

**Postdoctoral Position in the Macleod Lab, University of Chicago**

**Area of expertise:** Mitochondrial dysfunction in fatty liver disease and hepatocellular carcinoma

Funded by NIH/NCI (NIH/NCI 2R01 CA 200310).

**Overview/Research Focus.** We are looking for a postdoctoral researcher to work in our liver cancer team examining the role of BNIP3 and NIX in modulating mitophagy and metabolism in the liver and how disruption of these mechanisms leads to hepatic steatosis and liver cancer. Our work has identified a role for BNIP3 in promoting mitophagy in pericentral zones of the liver and maintaining metabolic zonation in normal liver <sup>1</sup> and in preventing lipid accumulation which when disrupted leads to hepatocellular carcinoma (HCC) <sup>2</sup>. The focus of this position is to understand the molecular mechanisms underlying how BNIP3 prevents lipid accumulation in the liver, how it modulates cell growth signaling in the liver, how it interacts with its sister protein NIX and how disruption of BNIP3 and/or NIX contributes to transformation in the liver. The ideal applicant is a self-starter who enjoys working with others, has a strong work ethic and is excited about scientific discovery.

- 1 Springer, M. Z. *et al.* BNIP3-dependent mitophagy promotes cytosolic localization of LC3B and metabolic homeostasis in the liver. *Autophagy*, 1-17, doi:10.1080/15548627.2021.1877469 (2021).
- 2 Berardi, D. E. *et al.* Lipid droplet turnover at the lysosome inhibits growth of hepatocellular carcinoma in a BNIP3-dependent manner. *Sci Adv* **8**, eabo2510, doi:10.1126/sciadv.abo2510 (2022).

**Environment.** The Macleod Lab is based in the Ben May Department for Cancer Research and the NCI-designated University of Chicago Comprehensive Cancer Center, home to a diverse group of internationally recognized investigators with expertise in all areas of cancer research and translational science. The project benefits from key resources, including a state-of-the-art Cancer Metabolomics facility and our multi-disciplinary Liver Disease Working group. We collaborate extensively with oncologists and pathologists on the translational side, as well chemists, computational scientists, and others as our research demands. There are extensive seminar programs on all areas of biomedical sciences and frequent opportunities to communicate your research at joint meetings and conferences, and to get involved in community outreach, particularly to those at risk for liver cancer. A mentoring committee and career development opportunities will be provided to the successful applicant.

**Experience required.** A Ph.D. in a relevant research area(s) is required, such as mitochondrial biology, tumor metabolism, hepatocyte biology, cancer cell signaling, liver cancer/upper GI cancers, autophagy. Understanding of the mechanistic aspects of mitophagy/lipophagy/mTOR/AMPK/ULK1 signaling pathways in stress responses/cancer is advantageous. Experience of working with genetically engineered mouse models, especially GEM models of liver cancer, also a plus. Strong skills in molecular and cellular biology, such as primary cell culture, protein-protein interactions, imaging organelles, and in mining cancer databases and interpreting omics datasets, are advantageous. The applicant should demonstrate experience of working in a research team and mentoring others in research. The applicant should be able to plan and execute experiments independently, take initiatives to develop their project and show the potential to grow into a “group leader in waiting”. Thus, they should have mature inter-personal skills, strong written and verbal communication capabilities and will be expected to write their own manuscripts and present their data at international scientific conferences.

**To apply:** Submit a curriculum vitae, a brief statement regarding research experience and interests, and a list of 2-3 references with their email addresses to [kmacleod@uchicago.edu](mailto:kmacleod@uchicago.edu). Additional information about postdoctoral benefits and opportunities in the University of Chicago Biological Sciences Division can be found at [bsdpostdoc.uchicago.edu](https://bsdpostdoc.uchicago.edu).

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