



## Undergraduate Summer Internship in Systems Biology

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### Internship Project Description: Summer 2018

**Project Title:** Single-cell analysis of blood cancers in individual patients

**Supervisor Name:** Sahand Hormoz

**Lab PI Name:** Sahand Hormoz

**Project Description:** Hormoz lab studies the behavior of individual cells during development and in diseases such as cancer. Your project would involve analyzing expression levels of thousands of genes in individual bone marrow cells obtained from patients with certain types of chronic myeloid leukemias (called myeloproliferative neoplasms). We will work with clinicians at the Dana-Farber Cancer Institute to obtain the cells from the patients and use single-cell sequencing to read out expression levels of thousands of genes in each cell. Your task would be to distinguish the malignant cells that carry the cancer mutation from the healthy cells and identify the disease-initiating cell (the culprit) in each patient. You would then relate the identity of the disease-initiating cell to how the disease manifests in each individual patient. Ultimately, the aim would be to identify personalized targeted treatments that will preferentially eradicate the malignant cells in each patient.