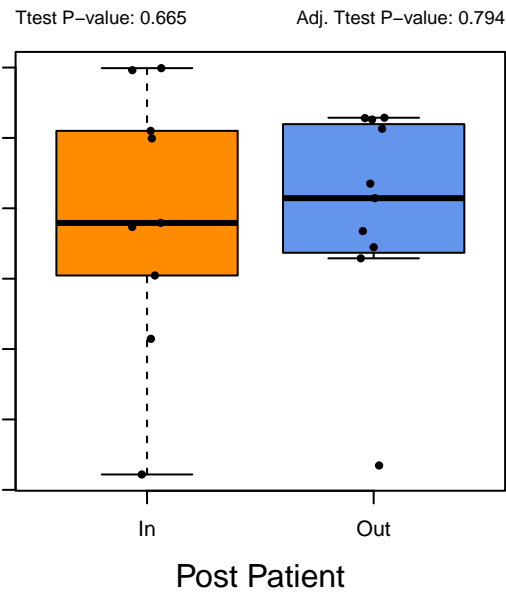
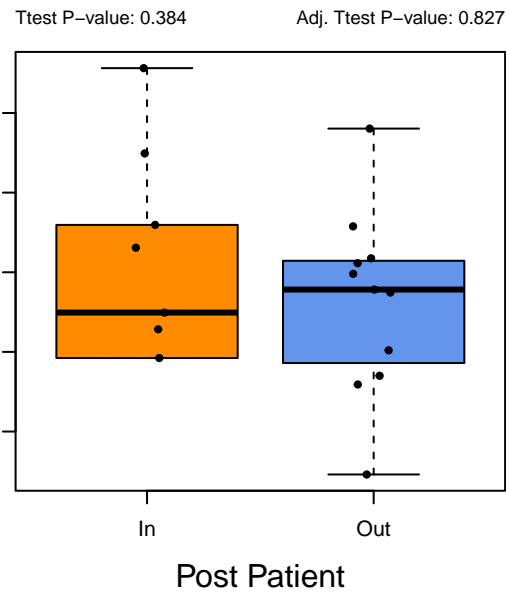
–PWY: superpathway of (R,R)–butanediol biosy



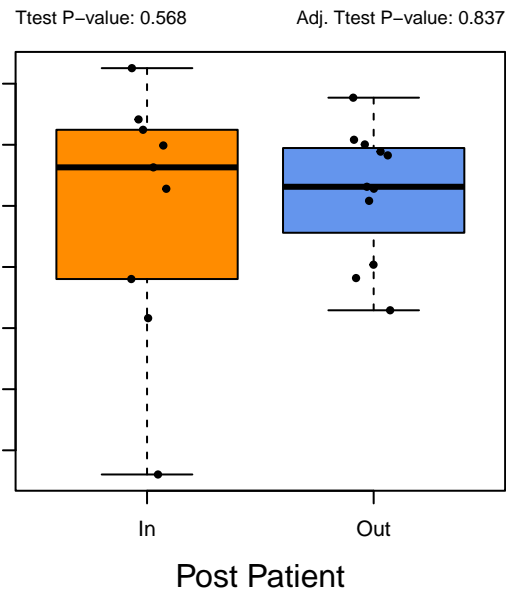
PWY–5973: cis–vacenate biosynthesis



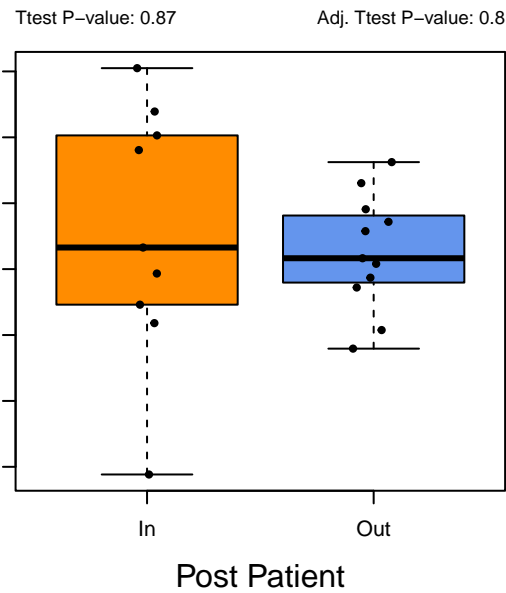
ine phosphate formation from pyriithiamine and VY0–1061: superpathway of L–alanine biosynth



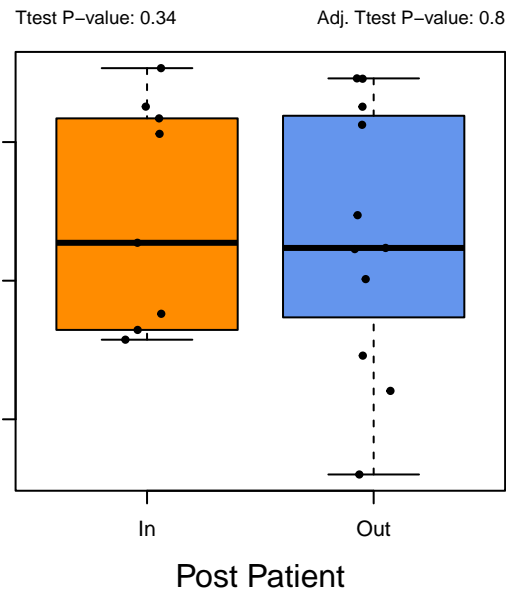
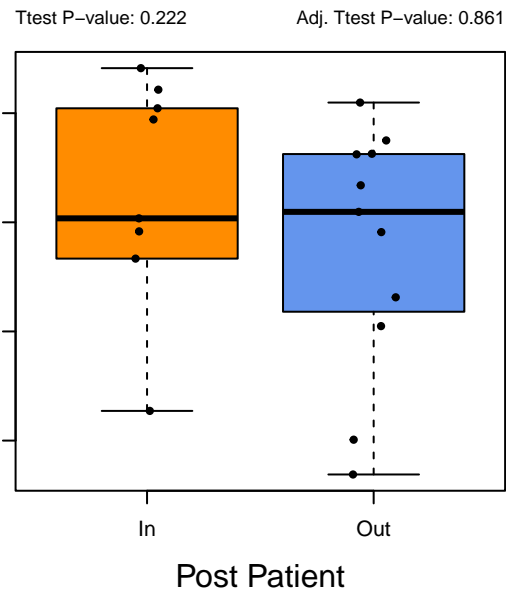
PWY–7242: D–fructuronate degradation

