



# dCod 1.0

## – Biosensors for environmental health monitoring

Norwegian fisheries and aquaculture industry has become the major sector in Norwegian economy, after oil and gas. As the pressure on the oceans increases, the petroleum and seafood industries have acknowledged that awareness and actions are required to maintain future marine sustainability. The industries must also comply with governmental and international regulations regarding sustainable practices. Novel technologies are needed in order to efficiently cope with such future demands and to secure Norway's marine bioeconomy. The dCod 1.0 biomarker and biosensor concept is based on the ability of important transcription factors in fish liver cells to be recognized and activated by specific sets of pollutants, including endocrine disrupting compounds (EDCs) and persistent organic pollutants (POPs). This ability can be exploited in two ways: (1) as mediators of toxicological responses leading to modulation of downstream target genes that can be identified experimentally and developed as biomarkers to identify biological effects of pollution in indicator organisms like the Atlantic cod, or (2) as biosensors for environmental pollutants, detecting low levels of compounds and mixtures in extracts from sediment, water, and biota.



### **Value proposition**

Novel biosensor tools for improved monitoring capabilities related to marine pollution and environmental health.

### **Opportunities for collaboration**

dCod can provide:

- A knowledge database.
- Recombinant proteins.
- Access to advanced biotechnological, analytical and experimental facilities.

dCod seeks industrial partnerships to:

- Further develop biosensor platforms and for the identification of potential applications of the system.

### **Scientific fields and technology**

Marine genomics, biomarkers and biosensors, recombinant receptor proteins, systems biology.

### **Resources and partners**

- The project has been granted 38 million NOK from the RCN within 2016-2020 and is part of the Centre for Digital Life Norway.
- A consortium consisting of scientists from ten partner organizations from Norway, Sweden, Spain and USA with access to advanced biotechnological, analytical and experimental facilities.

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