

Abstract

1. Staff

- Nicholas M. Luscombe, Professor
- Charles Plessy, Staff Scientist
- Michael J. Mansfield, Research Scientist
- Jiashun Miao, Research Scientist
- Nicolas Dierckxsens, Joint Post-Doctoral fellow (with Tim Ravasi's Unit)
- Andrew W. Liu, Senior Technician
- Aki Masunaga, Technician
- Yongkai Tan, Technician
- Johannes Nicolaus Wibisana, Graduate Student
- Makiko Sanabe, Research Unit Administrator

2. Collaborations

2.1 Study of gene regulation in *Oikopleura dioica*

- Description: We discovered that *Oikopleura dioica* found in Okinawa is a cryptic species when compared to those found in Norway. By exchanging genomic and transcriptomic resources, we study gene regulation and possible differences between these two systems.
- Type of collaboration: Joint research
- Researchers:
 - Prof. Daniel Marc Chourrout, University of Bergen, Norway
 - Simon Raymond Henriet, University of Bergen
 - Anne Elin Aasjord, University of Bergen
 - Anthony Leon Florian, University of Bergen
 - Xiaofei Ma, University of Bergen

2.2 Study of Japanese species of *Oikopleura dioica*

- Description: We discovered that the *O. dioica* animals found in Okinawa and Amami islands are a different species than the ones found in the rest of Japan. We are exchanging genome sequence information and laboratory strains to study differences between these species and understand the mechanisms at work behind the reproduction barrier between them.
- Type of collaboration: Joint research
- Researchers:

- Associate Prof. Takeshi Onuma, University of Kagoshima, Japan

2.3 Study of genome scrambling in *Oikopleura dioica*

- Description: We discovered that gene order is massively scrambled between *O. dioica* species found in the Pacific ocean and the Mediterranean sea. We exchange data, material and people in order to study the mechanism of genome scrambling.
- Type of collaboration: Joint research
- Researchers:
 - Prof. Cristian Cañestro, University of Barcelona, Spain
 - Nuria Paz Torres Aguila, University of Barcelona
 - Gaspar Sanchez Serna, University of Barcelona
 - Marc Fabrega Torrus, University of Barcelona

3. Activities and Findings

3.1 Subsection Title If Necessary

Nothing to report

4. Publications

4.1 Journals

(1) Title (IN OISTIR): RNA polymerase II-associated proteins reveal pathways affected in VCP-related amyotrophic lateral sclerosis

Published: 2023/6

Authors: Mahmoud-Reza Rafiee, Sara Rohban, Karen Davey, Jernej Ule, Nicholas M Luscombe

<https://doi.org/10.1093/brain/awad046>

(2) Title (IN OISTIR): Clipplotr—a comparative visualization and analysis tool for CLIP data

Published: 2023/6

Authors: Anob M Chakrabarti, Charlotte Capitanchik, Jernej Ule, Nicholas M Luscombe

(3) Title: A computationally-enhanced hiCLIP atlas reveals Staufen1-RNA binding features and links 3' UTR structure to RNA metabolism

Published: 2023/5

Authors

Anob M Chakrabarti, Ira A Iosub, Flora CY Lee, Jernej Ule, Nicholas M Luscombe

<https://doi.org/10.1093/nar/gkad221>

(4) Title: Extreme genome scrambling in cryptic *Oikopleura dioica* species

Published: 2023/5

Authors: Charles Plessy, Michael J Mansfield, Aleksandra Bliznina, Aki Masunaga, Charlotte West, Yongkai Tan, Andrew Liu, Jan Grasic, Maria Sara del Rio Pisula, Gaspar Sanchez-Serna, Marc Fabrega-Torru, Alfonso Fernandez-Roldan, Vittoria Roncalli, Pavla Navratilova, Eric M Thompson, Takeshi Onuma, Hiroki Nishida, Cristian Canestro, Nicholas M Luscombe

(5) Title: Nf-core/clipseq - a robust Nextflow pipeline for comprehensive CLIP data analysis

Published: 2023/7

Authors: Charlotte West, Charlotte Capitanchik, Chris Cheshire, Nicholas M Luscombe, Anob Chakrabarti, Jernej Ule

