
Alternatives Research & Development Foundation Awards Record Number of Grants for Non-Animal Biomedical Research and Education

Jenkintown, Pa.—The Alternatives Research & Development Foundation (ARDF) is proud to announce the awardees for its 2024 Annual Open Grant program. ARDF's flagship program funds research to develop innovative alternative methods to reduce or replace the use of animals in research, testing, and education.

"The most important message to take away from this year's Annual Open is that alternative methods have truly arrived as an area of profound interest in biomedical research" commented ARDF President Sue Leary. "The number of grant applications more than doubled."

In response to this unprecedented increase in applications, the Foundation provided 10 awards that total almost \$360,000. The awards cover a diverse range of areas in human health and disease, and several projects focus on developing human-based models to gain more insight into disease and potential treatments.

Dr. Rachel Miller of Rush University Medical Center will develop a human-based "chip" system to model osteoarthritis pain, along with co-investigators Dr. Anne-Marie Malfait and Dr. Richard Miller. The team will create an animal-free model of joint pain to develop and test new treatments for osteoarthritis pain. Dr. Aitor Aguirre of Michigan State University will use human heart organoids to develop a new model of atrial fibrillation, a common heart rhythm condition affecting millions worldwide. At the University of Washington, Dr. Laura Crisa will develop an in vitro culture system to grow hemopoietic stem cells from pluripotent stem cells. These cells hold significant potential for a range of treatments, but challenges remain for their clinical use. Dr. Crisa's work addresses these issues and creates a testing platform for therapeutics.

Dr. Wonjae Lee at the Duke University School of Medicine will create a human cell-based model of glioblastoma, an aggressive and difficult-to-treat form of brain cancer. With their neurovascular unit-on-a-chip model, the team will use glioblastoma cells from patients to study tumor development and create better models for understanding progression and treatment. Dr. Ramaswamy Krishnan of Harvard Medical School will scale up a method for using samples of human lung tissue to study how lungs stiffen in response to disease. At the University of Basel, Drs. Carlos Flores and Christoph Dehio will use their already-successful model of the human bladder to understand how urinary tract infections develop, with the long-term goal of developing new treatments.

Three of the awarded projects apply innovative approaches that demonstrate the power of using human data and samples. Drs. Tien-Chan Hsieh and Chan Zhou at the University of Massachusetts Chan Medical School will use publicly available data from patients with pediatric acute lymphoblastic leukemia to find biomarkers that better predict a patient's risk for relapse. Dr. Matthew Brown at the University of Wisconsin-Madison is pioneering a method to use patient cells to study kidney transplant rejection, which could lead to a patient-specific test for diagnosing rejection. Drs. Emily Stuchfield-Denby and Xavier Moisset at the University Clermont Auvergne in France will use cells from migraine patients to study the roles of different immune cells in causing migraine.

In keeping with ARDF's mission to reduce and replace animal use in education, Dr. Nilda Rodriguez at the University of Northern Iowa is developing a method to study lipid bodies in macrophages obtained from clinical blood donations instead of mice. This animal-free method allows undergraduate students an opportunity to develop skills in cell biology and immunology, while being more ethical, economical, and sustainable than traditional teaching methods.

ARDF Program Director, Dr. Angela Hvitved, noted that the grants would not be possible without support from the ARDF's expert reviewers, "We are so grateful to our external scientific reviewers who generously share their expertise to evaluate the proposals. They are crucial for this program's success." Learn more about ARDF's Annual Open Grant program and this year's funded projects at: <https://ardf-online.org/ardf-grants.html>.