

Sequence accession numbers for coral acid rich proteins (CARPs) from *Stylophora pistillata*; analyzed in the Falkowski lab at Rutgers from 2010-2014 (CROA project)

Website: <https://www.bco-dmo.org/dataset/537751>

Version: 06 Nov 2014

Version Date: 2014-11-06

Project

» [The Molecular Basis of Ocean Acidification Effects on Calcification in Zooxanthellate Corals](#) (CROA)

Program

» [Science, Engineering and Education for Sustainability NSF-Wide Investment \(SEES\): Ocean Acidification \(formerly CRI-OA\)](#) (SEES-OA)

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Dataset Description

Refer to the following publication for more information:

Mass, T., Jeana L. Drake, L. Haramaty, J. D. Kim, E. Zelzion, D. Bhattacharya & Paul G. Falkowski. 2013. Cloning and characterization of four novel coral acid-rich proteins that precipitate carbonates in vitro. *Current Biology*, 23(12): 1126-1131. doi: [10.1016/j.cub.2013.05.007](https://doi.org/10.1016/j.cub.2013.05.007)

Methods & Sampling

Methods are described in their entirety in the [Supplemental Information file of Mass et al. 2013 \(PDF\)](#).

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Data Files

File
CARP_accessions.csv (Comma Separated Values (.csv), 786 bytes) MD5:796ac6f5b8a6dbc1881101cb8be8f8ba
Primary data file for dataset ID 537751

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Parameters

Parameter	Description	Units
accession_number	GenBank accession number.	dimensionless
species	Name of the species.	text
description	Description of the sequence type.	text
accession_num_link	Hyperlink to GenBank for the specific accession number.	dimensionless

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Instruments

Dataset-specific Instrument Name	BD Influx Mariner 209S Flow Cytometer
Generic Instrument Name	Flow Cytometer
Dataset-specific Description	Flow cytometry analysis was performed on cells from different interfaces using a BD Influx Mariner 209S Flow Cytometer. Total genomic DNA of the Symbiodinium spp.-free cell fraction was extracted from harvested cells using a blood and cell culture DNA mini kit (Qiagen) with small modifications.
Generic Instrument Description	Flow cytometers (FC or FCM) are automated instruments that quantitate properties of single cells, one cell at a time. They can measure cell size, cell granularity, the amounts of cell components such as total DNA, newly synthesized DNA, gene expression as the amount messenger RNA for a particular gene, amounts of specific surface receptors, amounts of intracellular proteins, or transient signalling events in living cells. (from: http://www.bio.umass.edu/micro/immunology/facs542/facswhat.htm)

Dataset-specific Instrument Name	Perkin Elmer-Cetus 480 thermal cycler
Generic Instrument Name	Thermal Cycler
Dataset-specific Description	Amplifications of the 16S and 18S rRNA were performed using a Perkin Elmer-Cetus 480 thermal cycler.
Generic Instrument Description	A thermal cycler or "thermocycler" is a general term for a type of laboratory apparatus, commonly used for performing polymerase chain reaction (PCR), that is capable of repeatedly altering and maintaining specific temperatures for defined periods of time. The device has a thermal block with holes where tubes with the PCR reaction mixtures can be inserted. The cycler then raises and lowers the temperature of the block in discrete, pre-programmed steps. They can also be used to facilitate other temperature-sensitive reactions, including restriction enzyme digestion or rapid diagnostics. (adapted from http://serc.carleton.edu/microbelife/research_methods/genomics/pcr.html)

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Deployments

lab_Falkowski

Website	https://www.bco-dmo.org/deployment/537725
Platform	Rutgers_New_Brunswick
Start Date	2010-09-01
End Date	2014-08-01
Description	Laboratory-based research for the project "The Molecular Basis of Ocean Acidification Effects on Calcification in Zooxanthellate Corals" were conducted at Dr. Falkowski's lab at the Rutgers New Brunswick campus: 71 Dudley Road New Brunswick, NJ 08901

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Project Information

The Molecular Basis of Ocean Acidification Effects on Calcification in Zooxanthellate Corals (CROA)

Website: <http://corals.marine.rutgers.edu/>

Coverage: laboratory-based in New Brunswick, NJ

From the NSF award abstract:

