**Supplementary table 2. The abbreviations and matched full names of metabolic pathways and metabolic pathway pairs**

|  |  |
| --- | --- |
| **Metabolic pathways (pairs)** | **Abbreviations** |
| Glycolysis / Gluconeogenesis  | Glyco/Gluco |
| Citrate cycle (TCA cycle)  | TCA cycle |
| Pentose phosphate pathway  | PPP |
| Pentose and glucuronate interconversions  | Pent,Gluc conv |
| Fructose and mannose metabolism  | Fruc,Mann Meta |
| Galactose metabolism  | Gala Meta |
| Ascorbate and aldarate metabolism  | Asc, Ald Meta |
| Fatty acid biosynthesis  | FA Bio |
| Fatty acid elongation  | FA Elo |
| Fatty acid degradation  | FA Deg |
| Steroid biosynthesis  | Steroid Bio |
| Primary bile acid biosynthesis  | Prim BA Bio |
| Ubiquinone and other terpenoid-quinone biosynthesis | Quinone Bio |
| Steroid hormone biosynthesis  | Steroid horm Bio |
| Oxidative phosphorylation  | OXPHOS |
| Arginine biosynthesis  | Arg Bio |
| Purine metabolism  | Purine Meta |
| Caffeine metabolism  | Caff Meta |
| Pyrimidine metabolism  | Pyrim Meta |
| Alanine, aspartate and glutamate metabolism  | Ala, Asp,Glu Meta |
| Glycine, serine and threonine metabolism  | Gly,Ser,Thr Meta |
| Cysteine and methionine metabolism  | Cys,Met Meta |
| Valine, leucine and isoleucine degradation  | Val,Leu,Ile Deg |
| Valine, leucine and isoleucine biosynthesis  | Val,Leu,Ile Bio |
| Lysine degradation  | Lys Deg |
| Arginine and proline metabolism  | Arg,Pro Meta |
| Histidine metabolism  | His Meta |
| Tyrosine metabolism  | Tyr Meta |
| Phenylalanine metabolism  | Phe Meta |
| Tryptophan metabolism  | Trp Meta |
| Phenylalanine, tyrosine and tryptophan biosynthesis  | Phe,Tyr,Trp Bio |
| beta-Alanine metabolism  | β-Ala Meta |
| Taurine and hypotaurine metabolism  | Taur,hypo Meta |
| Phosphonate and phosphinate metabolism  | Phos, Phos Meta |
| Selenocompound metabolism  | Se-com Meta |
| D-Amino acid metabolism  | D-AA Meta |
| Glutathione metabolism  | GSH Meta |
| Starch and sucrose metabolism  | Star,Sucr Meta |
| N-Glycan biosynthesis  | N-Glycan Bio |
| Other glycan degradation  | Other glycan Deg |
| Mucin type O-glycan biosynthesis  | Muc type O-glycan Bio |
| Various types of N-glycan biosynthesis  | Vari N-glycan Bio |
| Other types of O-glycan biosynthesis  | Other O-glycan Bio |
| Mannose type O-glycan biosynthesis  | Mann type O-glycan Bio  |
| Amino sugar and nucleotide sugar metabolism  | AS,NS Meta |
| Neomycin, kanamycin and gentamicin biosynthesis  | Neo,Kana,gentamicin Bio |
| Glycosaminoglycan degradation  | GAG Deg |
| Glycosaminoglycan biosynthesis - chondroitin sulfate / dermatan sulfate  | Chon sulf/Derm sulf Bio |
| Glycosaminoglycan biosynthesis - keratan sulfate  | Kera sulf Bio |
| Glycosaminoglycan biosynthesis - heparan sulfate / heparin  | hepa sulf/heparin Bio |
| Glycerolipid metabolism  | GL Meta |
| Inositol phosphate metabolism  | IP Meta |
| Glycosylphosphatidylinositol (GPI)-anchor biosynthesis  | Anchor Bio |
| Glycerophospholipid metabolism  | Glycero-PL Meta |
| Ether lipid metabolism  | EL Meta |
| Arachidonic acid metabolism  | Arach-acid Meta |
| Linoleic acid metabolism  | LA Meta |
| alpha-Linolenic acid metabolism  | α-LA Meta |
| Sphingolipid metabolism  | Sphin Meta |
| Glycosphingolipid biosynthesis - lacto and neolacto series  | lacto,neol Bio |
| Glycosphingolipid biosynthesis - globo and isoglobo series  | Globo,Isog Bio |
| Glycosphingolipid biosynthesis - ganglio series  | Ganglio Bio |
| Pyruvate metabolism  | Pyru Meta |
| Glyoxylate and dicarboxylate metabolism  | Glyo,Dicar Meta |
| Propanoate metabolism  | Prop Meta |
| Butanoate metabolism  | Buta Meta |
| One carbon pool by folate  | One C pool by folate |
| Thiamine metabolism  | Thia Meta |
| Riboflavin metabolism  | VB2 Meta |
| Vitamin B6 metabolism  | VB6 Meta |
| Nicotinate and nicotinamide metabolism  | Nico,NA Meta |
| Pantothenate and CoA biosynthesis  | Pant and CoA Bio |
| Biotin metabolism  | Biotin Meta |
| Lipoic acid metabolism  | LipoicA Meta |
| Folate biosynthesis  | Folate Bio |
| Retinol metabolism  | VA Meta |
| Porphyrin metabolism  | Porp Meta |
| Terpenoid backbone biosynthesis  | TB Bio |
| Nitrogen metabolism  | Nitr Meta  |
| Sulfur metabolism  | Sulfur Meta |
| Aminoacyl-tRNA biosynthesis  | Amino-tRNA Bio |
| Metabolism of xenobiotics by cytochrome P450  | Xeno Meta by CYP450 |
| Drug metabolism - cytochrome P450  | Drug-CYP450 |
| Drug metabolism - other enzymes  | Drug-other enzy |
| (Glycolysis/Gluconeogenesis)/Galactose metabolism  | (Glyco/Gluco)/Gala Meta |
| (Glycolysis/Gluconeogenesis)/Arginine and proline metabolism  | (Glyco/Gluco)/Arg,Pro Meta |
| (Glycolysis/Gluconeogenesis)/Phosphonate and phosphinate metabolism  | (Glyco/Gluco)/Phos, Phos Meta  |
| (Glycolysis/Gluconeogenesis)/Other types of O-glycan biosynthesis  | (Glyco/Gluco)/Other O-glycan Bio |
| (Glycolysis/Gluconeogenesis)/Mannose type O-glycan biosynthesis  | (Glyco/Gluco)/Mann type O-glycan Bio  |
| (Glycolysis/Gluconeogenesis)/Neomycin, kanamycin and gentamicin biosynthesis  | (Glyco/Gluco)/Neo,Kana,gentamicin Bio |
| (Glycolysis/Gluconeogenesis)/Glycerophospholipid metabolism  | (Glyco/Gluco)/Glycero-PL Meta  |
| (Glycolysis/Gluconeogenesis)/Glycosphingolipid biosynthesis - ganglio series  | (Glyco/Gluco)/Ganglio Bio |
| (Glycolysis/Gluconeogenesis)/Pyruvate metabolism  | (Glyco/Gluco)/Pyru Meta |
| (Glycolysis/Gluconeogenesis)/One carbon pool by folate  | (Glyco/Gluco)/One C pool by folate  |
| (Glycolysis/Gluconeogenesis)/Vitamin B6 metabolism  | (Glyco/Gluco)/VB6 Meta |
| (Glycolysis/Gluconeogenesis)/Pantothenate and CoA biosynthesis  | (Glyco/Gluco)/Pant and CoA Bio |
| Citrate cycle (TCA cycle)/Riboflavin metabolism  | TCA cycle/VB2 Meta  |
| Pentose phosphate pathway/Fructose and mannose metabolism  | PPP/Fruc,Mann Meta |
| Pentose phosphate pathway/Fatty acid degradation  | PPP/FA Deg  |
| Pentose phosphate pathway/Ubiquinone and other terpenoid-quinone biosynthesis | PPP/Quinone Bio |
| Pentose phosphate pathway/Valine, leucine and isoleucine biosynthesis  | PPP/Val,Leu,Ile Bio |
| Pentose phosphate pathway/Selenocompound metabolism  | PPP/Se-com Meta  |
| Pentose phosphate pathway/Glutathione metabolism  | PPP/GSH Meta  |
| Pentose phosphate pathway/Various types of N-glycan biosynthesis  | PPP/Vari N-glycan Bio  |
| Pentose phosphate pathway/Glycosaminoglycan biosynthesis - chondroitin sulfate/dermatan sulfate  | PPP/Chon sulf/Derm sulf Bio  |
| Pentose phosphate pathway/Glycosaminoglycan biosynthesis - keratan sulfate  | PPP/Kera sulf Bio |
| Pentose phosphate pathway/Inositol phosphate metabolism  | PPP/IP Meta  |
| Pentose phosphate pathway/Glycosylphosphatidylinositol (GPI)-anchor biosynthesis  | PPP/Anchor Bio  |
| Pentose phosphate pathway/Propanoate metabolism  | PPP/Prop Meta |
| Pentose phosphate pathway/Biotin metabolism  | PPP/Biotin Meta  |
| Pentose phosphate pathway/Aminoacyl-tRNA biosynthesis  | PPP/Amino-tRNA Bio  |
| Pentose and glucuronate interconversions/Caffeine metabolism  | Pent,Gluc conv/Caff Meta  |
