## ARGININE AND PROLINE METABOLISM N2-Succinyl-N2-Succinyl-L-glutamate 5-semialdehyde N2-Succinylglutamate Glutamate L-omithine Alanine, aspartate and glutamate metabolism Guanidino-▲ acetate-P 2.7.3.1 Creatine Creatine-P N2\_Succinyl-co — spontaneous — Creatinine Guanidino 🖓 K00542 acetate L-arginine Creatine pathway 4-Oxoproline Peptide °♥L-Glutamyl-P D-Nopaline D-Octopine Urea 0 N-Carbamovl-Arginine biosynthesis sarcosine 1.1.1.104 Sarcosine 1-Pyrroline-3-hydroxy-1.5.1.11 N-Methylhydantoin 5-carboxylate L-erythro-⊭a•4-Hydroxy-Arginine Omithine K00819 K00472 glutámate L-Glutamate 5-semialdehyde 1-Pyrroline-5-carboxylate 4-Hydroxy-proline roline N-Carbamoylputrescine 4-Hydroxyglutamate semialdehyde Nω-Hydroxy 2-Oxo-5-aminovalerate °●◀ K14454... arginine cis-4-Hydroxy-D-proline 2.6.1.23 Agmatine p-Coumaroyl-CoA 1-Pyrroline-2-carboxylate D-Proline trans-3-Hydroxy-Linatine 2-Oxo-4-hydroxy-5-aminovalerate L-Arginine-P رR)-4-Hydroxyproline Nitric oxide 2-oxoglutarate 1.4.1.12 p-Coumaroylp-Coumaroyl-Pymole-2-carboxylate agmatine ptrescine 5-Amino-1-Pyrroline- <sup>2-carb</sup> 4-hydroxy-2-carboxylate Lysine degradation pentanoate Feruloyl-Co **₩**\$\$Pynuvate 2-Oxoarginine °🍑 Tropane, piperidine and pyridine alkaloid biosynthesis Cysteine and methionine 3.5.4.22 Feruloyl-Feruloylmétabolism Glyoxylate<sup>c</sup> $\P$ agmatine ptrescine Putrescine 1.13.12.1 Citrate cycle 2,5-Dioxopentanoate L-Aspartate-4-semialdehyde 3.5.1.62 S-Adenosyl-Glycine Ascorbate and aldarate Glycine, serine and -methionine — -[:\$**\*\*\*** o∰4-Guanidino-. ♥ y-L-Glutamyl-4-Guanidino-co metabolism metabolism threonine metabolism N-Acetylbutanamide butanal °**°**putrescine putrescine K01611 2.6.1.29 Pentose and glucuronate interconversions 1,3-Diamino-K00274 propane Glyoxylate and dicarboxylate metabolism y-Glutamyl-Carboxy-Carboxy-🏜 S-Adenosyloo N4-Acetyl-aminobutanal ∳y-amino-butyraldehyde spermidine norspermidine metioninamine K09251 K01426 . N4-Aceyly-Glutamyl-Norspermidine 🍑 5 amino-butanoate - oj-amino-4-Amino-Spermine 🛡 butanal butyrate β-Alanine metabolism Spermidine 3.5.1.63 K00128... Polyamine Pathway Glutathione K14755 ADC pathway butanoate metabolism ADH pathway **▶** L-Homocarnosine 4-Guanidino-Alanine, aspartate and glutamate metabolism butanoate Butanoate metabolism 00330 2/12/16 (c) Kanehisa Laboratories