Precision oncology computational biologist / data scientist

Overview

About Dana-Farber

Located in Boston, Dana-Farber Cancer Institute brings together world renowned clinicians, innovative researchers and dedicated professionals, allies in the common mission of conquering cancer, HIV/AIDS and related diseases. Combining extremely talented people with the best technologies in a genuinely positive environment, we provide compassionate and comprehensive care to patients of all ages; we conduct research that advances treatment; we educate tomorrow’s physician/researchers; we reach out to underserved members of our community; and we work with amazing partners, including other Harvard Medical School-affiliated hospitals.

Overview

The mission of Dana-Farber Cancer Institute is to provide expert, compassionate care to children and adults with cancer while advancing the understanding, diagnosis, treatment, cure, and prevention of cancer and related diseases. The Center for Cancer Precision Medicine (CCPM) is a major institutional priority, being established across Dana-Farber Cancer Institute (DFCI), Brigham & Women’s Hospital (BWH), and the Broad Institute (Broad). The mission of this Center will be to catalyze the implementation and innovation of precision cancer medicine and medical science at these institutions. The Center will leverage a multitude of existing and new capabilities for comprehensive genomic characterization, computational analysis, and technology development. It will bring together DFCI and BWH resources to pioneer new approaches for tissue biopsies, with the goal of facilitating the generation and clinical interpretation of tumor molecular data from clinical trials. CCPM will integrate and coordinate various research and clinical disciplines, and establish joint capabilities across BWH, DFCI, and the Broad with the ultimate goal of creating a leading cancer precision medicine research enterprise.

Position Summary:

The Center for Cancer Precision Medicine is seeking a talented and highly motivated computational biologist to help establish an analytical group focused on understanding the mechanisms of therapeutic response and resistance in cancer. The computational biologist will be responsible for identification and implementation of algorithms for best practice analysis of cutting edge genomic datasets generated on a massive scale. The ideal candidate will collaborate with CCPM investigators to integrate clinical and pre-clinical datasets to identify ‘druggable’ tumor signaling pathways and biomarkers that might guide clinical trial enrollment. This individual will also collaborate with faculty at both the Broad Institute and Dana Farber Cancer Institute to incorporate principles of tumor heterogeneity and evolution into a precision oncology framework. The successful candidate will have a unique opportunity to work with a diverse team of computational biologists, clinical oncologists, experimental scientists, and software engineers, both from academia and industry.

Roles and Responsibilities:

• Coordinate the data processing and analysis of CCPM projects in partnership with its affiliated investigators, faculty, and associate computational biologists.
• Coordinate hiring and supervision of the CCPM data analysis group.
• Work closely with CCPM investigators and collaborators to identify algorithms for multi-omic data analysis (e.g. whole exome sequencing and RNA sequencing) and coordinate their integration into the CCPM analysis framework, particularly focusing on integration of data from pretreatment and post-relapse tumor biopsies together with preclinical data to nominate putative clinical resistance mechanisms.
• Oversee the integration into the CCPM of algorithms to analyze data from emerging genomic technologies such as single cell RNAseq, sequencing of circulating tumor cells and WES of cell free DNA.
• Monitor the quality of CCPM genomic and molecular datasets and ensure that CCPM data generation/analysis is moving forward and that projects are completed in a timely manner.
• Enable rapid processing of clinical genomic data for exceptional responders, tumors with high discovery potential and other high-priority studies.
• Work with laboratory scientists to validate hypotheses.
• Present findings to internal and external audiences in a clear and cohesive manner.
Skills and Abilities:

- Candidates should possess a PhD in physics, computer science, mathematics, or other quantitative field with demonstrated expertise in genomic data analysis. Alternately, a Ph.D in a biological discipline with demonstrated experience in quantitative analysis of genomic data could be a candidate.
- Strong programming skills (R/Matlab/Python/Java/C/C++).
- Experience with Unix and large-scale computing.
- Knowledge of cancer biology, signal transduction pathways and targeted therapeutics is preferred, but not required.
- Experience with medical genetics is preferred but not required.
- Demonstrated ability to understand and communicate analytical approaches clearly and effectively to biologists and clinical investigators.
- Desire to work in a fast-paced dynamic environment. Excellent organizational and record keeping skills. Careful attention to detail. Excellent verbal and written communication skills. Excellent teamwork, communication and presentation skills.
- Excellent oral and written English communication skills and absolute requirement.