| Pentose and glucuronate interconversions/Linoleic acid metabolism  | Pent,Gluc conv/LA Meta  |
| Pentose and glucuronate interconversions/Retinol metabolism  | Pent,Gluc conv/VA Meta  |
| Fructose and mannose metabolism/Fatty acid elongation  | Fruc,Mann Meta/FA Elo |
| Fructose and mannose metabolism/Fatty acid degradation  | Fruc,Mann Meta/FA Deg  |
| Fructose and mannose metabolism/Ubiquinone and other terpenoid-quinone biosynthesis | Fruc,Mann Meta/Quinone Bio |
| Fructose and mannose metabolism/Valine, leucine and isoleucine degradation  | Fruc,Mann Meta/Val,Leu,Ile Deg  |
| Fructose and mannose metabolism/Valine, leucine and isoleucine biosynthesis  | Fruc,Mann Meta/Val,Leu,Ile Bio |
| Fructose and mannose metabolism/Selenocompound metabolism  | Fruc,Mann Meta/Se-com Meta  |
| Fructose and mannose metabolism/Glutathione metabolism  | Fruc,Mann Meta/GSH Meta  |
| Fructose and mannose metabolism/Various types of N-glycan biosynthesis  | Fruc,Mann Meta/Vari N-glycan Bio  |
| Fructose and mannose metabolism/Glycosaminoglycan biosynthesis - chondroitin sulfate/dermatan sulfate  | Fruc,Mann Meta/Chon sulf/Derm sulf Bio  |
| Fructose and mannose metabolism/Glycosaminoglycan biosynthesis - keratan sulfate  | Fruc,Mann Meta/Kera sulf Bio |
| Fructose and mannose metabolism/Glycosylphosphatidylinositol (GPI)-anchor biosynthesis  | Fruc,Mann Meta/Anchor Bio  |
| Fructose and mannose metabolism/Propanoate metabolism  | Fruc,Mann Meta/Prop Meta |
| Fructose and mannose metabolism/Biotin metabolism  | Fruc,Mann Meta/Biotin Meta  |
| Fructose and mannose metabolism/Aminoacyl-tRNA biosynthesis  | Fruc,Mann Meta/Amino-tRNA Bio  |
| Galactose metabolism/Arginine and proline metabolism  | Gala Meta/Arg,Pro Meta |
| Galactose metabolism/Phosphonate and phosphinate metabolism  | Gala Meta/Phos, Phos Meta  |
| Galactose metabolism/Other types of O-glycan biosynthesis  | Gala Meta/Other O-glycan Bio |
| Galactose metabolism/Mannose type O-glycan biosynthesis  | Gala Meta/Mann type O-glycan Bio  |
| Galactose metabolism/Neomycin, kanamycin and gentamicin biosynthesis  | Gala Meta/Neo,Kana,gentamicin Bio |
| Galactose metabolism/Glycosaminoglycan degradation  | Gala Meta/GAG Deg  |
| Galactose metabolism/Glycerophospholipid metabolism  | Gala Meta/Glycero-PL Meta  |
| Galactose metabolism/Glycosphingolipid biosynthesis - ganglio series  | Gala Meta/Ganglio Bio |
| Galactose metabolism/Pyruvate metabolism  | Gala Meta/Pyru Meta |
| Galactose metabolism/One carbon pool by folate  | Gala Meta/One C pool by folate  |
| Galactose metabolism/Vitamin B6 metabolism  | Gala Meta/VB6 Meta |
| Galactose metabolism/Pantothenate and CoA biosynthesis  | Gala Meta/Pant and CoA Bio |
| Ascorbate and aldarate metabolism/Steroid hormone biosynthesis  | Asc, Ald Meta/Steroid horm Bio  |
| Ascorbate and aldarate metabolism/Caffeine metabolism  | Asc, Ald Meta/Caff Meta  |
| Ascorbate and aldarate metabolism/Retinol metabolism  | Asc, Ald Meta/VA Meta  |
| Fatty acid biosynthesis/Purine metabolism  | FA Bio/Purine Meta  |
| Fatty acid biosynthesis/Alanine, aspartate and glutamate metabolism  | FA Bio/Ala, Asp,Glu Meta |
| Fatty acid biosynthesis/Histidine metabolism  | FA Bio/His Meta  |
| Fatty acid biosynthesis/Phenylalanine metabolism  | FA Bio/Phe Meta  |
| Fatty acid biosynthesis/Tryptophan metabolism  | FA Bio/Trp Meta  |
| Fatty acid biosynthesis/beta-Alanine metabolism  | FA Bio/β-Ala Meta  |
| Fatty acid biosynthesis/Mucin type O-glycan biosynthesis  | FA Bio/Muc type O-glycan Bio  |
| Fatty acid biosynthesis/Mannose type O-glycan biosynthesis  | FA Bio/Mann type O-glycan Bio  |
| Fatty acid biosynthesis/Ether lipid metabolism  | FA Bio/EL Meta  |
| Fatty acid biosynthesis/Glycosphingolipid biosynthesis - globo and isoglobo series  | FA Bio/Globo,Isog Bio  |
| Fatty acid biosynthesis/Nicotinate and nicotinamide metabolism  | FA Bio/Nico,NA Meta |
| Fatty acid biosynthesis/Folate biosynthesis  | FA Bio/Folate Bio |
| Fatty acid elongation/Steroid biosynthesis  | FA Elo/Steroid Bio  |
| Fatty acid elongation/Valine, leucine and isoleucine degradation  | FA Elo/Val,Leu,Ile Deg  |
| Fatty acid elongation/Valine, leucine and isoleucine biosynthesis  | FA Elo/Val,Leu,Ile Bio |
| Fatty acid elongation/N-Glycan biosynthesis  | FA Elo/N-Glycan Bio  |
| Fatty acid elongation/Other glycan degradation  | FA Elo/Other glycan Deg  |
| Fatty acid elongation/Various types of N-glycan biosynthesis  | FA Elo/Vari N-glycan Bio  |
| Fatty acid elongation/Amino sugar and nucleotide sugar metabolism  | FA Elo/AS,NS Meta  |
| Fatty acid elongation/Glycosaminoglycan biosynthesis - chondroitin sulfate/dermatan sulfate  | FA Elo/Chon sulf/Derm sulf Bio  |
| Fatty acid elongation/Glycosaminoglycan biosynthesis - keratan sulfate  | FA Elo/Kera sulf Bio |
| Fatty acid elongation/Glycosylphosphatidylinositol (GPI)-anchor biosynthesis  | FA Elo/Anchor Bio  |
| Fatty acid elongation/Terpenoid backbone biosynthesis  | FA Elo/TB Bio  |
| Fatty acid elongation/Aminoacyl-tRNA biosynthesis  | FA Elo/Amino-tRNA Bio  |
| Fatty acid degradation/Ubiquinone and other terpenoid-quinone biosynthesis | FA Deg/Quinone Bio |
| Fatty acid degradation/Pyrimidine metabolism  | FA Deg/Pyrim Meta  |
| Fatty acid degradation/Cysteine and methionine metabolism  | FA Deg/Cys,Met Meta  |
| Fatty acid degradation/Valine, leucine and isoleucine biosynthesis  | FA Deg/Val,Leu,Ile Bio |
| Fatty acid degradation/Lysine degradation  | FA Deg/Lys Deg  |
| Fatty acid degradation/Selenocompound metabolism  | FA Deg/Se-com Meta  |
| Fatty acid degradation/Glutathione metabolism  | FA Deg/GSH Meta  |
| Fatty acid degradation/Various types of N-glycan biosynthesis  | FA Deg/Vari N-glycan Bio  |
| Fatty acid degradation/Neomycin, kanamycin and gentamicin biosynthesis  | FA Deg/Neo,Kana,gentamicin Bio |
| Fatty acid degradation/Glycosaminoglycan degradation  | FA Deg/GAG Deg  |
| Fatty acid degradation/Glycosaminoglycan biosynthesis - chondroitin sulfate/dermatan sulfate  | FA Deg/Chon sulf/Derm sulf Bio  |
| Fatty acid degradation/Glycosaminoglycan biosynthesis - keratan sulfate  | FA Deg/Kera sulf Bio |
| Fatty acid degradation/Inositol phosphate metabolism  | FA Deg/IP Meta  |
| Fatty acid degradation/Glycosylphosphatidylinositol (GPI)-anchor biosynthesis  | FA Deg/Anchor Bio  |
| Fatty acid degradation/Sphingolipid metabolism  | FA Deg/Sphin Meta  |
| Fatty acid degradation/Glyoxylate and dicarboxylate metabolism  | FA Deg/Glyo,Dicar Meta |
| Fatty acid degradation/Propanoate metabolism  | FA Deg/Prop Meta |
| Fatty acid degradation/Vitamin B6 metabolism  | FA Deg/VB6 Meta |
| Fatty acid degradation/Biotin metabolism  | FA Deg/Biotin Meta  |
| Fatty acid degradation/Aminoacyl-tRNA biosynthesis  | FA Deg/Amino-tRNA Bio  |
| Steroid biosynthesis/Valine, leucine and isoleucine degradation  | Steroid Bio/Val,Leu,Ile Deg  |
| Steroid biosynthesis/Valine, leucine and isoleucine biosynthesis  | Steroid Bio/Val,Leu,Ile Bio |
| Steroid biosynthesis/N-Glycan biosynthesis  | Steroid Bio/N-Glycan Bio  |
