Microbial Methylotrophic Metabolism: Recent Metabolic Modeling Efforts and Their Applications In Industrial Biotechnology - DTU Orbit (12/01/2019)

Microbial Methylotrophic Metabolism: Recent Metabolic Modeling Efforts and Their Applications In Industrial Biotechnology

Developing methylotrophic bacteria into cell factories that meet the chemical demand of the future could be both economical and environmentally friendly. Methane is not only an abundant, low-cost resource but also a potent greenhouse gas, the capture of which could help to reduce greenhouse gas emissions. Rational strain design workflows rely on the availability of carefully combined knowledge often in the form of genome-scale metabolic models to construct high-producer organisms. In this review, the authors present the most recent genome-scale metabolic models in aerobic methylotrophy and their applications. Further, the authors present models for the study of anaerobic methanotrophy through reverse methanogenesis and suggest organisms that may be of interest for expanding one-carbon industrial biotechnology. Metabolic models of methylotrophs are scarce, yet they are important first steps toward rational strain-design in these organisms.

General information
State: Published
Organisations: Novo Nordisk Foundation Center for Biosustainability, Research Groups, Global Econometric Modeling, iLoop
Contributors: Lieven, C., Herrgård, M. J., Sonnenschein, N.
Number of pages: 8
Publication date: 2018
Peer-reviewed: Yes

Publication information
Journal: Biotechnology Journal
Volume: 13
Issue number: 8
Article number: 1800011
ISSN (Print): 1860-6768
Ratings:
  BFI (2019): BFI-level 1
  Web of Science (2019): Indexed yes
  BFI (2018): BFI-level 1
  Web of Science (2018): Indexed yes
  BFI (2017): BFI-level 1
  Scopus rating (2017): CiteScore 3.12
  Web of Science (2017): Impact factor 3.507
  Web of Science (2017): Indexed yes
  BFI (2016): BFI-level 1
  Scopus rating (2016): CiteScore 3.2 SJR 1.29 SNIP 0.969
  Web of Science (2016): Impact factor 3.649
  Web of Science (2016): Indexed yes
  BFI (2015): BFI-level 1
  Scopus rating (2015): CiteScore 2.91 SJR 1.172 SNIP 0.874
  Web of Science (2015): Impact factor 3.781
  Web of Science (2015): Indexed yes
  BFI (2014): BFI-level 1
  Scopus rating (2014): CiteScore 2.98 SJR 1.189 SNIP 1.062
  Web of Science (2014): Impact factor 3.49
  Web of Science (2014): Indexed yes
  BFI (2013): BFI-level 1
  Scopus rating (2013): CiteScore 3.01 SJR 1.136 SNIP 1.093
  Web of Science (2013): Impact factor 3.708
  ISI indexed (2013): ISI indexed yes
  Web of Science (2013): Indexed yes
  BFI (2012): BFI-level 1
  Scopus rating (2012): CiteScore 2.4 SJR 0.944 SNIP 0.957
  Web of Science (2012): Impact factor 3.446
  ISI indexed (2012): ISI indexed no