Ocean acidification (the decrease in seawater pH) is driven by the increase in atmospheric CO₂. This is expected to have a dramatic effect on organisms that precipitate calcium carbonate. Coral reefs are formed and maintained by calcifying organisms, particularly reef-building corals. Current predictions are that coral species will be negatively impacted; however the limited number of available measurements exhibit significant variability for reasons that are not understood. This is critically important as coral reef ecosystems hold significant cultural and economic values both nationally and internationally. This program is therefore focused on the molecular basis for calcification in corals in order to understand how corals will respond to ocean

acidification in the next century. Rutgers University has a state-of-art coral culture facility that will be used to simulate future ocean conditions. The work will utilize a unique set of coral tissue cultures that will allow scientists to assess the cellular biology that underlies the responses of corals to ocean acidification. The laboratory measurements will also determine how geochemical signatures of corals are affected by varying environmental conditions. These results are important because coral geochemical signatures are used to understand how corals have responded to changes in the ocean pH in the historical past. The project will be conducted by a research team at Rutgers, in collaboration with scientists in Taiwan and Israel.

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Program Information

Science, Engineering and Education for Sustainability NSF-Wide Investment (SEES): Ocean Acidification (formerly CRI-OA) (SEES-OA)

Website: https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=503477

Coverage: global

NSF Climate Research Investment (CRI) activities that were initiated in 2010 are now included under Science, Engineering and Education for Sustainability NSF-Wide Investment (SEES). SEES is a portfolio of activities that highlights NSF's unique role in helping society address the challenge(s) of achieving sustainability. Detailed information about the SEES program is available from NSF (https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=504707).

In recognition of the need for basic research concerning the nature, extent and impact of ocean acidification on oceanic environments in the past, present and future, the goal of the SEES: OA program is to understand (a) the chemistry and physical chemistry of ocean acidification; (b) how ocean acidification interacts with processes at the organismal level; and (c) how the earth system history informs our understanding of the effects of ocean acidification on the present day and future ocean.

Solicitations issued under this program:

[NSF 10-530](#), FY 2010-FY2011

[NSF 12-500](#), FY 2012

[NSF 12-600](#), FY 2013

[NSF 13-586](#), FY 2014

NSF 13-586 was the final solicitation that will be released for this program.

PI Meetings:

[1st U.S. Ocean Acidification PI Meeting](#) (March 22-24, 2011, Woods Hole, MA)

[2nd U.S. Ocean Acidification PI Meeting](#) (Sept. 18-20, 2013, Washington, DC)

3rd U.S. Ocean Acidification PI Meeting (June 9-11, 2015, Woods Hole, MA - Tentative)

NSF media releases for the Ocean Acidification Program:

[Press Release 10-186 NSF Awards Grants to Study Effects of Ocean Acidification](#)

[Discovery Blue Mussels "Hang On" Along Rocky Shores: For How Long?](#)

[Discovery nsf.gov - National Science Foundation \(NSF\) Discoveries - Trouble in Paradise: Ocean Acidification This Way Comes - US National Science Foundation \(NSF\)](#)

[Press Release 12-179 nsf.gov - National Science Foundation \(NSF\) News - Ocean Acidification: Finding New Answers Through National Science Foundation Research Grants - US National Science Foundation \(NSF\)](#)

[Press Release 13-102 World Oceans Month Brings Mixed News for Oysters](#)

[Press Release 13-108 nsf.gov - National Science Foundation \(NSF\) News - Natural Underwater Springs Show How Coral Reefs Respond to Ocean Acidification - US National Science Foundation \(NSF\)](#)

[Press Release 13-148 Ocean acidification: Making new discoveries through National Science Foundation research grants](#)

[Press Release 13-148 - Video nsf.gov - News - Video - NSF Ocean Sciences Division Director David Conover answers questions about ocean acidification. - US National Science Foundation \(NSF\)](#)

[Press Release 14-010 nsf.gov - National Science Foundation \(NSF\) News - Palau's coral reefs surprisingly resistant to ocean acidification - US National Science Foundation \(NSF\)](#)

[Press Release 14-116 nsf.gov - National Science Foundation \(NSF\) News - Ocean Acidification: NSF awards \\$11.4 million in new grants to study effects on marine ecosystems - US National Science Foundation \(NSF\)](#)

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Funding

Funding Source	Award
NSF Emerging Frontiers Division (NSF EF)	EF-1041143

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