| Steroid biosynthesis/Other glycan degradation  | Steroid Bio/Other glycan Deg  |
| Steroid biosynthesis/Amino sugar and nucleotide sugar metabolism  | Steroid Bio/AS,NS Meta  |
| Steroid biosynthesis/Glycosaminoglycan biosynthesis - keratan sulfate  | Steroid Bio/Kera sulf Bio |
| Steroid biosynthesis/Terpenoid backbone biosynthesis  | Steroid Bio/TB Bio  |
| Primary bile acid biosynthesis/Tyrosine metabolism  | Prim BA Bio/Tyr Meta  |
| Primary bile acid biosynthesis/Phenylalanine, tyrosine and tryptophan biosynthesis  | Prim BA Bio/Phe,Tyr,Trp Bio  |
| Primary bile acid biosynthesis/Taurine and hypotaurine metabolism  | Prim BA Bio/Taur,hypo Meta  |
| Primary bile acid biosynthesis/D-Amino acid metabolism  | Prim BA Bio/D-AA Meta  |
| Primary bile acid biosynthesis/Starch and sucrose metabolism  | Prim BA Bio/Star,Sucr Meta  |
| Primary bile acid biosynthesis/Arachidonic acid metabolism  | Prim BA Bio/Arach-acid Meta  |
| Primary bile acid biosynthesis/alpha-Linolenic acid metabolism  | Prim BA Bio/α-LA Meta  |
| Primary bile acid biosynthesis/Butanoate metabolism  | Prim BA Bio/Buta Meta  |
| Primary bile acid biosynthesis/Nitrogen metabolism  | Prim BA Bio/Nitr Meta  |
| Primary bile acid biosynthesis/Drug metabolism - other enzymes  | Prim BA Bio/Drug-other enzy  |
| Ubiquinone and other terpenoid-quinone biosynthesis/Pyrimidine metabolism  | Quinone Bio/Pyrim Meta  |
| Ubiquinone and other terpenoid-quinone biosynthesis/Cysteine and methionine metabolism  | Quinone Bio/Cys,Met Meta  |
| Ubiquinone and other terpenoid-quinone biosynthesis/Valine, leucine and isoleucine biosynthesis  | Quinone Bio/Val,Leu,Ile Bio |
| Ubiquinone and other terpenoid-quinone biosynthesis/Lysine degradation  | Quinone Bio/Lys Deg  |
| Ubiquinone and other terpenoid-quinone biosynthesis/Phosphonate and phosphinate metabolism  | Quinone Bio/Phos, Phos Meta  |
| Ubiquinone and other terpenoid-quinone biosynthesis/Selenocompound metabolism  | Quinone Bio/Se-com Meta  |
| Ubiquinone and other terpenoid-quinone biosynthesis/Glutathione metabolism  | Quinone Bio/GSH Meta  |
| Ubiquinone and other terpenoid-quinone biosynthesis/Various types of N-glycan biosynthesis  | Quinone Bio/Vari N-glycan Bio  |
| Ubiquinone and other terpenoid-quinone biosynthesis/Neomycin, kanamycin and gentamicin biosynthesis  | Quinone Bio/Neo,Kana,gentamicin Bio |
| Ubiquinone and other terpenoid-quinone biosynthesis/Glycosaminoglycan degradation  | Quinone Bio/GAG Deg  |
| Ubiquinone and other terpenoid-quinone biosynthesis/Glycosaminoglycan biosynthesis - chondroitin sulfate/dermatan sulfate  | Quinone Bio/Chon sulf/Derm sulf Bio  |
| Ubiquinone and other terpenoid-quinone biosynthesis/Glycosaminoglycan biosynthesis - keratan sulfate  | Quinone Bio/Kera sulf Bio |
| Ubiquinone and other terpenoid-quinone biosynthesis/Inositol phosphate metabolism  | Quinone Bio/IP Meta  |
| Ubiquinone and other terpenoid-quinone biosynthesis/Sphingolipid metabolism  | Quinone Bio/Sphin Meta  |
| Ubiquinone and other terpenoid-quinone biosynthesis/Glycosphingolipid biosynthesis - ganglio series  | Quinone Bio/Ganglio Bio |
| Ubiquinone and other terpenoid-quinone biosynthesis/Glyoxylate and dicarboxylate metabolism  | Quinone Bio/Glyo,Dicar Meta |
| Ubiquinone and other terpenoid-quinone biosynthesis/Propanoate metabolism  | Quinone Bio/Prop Meta |
| Ubiquinone and other terpenoid-quinone biosynthesis/Biotin metabolism  | Quinone Bio/Biotin Meta  |
| Steroid hormone biosynthesis/Caffeine metabolism  | Steroid horm Bio/Caff Meta  |
| Arginine biosynthesis/Alanine, aspartate and glutamate metabolism  | Arg Bio/Ala, Asp,Glu Meta |
| Arginine biosynthesis/Glycine, serine and threonine metabolism  | Arg Bio/Gly,Ser,Thr Meta |
| Arginine biosynthesis/Phenylalanine metabolism  | Arg Bio/Phe Meta  |
| Arginine biosynthesis/Taurine and hypotaurine metabolism  | Arg Bio/Taur,hypo Meta  |
| Arginine biosynthesis/Mucin type O-glycan biosynthesis  | Arg Bio/Muc type O-glycan Bio  |
| Arginine biosynthesis/Glycosaminoglycan biosynthesis - heparan sulfate/heparin  | Arg Bio/hepa sulf/heparin Bio  |
| Arginine biosynthesis/Glycerolipid metabolism  | Arg Bio/GL Meta  |
| Arginine biosynthesis/Glycosphingolipid biosynthesis - lacto and neolacto series  | Arg Bio/lacto,neol Bio  |
| Arginine biosynthesis/Thiamine metabolism  | Arg Bio/Thia Meta  |
| Arginine biosynthesis/Lipoic acid metabolism  | Arg Bio/LipoicA Meta  |
| Arginine biosynthesis/Folate biosynthesis  | Arg Bio/Folate Bio |
| Purine metabolism/Histidine metabolism  | Purine Meta/His Meta  |
| Purine metabolism/Phenylalanine metabolism  | Purine Meta/Phe Meta  |
| Purine metabolism/Tryptophan metabolism  | Purine Meta/Trp Meta  |
| Purine metabolism/beta-Alanine metabolism  | Purine Meta/β-Ala Meta  |
| Purine metabolism/Mucin type O-glycan biosynthesis  | Purine Meta/Muc type O-glycan Bio  |
| Purine metabolism/Mannose type O-glycan biosynthesis  | Purine Meta/Mann type O-glycan Bio  |
| Purine metabolism/Ether lipid metabolism  | Purine Meta/EL Meta  |
| Purine metabolism/Glycosphingolipid biosynthesis - globo and isoglobo series  | Purine Meta/Globo,Isog Bio  |
| Purine metabolism/One carbon pool by folate  | Purine Meta/One C pool by folate  |
| Purine metabolism/Nicotinate and nicotinamide metabolism  | Purine Meta/Nico,NA Meta |
| Purine metabolism/Folate biosynthesis  | Purine Meta/Folate Bio |
| Caffeine metabolism/Retinol metabolism  | Caff Meta/VA Meta  |
| Pyrimidine metabolism/Cysteine and methionine metabolism  | Pyrim Meta/Cys,Met Meta  |
| Pyrimidine metabolism/Valine, leucine and isoleucine biosynthesis  | Pyrim Meta/Val,Leu,Ile Bio |
| Pyrimidine metabolism/Lysine degradation  | Pyrim Meta/Lys Deg  |
| Pyrimidine metabolism/Phosphonate and phosphinate metabolism  | Pyrim Meta/Phos, Phos Meta  |
| Pyrimidine metabolism/Glutathione metabolism  | Pyrim Meta/GSH Meta  |
| Pyrimidine metabolism/Neomycin, kanamycin and gentamicin biosynthesis  | Pyrim Meta/Neo,Kana,gentamicin Bio |
| Pyrimidine metabolism/Glycosaminoglycan degradation  | Pyrim Meta/GAG Deg  |
| Pyrimidine metabolism/Glycosaminoglycan biosynthesis - chondroitin sulfate/dermatan sulfate  | Pyrim Meta/Chon sulf/Derm sulf Bio  |
| Pyrimidine metabolism/Inositol phosphate metabolism  | Pyrim Meta/IP Meta  |
| Pyrimidine metabolism/Sphingolipid metabolism  | Pyrim Meta/Sphin Meta  |
| Pyrimidine metabolism/Glycosphingolipid biosynthesis - ganglio series  | Pyrim Meta/Ganglio Bio |
| Pyrimidine metabolism/Glyoxylate and dicarboxylate metabolism  | Pyrim Meta/Glyo,Dicar Meta |
| Pyrimidine metabolism/Propanoate metabolism  | Pyrim Meta/Prop Meta |
| Pyrimidine metabolism/Biotin metabolism  | Pyrim Meta/Biotin Meta  |
| Alanine, aspartate and glutamate metabolism/Glycine, serine and threonine metabolism  | Ala, Asp,Glu Meta/Gly,Ser,Thr Meta |
| Alanine, aspartate and glutamate metabolism/Histidine metabolism  | Ala, Asp,Glu Meta/His Meta  |
| Alanine, aspartate and glutamate metabolism/Phenylalanine metabolism  | Ala, Asp,Glu Meta/Phe Meta  |
