

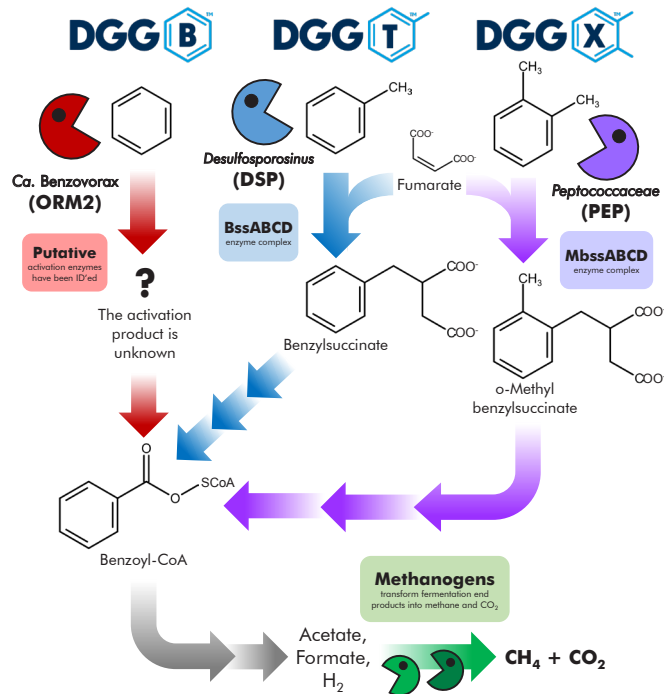
Anaerobic Bioaugmentation Culture For Benzene, Toluene and Xylene

SiREM has commercialized anaerobic cultures for degradation of benzene, toluene and xylene. Named in honor of anaerobic hydrocarbon degradation pioneer Dunja Grbić-Galić, DGG™ Plus is an anaerobic mixed microbial consortium capable of degrading benzene, toluene and o-xylene (BTX). Benzene, toluene or o-xylene act as the sole carbon source, and hydrocarbon degradation can be coupled to sulfate reduction, or fermentative (methanogenic) metabolism. Anaerobic biological degradation products of BTX all include benzoyl-CoA and ultimately CO₂.



Contact SiREM for more information on our anaerobic benzene cultures, treatability testing options and molecular biological tools.

Sandra Dworatzek
(519) 515-0839
sdworatzek@siremlab.com



Degradation Pathways for Benzene, toluene and xylene under anaerobic conditions. Courtesy: Dr. Courtney Toth, University of Toronto

Quantitative PCR (qPCR) tools are available to track DGG-Plus

Quantitative PCR (qPCR) tests have been developed for key biomarkers for anaerobic BTX degradation which are indicated in the figure above. These include:

- Benzene – *ca. Benzovorax* - GeneTrac ORM-2
- Toluene – *Desulfosporosinus* (DSP) – GeneTrac-Dsp and Gene-Trac bssA DGG-T
- Xylene – *Peptococcaceae* (PEP) GeneTrac Pepto DGG-X and Gene-Trac bssA DGG-X

These targets can be used to assess BTX degrading populations that may be present in the environment, either naturally or as a result of biostimulation or bioaugmentation. Additional biomarkers that can also be of value include assessing sulfate reducing bacteria (Gene-Trac SRB) and methanogenic Archaea (Gene-Trac Methanogens).