U.S. NATIONAL SCIENCE FOUNDATION
2415 EISENHOWER AVENUE
ALEXANDRIA, VIRGINIA 22314

NSF 25-014

Dear Colleague Letter: Microorganism-Mediated Organismal Resilience to Climate Change (MMORCC)

October 28, 2024

Dear Colleagues:

The rapid environmental changes currently underway create unprecedented challenges for nearly all life on earth, underscoring an imminent need for understanding organismal resilience in the face of those challenges. The Division of Integrative Organismal Systems' (IOS) Organismal Response to Climate Change (ORCC) solicitation supports interdisciplinary research on mechanisms of organismal response to climate change that are contextualized through both an eco-evolutionary lens and a plan for use-inspired applications to better predict and mitigate the effects of a rapidly changing climate on earth's living systems. Critical to those efforts are microorganisms, including bacteria, archaea, fungi, protists, and viruses. Whether free-living, or through partnerships with a diversity of hosts (e.g. other microorganisms, plants, or animals), microorganisms are ubiquitous, diverse, and functionally significant, persisting in spaces that undergo extreme and rapid environmental fluctuations. They are thus central to the effort to understand and facilitate organismal resilience on a changing planet.

The U.S. National Science Foundation (NSF) Directorate for Biological Sciences (BIO), The Paul G. Allen Frontiers Group, and The Paul G. Allen Family Foundation have partnered to promote research in areas of shared priority focusing on microorganisms and their role in climate change. The Paul G. Allen Frontiers Group, a division of the Allen Institute, is dedicated to exploring the landscape of bioscience to identify and foster ideas that will change the world. The Frontiers Group recommends funding to the Paul G. Allen Family Foundation, which then invests through award mechanisms. This partnership seeks to catalyze science that leverages systems-level approaches to query microorganism resilience and the dynamic dialogue across the host- microorganism continuum, which ultimately regulates microorganism-mediated resilience to environmental change across temporal (e.g., lifespan) and/or spatial (e.g., landscape) scales. The overarching goal is to leverage the power of microorganisms to develop practical solutions for mitigation and adaptation to

climate change and build a resilient planet.

With this Dear Colleague Letter (DCL), the NSF BIO Division for Integrative Organismal Systems (IOS), The Paul G. Allen Frontiers Group, and The Paul G. Allen Family Foundation encourage submission of Microorganism-mediated organismal resilience to climate change (MMORCC) proposals to a new track in the current ORCC solicitation for fiscal year 2025.

MMORCC research proposals should be prepared and submitted following the guidance in the ORCC solicitation for **Track 2: the MMORCC track**.

Questions regarding the suitability of the project for the MMORCC track, or any general question concerning this opportunity, should be directed to the ORCC Working Group at NSF: bio-orcc@nsf.gov.

Sincerely,

Dr. Susan Marqusee, Assistant Director
Directorate for Biological Sciences