

PSONDCC

Physical Sciences Oncology Network Data Coordinating Center

The **National Cancer Institute** (NCI) is exploring new and innovative scientific approaches to better understand and control cancer. The Division of Cancer Biology's Physical Sciences in Oncology Initiative seeks to establish research projects that bring together cancer biologists and oncologists with scientists from the fields of physics, mathematics, chemistry, and engineering to address some of the major questions and barriers in cancer research.

In 2009, the Physical Sciences – Oncology Centers(PS-OCs) Program was launched, a Network of 12 Centers investigating complex and challenging questions in cancer research from a physical sciences perspective. To explore how the NCI could continue to support the integration of physical sciences and cancer research, a Think Tank and series of Strategic Workshops were held in 2012. The workshops served to update opportunities at the interface of physical sciences and cancer research and guide the development of Program Announcements for a second phase of the PS-OC Program and Physical Science – Oncology Projects (PS-OPs) Program that together will form the Physical Sciences – Oncology Network (PS-ON).

Data generated from the PS-ON:

- [| **PSON002 Physical Characterization of Cell Lines. Atomic Force Microscopy**](#) This study provides physical characterization of 30 cell lines from the Physical Sciences Oncology Center (PS-OC) Network Bioresource Core Facility (PBCF) using atomic force microscopy. The goal of the study was to assess the effect of cell line growth substrate on the physical properties of individual cells from the cell lines. The study's assay used atomic force microscopy (AFM) to measure the deflection of a cantilever upon contact with the cells. In this study, the test samples represent 30 cell lines grown on 7 different substrates. Measurements were done in triplicate. Control samples were not included in this study. Download the dataset at <ftp://caftpd.nci.nih.gov/psondcc/PhysicalCharacterization/AFM.2/>
- **PSON005 Physical Characterization of Cell Lines: Traction Force and Volume** This study provides physical characterization of 29 cell lines from the Physical Sciences Oncology Center (PS-OC) Network Bioresource Core Facility (PBCF) measured using traction force microscopy (TFM). Cell contractility is measured as total maximum force (nN). Download the dataset at <ftp://caftpd.nci.nih.gov/psondcc/PhysicalCharacterization/Traction force and Volume/>
- **PSON003 Physical Characterization of Cell Lines: Motility** Download the dataset at <ftp://caftpd.nci.nih.gov/psondcc/PhysicalCharacterization/Motility/>
- **PSON004 Physical Characterization of Cell Lines: Morphology** Download the dataset at <ftp://caftpd.nci.nih.gov/psondcc/PhysicalCharacterization/Morphology/>
- **PSON006 Cell Line Genomics – mRNA, miRNA and Exome** