
Research Foundation Awards Grants to Develop Non-animal Research Methods Funded projects will study Type 1 Diabetes, bone fractures, and more

Jenkintown, Pa.—The Alternatives Research & Development Foundation (ARDF) is proud to announce the 2023 awardees for its Annual Open grant program, which funds innovative alternative methods to reduce or replace animal use in research and testing. This year’s awards total \$270,000 for seven projects that span a broad array of scientific areas. “We are excited by the diversity of scientific topics represented in this year’s awards” said Sue Leary, President of ARDF. “It is an indication of the increasing interest in using new approaches to address challenges in biomedical research.”

The funded projects focus on a range of diseases and conditions, including Type 1 Diabetes, periodontitis, and the potentially toxic effects of microplastics on liver tissue. Two projects will use donated human tissue to study human disease progression and guide therapeutic development. Dr. Venkataramana Sidhaye, a physician from Johns Hopkins University, will use human lung slices to study the relationship between cigarette smoke and chronic obstructive pulmonary disease (COPD), and to test drug candidates for treating COPD. Drs. Quinn Easter and Kevin Byrd, from the ADA Science & Research Institute, will use human gingival slices to develop a non-animal model for studying oral inflammatory diseases. These projects are part of an exciting shift to using human tissue samples for in vitro research, which have the dual benefits of increasing the relevance to human health and reducing reliance on animal models.

Several of this year’s projects build on recent advances in microphysiological systems (MPS) to provide new insights on human biology and disease. Dr. Maren Schenke of the Johns Hopkins Bloomberg School of Public Health will use human brain organoids to examine the effects of sex hormones on neurodevelopment in order to understand how endocrine disruptors can alter important processes in the developing brain. Dr. Moritz Pfeiffenberger from Charité Universitätsmedizin Berlin will refine a human-based in vitro 3D model of bone fracture healing to study the initial bleeding and healing processes that occur during bone fracture. Understanding these processes is crucial to developing treatments, which is a significant unmet clinical need.

Another award aimed at much-needed treatments was made to Drs. Vincenzo Cirulli and Laura Crisa at the University of Washington, for a pancreatic islet organoids-on-a-chip system to study Type 1 Diabetes. Their model would provide a novel platform that could replace the use of animals in identifying new treatments for this challenging disease. Dr. Kshitiz from the University of Connecticut Health Center and Dr. Junaid Afzal from the University of California, San Francisco will test a cardiac cell model with a panel of drugs that have known effects on heart tissue in order to examine drug interactions with alcohol. Cardiotoxicity is the leading reason drugs fail to successfully move from animal studies to human treatment, which makes more reliable and predictive models to study cardiotoxicity a high priority. Rounding out the wide range of tissue and organ systems covered by this year’s awards, Dr. Mathieu Vinken of Vrije Universiteit Brussel will use a liver-based cell culture system to study the potentially toxic effects of microplastics on liver tissue.

“We are incredibly grateful to our scientific reviewers who share their expertise in evaluating the proposals; they make our work possible” said Dr. Angela Hvitved, ARDF Program Director.

This year’s focus on models to aid development of treatments underscores the tremendous potential of in vitro models for biomedical research. By supporting research to develop alternative, animal-free models, ARDF continues to advance both animal welfare and human health. Learn more about the Annual Open Grant program and this year’s awards at <https://www.ardf-online.org/ardf-grants.html>.