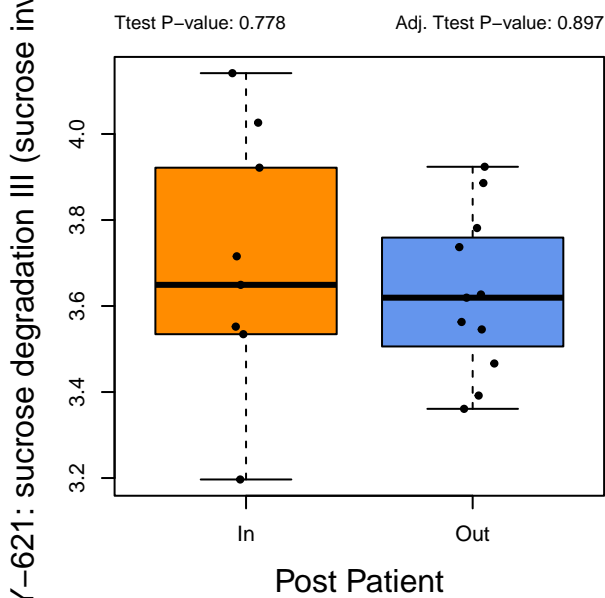
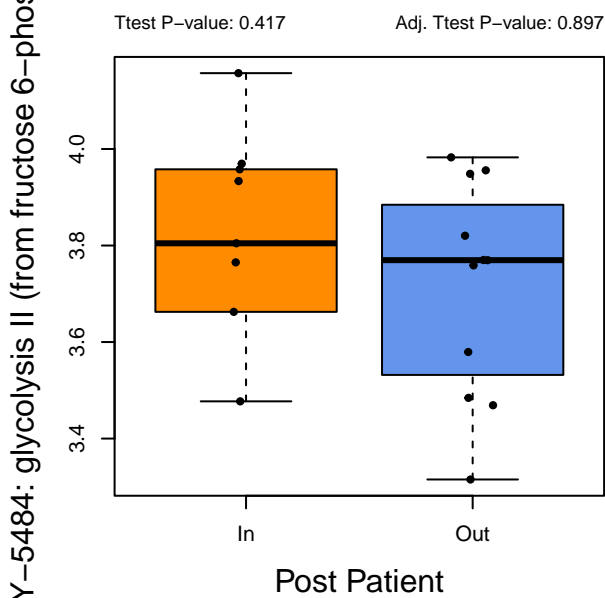
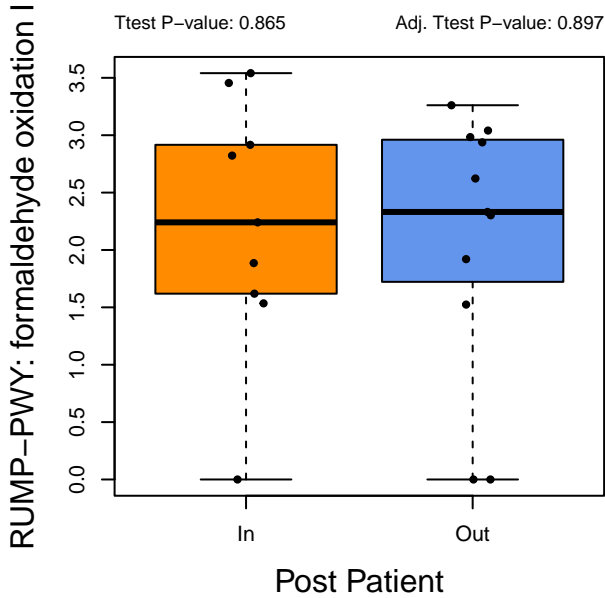
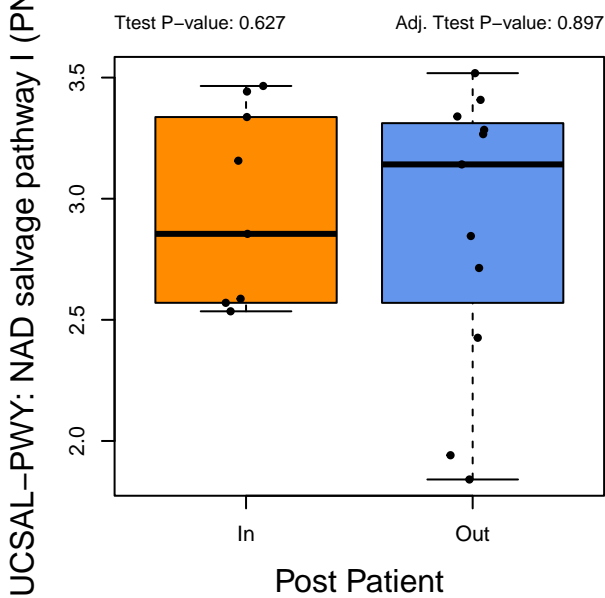
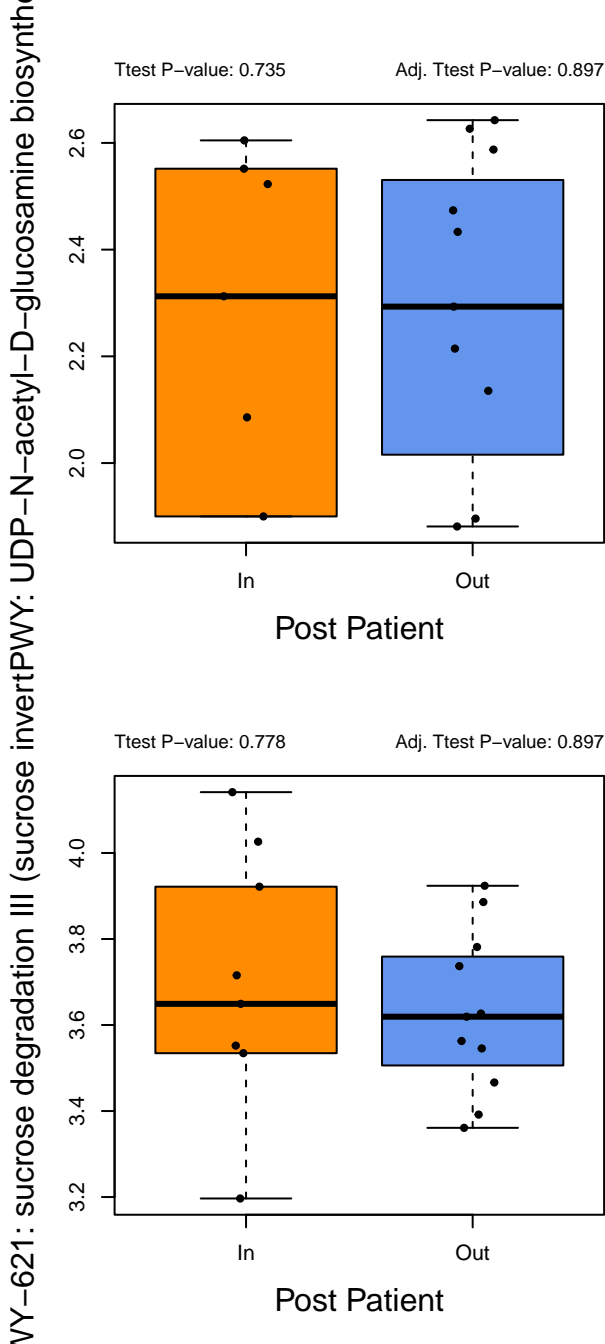
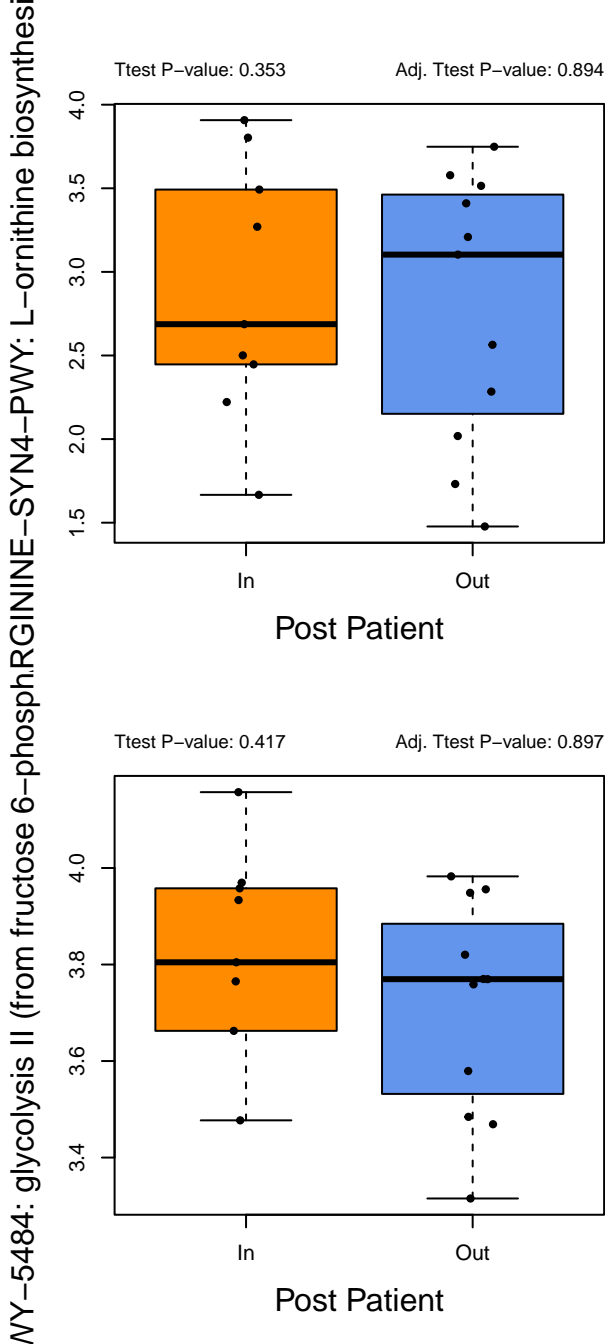
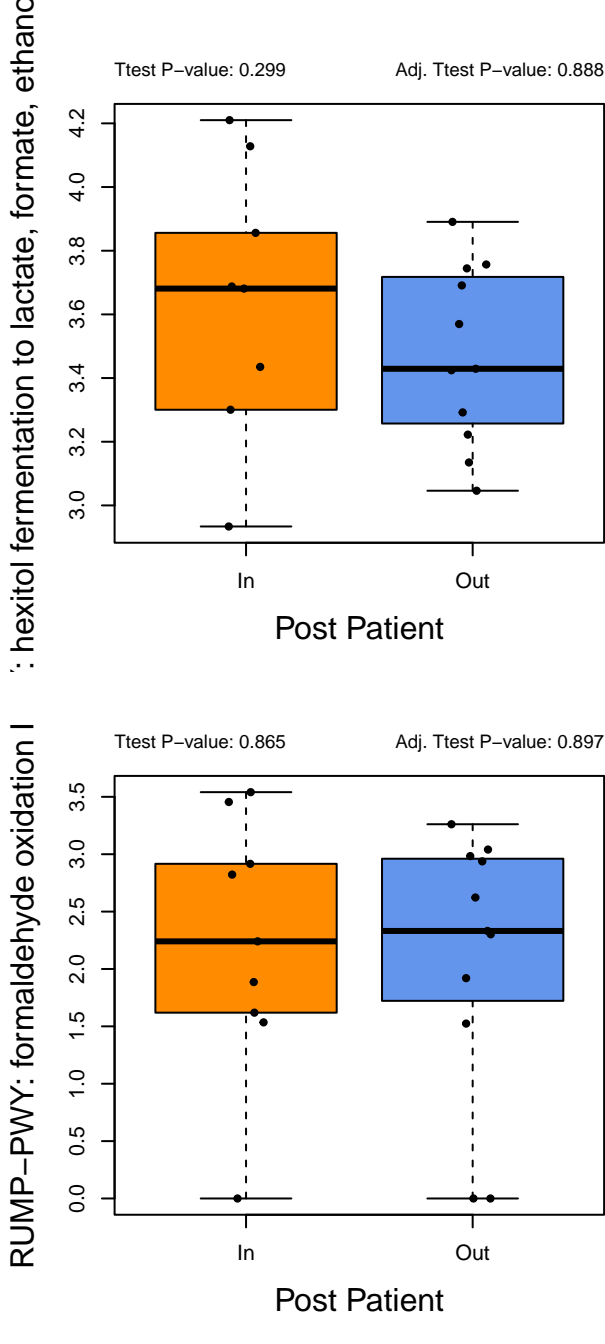
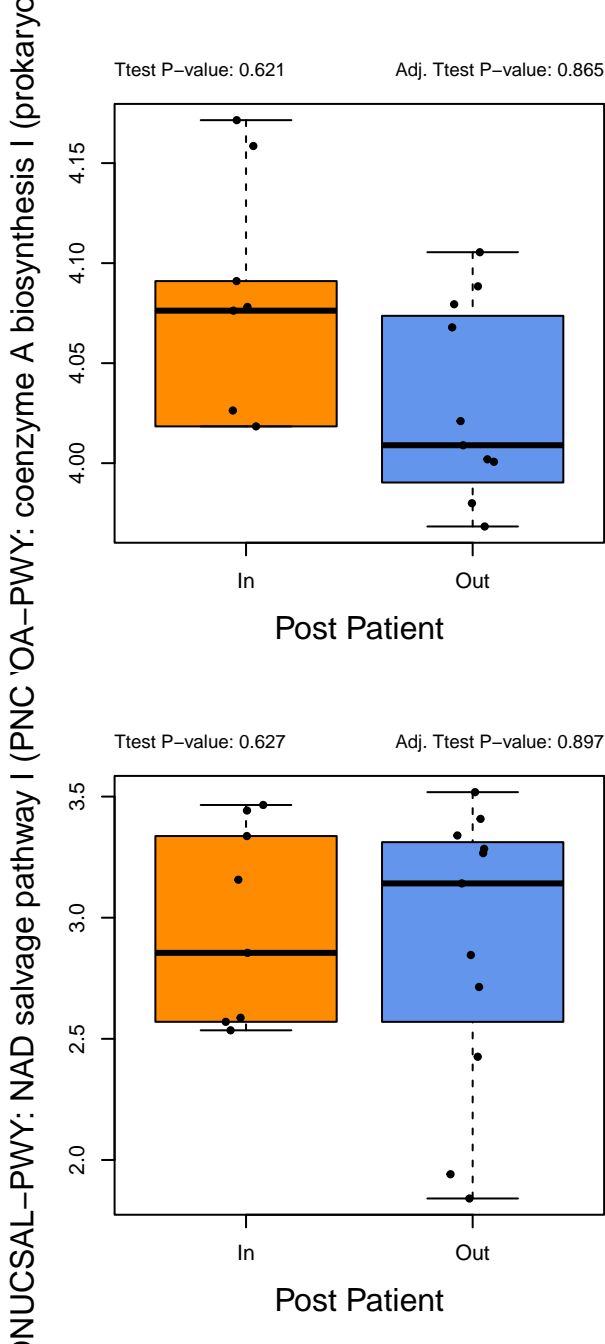


