Postgrad position at the Department of Comparative Medicine at Yale School of Medicine

The Department of Comparative Medicine at Yale School of Medicine seeks **highly motivated and dedicated recent college graduates** for a postgraduate position, to work in one of the participating labs. We seek outstanding individuals with a bachelor's degree, who come from **diverse backgrounds** and are interested in enhancing their research experience before applying to graduate school. **This position reflects our commitment to scientific excellence and diversity, equity, and inclusion in science and medicine**. Diverse background includes - but is not limited to - Individuals from underrepresented groups in science and medicine, first-generation college students, LGBTQIA+ students, students with disability, and students from economically disadvantaged background. **Residents of the New Haven area are particularly encouraged to apply**.

Applicants are welcome to apply to any [Comparative Medicine labs](#), and are especially encouraged to apply to one of the labs described below.

The position is for one year. Extension for a second year will be contingent on performance and available funds.

To Apply:

Please submit the following to: ifat.levy@yale.edu **by 4/30/24**:

- CV
- A short statement describing prior research experience, the lab you are applying to, your interest in the lab, and the training you would like to receive (up to ½ page)
- A brief diversity statement (up to ½ page) detailing any relevant aspects of your background, and how you will contribute to creating a diverse and inclusive environment.

LAB DESCRIPTIONS

Matthew Rodeheffer, PhD

The physiology of metabolic diseases: Obesity, Diabetes and Heart Disease

Being obese is linked to many diseases, including diabetes, cancer and heart disease. My lab has pioneered the development of numerous techniques and genetic models to study the regulation of fat mass in physiologically relevant contexts. We have determined that recent changes the composition of our diets profoundly affect metabolism and metabolic diseases. Our goal is to understand how what we eat affects our normal physiology, as well as how these normal processes become dysregulated to result in disease. We have developed novel assays to study the molecular mechanisms by which diet alters metabolism and have identified numerous pathways that drive aspects of metabolic disease.

In the context of stem cell biology, we have discovered how diet drives the fat cell precursors to expand in number, driving increased weight gain in obesity. We are currently working to develop novel organoid systems for the study of fat stem cells ex vivo. In heart disease, we have found that there are two independent molecular pathways that drive formation of plaques that block arteries. Targeting both of these pathways simultaneously virtually eliminates plaque formation. We are currently working toward developing new systems to determine how cellular metabolism is altered in heart disease. In cancer, we

have found that specific dietary fats are instrumental in driving immune cell activation and breast cancer metastasis. In diabetes, we have identified novel diet-influenced metabolites that inhibit insulin action in skeletal muscles. We are currently working to understand how these metabolites affect insulin resistance in obesity and in aging.

Postgraduates in the lab will gain experience working with physiology of metabolism, using mouse models, and working with ex vivo and in vitro models of cellular metabolism. They will become familiar with many different types of microscopy, flow cytometry and performing physiologic assays in mice.

Xiaoai Zhao, PhD

Postgraduate position in lipid biology and mass spectrometry in the Zhao Lab at Yale University

We are seeking a postgraduate research associate to join the laboratory of Dr. Xiaoai Zhao in the Department of Comparative Medicine at Yale University. Zhao lab's main focus is on the functional investigation of complex lipids in the context of aging and diseases. Questions that the Zhao lab are interested in include: how do membrane lipids affect cellular function and organismal health during aging and age-related pathologies, what are the organelle-specific lipid contribution in biological processes, and what is the role of complex lipid species in systems metabolism. We use a combination of molecular biology, biochemistry and mass spectrometry in cell and animal models to address these questions. For more information, please visit www.zhaolabyale.com.

Training

As a postgraduate research associate in the Zhao lab, the candidate will perform mass spectrometry-based lipidomic analysis. Specific responsibilities may include lipidomics sample preparation, data acquisition and analysis. The candidate will also participate in research projects in the lab using a combination of molecular biology, biochemistry and mammalian cell culture techniques.

Mentoring

The postgraduate researcher will work directly with Dr. Zhao in all phases of research projects, including study design, execution, and data interpretation of experiments. In addition, the candidate will be given career development opportunities (e.g. scientific writing and public speaking skills) that are individually tailored to their long-term career goals. Dr. Zhao strongly believes a supportive and engaging lab environment is the key in fostering scientific advancements and personal growth.

Education

In addition to the mentoring and training in the lab. The Zhao lab is also part of a diverse and vibrant scientific community in the Department of Comparative Medicine and Yale Center for Molecular and Systems Metabolism. This position offers unique opportunity to interact with and learn from labs with broad expertise in metabolism, aging and immunology research. This position is ideal for researchers looking to expand their research experiences and explore different research interests before pursuing a Ph.D. or M.D./Ph.D. in biomedical sciences. Qualified candidate with a 2-year commitment to the position is strongly encouraged.

Qualifications: A bachelor's degree in chemical or biological sciences is required. Prior laboratory experience in analytical chemistry is highly preferred.