| Alanine, aspartate and glutamate metabolism/Taurine and hypotaurine metabolism  | Ala, Asp,Glu Meta/Taur,hypo Meta  |
| Alanine, aspartate and glutamate metabolism/Mucin type O-glycan biosynthesis  | Ala, Asp,Glu Meta/Muc type O-glycan Bio  |
| Alanine, aspartate and glutamate metabolism/Glycosaminoglycan biosynthesis - heparan sulfate/heparin  | Ala, Asp,Glu Meta/hepa sulf/heparin Bio  |
| Alanine, aspartate and glutamate metabolism/Glycerolipid metabolism  | Ala, Asp,Glu Meta/GL Meta  |
| Alanine, aspartate and glutamate metabolism/Ether lipid metabolism  | Ala, Asp,Glu Meta/EL Meta  |
| Alanine, aspartate and glutamate metabolism/Glycosphingolipid biosynthesis - lacto and neolacto series  | Ala, Asp,Glu Meta/lacto,neol Bio  |
| Alanine, aspartate and glutamate metabolism/Glycosphingolipid biosynthesis - globo and isoglobo series  | Ala, Asp,Glu Meta/Globo,Isog Bio  |
| Alanine, aspartate and glutamate metabolism/Thiamine metabolism  | Ala, Asp,Glu Meta/Thia Meta  |
| Alanine, aspartate and glutamate metabolism/Nicotinate and nicotinamide metabolism  | Ala, Asp,Glu Meta/Nico,NA Meta |
| Alanine, aspartate and glutamate metabolism/Lipoic acid metabolism  | Ala, Asp,Glu Meta/LipoicA Meta  |
| Alanine, aspartate and glutamate metabolism/Folate biosynthesis  | Ala, Asp,Glu Meta/Folate Bio |
| Glycine, serine and threonine metabolism/Phenylalanine metabolism  | Gly,Ser,Thr Meta/Phe Meta  |
| Glycine, serine and threonine metabolism/Taurine and hypotaurine metabolism  | Gly,Ser,Thr Meta/Taur,hypo Meta  |
| Glycine, serine and threonine metabolism/Mucin type O-glycan biosynthesis  | Gly,Ser,Thr Meta/Muc type O-glycan Bio  |
| Glycine, serine and threonine metabolism/Glycosaminoglycan biosynthesis - heparan sulfate/heparin  | Gly,Ser,Thr Meta/hepa sulf/heparin Bio  |
| Glycine, serine and threonine metabolism/Glycerolipid metabolism  | Gly,Ser,Thr Meta/GL Meta  |
| Glycine, serine and threonine metabolism/Ether lipid metabolism  | Gly,Ser,Thr Meta/EL Meta  |
| Glycine, serine and threonine metabolism/Glycosphingolipid biosynthesis - lacto and neolacto series  | Gly,Ser,Thr Meta/lacto,neol Bio  |
| Glycine, serine and threonine metabolism/Glycosphingolipid biosynthesis - globo and isoglobo series  | Gly,Ser,Thr Meta/Globo,Isog Bio  |
| Glycine, serine and threonine metabolism/Thiamine metabolism  | Gly,Ser,Thr Meta/Thia Meta  |
| Glycine, serine and threonine metabolism/Lipoic acid metabolism  | Gly,Ser,Thr Meta/LipoicA Meta  |
| Glycine, serine and threonine metabolism/Folate biosynthesis  | Gly,Ser,Thr Meta/Folate Bio |
| Cysteine and methionine metabolism/Lysine degradation  | Cys,Met Meta/Lys Deg  |
| Cysteine and methionine metabolism/Phosphonate and phosphinate metabolism  | Cys,Met Meta/Phos, Phos Meta  |
| Cysteine and methionine metabolism/Neomycin, kanamycin and gentamicin biosynthesis  | Cys,Met Meta/Neo,Kana,gentamicin Bio |
| Cysteine and methionine metabolism/Glycosaminoglycan degradation  | Cys,Met Meta/GAG Deg  |
| Cysteine and methionine metabolism/Inositol phosphate metabolism  | Cys,Met Meta/IP Meta  |
| Cysteine and methionine metabolism/Sphingolipid metabolism  | Cys,Met Meta/Sphin Meta  |
| Cysteine and methionine metabolism/Glycosphingolipid biosynthesis - ganglio series  | Cys,Met Meta/Ganglio Bio |
| Cysteine and methionine metabolism/Glyoxylate and dicarboxylate metabolism  | Cys,Met Meta/Glyo,Dicar Meta |
| Cysteine and methionine metabolism/Propanoate metabolism  | Cys,Met Meta/Prop Meta |
| Cysteine and methionine metabolism/Vitamin B6 metabolism  | Cys,Met Meta/VB6 Meta |
| Cysteine and methionine metabolism/Biotin metabolism  | Cys,Met Meta/Biotin Meta  |
| Valine, leucine and isoleucine degradation/Valine, leucine and isoleucine biosynthesis  | Val,Leu,Ile Deg/Val,Leu,Ile Bio |
| Valine, leucine and isoleucine degradation/N-Glycan biosynthesis  | Val,Leu,Ile Deg/N-Glycan Bio  |
| Valine, leucine and isoleucine degradation/Other glycan degradation  | Val,Leu,Ile Deg/Other glycan Deg  |
| Valine, leucine and isoleucine degradation/Various types of N-glycan biosynthesis  | Val,Leu,Ile Deg/Vari N-glycan Bio  |
| Valine, leucine and isoleucine degradation/Amino sugar and nucleotide sugar metabolism  | Val,Leu,Ile Deg/AS,NS Meta  |
| Valine, leucine and isoleucine degradation/Glycosaminoglycan biosynthesis - chondroitin sulfate/dermatan sulfate  | Val,Leu,Ile Deg/Chon sulf/Derm sulf Bio  |
| Valine, leucine and isoleucine degradation/Glycosaminoglycan biosynthesis - keratan sulfate  | Val,Leu,Ile Deg/Kera sulf Bio |
| Valine, leucine and isoleucine degradation/Glycosylphosphatidylinositol (GPI)-anchor biosynthesis  | Val,Leu,Ile Deg/Anchor Bio  |
| Valine, leucine and isoleucine degradation/Aminoacyl-tRNA biosynthesis  | Val,Leu,Ile Deg/Amino-tRNA Bio  |
| Valine, leucine and isoleucine biosynthesis/Lysine degradation  | Val, Leu,Ile Bio/Lys Deg  |
| Valine, leucine and isoleucine biosynthesis/Selenocompound metabolism  | Val, Leu,Ile Bio/Se-com Meta  |
| Valine, leucine and isoleucine biosynthesis/Glutathione metabolism  | Val, Leu,Ile Bio/GSH Meta  |
| Valine, leucine and isoleucine biosynthesis/N-Glycan biosynthesis  | Val, Leu,Ile Bio/N-Glycan Bio  |
| Valine, leucine and isoleucine biosynthesis/Other glycan degradation  | Val, Leu,Ile Bio/Other glycan Deg  |
| Valine, leucine and isoleucine biosynthesis/Various types of N-glycan biosynthesis  | Val, Leu,Ile Bio/Vari N-glycan Bio  |
| Valine, leucine and isoleucine biosynthesis/Amino sugar and nucleotide sugar metabolism  | Val, Leu,Ile Bio/AS,NS Meta  |
| Valine, leucine and isoleucine biosynthesis/Glycosaminoglycan biosynthesis - chondroitin sulfate/dermatan sulfate  | Val, Leu,Ile Bio/Chon sulf/Derm sulf Bio  |
| Valine, leucine and isoleucine biosynthesis/Glycosaminoglycan biosynthesis - keratan sulfate  | Val, Leu,Ile Bio/Kera sulf Bio |
| Valine, leucine and isoleucine biosynthesis/Inositol phosphate metabolism  | Val, Leu,Ile Bio/IP Meta  |
| Valine, leucine and isoleucine biosynthesis/Glycosylphosphatidylinositol (GPI)-anchor biosynthesis  | Val, Leu,Ile Bio/Anchor Bio  |
| Valine, leucine and isoleucine biosynthesis/Glyoxylate and dicarboxylate metabolism  | Val, Leu,Ile Bio/Glyo,Dicar Meta |
| Valine, leucine and isoleucine biosynthesis/Propanoate metabolism  | Val, Leu,Ile Bio/Prop Meta |
| Valine, leucine and isoleucine biosynthesis/Biotin metabolism  | Val, Leu,Ile Bio/Biotin Meta  |
| Valine, leucine and isoleucine biosynthesis/Terpenoid backbone biosynthesis  | Val, Leu,Ile Bio/TB Bio  |
| Valine, leucine and isoleucine biosynthesis/Aminoacyl-tRNA biosynthesis  | Val, Leu,Ile Bio/Amino-tRNA Bio  |
| Lysine degradation/Phosphonate and phosphinate metabolism  | Lys Deg/Phos, Phos Meta  |
| Lysine degradation/Glutathione metabolism  | Lys Deg/GSH Meta  |
| Lysine degradation/Neomycin, kanamycin and gentamicin biosynthesis  | Lys Deg/Neo,Kana,gentamicin Bio |
| Lysine degradation/Glycosaminoglycan degradation  | Lys Deg/GAG Deg  |
| Lysine degradation/Glycosaminoglycan biosynthesis - chondroitin sulfate/dermatan sulfate  | Lys Deg/Chon sulf/Derm sulf Bio  |
