

CURRICULUM VITAE

Name: Liza M. Roger

Position title & institution: Assistant Professor, Arizona State University, School of Molecular Sciences, School of Ocean Futures, Tempe, Arizona (USA)

Professional preparation

- Feb/2012 to Oct/2017 – University of Western Australia, Perth (Western Australia), PhD in Marine Biology and Geochemistry
- Feb/2008 to Oct/2010 – University of Western Australia, Perth (Western Australia), B.SC. Honours (2nd class A), Biological Oceanography
- Sep/2005 to Sep/2007 – Université du Littoral Côte d'Opale, Calais (France), Associates Degree in Marine Biology and Coastal Management

Appointments

- Jan/2023 to date - Assistant Professor, Arizona State University, School of Molecular Sciences, School of Ocean Futures, Tempe, Arizona (USA)
- Mar/2020 to Nov/2022 – Postdoctoral fellow, Virginia Commonwealth University, Chemical and Life Science Engineering, Richmond, Virginia (USA)
- Oct/2019 to Feb/2020 – Ski instructor, Katschberg, Austria
- Jun/2019 to Sep/2019 – Scuba diving divemaster and instructor, Heraklion, Greece
- Nov/2018 to May/2019 – Scuba diving divemaster, Blue Planet Divers, Koh Lanta, Thailand
- Apr/2018 to Nov/2018 – Naturalist (Cetaceans and seabirds), Elding, Akureyri, Iceland
- Dec/2017 to Mar/2018 – International Travel
- Jun/2014 – Research assistant and field hand (coral core sampling), Australian Research Council Centre of Excellence for Coral Reef Studies, Great Barrier Reef, Australia
- Jul/2013 to Nov/2017 – Volunteer, Commonwealth Scientific and Industrial Research Organization (CSIRO) “Scientists and Mathematicians in Schools” Program, Perth, Australia
- Aug/2012 to Sep/2012 – Research assistant, field hand and doctoral research sampling, Woods Hole Oceanographic Institution, Lawson lab, Gulf of Alaska
- Feb/2012 to Nov/2012 – Doctoral student, University of Western Australia, Earth Sciences, Perth, Australia
- Mar/2011 to Jan/2012 – International Travel
- Nov/2010 to Feb/2011 – Intern, Department of Environment and Conservation, Marine Science Division, Perth, Australia
- Jul/2010 to Aug/2010 – Research and field hand, University of Western Australia Oceans Institute and CSIRO
- 2006 to 2010 – Research assistant, Australia Institute of Marine Science, Perth, Australia
- Feb/2006 to Mar/2006 – Intern, DEFICAUX (coastal management NGO), Etretat, France
- Feb/2005 to Mar/2005 – Intern, AQUACAUX (coastal management, marine science education and aquaculture NGO), Octeville-sur-Mer, France

Scientific and/or Technical Expertise: Marine invertebrate husbandry (especially cnidarians) • Synchrotron-based X-ray fluorescence microscopy • Dynamic Light Scattering • X-ray powder diffraction •

Scanning Electron Microscopy · Confocal Raman Microscopy · Electron Probe Micro-Analysis · Confocal Laser Scanning Fluorescence Microscopy · Mass spectrometry (LA ICP MS) · Marine field techniques (scientific diving, coral coring, benthic transects, fish transects, underwater baited video, CTD and Niskin bottle casting, plankton collection) · Laboratory techniques (cnidarian cell dissociation and culture, assay development, cytotoxicity/toxicology, trace element column chemistry, *in vivo* and *in vitro* experimental procedures, microalgae culture) · PADI divemaster DSD leader (#431730 unactive) · IFAP survival at sea · Coxswains Restricted Certificate of Competency (Australia, restricted) · DAN O₂ Certification Senior First Aid (2019)

Research Interests: Marine biology · Biochemistry · Geochemistry · Environmental science · Nanoparticle engineering · Marine chemistry · Cellular biology · Ecology

