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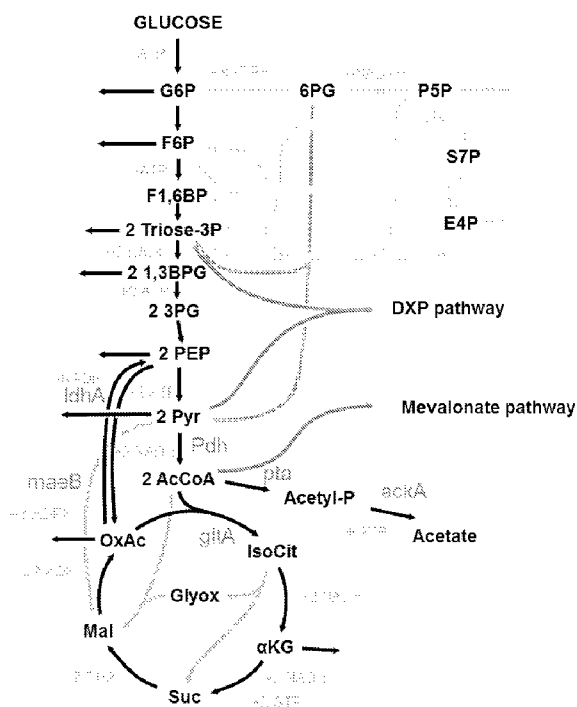
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(54) Title: RECOMBINANT MICROORGANISMS FOR ENHANCED PRODUCTION OF MEVALONATE, ISOPRENE, AND ISOPRENOLIDS

FIGURE 5:



(57) Abstract: The invention features compositions and methods for the increased production of mevalonate, isoprene, isoprenoid precursor molecules, and/or isoprenoids in microorganisms by engineering a microorganism for increased carbon flux towards mevalonate production in the following enzymatic pathways: (a) citrate synthase, (b) phosphotransacetylase, (c) acetate kinase, (d) lactate dehydrogenase, (e) malic enzyme, and (f) pyruvate dehydrogenase such that one of more of the enzyme activity is modulated. In addition, production of mevalonate, isoprene, isoprenoid precursor molecules, and/or isoprenoids can be further enhanced by the heterologous expression of the *mvaE* and *mvaS* genes (such as, but not limited to, *mvaE* and *mvaS* genes from the organisms *Listeria grayi* DSM 20601, *Enterococcus faecium*, *Enterococcus gallinarum* EG2, and *Enterococcus casseliflavus*).



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