

Group Leader in Cancer Biology

Note: Applicants for this position must have a PhD and direct experience in cancer biology and/or chromatin research.

The Center for Physical Genomics and Engineering at Northwestern University, directed by Prof. Vadim Backman, is seeking a postdoctoral fellow or research (non-tenure track) faculty to lead a multidisciplinary team of scientists conducting cutting-edge research at the crossroads of biology, genomics, physics, engineering and medicine. Our main goal is to investigate fundamental biological questions and develop novel approaches relevant to the prevention, detection, diagnosis and treatment of cancer and other currently intractable diseases at early, treatable stages. We have developed a platform of pioneering super-resolution and nano-sensing optical microscopy technologies which, combined with genome mapping and other functional genomic approaches, allow us to study the causal relationship between the nanoscale structure of chromatin, global patterns of gene expression, and their alteration in disease.

As evidenced by recent publications in *Nature Biomedical Engineering*, *Science Advances*, *PNAS*, *Cancer Research*, and *Scientific Reports*, the Center undertakes systematic approaches to understanding cancer development by integrating molecular dynamics simulations, live cell super-resolution nano-imaging, computational genomics, and genome mapping technologies.

The Center has received substantial sponsored and philanthropic support and provides a highly collaborative, transdisciplinary environment consisting of researchers with diverse backgrounds: biomedical engineering, molecular biology, computer science, physics, chemical engineering, etc. Additionally, the Center has collaborative projects with over 20 physicians, biomedical, and physical sciences investigators both internationally and domestically. Research projects reside within one or more priority areas: cancer biology, biophysics of the genome, or cancer therapeutics.

We are seeking a highly motivated, enthusiastic, and creative candidate with excellent interpersonal skills and a strong publication record. The successful candidate(s) will have the opportunity to conduct cutting-edge research integrating molecular biology, epigenetics, and computational genomics in a thriving multi-disciplinary team. It is anticipated that s/he will engage in preparation of original manuscripts for conferences and peer-reviewed journals as well as participate in writing grant proposals.

Specifically you will:

- Supervise and coordinate teams of graduate students and technicians working in the different areas of the research project.
- Manage ongoing collaboration projects and prepare timely progress reports.
- Analyze and integrate large datasets, including genomics and transcriptomics.
- Integrate molecular and physical aspects of genome function.
- Perform *ex vivo* and *in vitro* cell culture and *in vivo* animal studies.

Qualifications

The Center seeks applicants with a strong background in cancer biology. Successful candidates will have a mixture of the following skills:

1. Degree:
Ph.D. or M.D./Ph.D required, with proven experience in cancer biology research.
2. Prior Experience:
 - a) 3 years' experience in cancer biology or chromatin research.
 - b) Proficiency using standard biochemical, molecular, cellular, and functional genomic techniques is required.
 - c) Prior experience with optical imaging techniques is desired.
 - d) Prior experience with whole cell imaging and computational skills are preferred but not required.
 - e) Experience in single cell data analyses and integrative multi-omics approaches is highly desired.
 - f) Demonstrated technical capability in analyzing complex omics data, including transcriptomics, proteomics, and metabolomics; including differential analysis of multivariate datasets using common software tools.
 - g) Previous experience with systems biology approaches to integrating omics datasets into biological pathways/networks, i.e. biological network modelling preferred but not required.
 - h) Programming experience (preferably in Matlab and/or Mathematica) is preferred but not necessary.
 - i) Experience working with mouse models is a plus.
 - k) High level of numeracy, and knowledge of statistical analysis is highly desired.
3. Proven track record working independently and demonstrating critical thinking, problem solving, attention to detail and creativity are essential.
4. Excellent prioritization and project management skills.
5. Strong communication and interpersonal skills and fluency in both spoken and written English.
6. A solid record of quality publications in peer-reviewed journals showing an output commensurate with opportunity.

Northwestern University offers outstanding benefits including health, dental and vision insurance, retirement matching, and competitive salary. Qualified candidates should send a CV and cover letter to Benjamin Keane at: b-keane@northwestern.edu.