Publications

- **Roger, L. M., et al.** (2023) Nanobiotech engineering for future coral reefs. *One Earth*. <https://doi.org/10.1016/j.oneear.2023.05.008>
- **Roger, L. M., et al.** (2023) Nanotechnology for coral reef conservation, restoration and rehabilitation. *Nature Nanotechnology*. 1-3. <https://doi.org/10.1038/s41565-023-01402-6>
- Reich, H., **Roger, L. M.**, Camp, E. F., Putnam, H. M. (2022) Trace metals are critical to the nutritional economy of the coral holobiont. 2023. *Biological Reviews* 98.2: 623-642
- **Roger, L. M.**, Lewinski, N. A. (2022) Evaluation of fluorescence-based viability stains in cells dissociated from scleractinian corals *Pocillopora damicornis*. *Scientific Reports*, 12(15297)
- **Roger, L. M.**, Reyes-Bermudez, A., Traylor-Knowles, N. (2022) The Cnidarian Cell Culture Consortium. *Reef Encounter*, (51) p71
- **Roger, L. M.**, Klein-Seetharaman, J., Klein, C. (2022) When Art Meets Coral Research: the tandem humans-corals competition exhibition. *Reef Encounters*, (51) p16
- **Roger, L. M., et al** (2022) Engineered nanoceraria alleviates thermally induced oxidative stress in free-living *Breviolum minutum* (Symbiodiniaceae, formerly Clade B). *Frontiers in Marine Science*. p1435. <https://doi.org/10.3389/fmars.2022.960173>
- Li, S., **Roger, L. M.**, Lewinski, N., Klein-Seetharaman, J., Putnam, H. M., Yang, J. (2022) Spatiotemporal dynamics of coral polyps on a fluidic platform. *Physical Review Applied*, 18 (024078).
- Li, S., **Roger, L. M.**, Kumar, L., Lewinski, N., Klein-Seetharaman, J., Putnam, H. M., Yang, J. (2021). Coral bleaching and tissue loss dynamics captured through the high frequency imagery. *Manuscript submitted for publication with Scientific Reports*
- Jasbi, P., Shivana, M., Visgaudis, W., Kumar, L., Olaosebikan, M., **Roger, L.**, Seldzieski, S., Yang, J., Lewinski, N., Singh, R., Daniels, N., Cowen, L., Klein-Seetharaman, J. (2021). Insulin signaling and pharmacology in Humans and Corals. *Manuscript submitted for publication with the British Journal of Pharmacology*
- Li, S., **Roger, L. M.**, Kumar, L., Lewinski, N., Klein, J., Gagnon, A., ... & Yang, J. (2021). Digital image processing to detect subtle motion in stony coral. *Scientific Reports*, 11(7722). <https://doi.org/10.1038/s41598-021-85800-7>
- **Roger, L. M., et al** (2021). Applying model approaches in non-model systems: a review and case study on coral cell culture. *PloS one*, 16(4), e248953
- **Roger, L. M., et al** (2020) Coral microbioreactors for model validation. *F1000Research* 2020, 9:1396 (poster) (doi: 10.7490/f1000research.1118398.1)
- Kumar L., Lyn-Goin M., Olaosebikan M., **Roger L. M.**, Reich H., Putnam H., Leinski N., Singh R., Daniels N., Cowen L., Klein-Seetharaman J. (2020) Toll-Like receptor signaling in *Pocillopora damicornis* [version 1; not peer reviewed]. *F1000Research* 2020 9:1411 (poster) (<https://doi.org/10.7490/f1000research.1118411.1>)

- **Roger, L. M., et al** (2018). Geochemical and Crystallographic Study of *Turbo torquatus* (Mollusca: Gastropoda) From Southwestern Australia. *Geochemistry, Geophysics, Geosystems*.
- **Roger, L. M., et al** (2017). Geochemical and microstructural characterisation of two species of cool-water bivalves (*Fulvia tenuicostata* and *Soletellina biradiata*) from Western Australia, *Biogeosciences*. doi:10.5194/bg-14-1721-20172.
- **Roger, L. M., et al** (2012). Comparison of the shell structure of two tropical Thecosomata (*Creseis acicula* and *Diacavolinia longirostris*) from 1963 to 2009: potential implications of declining aragonite saturation. *ICES Journal of Marine Science: Journal du Conseil*, 69(3), 465-474.

Synergistic activities

- Student mentoring during the Spring semester 2022 (2 high school student, 5 undergraduate students and 1 graduate students), Fall semester 2022 (2 high school student, 5 undergraduate students and 1 graduate students), Fall semester 2021 (2 high school student, 5 undergraduate students and 1 graduate students), Summer internship 2021 (3 undergraduate students and master's student), Spring semester 2021 (1 high school student, 3 undergraduate students and 2 graduate students), Fall semester 2020 (1 high school student, 2 undergraduate students and 2 graduate students);
- Service as a reviewer in 2022 for *PLOS ONE* (1 manuscript), 2023 for *JoVE* (2 manuscripts), 2020 for *Drug and Chemical Toxicology* (3 manuscripts), and *Environmental Science and Pollution Research* (1 manuscript);
- Service as session organizer / chair for Great Lakes Bioinformatic Conference (Jan.2021), Synthetic Coral HDR retreat (Dec. 2020), Cnidarian Cell Culture Consortium (May 2021-ongoing)
- Science communicator and translator for the International Coral Reef Society Student Chapter (2021 to date)
- STARS (Supporting Tech Achievement for Richmond Students) career coach (May 2021 to Nov. 2022)
- Executive Board member of Virginia Commonwealth University Postdoctoral Association (March 2021 to Nov. 2022)

Awards

- NSF IntBIO: Collaborative Research: Integrating nanobiotechnologies to understand the role of nitro-oxidative stress in the coral-dinoflagellate mutualistic symbiosis dynamics, 2023-2026 (US\$1.2M) award number pending.
- Virginia Commonwealth University Postdoctoral Independent Research Award, 2022 (USD 5,000)
- NSF's Coral Reef Bleaching Research Coordination Network Early Career Training Program 2022 (USD 2,5000)
- PhD scholarship award by the University of Western Australia (2012–2017) and the Centre of Excellence for Coral Reef Studies (2012-2014) 22,000 USD per anum
- Fresh Science State Finalist, 2013
- University of Western Australia's Travel Award (2012) USD 1,300
- Australian National Network in Marine Science funding (2010) USD 1,400

Memberships: American Society for Biochemistry and Molecular Biology (2023 to date) • International Coral Reef Society (2012 to date, interrupted) • Sigma Xi (2021 to date) • Student member of the Centre of Excellence for Coral Reef studies (2012-2014) • Society of Underwater Technologies • the Australian Coral Reef Society • Australian Marine Science Association.