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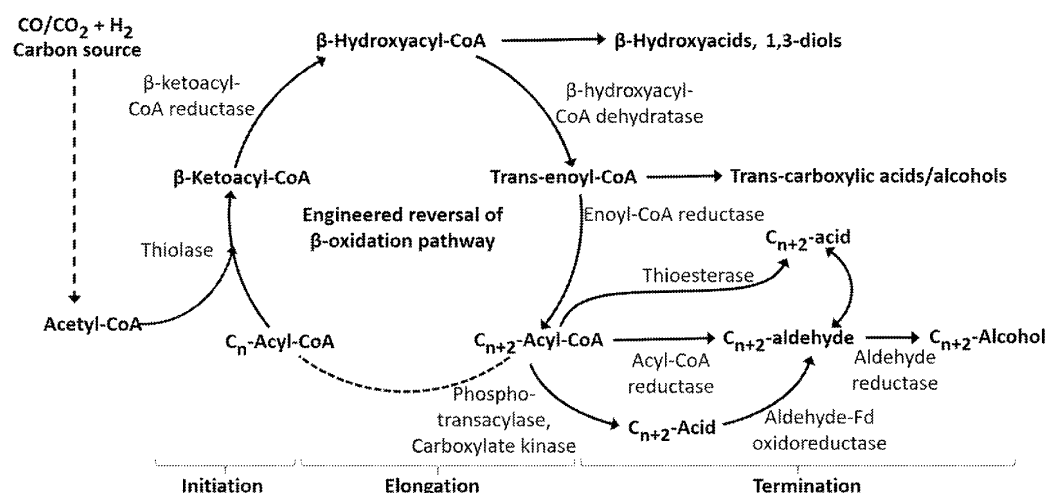


FIGURE 1

(57) Abstract: Microorganisms are genetically engineered to produce various chemicals for industrial use. The microorganisms are carboxydophilic acetogens. The microorganisms produce acetyl-CoA using the Wood-Ljungdahl Pathway for fixing CO/CO₂. A reverse beta-oxidation pathway cycle from a microorganism that contains such a group of enzymes is introduced. Additionally, primers and extenders, and/or genes encoding for enzymes that generate primers and extenders may also be introduced. Product synthesis can be effected by improved promoters or enzyme designs that are catalytically more efficient. Similarly, product synthesis may also be improved by deleting competing reactions.

[Continued on next page]

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