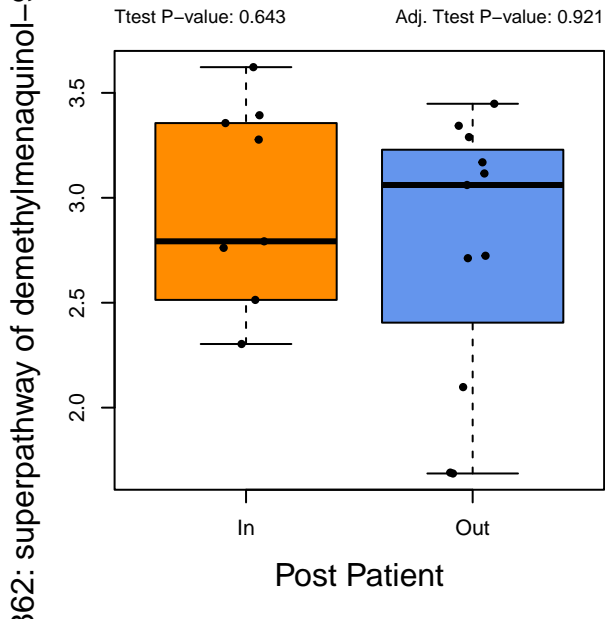
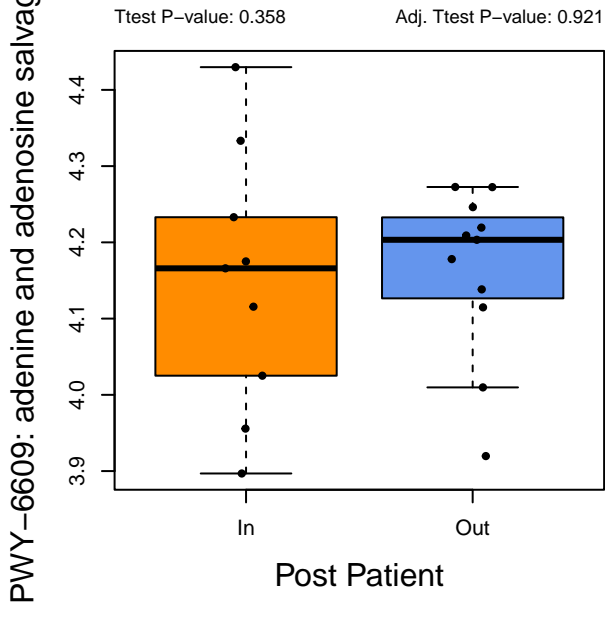
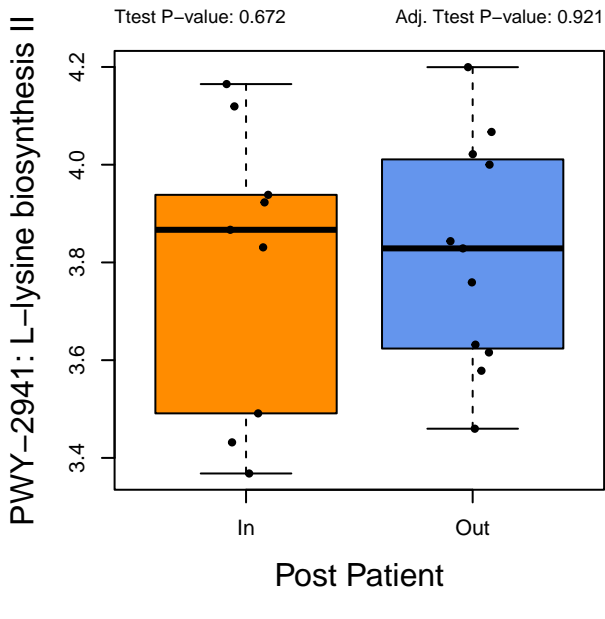
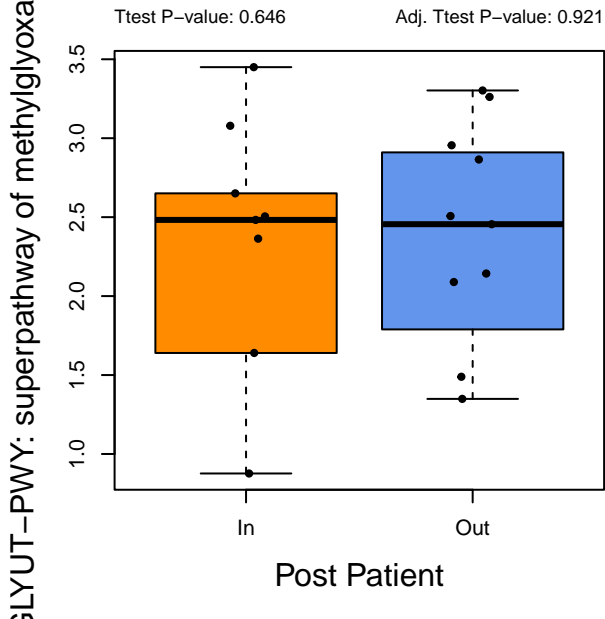
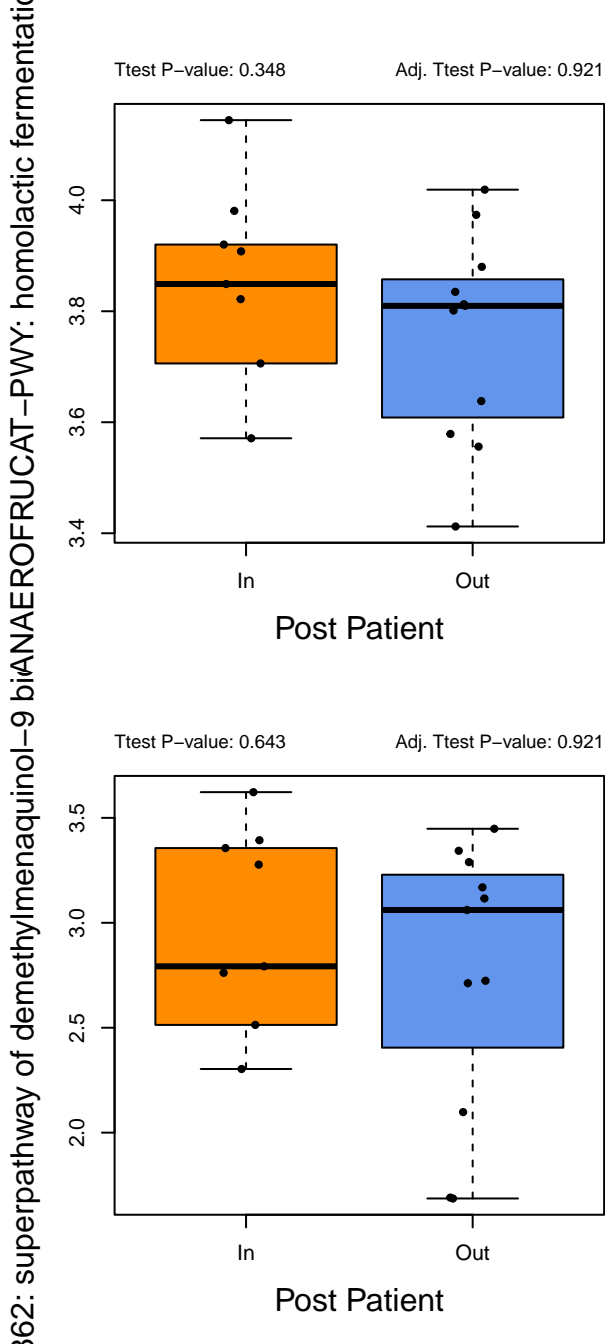
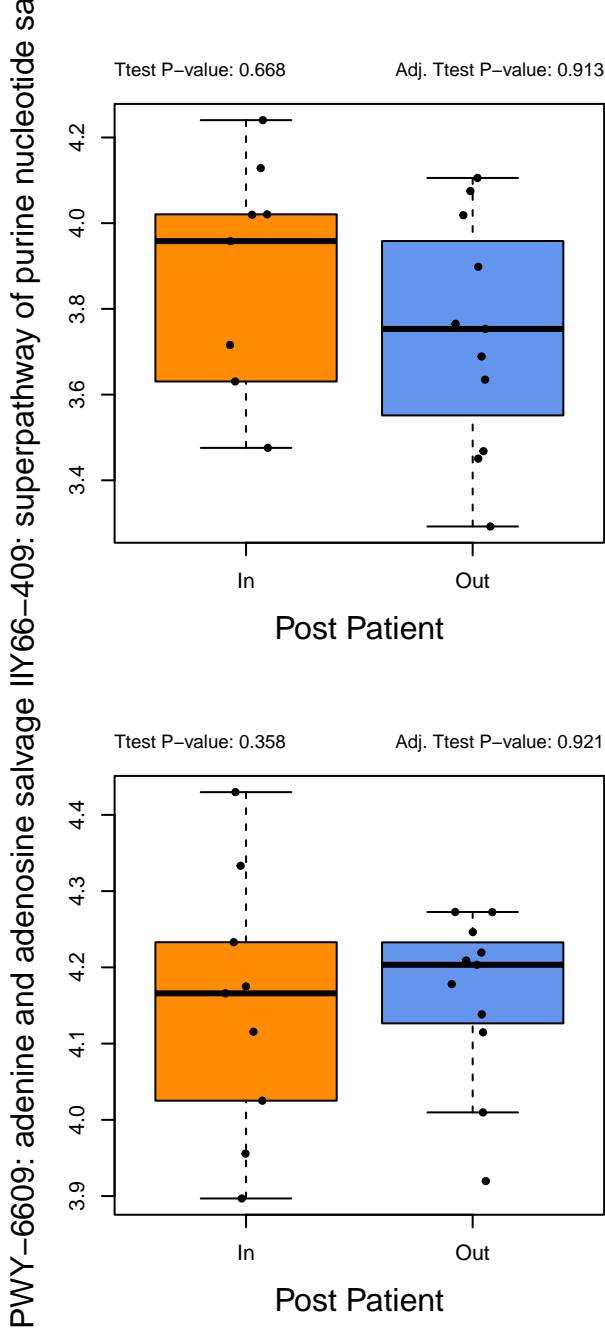
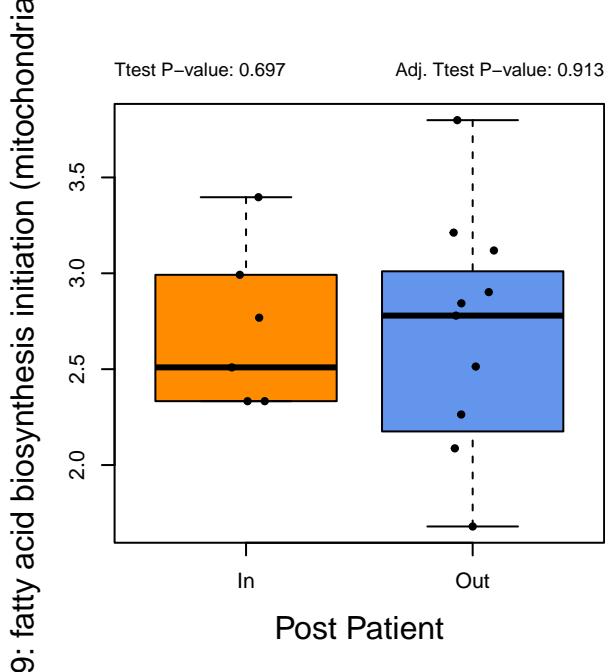
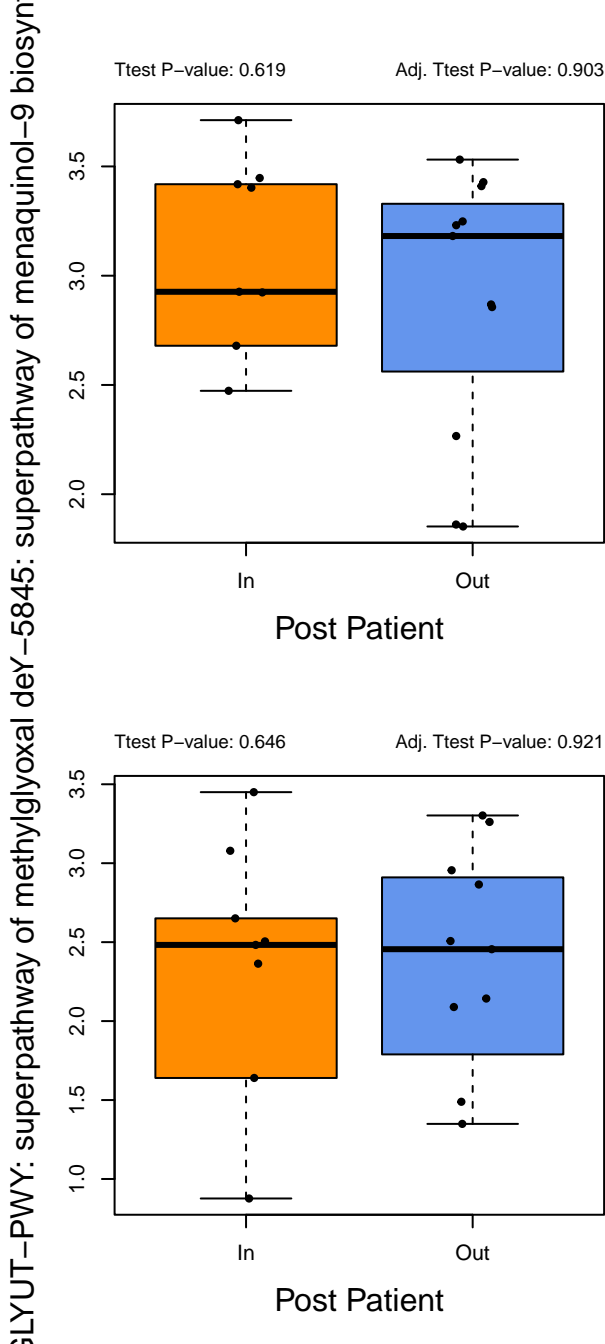
–5384: sucrose degradation IV (sucrose phosph

