

Microbial ENergy processes Gene Ontology (MENGO): New Gene Ontology terms describing microbial processes relevant for bioenergy

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Project Goals: In collaboration with the community of microbiologists interested in energy-related processes and with the Gene Ontology (GO) consortium, develop a comprehensive set of Gene Ontology terms that describe biological processes relevant to energy-related functions. Annotate microbial genomes relevant to bioenergy-production with appropriate GO terms.

The MENGO project is a community-oriented multi-institutional collaborative effort that aims to develop new Gene Ontology (GO) terms to describe microbial processes of interest to bioenergy. Such terms will aid in the comprehensive annotation of gene products from diverse energy-related microbial genomes. The GO consortium was formed in 1998 to create universal descriptors, which can be used to describe functionally similar gene products and their attributes.

MENGO, an interest group of the GO consortium seeks to expand term development for microbial processes useful for bioenergy production. Currently, there are over 200 MENGO terms added to the GO. Areas covered include carbohydrate catabolic processes, oligosaccharide binding and transport, hydrogen production and methanogenesis. Additionally, over 200 GO annotations of bioenergy relevant gene products from microbes such as *Clostridium thermocellum*, *Methanosarcina barkeri*, *Bacteroides*

thetaitoaomicron and *Chlamydomonas reinhardtii* have been made. A selection of terms and annotations will be highlighted in this presentation.

The MENGO interest group will also host a workshop right after the DOE contractor-grantee meeting on February 29th at the same venue. This workshop will highlight progress made in GO term development and microbial gene annotation as well as some of the challenges encountered. Additionally, we will have an open forum to hear from participants on other bioenergy areas to be targeted for further term development and microbial genomes to be annotated.

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