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(54) Title: METHODS AND MICROORGANISMS FOR PRODUCTION OF PANTO-COMPOUNDS

(57) Abstract: The present invention features methods of producing panto-compounds (*e.g.*, pantothenate) using microorganisms in which the pantothenate biosynthetic pathway and/or the isoleucine-valine biosynthetic pathway and/or the coenzymeA biosynthetic pathway has been manipulated. Methods featuring ketopantoate reductase overexpressing microorganisms as well as aspartate α-decarboxylase overexpressing microorganisms are provided. Methods of producing panto-compounds in a precursor-independent manner and in high yield are described. Recombinant microorganisms, vectors, isolated nucleic acid molecules, genes and gene products useful in practicing the above methodologies are also provided. The present invention also features a previously unidentified microbial pantothenate kinase gene, *coaX*, as well as methods of producing panto-compounds utilizing microorganisms having modified pantothenate kinase activity. Recombinant microorganisms, vectors, isolated*coaX* nucleic acid molecules and purified CoaX proteins are featured. Also featured are methods for identifying pantothenate kinase modulators utilizing the recombinant microorganisms and/or purified CoaX proteins of the present invention.