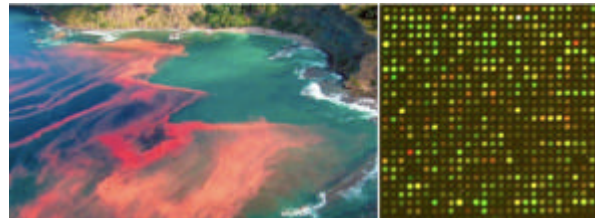




# MIDTAL - Microarrays for the Detection of Toxic Algae

## Project Details

Funding Programme: 7th Framework Programme (FP7)  
 Sub-Programme: Cooperation, Theme 6: Environment (including Climate Change)  
 Funding Scheme: Small to medium scale collaborative project  
 Project Duration: 45 Months (2008-2012)  
 Total Project Value: €4.3m  
 EU Grant-Aid: €2.2m  
 Funding to Ireland: €248,300  
 Website: [www.midtal.com](http://www.midtal.com)



## Project Description

Microalgae in marine and brackish waters of Europe regularly cause “harmful effects”, considered from the human perspective, in that they threaten public health and cause economic damage to fisheries and tourism. Cyanobacteria cause similar problems in freshwaters. These episodes encompass a broad range of phenomena collectively referred to as «harmful algal blooms» (HABs). They include discoloration of waters by mass occurrences of microalgae (true algal blooms that may or may not be «harmful») to toxin-producing species that may be harmful even in low cell concentrations. A broad classification of HAB distinguishes three groups of toxic organisms. For adequate management of these phenomena, monitoring of microalgae is required. However, the effectiveness of monitoring programmes is limited by the fact that it is time consuming and morphology as determined by light microscopy may be insufficient to give definitive species and toxin attribution. Once cell numbers reach a threshold level, then shellfish are selected to toxin analysis by the mouse bioassay. The mouse bioassay is continued on a daily basis until no more toxin is detected. Molecular and biochemical methods are now available that offer rapid means of both species and toxin detection.

In this project we will target rapid species identification using rRNA genes as the target. We include antibodies to specific toxins because even when cell numbers are very low, the toxins can be present and can be accumulated in the shellfish. Microarrays are the state of the art technology in molecular biology for the processing of bulk samples for detection of target RNA/DNA sequences.

The purpose of **MIDTAL** is to support the common fisheries policy to aid the national monitoring agencies by providing new rapid tools for the identification of toxic algae and their toxins so that they can comply with ECC directive 91/1491/CEE that can be converted to cell numbers and reduce the need for the mouse bioassay.

### Project Partners

Project Coordinator	AWI (Germany)
Ireland	National University of Ireland, Galway
Spain	Instituto Español de Oceanografía Instituto Tecnológico para o Control do Medio Mariño de Galicia
Italy	Stazione Zoologica Anton Dohrn
Sweden	University of Kalmar
Norway	University of Oslo
UK	University of Westminster
Denmark	Toxispot A/S

### Irish Contact:

Dr Robin Raine,  
 The Martin Ryan Institute,  
 National University of Ireland,  
 Galway,  
 Co. Galway,  
 Ireland

T: 091 492271  
 E: [robin.raine@nuigalway.ie](mailto:robin.raine@nuigalway.ie)