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Amino acid synthesis pathways in Desulfovibrio vulgaris

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Several steps in amino acid synthesis pathways are not annotated in the Desulfovibrio vulgaris genome. We computationally predicted several new reactions, including isoleucine synthesis via citramalate synthase (DVU1914), methionine synthesis via a potential bifunctional cystathionine gamma-synthase and beta-lyase (DVU0171), synthesis of alpha-ketoglutarate and glutamate via an Re-citrate synthase (DVU0398), and synthesis of chorismate and aromatic amino acids via an archaeal-like transaldolase and 3-dehydroquinate cyclase/deaminase (DVU0460,DVU0461). We are using genetic knockouts and complementation assays to test these predictions.