| Lysine degradation/Inositol phosphate metabolism  | Lys Deg/IP Meta  |
| Lysine degradation/Sphingolipid metabolism  | Lys Deg/Sphin Meta  |
| Lysine degradation/Glycosphingolipid biosynthesis - ganglio series  | Lys Deg/Ganglio Bio |
| Lysine degradation/Glyoxylate and dicarboxylate metabolism  | Lys Deg/Glyo,Dicar Meta |
| Lysine degradation/Propanoate metabolism  | Lys Deg/Prop Meta |
| Lysine degradation/Vitamin B6 metabolism  | Lys Deg/VB6 Meta |
| Lysine degradation/Biotin metabolism  | Lys Deg/Biotin Meta  |
| Arginine and proline metabolism/Phosphonate and phosphinate metabolism  | Arg,Pro Meta/Phos, Phos Meta  |
| Arginine and proline metabolism/Other types of O-glycan biosynthesis  | Arg,Pro Meta/Other O-glycan Bio |
| Arginine and proline metabolism/Neomycin, kanamycin and gentamicin biosynthesis  | Arg,Pro Meta/Neo,Kana,gentamicin Bio |
| Arginine and proline metabolism/Glycosaminoglycan degradation  | Arg,Pro Meta/GAG Deg  |
| Arginine and proline metabolism/Glycosphingolipid biosynthesis - ganglio series  | Arg,Pro Meta/Ganglio Bio |
| Arginine and proline metabolism/Pyruvate metabolism  | Arg,Pro Meta/Pyru Meta |
| Arginine and proline metabolism/One carbon pool by folate  | Arg,Pro Meta/One C pool by folate  |
| Arginine and proline metabolism/Vitamin B6 metabolism  | Arg,Pro Meta/VB6 Meta |
| Arginine and proline metabolism/Pantothenate and CoA biosynthesis  | Arg,Pro Meta/Pant and CoA Bio |
| Histidine metabolism/Phenylalanine metabolism  | His Meta/Phe Meta  |
| Histidine metabolism/Tryptophan metabolism  | His Meta/Trp Meta  |
| Histidine metabolism/beta-Alanine metabolism  | His Meta/β-Ala Meta  |
| Histidine metabolism/Mucin type O-glycan biosynthesis  | His Meta/Muc type O-glycan Bio  |
| Histidine metabolism/Other types of O-glycan biosynthesis  | His Meta/Other O-glycan Bio |
| Histidine metabolism/Mannose type O-glycan biosynthesis  | His Meta/Mann type O-glycan Bio  |
| Histidine metabolism/Neomycin, kanamycin and gentamicin biosynthesis  | His Meta/Neo,Kana,gentamicin Bio |
| Histidine metabolism/Glycosaminoglycan biosynthesis - heparan sulfate/heparin  | His Meta/hepa sulf/heparin Bio  |
| Histidine metabolism/Glycerophospholipid metabolism  | His Meta/Glycero-PL Meta  |
| Histidine metabolism/Ether lipid metabolism  | His Meta/EL Meta  |
| Histidine metabolism/Glycosphingolipid biosynthesis - lacto and neolacto series  | His Meta/lacto,neol Bio  |
| Histidine metabolism/Glycosphingolipid biosynthesis - globo and isoglobo series  | His Meta/Globo,Isog Bio  |
| Histidine metabolism/One carbon pool by folate  | His Meta/One C pool by folate  |
| Histidine metabolism/Vitamin B6 metabolism  | His Meta/VB6 Meta |
| Histidine metabolism/Nicotinate and nicotinamide metabolism  | His Meta/Nico,NA Meta |
| Histidine metabolism/Pantothenate and CoA biosynthesis  | His Meta/Pant and CoA Bio |
| Histidine metabolism/Folate biosynthesis  | His Meta/Folate Bio |
| Tyrosine metabolism/Phenylalanine, tyrosine and tryptophan biosynthesis  | Tyr Meta/Phe,Tyr,Trp Bio  |
| Tyrosine metabolism/Taurine and hypotaurine metabolism  | Tyr Meta/Taur,hypo Meta  |
| Tyrosine metabolism/D-Amino acid metabolism  | Tyr Meta/D-AA Meta  |
| Tyrosine metabolism/Starch and sucrose metabolism  | Tyr Meta/Star,Sucr Meta  |
| Tyrosine metabolism/Arachidonic acid metabolism  | Tyr Meta/Arach-acid Meta  |
| Tyrosine metabolism/alpha-Linolenic acid metabolism  | Tyr Meta/α-LA Meta  |
| Tyrosine metabolism/Butanoate metabolism  | Tyr Meta/Buta Meta  |
| Tyrosine metabolism/Nitrogen metabolism  | Tyr Meta/Nitr Meta  |
| Tyrosine metabolism/Drug metabolism - other enzymes  | Tyr Meta/Drug-other enzy  |
| Phenylalanine metabolism/Tryptophan metabolism  | Phe Meta/Trp Meta  |
| Phenylalanine metabolism/Mucin type O-glycan biosynthesis  | Phe Meta/Muc type O-glycan Bio  |
| Phenylalanine metabolism/Mannose type O-glycan biosynthesis  | Phe Meta/Mann type O-glycan Bio  |
| Phenylalanine metabolism/Glycosaminoglycan biosynthesis - heparan sulfate/heparin  | Phe Meta/hepa sulf/heparin Bio  |
| Phenylalanine metabolism/Glycerolipid metabolism  | Phe Meta/GL Meta  |
| Phenylalanine metabolism/Ether lipid metabolism  | Phe Meta/EL Meta  |
| Phenylalanine metabolism/Glycosphingolipid biosynthesis - lacto and neolacto series  | Phe Meta/lacto,neol Bio  |
| Phenylalanine metabolism/Glycosphingolipid biosynthesis - globo and isoglobo series  | Phe Meta/Globo,Isog Bio  |
| Phenylalanine metabolism/One carbon pool by folate  | Phe Meta/One C pool by folate  |
| Phenylalanine metabolism/Nicotinate and nicotinamide metabolism  | Phe Meta/Nico,NA Meta |
| Phenylalanine metabolism/Lipoic acid metabolism  | Phe Meta/LipoicA Meta  |
| Phenylalanine metabolism/Folate biosynthesis  | Phe Meta/Folate Bio |
| Tryptophan metabolism/beta-Alanine metabolism  | Trp Meta/β-Ala Meta  |
| Tryptophan metabolism/Mucin type O-glycan biosynthesis  | Trp Meta/Muc type O-glycan Bio  |
| Tryptophan metabolism/Other types of O-glycan biosynthesis  | Trp Meta/Other O-glycan Bio |
| Tryptophan metabolism/Mannose type O-glycan biosynthesis  | Trp Meta/Mann type O-glycan Bio  |
| Tryptophan metabolism/Neomycin, kanamycin and gentamicin biosynthesis  | Trp Meta/Neo,Kana,gentamicin Bio |
| Tryptophan metabolism/Glycerophospholipid metabolism  | Trp Meta/Glycero-PL Meta  |
| Tryptophan metabolism/Glycosphingolipid biosynthesis - globo and isoglobo series  | Trp Meta/Globo,Isog Bio  |
| Tryptophan metabolism/One carbon pool by folate  | Trp Meta/One C pool by folate  |
| Tryptophan metabolism/Vitamin B6 metabolism  | Trp Meta/VB6 Meta |
| Tryptophan metabolism/Nicotinate and nicotinamide metabolism  | Trp Meta/Nico,NA Meta |
| Tryptophan metabolism/Pantothenate and CoA biosynthesis  | Trp Meta/Pant and CoA Bio |
| Phenylalanine, tyrosine and tryptophan biosynthesis/Taurine and hypotaurine metabolism  | Phe,Tyr,Trp Bio/Taur,hypo Meta  |
| Phenylalanine, tyrosine and tryptophan biosynthesis/D-Amino acid metabolism  | Phe,Tyr,Trp Bio/D-AA Meta  |
| Phenylalanine, tyrosine and tryptophan biosynthesis/Starch and sucrose metabolism  | Phe,Tyr,Trp Bio/Star,Sucr Meta  |
| Phenylalanine, tyrosine and tryptophan biosynthesis/Arachidonic acid metabolism  | Phe,Tyr,Trp Bio/Arach-acid Meta  |
| Phenylalanine, tyrosine and tryptophan biosynthesis/alpha-Linolenic acid metabolism  | Phe,Tyr,Trp Bio/α-LA Meta  |
| Phenylalanine, tyrosine and tryptophan biosynthesis/Butanoate metabolism  | Phe,Tyr,Trp Bio/Buta Meta  |
| Phenylalanine, tyrosine and tryptophan biosynthesis/Porphyrin metabolism  | Phe,Tyr,Trp Bio/Porphyrin metabolism  |
| Phenylalanine, tyrosine and tryptophan biosynthesis/Nitrogen metabolism  | Phe,Tyr,Trp Bio/Nitr Meta  |
| Phenylalanine, tyrosine and tryptophan biosynthesis/Drug metabolism - other enzymes  | Phe,Tyr,Trp Bio/Drug-other enzy  |
| beta-Alanine metabolism/Mucin type O-glycan biosynthesis  | β-Ala Meta/Muc type O-glycan Bio  |
| beta-Alanine metabolism/Mannose type O-glycan biosynthesis  | β-Ala Meta/Mann type O-glycan Bio  |
| beta-Alanine metabolism/Neomycin, kanamycin and gentamicin biosynthesis  | β-Ala Meta/Neo,Kana,gentamicin Bio |