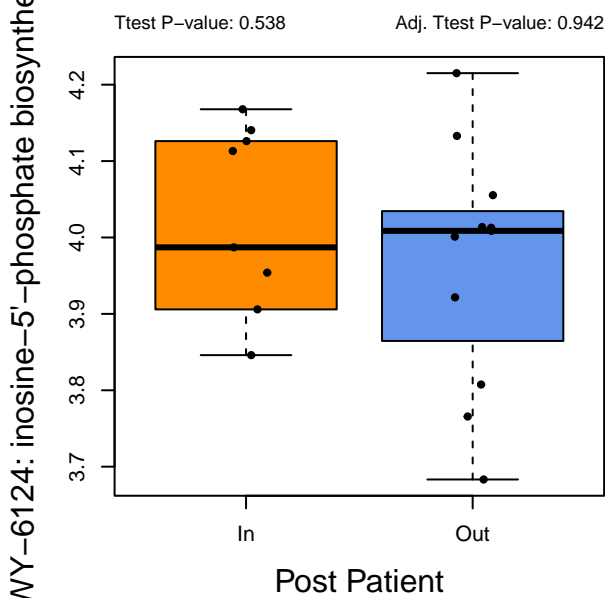
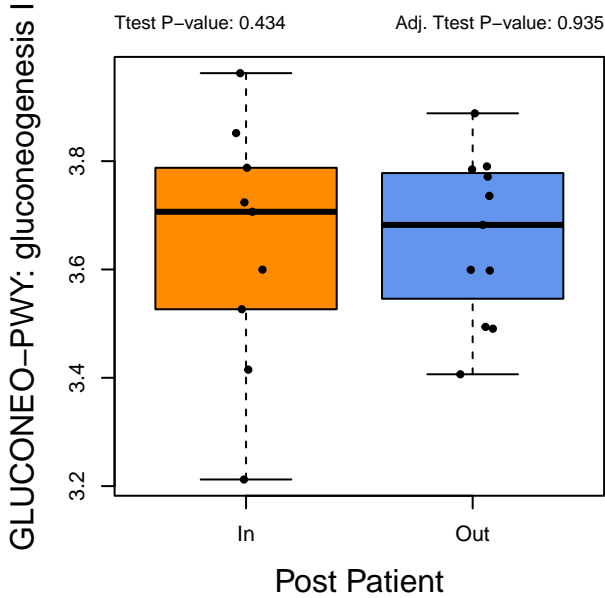
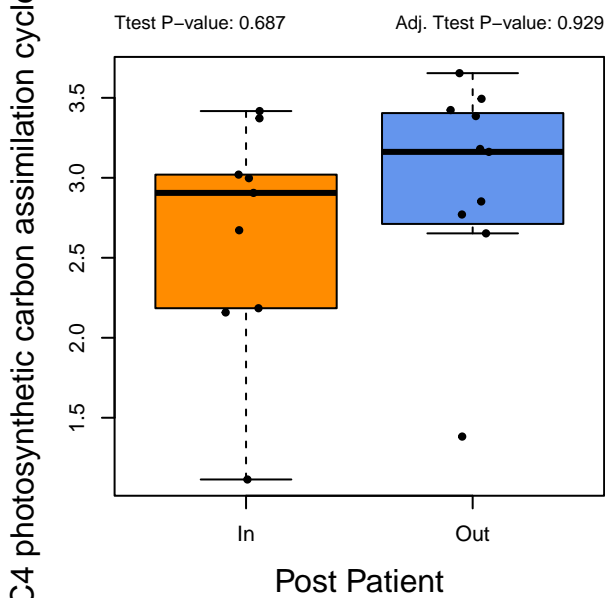
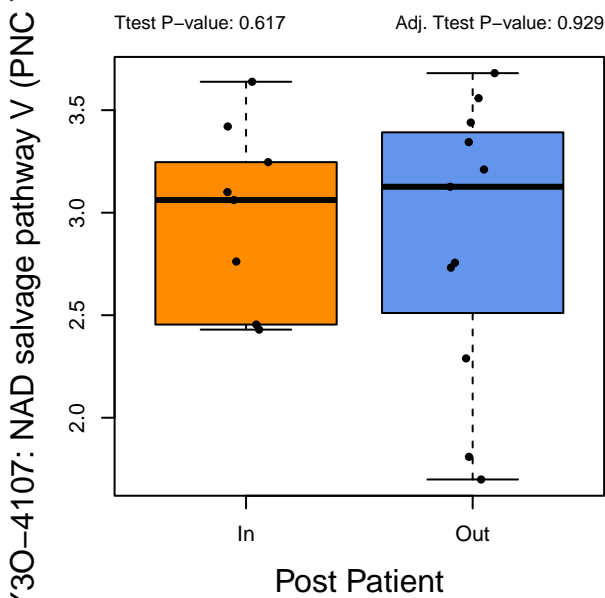
