Reserve capacity as a target of environmental agents

Position Description:

A postdoctoral position is available in the Mechanistic Toxicology Branch in the Division of the National Toxicology Program (DNTP) at the National Institute of Environmental Health Sciences (NIEHS), Research Triangle Park, North Carolina. The project aims at establishing whether mitochondrial reserve capacity is a target of environmental exposures that can contribute to human disease, specifically, cardiovascular disease (CVD). These studies support a new Cardiovascular Health Effects Initiative of the DNTP that aims at understanding the contribution of environmental exposures to common cardiovascular diseases. The work will initially involve the use of in vitro 2D and 3D rodent and human cardiomyocyte models, which will also contribute in establishing the most appropriate models for cardiovascular toxicity screening within the MTB/DNTP. Environmental agents that have been epidemiologically or experimentally associated with cardiotoxicity or identified in our mechanistic screening efforts will be evaluated for their ability to compromise energetic and functional reserve capacity. Detailed mechanisms will be explored with cell-based transcriptomics and metabolomics. In vitro evidence for ‘reserve toxicity’ will be subsequently characterized in vivo using CV functional challenge models such as the spontaneously hypertensive rats, dobutamine stress test, etc. The post-doctoral fellow will be co-mentored by Drs. Janine Santos (mitochondrial toxicity) and Brian Berridge (cardiovascular toxicity).

The successful candidate will have a strong background in cardiovascular studies, including in the use of cardiomyocyte cultures (e.g. primary and immortalized cells as well as iPSC-derived cardiomyocytes) and animal models. The candidate will be versed in cell imaging-based techniques, including calcium imaging and functional assessment of cardiomyocyte function. Knowledge of mitochondrial metabolism is strongly desired. Experience with deep sequencing techniques (library preparation and data analysis) is desirable but not required. The candidate will have access to state-of-the-art equipment, including the Seahorse flux analyzer, the Opera phenix high content imager confocal microscope and the Maestro Pro microelectrode impedance-based array. Strong communication and written skills are desired and ability to work as part of a team is a must.

The DNTP postdoctoral training program typically funds fellowships for three years. Stipends are commensurate to experience. Postdoctoral fellows are considered as professionals-in-training and are not classified as NIH employees. Medical insurance is provided. The position is immediately available and will be open until filled.

Qualifications:

- Doctoral degree in biochemistry, physiology, or closely related discipline;
- Experience in in vitro cardiomyocyte cultures and analysis of cardiovascular function both in vitro and in vivo;
- Knowledge of mitochondrial function desirable.

To Apply:

Interested candidates should send a single PDF containing a cover letter indicating experience and research interests, CV and the contact of 3 referees to Dr Janine Santos (email janine.santos@nih.gov)