



Post-Doctoral Researcher Positions Available at ATP-BIO Institutes:

We are currently seeking multiple postdoctoral/researcher candidates for leadership roles within a new research center at the [University of Minnesota \(UMN\)](#), the [Massachusetts General Hospital / Harvard Medical School \(MGH/HMS\)](#), the [University of California at Berkley \(UCB\)](#), the [University of California at Riverside \(UCR\)](#), [Texas A&M \(TAMU\)](#) and [Carnegie Mellon University \(CMU\)](#). These positions will include extensive collaboration across our institutions and industrial partners and thus provide wide-ranging opportunities for training, networking, and mentorship for either tenure- or industry-track career paths.

ATP-Bio: The NSF Engineering Research Center for Advanced Technologies for the Preservation of Biological Systems ([ATP-Bio.org](#)) was awarded \$26 M to launch in September 2020 and is renewable after 5 years. The goal of the Center is to pursue scientific knowledge, technologies, and clinical and laboratory capabilities to store and globally distribute living cells, tissues, organs, and organisms for transplantation and regenerative medicine, biomedical research, conservation of species, and sustainable food sources. ATP-Bio already has over 30 industry, NGO and innovation partners, and the research opportunities run the gamut from fundamental cryobiology to commercial technology development in collaboration with these partners.

Positions: Key areas of expertise for these positions include, but are not limited to: cryobiology and cryopreservation; experimental heat transfer applications; laser-based imaging and heating, nanoparticle synthesis, functionalization, and toxicological study; cell, tissue, organ, and organism preservation; 3-D (micro)-tissue engineering for health & disease; automated methods in biofabrication; organ engineering; biology of aquatic systems; clinical imaging (focus on MRI and micro-CT); electromagnetic heating applications and others.

Research Overview: Recent consensus documents, including NSF-funded roadmaps, highlight that fundamental barriers to biopreservation are essentially the same for all living systems [[Giwa et al. Nature Biotech. 2017](#), [Lewis et al. Cryobiology 2016](#)]. We argue that now is the time to address these problems so that we can “stop biological time” and radically extend the ability to bank and transport our testbeds which are cells, microphysiological systems and organoids, tissues, organs, and even whole organisms. We have developed completely new approaches to preservation including supercooling, partial freezing, vitrification and isochoric supercooling. These platform technologies are now being used to revolutionize how we cryopreserve our testbeds as published in numerous high impact articles including but not limited to cells [[Huang Nature Comm. 2018](#), [Hornberger Transfusion Medicine 2019](#)], tissues [[Powell-Palm Communications Biology 2021](#), [Zhan Nature Medicine 2022](#)], organs [[De Vries Nature Biotechnology 2019](#), [Sharma Advanced Science 2021](#), [Tessier Nature Communications 2022](#)] and whole organisms [[Jaskiewicz Nature Communications 2018](#), [Khosla Adv. Biosystems 2020](#), [Zhan Nature Comm. 2021](#)]. We will continue to use these technologies for societal impact by focusing on applying these engineering technologies to biological systems before cooling, during cooling and subzero (°C) stasis, and during rewarming to normal biological temperatures. At each stage, our engineering will aim at eliminating or controlling ice, mitigating toxicity from cryoprotective agents, and eliminating thermal and mechanical stress – the three prime causes of biological damage at subzero temperatures.

Qualifications: ATP-Bio seeks proposals from diverse applicants who will enhance and promote an equitable STEM culture. Candidates are expected to function and communicate effectively as members of highly collaborative research teams, which includes mentoring and providing direction to graduate students and junior researchers. Key responsibilities include designing and executing experimental plans to achieve the objectives of existing grants, leading the generation of new grant proposals, authoring and contributing to high-impact publications, and generating patentable technologies. PhD in Biomedical, Chemical or Mechanical Engineering, or Molecular & Cellular Biology or a related field, MDs or MD-PhDs with relevant skills are eligible.

Candidates must be:

- Able to contribute in a strong team-based environment
- Productive and eager to learn
- Enthusiastic and scientifically curious
- Intellectually committed
- Capable of working independently
- Strong interpersonal, communication and writing skills are essential.

To APPLY (Please Read CAREFULLY): Applications should be sent to atp-bio-apply@umn.edu with the subject line “Postdoc ATP-Bio 2022”. Please submit as a single pdf document that contains: 1) a cover letter (2 page max), 2) a full CV with a complete list of publications, 3) name and contact details of 3 references, and 4) list of laboratory and other methods mastered. If you have a preference for the group or topic you would wish to work on please mention it in your cover letter. All candidates will be reviewed by an internal committee with broad institutional representation on a rolling basis.

Indigenous, LGBTQIA+, gender nonconforming, people of color and women are highly encouraged to apply.

