# GRANT SNAPSHOT

## 2014 Pancreatic Cancer Action Network – AACR Innovative Grant

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| Grantee: | Michael Barrett, PhD |
| Institution: | Translational Genomics Research Institute |
| Research Project: | *Genomic drivers of therapeutic responses in metastatic disease* |
| Award Period: | July 1, 2014 – June 30, 2016 |
| Amount: | $200,000 |

## Biographical Highlights

Dr. Barrett obtained his PhD from the University of Toronto, then did his postdoctoral training at the Fred Hutchinson Cancer Research Center in Seattle. From 1998 until 2002, he was a Staff Scientist at Fred Hutchinson, then took a position as a Research Scientist as part of a multi-disciplinary team of scientists and engineers in the Molecular Technologies Laboratory at Agilent Technologies in Santa Clara, CA.

After Agilent, Dr. Barrett returned to academic research at the Translational Genomics Research Institute (TGen), in Scottsdale, AZ, as an Investigator, Head of Oncogenomics Laboratory and is currently an Associate Professor. Since 2012, Dr. Barrett has also been a Faculty Member at the Mayo Clinic Cancer Center in Scottsdale. Dr. Barrett's primary research interest is to comprehensively study the clonal evolution of neoplasia and cancer in patients who are at risk or have already progressed to malignant disease.

## Project Overview

Tumors arise through a series of genetic changes that give otherwise benign cells cancer-like properties, including eventually the ability to invade through tissue and metastasize (spread) to other organs. Recent studies of pancreatic cancer have proposed that populations of tumor cells with metastatic potential occur in the primary tumor several years before the appearance of metastatic lesions. Mathematic modeling based on the mutations and genetic aberrations has proposed that the evolution from a normal pancreas cell to cancer, to progression to metastatic disease occurs over many years. However, these studies are based on tumor samples that were collected at one time point, representing a "static" view of tumor progression.

By contrast, Dr. Barrett and his colleagues propose to analyze and compare tumor samples from when a patient is first diagnosed, to samples gathered after the patient has undergone one or more treatment. Dr. Barrett and colleagues recently profiled 35 patients with metastatic pancreatic cancer in a phase II clinical trial sponsored by Stand Up To Cancer. Each of these patients progressed from time of diagnosis on at least one chemotherapy regimen prior to enrollment in the trial. As part of the study, they generated genomic profiles of tumor populations present in a liver metastasis from each patient. Additionally, the research team has access to biopsy samples from ten of the patients, from when they were first diagnosed. The hypothesis of this project is that clonal populations of tumor cells with distinct genetic changes arising throughout the progression of the disease influence patients' response to treatment and general outcome.