<https://doi.org/10.12688/2Fwellcomeopenres.19453.1>

(6) Title: Flow: a web platform and open database to analyse, store, curate and share bioinformatics data at scale

Published: 2023/8

Authors: Charlotte Capitanchik, Sam Ireland, Alex Harston, Chris Cheshire, D Marc Jones, Flora CY Lee, Igor Ruiz de los Mozos, Ira A Iosub, Klara Kuret, Rupert Faraway, Oscar G Wilkins, Rahul Arora, Martina Hallegger, Miha Modic, Anob M Chakrabarti, Nicholas M Luscombe, Jernej Ule

<https://doi.org/10.1101/2023.08.22.544179>

(7) Title: Poised PABP-RNA hubs implement signal-dependent mRNA decay in development

Published: 2023/8

Authors: Jernej Ule, Miha Modic, Klara Kuret, Sebastian Steinhauser, Rupert Faraway, Emiel van Genderen, Flora Lee, Igor Ruiz de Los Mozos, Žiga Vičič, Jona Novljan, Derk ten Berge, Nicholas Luscombe

<https://doi.org/10.21203/rs.3.rs-3227673/v1>

(8) Title: scRNA-sequencing in chick suggests a probabilistic model for cell fate allocation at the neural plate border

Published: 2023/8

Authors: Alexandre P Thiery, Ailin Leticia Buzzi, Eva Hamrud, Chris Cheshire, Nicholas M Luscombe, James Briscoe, Andrea Streit

<https://doi.org/10.7554/eLife.82717>

(9) Nature Communications (<https://www.nature.com/articles/s41467-023-41174-0>)

(X) Title: Ancient Clostridium DNA and variants of tetanus neurotoxins associated with human archaeological remains

Published: 2023/9

Authors: Harold P Hodgins, Pengsheng Chen, Briallen Lobb, Xin Wei, Benjamin JM Tremblay, Michael J Mansfield, Victoria CY Lee, Pyung-Gang Lee, Jeffrey Coffin, Ana T Duggan, Alexis E Dolphin, Gabriel Renaud, Min Dong, Andrew C Doxey

4.2 Books and other one-time publications

Nothing to report

4.3 Oral and Poster Presentations

([NOTE] *Seminars and workshops by OIST faculty/unit members (either with or without other speakers), either at OIST or at other institutions than OIST, should be included in the 4.3 Oral and Poster Presentations.

1. (poster) RNA Society Conference 30th May '23 poster presentation by Charlotte Capitanchik.
2. (oral) Institute for Protein Research, Osaka University, Systems Biology Seminar, July 24, 2023 “Massively scrambled genomes producing animals with conserved morphology” presented by Charles Plessey.
3. (poster) 14th AGW International Workshop 4th - 6th Oct '23 “Targeted haplotype-aware assembly of complex regions and small genomes with NOVOLoc” poster presented by Nicolas Dierckxsens.
4. (oral) Tohoku International Symposium “Past, Present, and Future of the Marine Environment and Ecosystems” 18th Oct '23 “Population Genomic Study Reveals Local Adaption Signals in *Oikopleura dioica* around Ryukyu Islands” presented by Jiashun Miao.
5. (oral) International Workshop “Pathways Towards an Integrated Understanding of the Marine Environment and Marine Ecosystems”, Sendai, Japan (Tohoku University), Dec 2023, lecture on “The species concept in environmental and genetic studies: the case of the zooplankton *Oikopleura dioica* going from global to cryptic”. Presented by Charles Plessey. <https://www.tfc.tohoku.ac.jp/event/4299.html>
6. (oral) OIST x Kyudai Joint Symposium Series 1, 29th Feb 2024. “Genomic scramble in marine plankton” presented by Nicholas M. Luscombe.

5. Intellectual Property Rights and Other Specific Achievements

Nothing to report

6. Meetings and Events

6.1 Seminar Title: “Why do chromosomes look like chromosomes – and not like a ball of yarn?”

- Date: August 24, 2023
- Venue: OIST Campus Lab4
- Speaker: Prof. Frank Uhlmann (The Francis Crick Institute)

7. Other

Nothing to report.