Recombinant bacteria that have been engineered to utilize sucrose by incorporation of sucrose utilization genes have been reported. For example, Livshits et al. (U.S. Patent No. 6,960,455) describe the production of amino acids using *Escherichia coli* strains containing genes encoding a metabolic pathway for sucrose utilization. Additionally, Olson et al. (*Appl. Microbiol. Biotechnol.* 74:1031-1040, 2007) describe *Escherichia coli* strains carrying genes responsible for sucrose degradation, which produce L-tyrosine or L-phenylalanine using sucrose as a carbon source. Eliot et al. (U.S. Patent Application No. 2011/0136190 A1) describe recombinant bacteria that produce glycerol and glycerol-derived products from sucrose.

However, there is a need for bacterial strains that are engineered to utilize sucrose using new sucrose utilization genes and that have an improved ability to utilize sucrose. Additionally, there is a need for bacterial strains that are capable of producing glycerol and glycerol-derived products using sucrose as carbon source.

SUMMARY OF THE INVENTION

One ~~embodiment~~ aspect of the invention provides a recombinant bacterium comprising in its genome or on at least one recombinant construct:

(a) a nucleotide sequence encoding a polypeptide having sucrose transporter activity, the polypeptide having at least 95% sequence identity, based on a Clustal W method of alignment, when compared to an amino acid sequence selected from the group consisting of SEQ ID NO:68, SEQ ID NO:70, SEQ ID NO:72, SEQ ID NO:74, SEQ ID NO:76, SEQ ID NO:78, SEQ ID NO:80, SEQ ID NO:82, SEQ ID NO:84, SEQ ID NO:86, SEQ ID NO:88, SEQ ID NO:90, SEQ ID NO:92, and SEQ ID NO:94; and

(b) a nucleotide sequence encoding a polypeptide having sucrose hydrolase activity;

wherein (a) and (b) are each operably linked to the same or a different

promoter, further wherein the recombinant bacterium is capable of metabolizing sucrose.

In one embodiment, the recombinant bacterium produces 1,3-propanediol, glycerol, and/or 3-hydroxypropionic acid.

Another ~~embodiment~~ aspect of the present invention provides a process for making glycerol, 1,3-propanediol and/or 3-hydroxypropionic acid from sucrose comprising:

a) culturing the recombinant bacterium that produces 1,3-propanediol, glycerol, and/or 3-hydroxypropionic acid, as disclosed herein, in the presence of sucrose; and

b) optionally, recovering the glycerol, 1,3-propanediol and/or 3-hydroxypropionic acid produced.

BRIEF SEQUENCE DESCRIPTIONS

The following sequences conform with 37 C.F.R. 1.821 1.825 ("Requirements for Patent Applications Containing Nucleotide Sequences and/or Amino Acid Sequence Disclosures - the Sequence Rules") and consistent with World Intellectual Property Organization (WIPO) Standard ST.25 (2009) and the sequence listing requirements of the EPO and PCT (Rules 5.2 and 49.5(a bis), and Section 208 and Annex C of the Administrative Instructions). The symbols and format used for nucleotide and amino acid sequence data comply with the rules set forth in 37 C.F.R. §1.822.