| beta-Alanine metabolism/Glycerophospholipid metabolism  | β-Ala Meta/Glycero-PL Meta  |
| beta-Alanine metabolism/Glycosphingolipid biosynthesis - globo and isoglobo series  | β-Ala Meta/Globo,Isog Bio  |
| beta-Alanine metabolism/One carbon pool by folate  | β-Ala Meta/One C pool by folate  |
| beta-Alanine metabolism/Vitamin B6 metabolism  | β-Ala Meta/VB6 Meta |
| beta-Alanine metabolism/Nicotinate and nicotinamide metabolism  | β-Ala Meta/Nico,NA Meta |
| beta-Alanine metabolism/Pantothenate and CoA biosynthesis  | β-Ala Meta/Pant and CoA Bio |
| Taurine and hypotaurine metabolism/D-Amino acid metabolism  | Taur,hypo Meta/D-AA Meta  |
| Taurine and hypotaurine metabolism/Starch and sucrose metabolism  | Taur,hypo Meta/Star,Sucr Meta  |
| Taurine and hypotaurine metabolism/Glycosaminoglycan biosynthesis - heparan sulfate/heparin  | Taur,hypo Meta/hepa sulf/heparin Bio  |
| Taurine and hypotaurine metabolism/Glycerolipid metabolism  | Taur,hypo Meta/GL Meta  |
| Taurine and hypotaurine metabolism/Arachidonic acid metabolism  | Taur,hypo Meta/Arach-acid Meta  |
| Taurine and hypotaurine metabolism/alpha-Linolenic acid metabolism  | Taur,hypo Meta/α-LA Meta  |
| Taurine and hypotaurine metabolism/Glycosphingolipid biosynthesis - lacto and neolacto series  | Taur,hypo Meta/lacto,neol Bio  |
| Taurine and hypotaurine metabolism/Butanoate metabolism  | Taur,hypo Meta/Buta Meta  |
| Taurine and hypotaurine metabolism/Thiamine metabolism  | Taur,hypo Meta/Thia Meta  |
| Taurine and hypotaurine metabolism/Lipoic acid metabolism  | Taur,hypo Meta/LipoicA Meta  |
| Taurine and hypotaurine metabolism/Folate biosynthesis  | Taur,hypo Meta/Folate Bio |
| Taurine and hypotaurine metabolism/Drug metabolism - other enzymes  | Taur,hypo Meta/Drug-other enzy  |
| Phosphonate and phosphinate metabolism/Other types of O-glycan biosynthesis  | Phos, Phos Meta/Other O-glycan Bio |
| Phosphonate and phosphinate metabolism/Mannose type O-glycan biosynthesis  | Phos, Phos Meta/Mann type O-glycan Bio  |
| Phosphonate and phosphinate metabolism/Neomycin, kanamycin and gentamicin biosynthesis  | Phos, Phos Meta/Neo,Kana,gentamicin Bio |
| Phosphonate and phosphinate metabolism/Glycosaminoglycan degradation  | Phos, Phos Meta/GAG Deg  |
| Phosphonate and phosphinate metabolism/Inositol phosphate metabolism  | Phos, Phos Meta/IP Meta  |
| Phosphonate and phosphinate metabolism/Glycerophospholipid metabolism  | Phos, Phos Meta/Glycero-PL Meta  |
| Phosphonate and phosphinate metabolism/Sphingolipid metabolism  | Phos, Phos Meta/Sphin Meta  |
| Phosphonate and phosphinate metabolism/Glycosphingolipid biosynthesis - ganglio series  | Phos, Phos Meta/Ganglio Bio |
| Phosphonate and phosphinate metabolism/Pyruvate metabolism  | Phos, Phos Meta/Pyru Meta |
| Phosphonate and phosphinate metabolism/Glyoxylate and dicarboxylate metabolism  | Phos, Phos Meta/Glyo,Dicar Meta |
| Phosphonate and phosphinate metabolism/One carbon pool by folate  | Phos, Phos Meta/One C pool by folate  |
| Phosphonate and phosphinate metabolism/Vitamin B6 metabolism  | Phos, Phos Meta/VB6 Meta |
| Phosphonate and phosphinate metabolism/Pantothenate and CoA biosynthesis  | Phos, Phos Meta/Pant and CoA Bio |
| Phosphonate and phosphinate metabolism/Biotin metabolism  | Phos, Phos Meta/Biotin Meta  |
| Selenocompound metabolism/Glutathione metabolism  | Se-com Meta/GSH Meta  |
| Selenocompound metabolism/Various types of N-glycan biosynthesis  | Se-com Meta/Vari N-glycan Bio  |
| Selenocompound metabolism/Glycosaminoglycan biosynthesis - chondroitin sulfate/dermatan sulfate  | Se-com Meta/Chon sulf/Derm sulf Bio  |
| Selenocompound metabolism/Glycosaminoglycan biosynthesis - keratan sulfate  | Se-com Meta/Kera sulf Bio |
| Selenocompound metabolism/Glycosylphosphatidylinositol (GPI)-anchor biosynthesis  | Se-com Meta/Anchor Bio  |
| Selenocompound metabolism/Propanoate metabolism  | Se-com Meta/Prop Meta |
| Selenocompound metabolism/Biotin metabolism  | Se-com Meta/Biotin Meta  |
| Selenocompound metabolism/Aminoacyl-tRNA biosynthesis  | Se-com Meta/Amino-tRNA Bio  |
| D-Amino acid metabolism/Starch and sucrose metabolism  | D-AA Meta/Star,Sucr Meta  |
| D-Amino acid metabolism/Arachidonic acid metabolism  | D-AA Meta/Arach-acid Meta  |
| D-Amino acid metabolism/alpha-Linolenic acid metabolism  | D-AA Meta/α-LA Meta  |
| D-Amino acid metabolism/Butanoate metabolism  | D-AA Meta/Buta Meta  |
| D-Amino acid metabolism/Thiamine metabolism  | D-AA Meta/Thia Meta  |
| D-Amino acid metabolism/Lipoic acid metabolism  | D-AA Meta/LipoicA Meta  |
| D-Amino acid metabolism/Nitrogen metabolism  | D-AA Meta/Nitr Meta  |
| D-Amino acid metabolism/Drug metabolism - other enzymes  | D-AA Meta/Drug-other enzy  |
| Glutathione metabolism/Various types of N-glycan biosynthesis  | GSH Meta/Vari N-glycan Bio  |
| Glutathione metabolism/Glycosaminoglycan biosynthesis - chondroitin sulfate/dermatan sulfate  | GSH Meta/Chon sulf/Derm sulf Bio  |
| Glutathione metabolism/Glycosaminoglycan biosynthesis - keratan sulfate  | GSH Meta/Kera sulf Bio |
| Glutathione metabolism/Inositol phosphate metabolism  | GSH Meta/IP Meta  |
| Glutathione metabolism/Glycosylphosphatidylinositol (GPI)-anchor biosynthesis  | GSH Meta/Anchor Bio  |
| Glutathione metabolism/Glyoxylate and dicarboxylate metabolism  | GSH Meta/Glyo,Dicar Meta |
| Glutathione metabolism/Propanoate metabolism  | GSH Meta/Prop Meta |
| Glutathione metabolism/Biotin metabolism  | GSH Meta/Biotin Meta  |
| Glutathione metabolism/Aminoacyl-tRNA biosynthesis  | GSH Meta/Amino-tRNA Bio  |
| Starch and sucrose metabolism/Arachidonic acid metabolism  | Star,Sucr Meta/Arach-acid Meta  |
| Starch and sucrose metabolism/alpha-Linolenic acid metabolism  | Star,Sucr Meta/α-LA Meta  |
| Starch and sucrose metabolism/Butanoate metabolism  | Star,Sucr Meta/Buta Meta  |
| Starch and sucrose metabolism/Thiamine metabolism  | Star,Sucr Meta/Thia Meta  |
| Starch and sucrose metabolism/Lipoic acid metabolism  | Star,Sucr Meta/LipoicA Meta  |
| Starch and sucrose metabolism/Drug metabolism - other enzymes  | Star,Sucr Meta/Drug-other enzy  |
| N-Glycan biosynthesis/Other glycan degradation  | N-Glycan Bio/Other glycan Deg  |
| N-Glycan biosynthesis/Amino sugar and nucleotide sugar metabolism  | N-Glycan Bio/AS,NS Meta  |
| N-Glycan biosynthesis/Terpenoid backbone biosynthesis  | N-Glycan Bio/TB Bio  |
| Other glycan degradation/Amino sugar and nucleotide sugar metabolism  | Other glycan Deg/AS,NS Meta  |
| Other glycan degradation/Glycosaminoglycan biosynthesis - keratan sulfate  | Other glycan Deg/Kera sulf Bio |
| Other glycan degradation/Terpenoid backbone biosynthesis  | Other glycan Deg/TB Bio  |
| Other glycan degradation/Aminoacyl-tRNA biosynthesis  | Other glycan Deg/Amino-tRNA Bio  |
| Mucin type O-glycan biosynthesis/Glycosaminoglycan biosynthesis - heparan sulfate/heparin  | Muc type O-glycan Bio/hepa sulf/heparin Bio  |
| Mucin type O-glycan biosynthesis/Glycerolipid metabolism  | Muc type O-glycan Bio/GL Meta  |
