

HOMOGENIZATION OF MARINE MICROALGAE USING THE PRECELLYS



Transcriptomics Research at the Institute for Global Food Security (IGFS), Queen's University Belfast, Northern Ireland, UK

▶ CONTEXT

Transcriptomics analysis of toxic and non-toxic *Alexandrium tamarensis* (marine microalgae) for the identification of genes that drive toxic response.

▶ MATERIALS

- **Precellys®24-Dual Homogenizer**
- Precellys lysing kit: VK05 2mL (KT03961-1-004.2)
- Samples: 100mL of *A. tamarensis* culture grown to a cell density of 8,000 cells/mL were filtered and washed off the membrane using 1ml ice cold TRIzol Reagent
- Buffer: 1mL of ice-cold TRIzol Reagent

▶ PROTOCOL

- **Precellys®24-Dual parameters:** 5000rpm, 2 cycles of 10 seconds, rest on ice for 2 minutes in between each cycle
- After the last cycle, samples were frozen at -80°C until further processing
- Samples were defrosted and RNA extracted using TRIzol® Plus RNA Purification Kit including DNase treatment with Purelink DNase set (Life Technologies)
- RNA quality and concentration were measured using a NanoDrop Spectrophotometer and Agilent TapeStation

▶ RESULTS

High quality RNA was obtained for each of the seven *A. tamarensis* strains investigated. RNA purity was assessed using a NanoDrop, and RNA concentration and integrity were measured on an Agilent 2200 TapeStation

Strain	Concentration (ng/ul**)	260/280*	260/230*	RIN**
1	218	2.27	2.42	7.8
2	256	2.27	2.34	8.4
3	392	2.22	2.01	8.0
4	496	2.23	2.55	7.5
5	292	2.21	2.37	9.0
6	396	2.27	2.52	7.8
7	264	2.21	2.38	8.1

Table 1. Quality control values obtained for all seven strains, represented by RNA concentration, purity and integrity. *NanoDrop Result, **Agilent TapeStation Result

▶ CUSTOMER

- Authors: Dr. Caroline Meharg & Fiona McRoberts



Queen's University
Belfast



CONCLUSION



The Precellys®24-Dual is an efficient homogenizer that can process up to 12 samples in 2mL tubes simultaneously. When coupled with the appropriate lysing matrix, the Precellys24-Dual can process marine microalgae, such as *A. tamarensis*, for extraction of high quality RNA suitable for transcriptomics analysis.