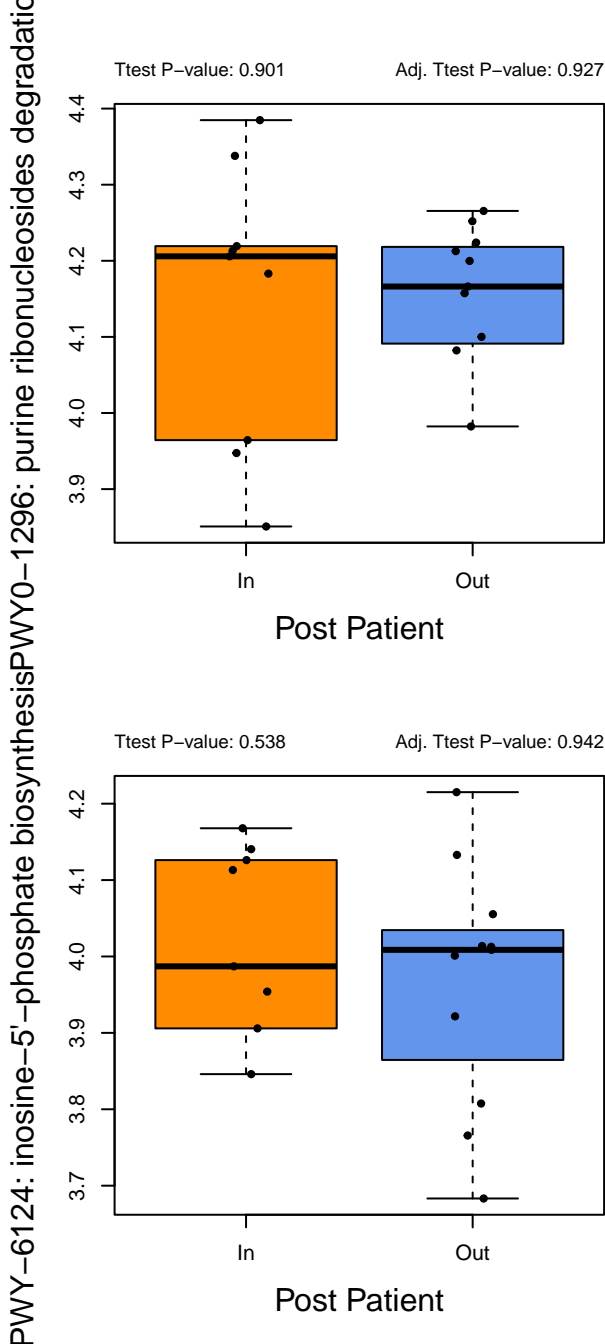
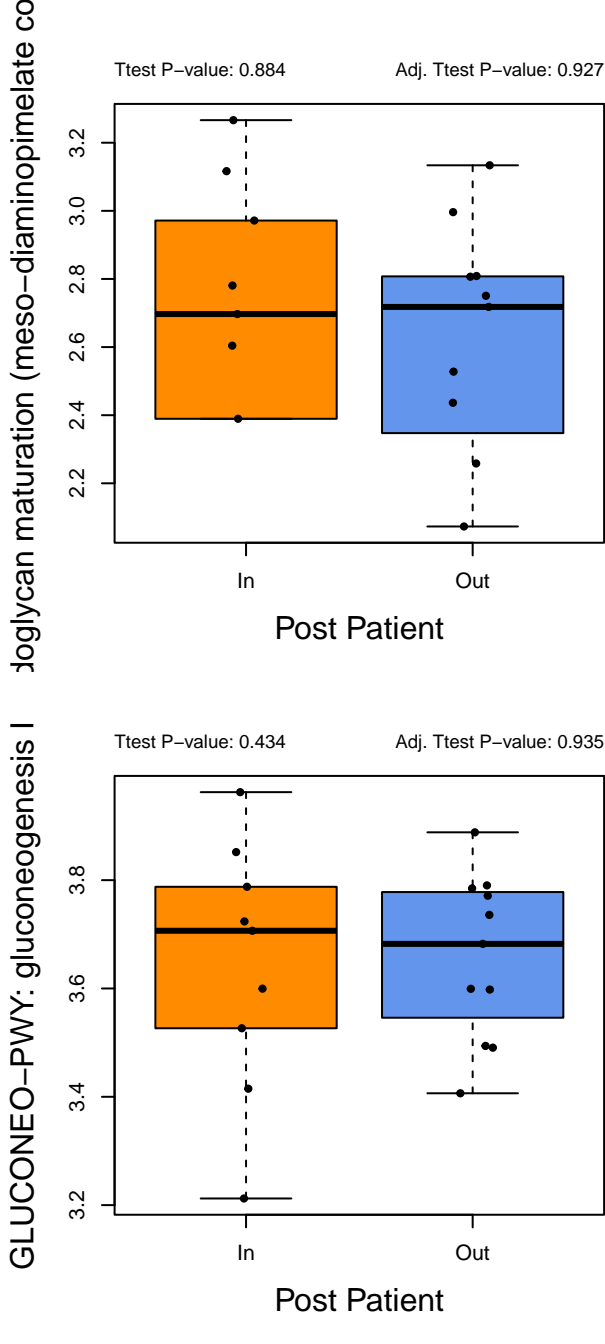
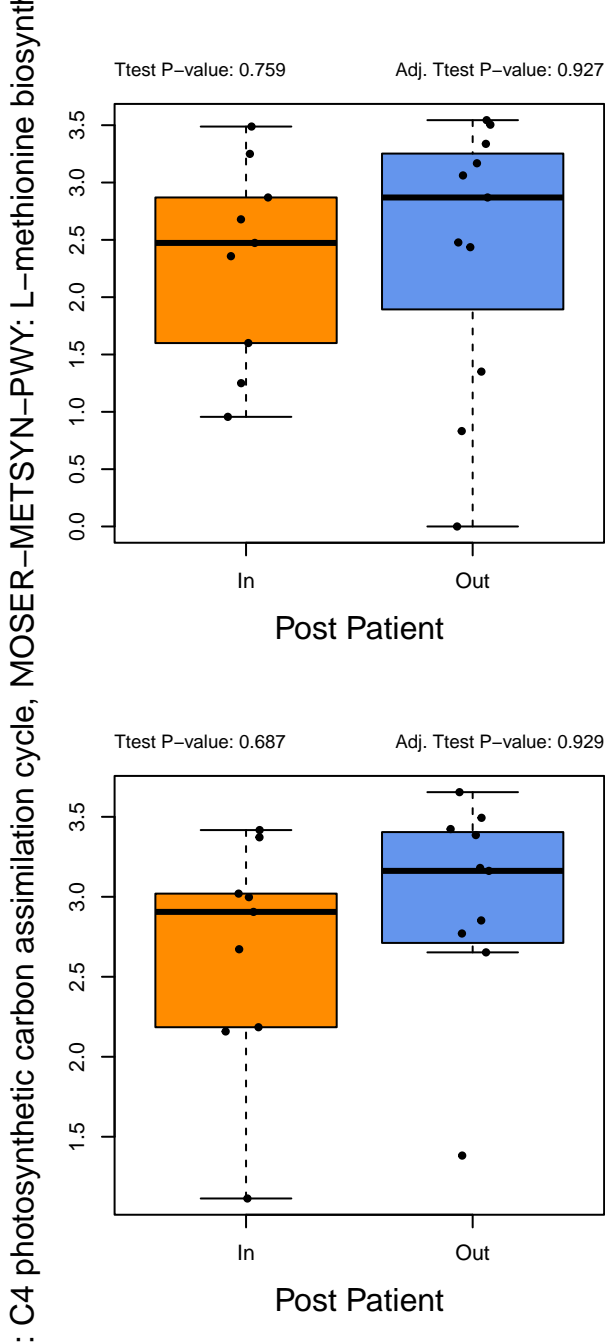
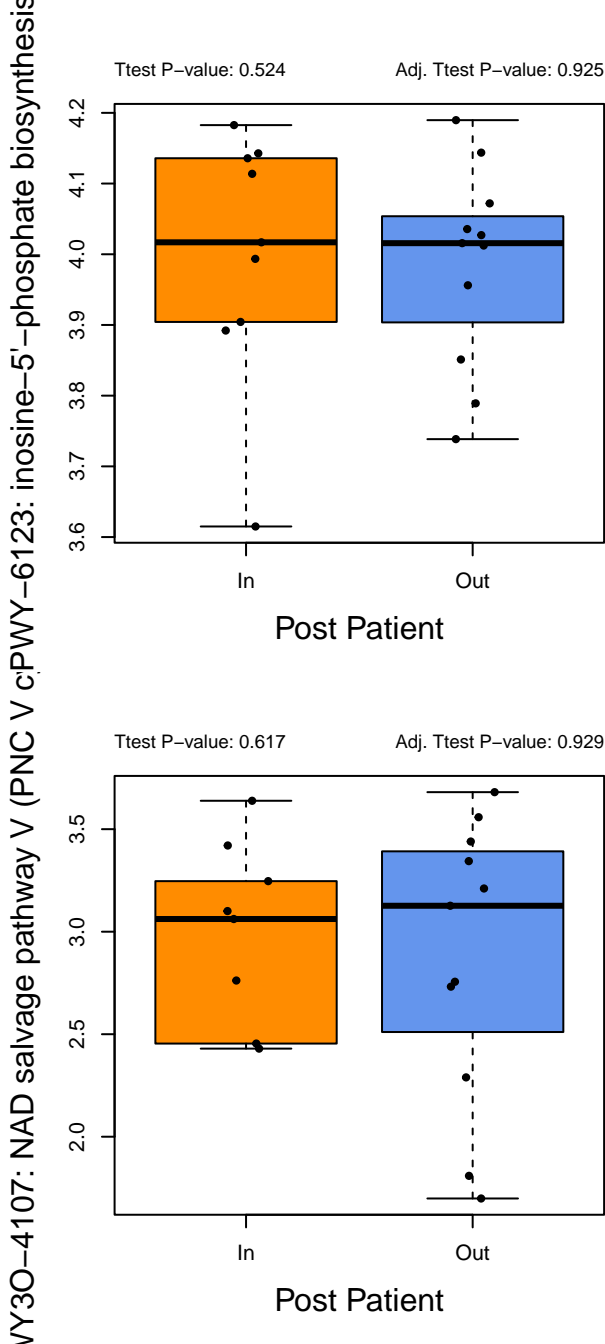


