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Agilent RNA Nano Kit

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Proteomics and protein sciences

[Proteomic analysis of the marine diatom *Thalassiosira pseudonana* upon exposure to benzo\(a\)pyrene](#)

BMC Genomics, **12**, (2011)
Raquel N Carvalho, Teresa Lettieri

Tags
ZORBAX 300SB-C18, ZORBAX SB-C18,
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Abstract

Polycyclic aromatic hydrocarbons (PAHs) are environmental pollutants ubiquitously distributed. They are generated by incomplete combustion of organic materials such as wood or fossil fuels. Due to their carcinogenic, mutagenic effects and to their wide distribution in the environment, these pollutants pose many concerns to researchers and regulators. In our laboratories we investigated the effect of benzo(a)pyrene (BaP) exposure in the marine diatom *Thalassiosira pseudonana*, which has become an important model organism in aquatic toxicology studies. In order to investigate the mechanism of action of PAHs, we exposed the diatoms for 24 h to 36.45 µg/L of BaP which inhibits the growth by about 30%, and analysed the relative protein expression profile by a quantitative proteomics approach based on iTRAQ labels. The proteomics profile analysis showed that around 10% of the identified proteins were regulated and one fourth of them confirmed the gene expression changes seen by DNA microarray. Particularly interesting was the down regulation of the Silicon transporter 1 (SIT1), an enzyme that is responsible for the uptake of silicon from the media into the diatom cells. Regulation of SIT1 upon BaP treatment was also confirmed at the gene expression level. © The Authors

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