



### **Postdoctoral positions in cancer metabolism – Hoxhaj Lab**

Postdoctoral positions for highly motivated research fellows are available in the laboratory of Dr. Gerta Hoxhaj at the Children's Medical Center Research Institute, UTSW, Dallas, USA (<https://cri.utsw.edu>). The Hoxhaj laboratory focuses on understanding the *Molecular Mechanisms that control Redox and Cellular Metabolism in the context of Cancer, Metabolic Disorders and Aging*.

Dr. Hoxhaj's previous studies have uncovered key intersections between cellular signaling and metabolism.

- Discovery of de novo purine synthesis as a novel metabolic program downstream of mTORC1 signaling (**Ben-Sahra I\*, Hoxhaj G\*, et al., 2016, Science**).
- mTORC1 signaling network senses purine nucleotide levels (**Hoxhaj et al., 2017, Cell Reports**).
- Controls of the cellular reducing power NADP(H) through Akt-mediated phosphorylation of NAD Kinase (**Hoxhaj\*, et al., 2019, Science**).

Research projects in the Hoxhaj Lab fall under three main research areas:

**1. Obtaining a holistic understanding of the role of Cellular Reducing Power in physiology and disease.** Cellular Reducing Power, stored in pyridine dinucleotide cofactors NAD(H) and its phosphorylated form NADP(H), drives energy metabolism, biosynthesis of macromolecules and defense from oxidative stress. Cellular Reducing Power is an essential biological process and its dysregulation is implicated in many diseases including cancer, diabetes, and aging. Yet, our understanding of the role of metabolic enzymes that produce and consume NAD(P)(H) remains elusive and ongoing studies aim to explore the role of these enzymes in physiology and disease, with the ultimate goal of developing therapeutic intervention strategies in cancer.

**2. Identification of novel mechanistic links between Oncogenic Kinase Signaling and Cancer Metabolism.** Signaling networks integrate information about the environment to control cellular metabolic processes. While cancer cell metabolism is markedly distinct from that of normal cells, there are substantial gaps in our knowledge of how oncogenic events alter the metabolic program of cancer cells. Our lab aims to identify key regulatory mechanisms by which oncogenic kinases impinge on the metabolic reprogramming of cells to meet the demands for tumor growth.

**3. Metabolite and Nutrient Sensing by Signaling Pathways.** Studies will aim to gain fundamental knowledge on how metabolic outputs and nutrient availability are coordinated with signaling networks to sustain cellular homeostasis and investigate the consequences when this coordination is lost in disease.

We are looking for highly motivated, bright and enthusiastic scientists to join our team. Candidates must hold a Ph.D. or M.D/Ph.D. degree. Research background in biochemistry, molecular biology, cell biology and mouse experience are preferred. The successful candidates will have access to state-of-the-art technologies in metabolomics, biochemistry, proteomics, cell biology and mouse models in an excellent and dynamic academic environment. Interested applicants should submit a CV, a brief description of their research achievements and interests, the name and contact details for three referees to [gerta.hoxhaj@utsouthwestern.edu](mailto:gerta.hoxhaj@utsouthwestern.edu).