84: pyrimidine deoxyribonucleotides de novo bioVY: formaldehyde assimilation III (dihydroxyace

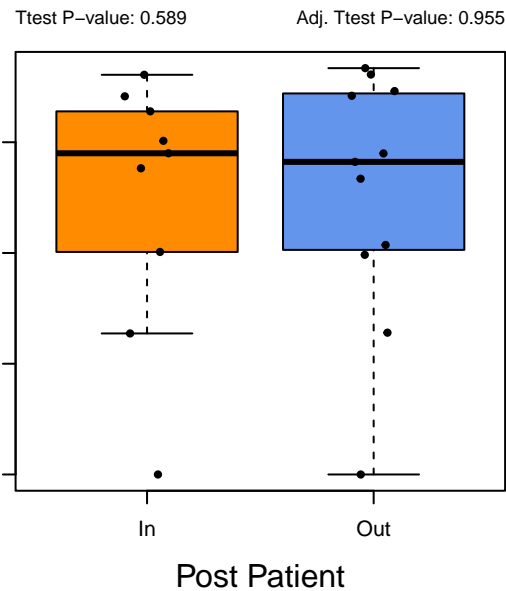




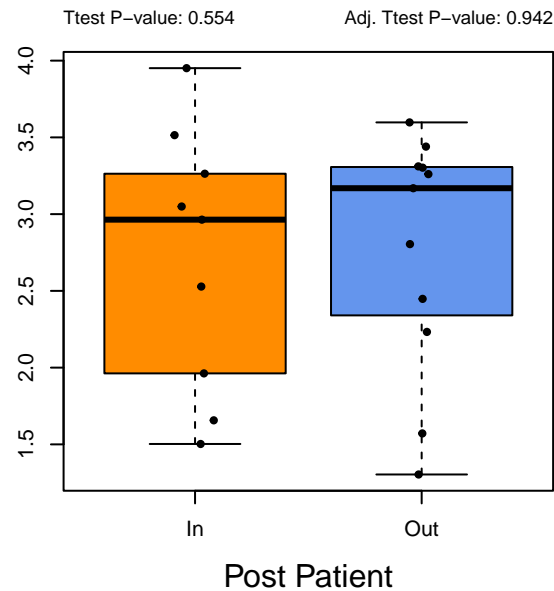




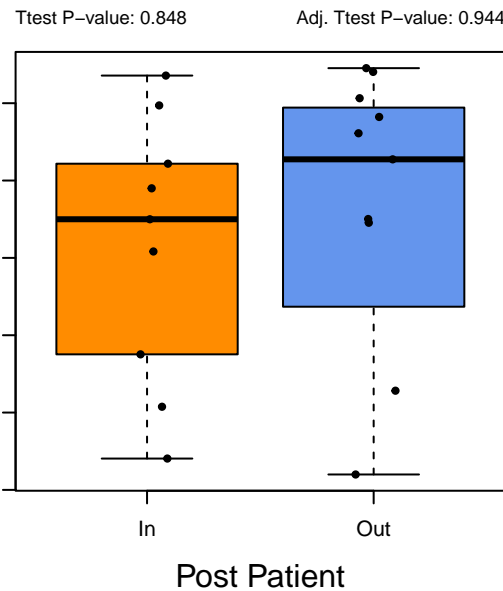
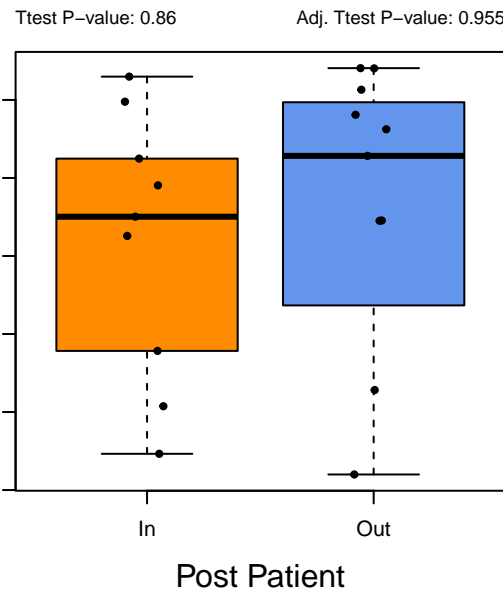
PWY0-781: aspartate superpathway



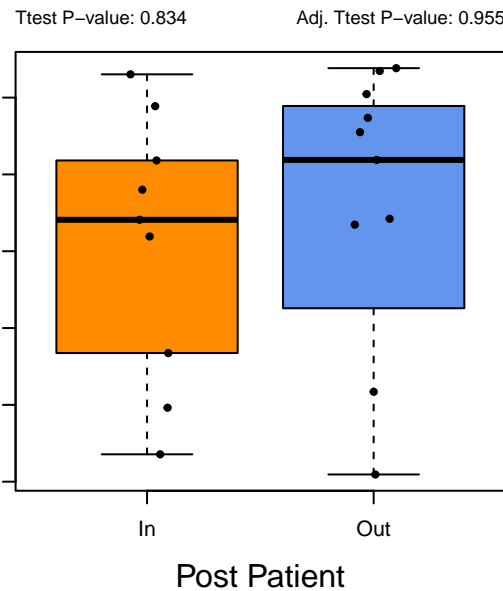
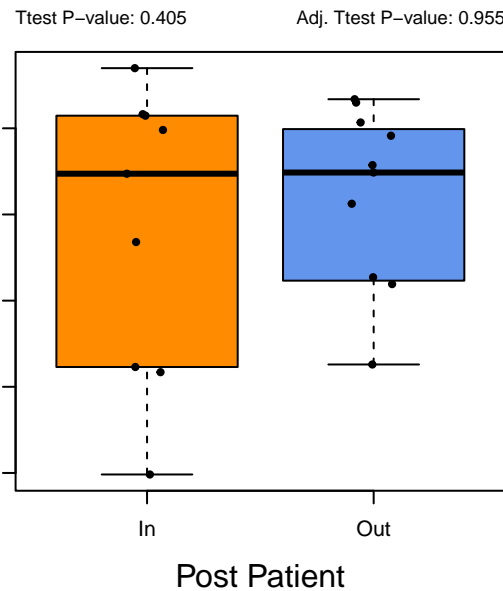
SO4ASSIM-PWY: assimilatory sulfate reduction



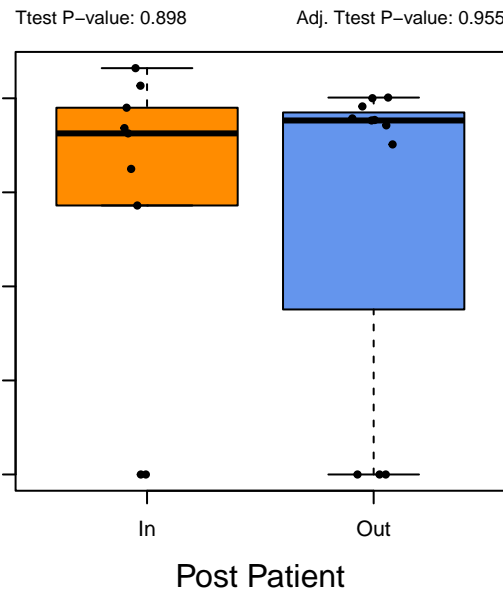
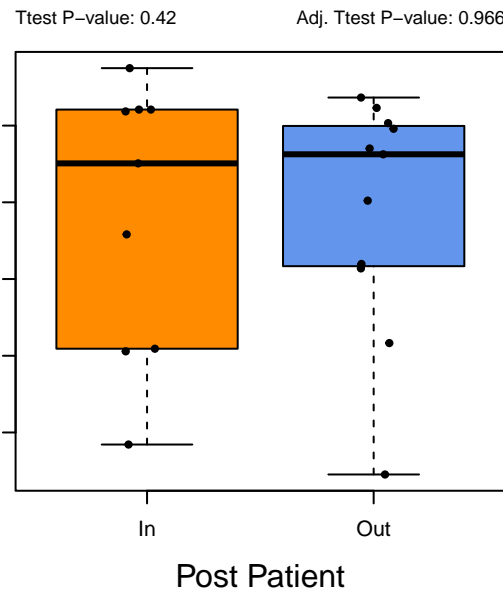
superpathway of L-methionine biosynthesis (tr2WY: superpathway of S-adenosyl-L-methionine)