| Mucin type O-glycan biosynthesis/Ether lipid metabolism  | Muc type O-glycan Bio/EL Meta  |
| Mucin type O-glycan biosynthesis/Glycosphingolipid biosynthesis - globo and isoglobo series  | Muc type O-glycan Bio/Globo,Isog Bio  |
| Mucin type O-glycan biosynthesis/Nicotinate and nicotinamide metabolism  | Muc type O-glycan Bio/Nico,NA Meta |
| Mucin type O-glycan biosynthesis/Lipoic acid metabolism  | Muc type O-glycan Bio/LipoicA Meta  |
| Mucin type O-glycan biosynthesis/Folate biosynthesis  | Muc type O-glycan Bio/Folate Bio |
| Various types of N-glycan biosynthesis/Glycosaminoglycan biosynthesis - chondroitin sulfate/dermatan sulfate  | Vari N-glycan Bio/Chon sulf/Derm sulf Bio  |
| Various types of N-glycan biosynthesis/Glycosaminoglycan biosynthesis - keratan sulfate  | Vari N-glycan Bio/Kera sulf Bio |
| Various types of N-glycan biosynthesis/Glycosylphosphatidylinositol (GPI)-anchor biosynthesis  | Vari N-glycan Bio/Anchor Bio  |
| Various types of N-glycan biosynthesis/Propanoate metabolism  | Vari N-glycan Bio/Prop Meta |
| Various types of N-glycan biosynthesis/Biotin metabolism  | Vari N-glycan Bio/Biotin Meta  |
| Various types of N-glycan biosynthesis/Aminoacyl-tRNA biosynthesis  | Vari N-glycan Bio/Amino-tRNA Bio  |
| Other types of O-glycan biosynthesis/Mannose type O-glycan biosynthesis  | Other O-glycan Bio/Mann type O-glycan Bio  |
| Other types of O-glycan biosynthesis/Neomycin, kanamycin and gentamicin biosynthesis  | Other O-glycan Bio/Neo,Kana,gentamicin Bio |
| Other types of O-glycan biosynthesis/Glycerophospholipid metabolism  | Other O-glycan Bio/Glycero-PL Meta  |
| Other types of O-glycan biosynthesis/Glycosphingolipid biosynthesis - ganglio series  | Other O-glycan Bio/Ganglio Bio |
| Other types of O-glycan biosynthesis/Pyruvate metabolism  | Other O-glycan Bio/Pyru Meta |
| Other types of O-glycan biosynthesis/One carbon pool by folate  | Other O-glycan Bio/One C pool by folate  |
| Other types of O-glycan biosynthesis/Vitamin B6 metabolism  | Other O-glycan Bio/VB6 Meta |
| Other types of O-glycan biosynthesis/Pantothenate and CoA biosynthesis  | Other O-glycan Bio/Pant and CoA Bio |
| Mannose type O-glycan biosynthesis/Neomycin, kanamycin and gentamicin biosynthesis  | Mann type O-glycan Bio /Neo,Kana,gentamicin Bio |
| Mannose type O-glycan biosynthesis/Glycerophospholipid metabolism  | Mann type O-glycan Bio /Glycero-PL Meta  |
| Mannose type O-glycan biosynthesis/Ether lipid metabolism  | Mann type O-glycan Bio /EL Meta  |
| Mannose type O-glycan biosynthesis/Glycosphingolipid biosynthesis - globo and isoglobo series  | Mann type O-glycan Bio /Globo,Isog Bio  |
| Mannose type O-glycan biosynthesis/Glycosphingolipid biosynthesis - ganglio series  | Mann type O-glycan Bio /Ganglio Bio |
| Mannose type O-glycan biosynthesis/Pyruvate metabolism  | Mann type O-glycan Bio /Pyru Meta |
| Mannose type O-glycan biosynthesis/One carbon pool by folate  | Mann type O-glycan Bio /One C pool by folate  |
| Mannose type O-glycan biosynthesis/Vitamin B6 metabolism  | Mann type O-glycan Bio /VB6 Meta |
| Mannose type O-glycan biosynthesis/Nicotinate and nicotinamide metabolism  | Mann type O-glycan Bio /Nico,NA Meta |
| Mannose type O-glycan biosynthesis/Pantothenate and CoA biosynthesis  | Mann type O-glycan Bio /Pant and CoA Bio |
| Amino sugar and nucleotide sugar metabolism/Glycosaminoglycan biosynthesis - keratan sulfate  | AS,NS Meta/Kera sulf Bio |
| Amino sugar and nucleotide sugar metabolism/Terpenoid backbone biosynthesis  | AS,NS Meta/TB Bio  |
| Amino sugar and nucleotide sugar metabolism/Aminoacyl-tRNA biosynthesis  | AS,NS Meta/Amino-tRNA Bio  |
| Neomycin, kanamycin and gentamicin biosynthesis/Glycosaminoglycan degradation  | Neo,Kana,gentamicin Bio/GAG Deg  |
| Neomycin, kanamycin and gentamicin biosynthesis/Inositol phosphate metabolism  | Neo,Kana,gentamicin Bio/IP Meta  |
| Neomycin, kanamycin and gentamicin biosynthesis/Glycerophospholipid metabolism  | Neo,Kana,gentamicin Bio/Glycero-PL Meta  |
| Neomycin, kanamycin and gentamicin biosynthesis/Sphingolipid metabolism  | Neo,Kana,gentamicin Bio/Sphin Meta  |
| Neomycin, kanamycin and gentamicin biosynthesis/Glycosphingolipid biosynthesis - ganglio series  | Neo,Kana,gentamicin Bio/Ganglio Bio |
| Neomycin, kanamycin and gentamicin biosynthesis/Pyruvate metabolism  | Neo,Kana,gentamicin Bio/Pyru Meta |
| Neomycin, kanamycin and gentamicin biosynthesis/Glyoxylate and dicarboxylate metabolism  | Neo,Kana,gentamicin Bio/Glyo,Dicar Meta |
| Neomycin, kanamycin and gentamicin biosynthesis/Propanoate metabolism  | Neo,Kana,gentamicin Bio/Prop Meta |
| Neomycin, kanamycin and gentamicin biosynthesis/One carbon pool by folate  | Neo,Kana,gentamicin Bio/One C pool by folate  |
| Neomycin, kanamycin and gentamicin biosynthesis/Vitamin B6 metabolism  | Neo,Kana,gentamicin Bio/VB6 Meta |
| Neomycin, kanamycin and gentamicin biosynthesis/Pantothenate and CoA biosynthesis  | Neo,Kana,gentamicin Bio/Pant and CoA Bio |
| Neomycin, kanamycin and gentamicin biosynthesis/Biotin metabolism  | Neo,Kana,gentamicin Bio/Biotin Meta  |
| Glycosaminoglycan degradation/Inositol phosphate metabolism  | GAG Deg/IP Meta  |
| Glycosaminoglycan degradation/Sphingolipid metabolism  | GAG Deg/Sphin Meta  |
| Glycosaminoglycan degradation/Glycosphingolipid biosynthesis - ganglio series  | GAG Deg/Ganglio Bio |
| Glycosaminoglycan degradation/Glyoxylate and dicarboxylate metabolism  | GAG Deg/Glyo,Dicar Meta |
| Glycosaminoglycan degradation/Propanoate metabolism  | GAG Deg/Prop Meta |
| Glycosaminoglycan degradation/Vitamin B6 metabolism  | GAG Deg/VB6 Meta |
| Glycosaminoglycan degradation/Biotin metabolism  | GAG Deg/Biotin Meta  |
| Glycosaminoglycan biosynthesis - chondroitin sulfate/dermatan sulfate/Glycosaminoglycan biosynthesis - keratan sulfate  | Chon sulf/Derm sulf Bio/Kera sulf Bio |
| Glycosaminoglycan biosynthesis - chondroitin sulfate/dermatan sulfate/Inositol phosphate metabolism  | Chon sulf/Derm sulf Bio/IP Meta  |
| Glycosaminoglycan biosynthesis - chondroitin sulfate/dermatan sulfate/Glycosylphosphatidylinositol (GPI)-anchor biosynthesis  | Chon sulf/Derm sulf Bio/Anchor Bio  |
| Glycosaminoglycan biosynthesis - chondroitin sulfate/dermatan sulfate/Glyoxylate and dicarboxylate metabolism  | Chon sulf/Derm sulf Bio/Glyo,Dicar Meta |
| Glycosaminoglycan biosynthesis - chondroitin sulfate/dermatan sulfate/Propanoate metabolism  | Chon sulf/Derm sulf Bio/Prop Meta |
| Glycosaminoglycan biosynthesis - chondroitin sulfate/dermatan sulfate/Biotin metabolism  | Chon sulf/Derm sulf Bio/Biotin Meta  |
| Glycosaminoglycan biosynthesis - chondroitin sulfate/dermatan sulfate/Aminoacyl-tRNA biosynthesis  | Chon sulf/Derm sulf Bio/Amino-tRNA Bio  |
| Glycosaminoglycan biosynthesis - keratan sulfate/Glycosylphosphatidylinositol (GPI)-anchor biosynthesis  | Kera sulf Bio/Anchor Bio  |
| Glycosaminoglycan biosynthesis - keratan sulfate/Propanoate metabolism  | Kera sulf Bio/Prop Meta |
| Glycosaminoglycan biosynthesis - keratan sulfate/Biotin metabolism  | Kera sulf Bio/Biotin Meta  |
