

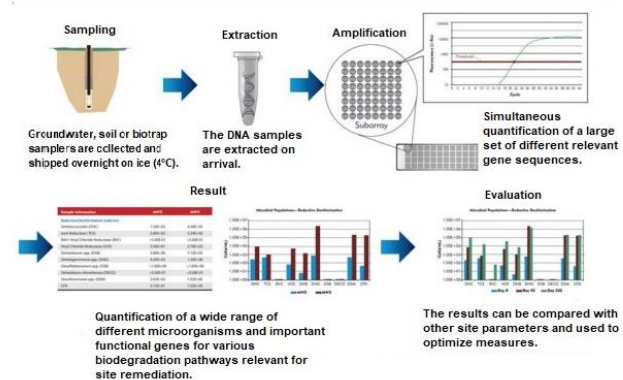
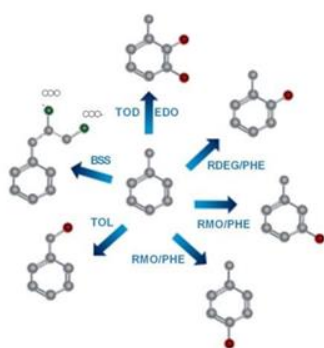
Quant Array Petro®

QuantArrayPetro® is a molecular biological assay that simultaneously quantifies individual microbial species and functional genes for aerobic, cometabolic, and anaerobic microbial degradation of petroleum-hydrocarbons such as BTEX, MTBE, toluene, ethylbenzene, benzene, xylene, or naphthalene in one single analysis.

A comprehensive assessment of biodegradation potential at mineral oil contaminated sites is always problematic due to two factors:

1. Petroleum hydrocarbons are complex mixtures of hundreds of aliphatic, aromatic, cyclic, and heterocyclic compounds.
2. Even for common pollutants such as BTEX (Benzene, toluene, ethylbenzene, xylene) biodegradation can occur through a variety of pathways. For example, biodegradation of toluene can occur via five known aerobic pathways and one known anaerobic pathway.

QuantArrayPetro® solves both of these problems by enabling simultaneous quantification of the specific functional genes responsible for aerobic and anaerobic biodegradation of BTEX, PAHs, and a variety of short and long chain alkanes.



The

array includes analyses for:

- Benzene/toluene dioxygenases (TOD), monooxygenases (RMO, RDEG, PHE) and other functional genes for the aerobic degradation of BTEX
- MTBE metabolizer *Methylibium petroleiphilum* PM1 and the TBA monooxygenase
- Benzyl succinate synthase (BSS) for the anaerobic degradation of toluene, ethylbenzene and xylene
- Benzene carboxylase (ABC) for the anaerobic degradation of benzene
- Naphthalene dioxygenase genes (NAH, NAG, PHN) for aerobic degradation
- Naphthylmethylsuccinate synthase (NMS) for the anaerobic degradation of methylated naphthalene
- Naphthalene carboxylase (ANC) for the anaerobic degradation of naphthalene
- Alkane monooxygenase genes (alkB)
- Alkylsuccinate synthase (assA) for the anaerobic degradation of alkanes

QuantArrayPetro® enables economical potential analysis for biodegradation of a full spectrum of petroleum hydrocarbons and their variety of aerobic and anaerobic pathways to receive a comprehensive overview of the biodegradation processes.