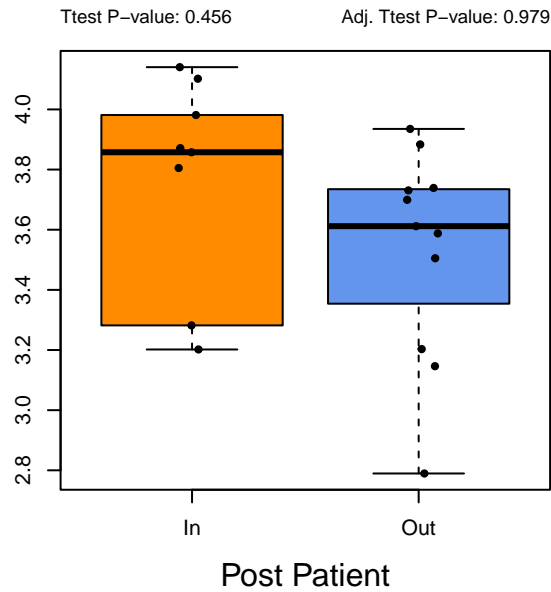
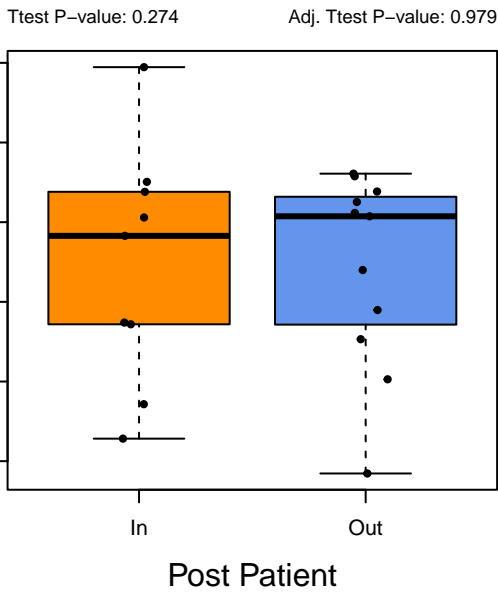
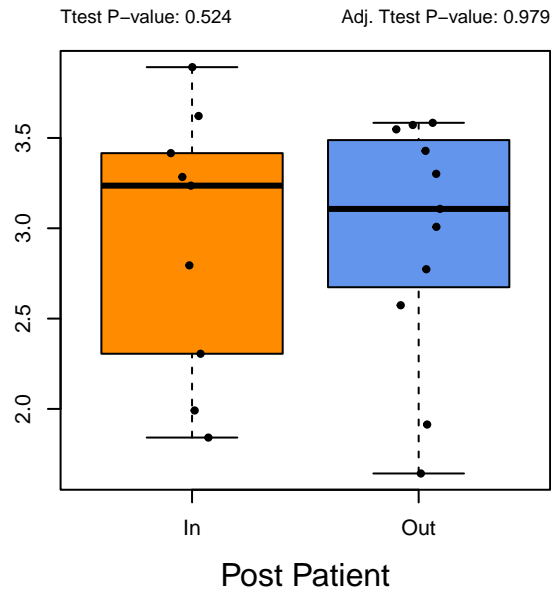
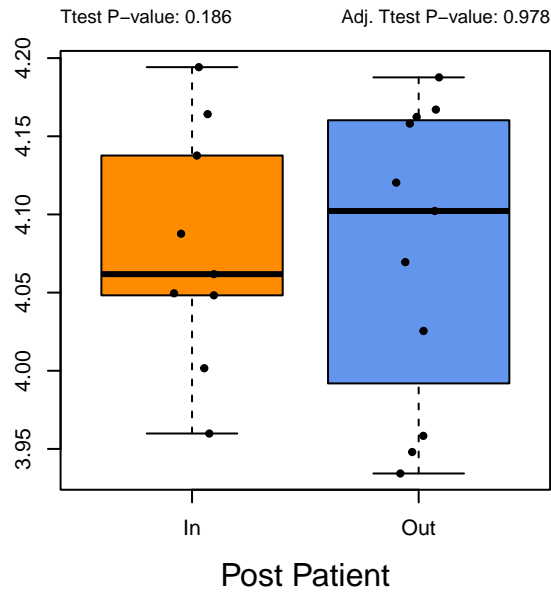
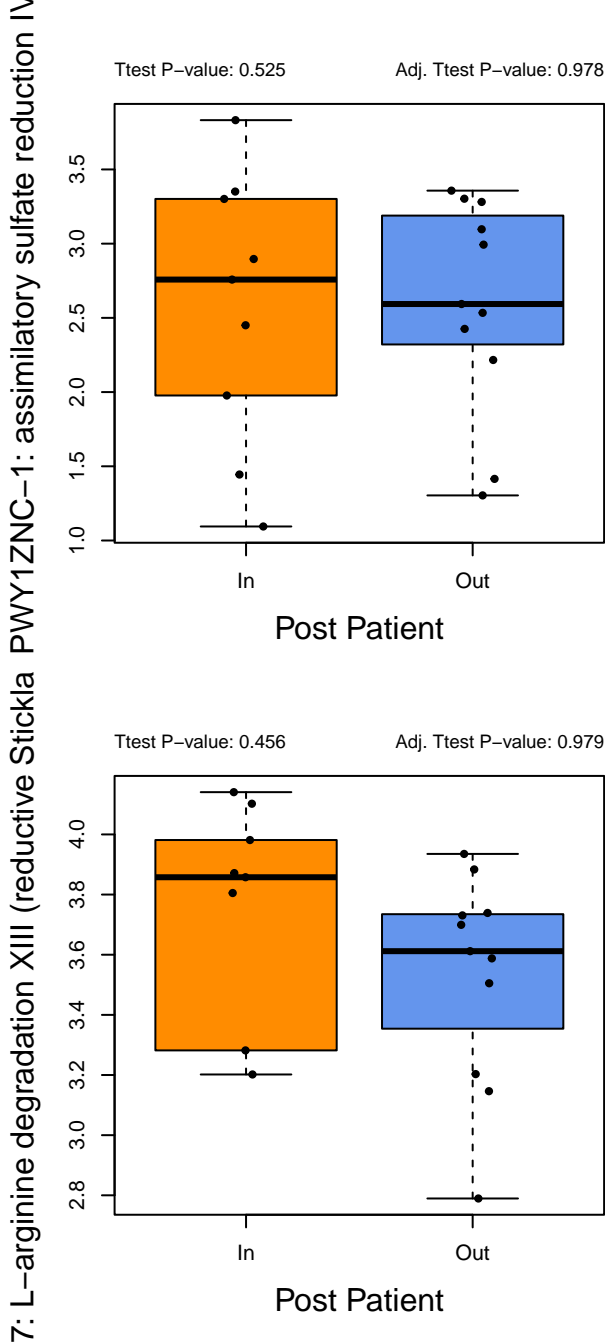
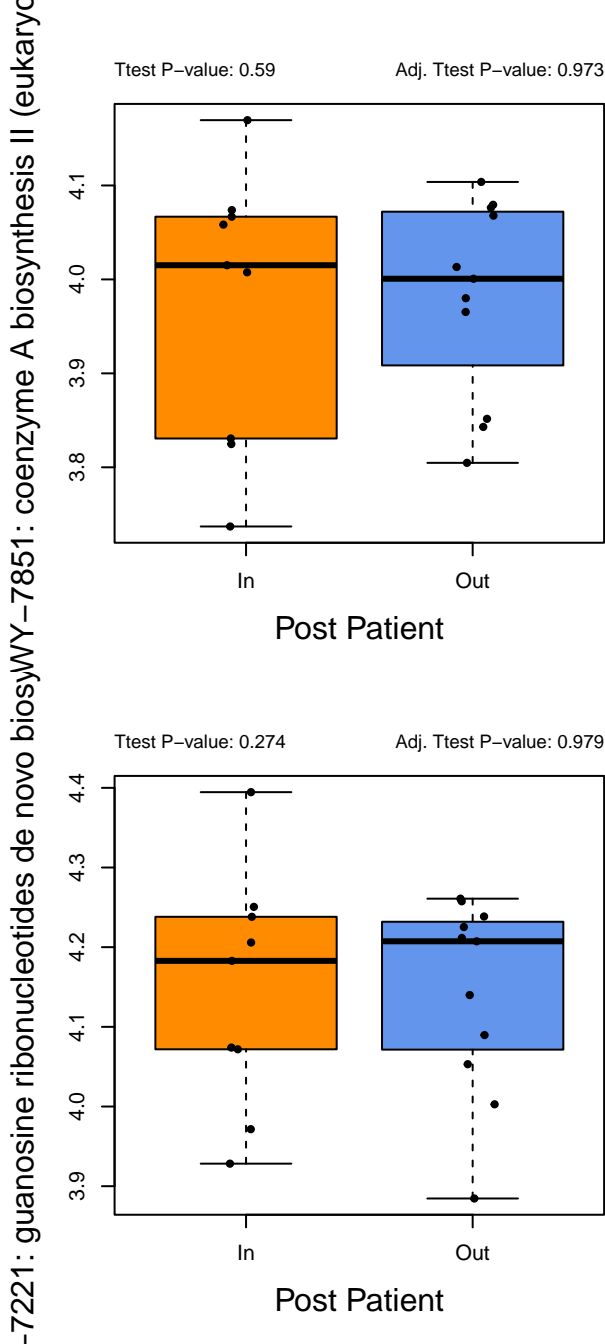
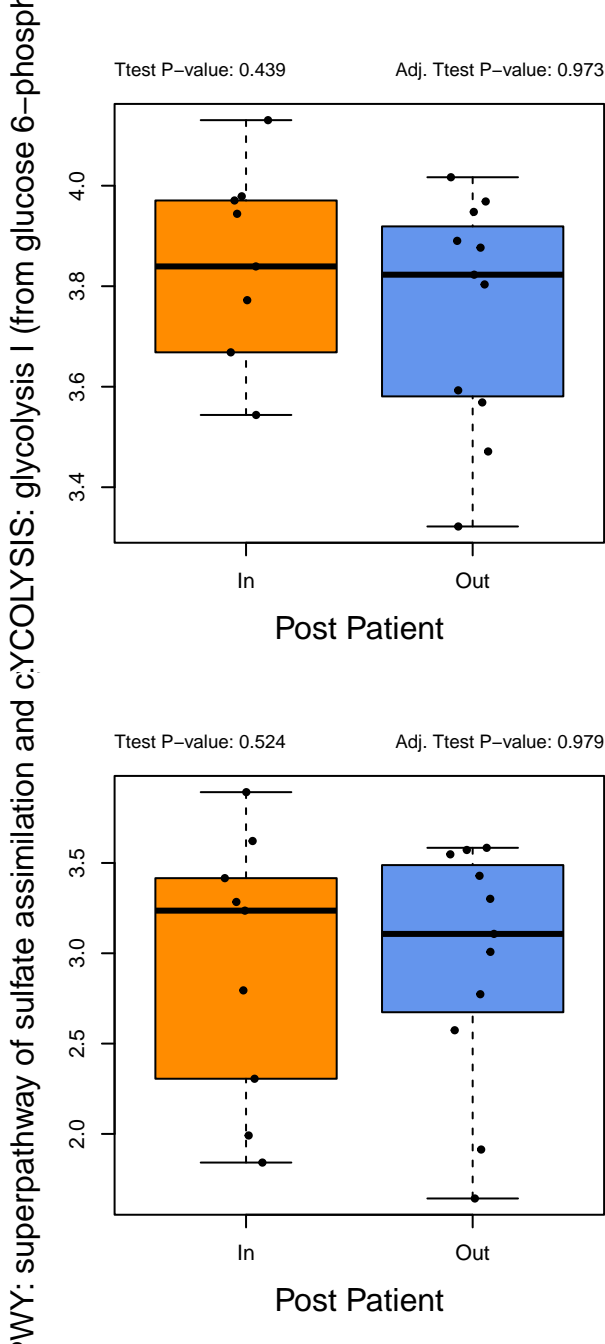
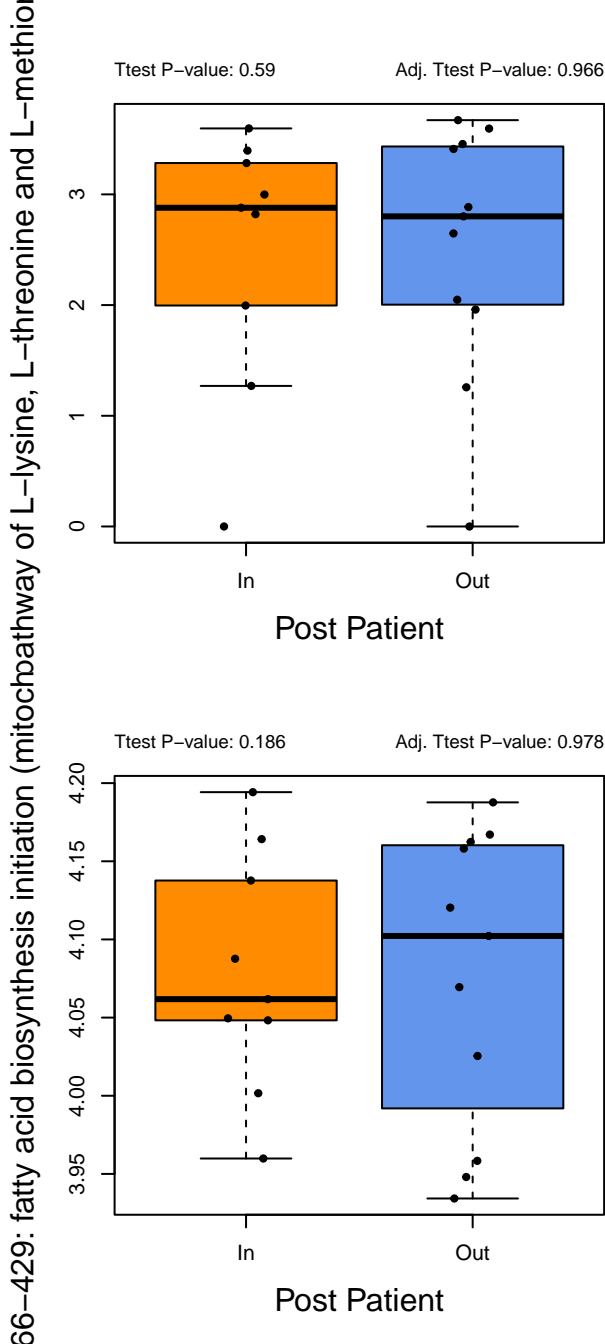