| Glycosaminoglycan biosynthesis - keratan sulfate/Terpenoid backbone biosynthesis  | Kera sulf Bio/TB Bio  |
| Glycosaminoglycan biosynthesis - keratan sulfate/Aminoacyl-tRNA biosynthesis  | Kera sulf Bio/Amino-tRNA Bio  |
| Glycosaminoglycan biosynthesis - heparan sulfate/heparin/Glycerolipid metabolism  | hepa sulf/heparin Bio/GL Meta  |
| Glycosaminoglycan biosynthesis - heparan sulfate/heparin/Ether lipid metabolism  | hepa sulf/heparin Bio/EL Meta  |
| Glycosaminoglycan biosynthesis - heparan sulfate/heparin/Glycosphingolipid biosynthesis - lacto and neolacto series  | hepa sulf/heparin Bio/lacto,neol Bio  |
| Glycosaminoglycan biosynthesis - heparan sulfate/heparin/Thiamine metabolism  | hepa sulf/heparin Bio/Thia Meta  |
| Glycosaminoglycan biosynthesis - heparan sulfate/heparin/Lipoic acid metabolism  | hepa sulf/heparin Bio/LipoicA Meta  |
| Glycosaminoglycan biosynthesis - heparan sulfate/heparin/Folate biosynthesis  | hepa sulf/heparin Bio/Folate Bio |
| Glycerolipid metabolism/Ether lipid metabolism  | GL Meta/EL Meta  |
| Glycerolipid metabolism/Glycosphingolipid biosynthesis - lacto and neolacto series  | GL Meta/lacto,neol Bio  |
| Glycerolipid metabolism/Thiamine metabolism  | GL Meta/Thia Meta  |
| Glycerolipid metabolism/Lipoic acid metabolism  | GL Meta/LipoicA Meta  |
| Glycerolipid metabolism/Folate biosynthesis  | GL Meta/Folate Bio |
| Inositol phosphate metabolism/Sphingolipid metabolism  | IP Meta/Sphin Meta  |
| Inositol phosphate metabolism/Glyoxylate and dicarboxylate metabolism  | IP Meta/Glyo,Dicar Meta |
| Inositol phosphate metabolism/Propanoate metabolism  | IP Meta/Prop Meta |
| Inositol phosphate metabolism/Vitamin B6 metabolism  | IP Meta/VB6 Meta |
| Inositol phosphate metabolism/Biotin metabolism  | IP Meta/Biotin Meta  |
| Glycosylphosphatidylinositol (GPI)-anchor biosynthesis/Propanoate metabolism  | Anchor Bio/Prop Meta |
| Glycosylphosphatidylinositol (GPI)-anchor biosynthesis/Aminoacyl-tRNA biosynthesis  | Anchor Bio/Amino-tRNA Bio  |
| Glycerophospholipid metabolism/Glycosphingolipid biosynthesis - globo and isoglobo series  | Glycero-PL Meta/Globo,Isog Bio  |
| Glycerophospholipid metabolism/Pyruvate metabolism  | Glycero-PL Meta/Pyru Meta |
| Glycerophospholipid metabolism/One carbon pool by folate  | Glycero-PL Meta/One C pool by folate  |
| Glycerophospholipid metabolism/Vitamin B6 metabolism  | Glycero-PL Meta/VB6 Meta |
| Glycerophospholipid metabolism/Pantothenate and CoA biosynthesis  | Glycero-PL Meta/Pant and CoA Bio |
| Ether lipid metabolism/Glycosphingolipid biosynthesis - lacto and neolacto series  | EL Meta/lacto,neol Bio  |
| Ether lipid metabolism/Glycosphingolipid biosynthesis - globo and isoglobo series  | EL Meta/Globo,Isog Bio  |
| Ether lipid metabolism/Nicotinate and nicotinamide metabolism  | EL Meta/Nico,NA Meta |
| Ether lipid metabolism/Folate biosynthesis  | EL Meta/Folate Bio |
| Arachidonic acid metabolism/alpha-Linolenic acid metabolism  | Arach-acid Meta/α-LA Meta  |
| Arachidonic acid metabolism/Butanoate metabolism  | Arach-acid Meta/Buta Meta  |
| Arachidonic acid metabolism/Nitrogen metabolism  | Arach-acid Meta/Nitr Meta  |
| Arachidonic acid metabolism/Drug metabolism - other enzymes  | Arach-acid Meta/Drug-other enzy  |
| Linoleic acid metabolism/Metabolism of xenobiotics by cytochrome P450  | LA Meta/Xeno Meta by CYP450 |
| Linoleic acid metabolism/Drug metabolism - cytochrome P450  | LA Meta/Drug-CYP450  |
| alpha-Linolenic acid metabolism/Butanoate metabolism  | α-LA Meta/Buta Meta  |
| alpha-Linolenic acid metabolism/Nitrogen metabolism  | α-LA Meta/Nitr Meta  |
| alpha-Linolenic acid metabolism/Drug metabolism - other enzymes  | α-LA Meta/Drug-other enzy  |
| Sphingolipid metabolism/Glycosphingolipid biosynthesis - ganglio series  | Sphin Meta/Ganglio Bio |
| Sphingolipid metabolism/Glyoxylate and dicarboxylate metabolism  | Sphin Meta/Glyo,Dicar Meta |
| Sphingolipid metabolism/Vitamin B6 metabolism  | Sphin Meta/VB6 Meta |
| Sphingolipid metabolism/Biotin metabolism  | Sphin Meta/Biotin Meta  |
| Glycosphingolipid biosynthesis - lacto and neolacto series/Thiamine metabolism  | lacto,neol Bio/Thia Meta  |
| Glycosphingolipid biosynthesis - lacto and neolacto series/Lipoic acid metabolism  | lacto,neol Bio/LipoicA Meta  |
| Glycosphingolipid biosynthesis - lacto and neolacto series/Folate biosynthesis  | lacto,neol Bio/Folate Bio |
| Glycosphingolipid biosynthesis - globo and isoglobo series/One carbon pool by folate  | Globo,Isog Bio/One C pool by folate  |
| Glycosphingolipid biosynthesis - globo and isoglobo series/Nicotinate and nicotinamide metabolism  | Globo,Isog Bio/Nico,NA Meta |
| Glycosphingolipid biosynthesis - globo and isoglobo series/Pantothenate and CoA biosynthesis  | Globo,Isog Bio/Pant and CoA Bio |
| Glycosphingolipid biosynthesis - globo and isoglobo series/Folate biosynthesis  | Globo,Isog Bio/Folate Bio |
| Glycosphingolipid biosynthesis - ganglio series/Pyruvate metabolism  | Ganglio Bios/Pyru Meta |
| Glycosphingolipid biosynthesis - ganglio series/Glyoxylate and dicarboxylate metabolism  | Ganglio Bios/Glyo,Dicar Meta |
| Glycosphingolipid biosynthesis - ganglio series/One carbon pool by folate  | Ganglio Bios/One C pool by folate  |
| Glycosphingolipid biosynthesis - ganglio series/Vitamin B6 metabolism  | Ganglio Bios/VB6 Meta |
| Glycosphingolipid biosynthesis - ganglio series/Biotin metabolism  | Ganglio Bios/Biotin Meta  |
| Pyruvate metabolism/One carbon pool by folate  | Pyru Meta/One C pool by folate  |
| Pyruvate metabolism/Vitamin B6 metabolism  | Pyru Meta/VB6 Meta |
| Pyruvate metabolism/Pantothenate and CoA biosynthesis  | Pyru Meta/Pant and CoA Bio |
| Glyoxylate and dicarboxylate metabolism/Propanoate metabolism  | Glyo,Dicar Meta/Prop Meta |
| Glyoxylate and dicarboxylate metabolism/Vitamin B6 metabolism  | Glyo,Dicar Meta/VB6 Meta |
| Glyoxylate and dicarboxylate metabolism/Biotin metabolism  | Glyo,Dicar Meta/Biotin Meta  |
| Propanoate metabolism/Biotin metabolism  | Prop Meta/Biotin Meta  |
| Butanoate metabolism/Thiamine metabolism  | Buta Meta/Thia Meta  |
| Butanoate metabolism/Lipoic acid metabolism  | Buta Meta/LipoicA Meta  |
| Butanoate metabolism/Drug metabolism - other enzymes  | Buta Meta/Drug-other enzy  |
| One carbon pool by folate/Vitamin B6 metabolism  | One C pool by folate/VB6 Meta |
| One carbon pool by folate/Pantothenate and CoA biosynthesis  | One C pool by folate/Pant and CoA Bio |
| Thiamine metabolism/Lipoic acid metabolism  | Thia Meta/LipoicA Meta  |
| Vitamin B6 metabolism/Pantothenate and CoA biosynthesis  | VB6 Meta/Pant and CoA Bio |
| Vitamin B6 metabolism/Biotin metabolism  | VB6 Meta/Biotin Meta  |
| Nicotinate and nicotinamide metabolism/Folate biosynthesis  | Nico,NA Meta/Folate Bio |
| Lipoic acid metabolism/Folate biosynthesis  | LipoicA Meta/Folate Bio |
| Terpenoid backbone biosynthesis/Aminoacyl-tRNA biosynthesis  | TB Bio/Amino-tRNA Bio  |
| Nitrogen metabolism/Drug metabolism - other enzymes  | Nitr Meta /Drug-other enzy  |