## GLUTATHIONE METABOLISM 4.3.2.9 5-Oxoproline 🔾 🚾 3.5.2.9 -Glutamate Cysteine and Taurine and methionine hypotaurine L-Amino acidQ metabolism metabolism Glutamate L-Cysteine VVV metabolism **₽** 0 4.3.2.9 Cyanoamino acid metabolism L-y-Glutamyl-L-amino acid Glycine PepA 3.4.11.2 PepN PepB LAP3 γ-Glutamyl PepD DUG1 cycle L-Cysteinylglycine 2.3.2.2 4.3.2.7 Glutathione 3.4.19.13 disulfide (GSSG) Fò◂ 1.8.1.13 -O Bis-γ-glutamylcystine |**♣**|**♣**| Glutathione L-γ-Glutamylcysteine (GSH) 1.1.1.43 Glycine O RX L-Glutamate O PepN O Acetyl-CoA 0 1.1.1.44 1.1.1.49 NADPH NADP+ 3.4.11.2 LAP3 DUG1 2.3.1.80 → ○ PepA PepB PepD R-S-Glutathione R-S-Cysteine Mercapturic acid 1.8.4.2 | 1.11.1.12 Cysteinyl gfycine' NADP NADPH 0 2.8.1.3 3.5.1.78 1.8.4.1 1.8.4.4 TrvR 1.8.5.1 | 1.5.4.1 | 1.8.4.3 | 1.8.4.7 TryS Dehydro-TryS ascorbate Ascorbate Putrescine O 2.5.1.16 Spermidine 1.11.1.11 0 TryS 6.3.1.8 Trypanothione disulfide 4.1.1.17 6.3.1.9 TryS Glutathionyl-Trypanothione spermidine TryP | TDPX L-Ornithine O Tryparedoxin 1.17.4.1 Tryparedoxin disulfide Trypanothione TryP Arginine biosynthesis metabolism O Spermine 1.17.4.1 Glutathionyl-Bis(glutathionyl)spermine spermine TrvR Bis(glutathionyl)spermine disulfide TryS TryS TcTryS TcTryR TryS Homotrypanothione TryR. CadaverineO-2.5.1.16 TryS disulfide TryS

Aminopropyl-

cadaverine

TcTryS

Glutathionylaminopropyl- TcTryS

cadaverine

Homotrypanothione