BIOTIN-BIOSYNTHESIS-PWY: biotin biosynthesis: superpathway of L-homoserine and L-methionine



PWY-6519: 8-amino-7-oxononanoate biosynthesisMETAB-PWY: glucose and glucose-1-phosphate

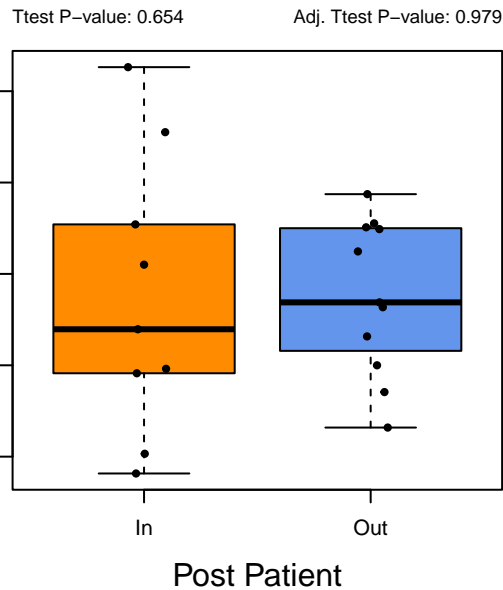
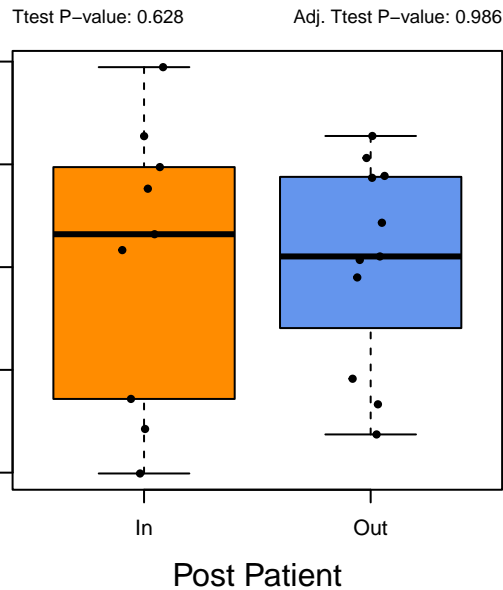






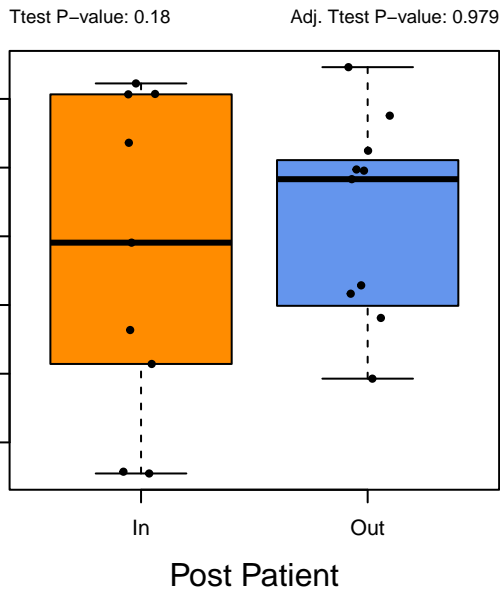
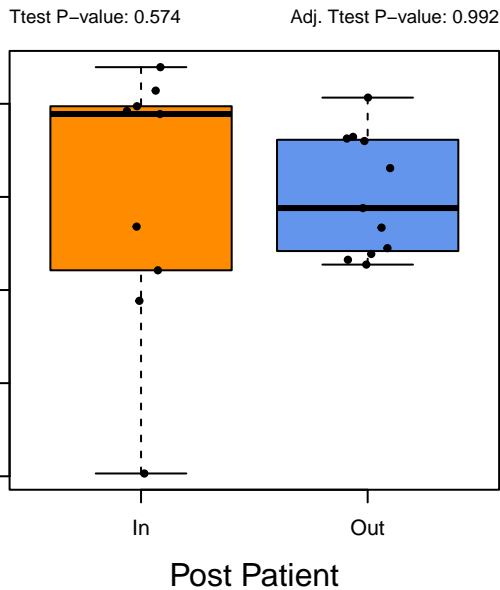
–1: superpathway of coenzyme A biosynthesis I

PWY-3841: folate transformations II (plants)



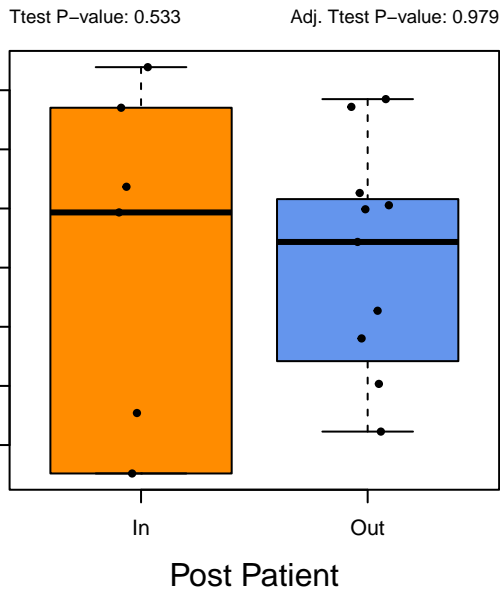
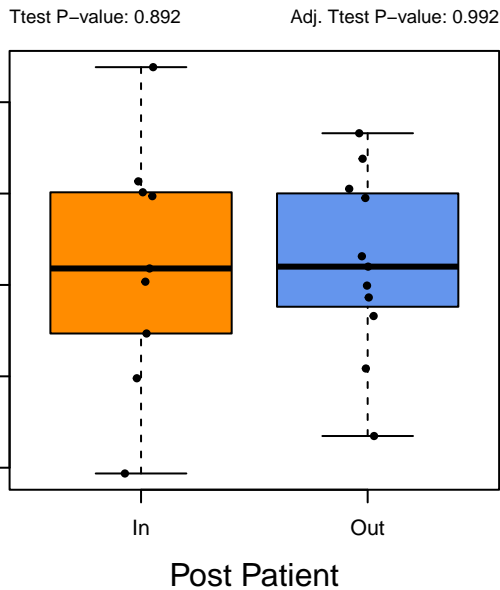
8: pyrimidine deoxyribonucleotides de novo bio

PWY-6606: guanosine nucleotides degradation



PWY-6608: guanosine nucleotides degradation

936: seleno-amino acid biosynthesis (plants)lur



–301: L-ascorbate degradation I (bacterial, ana

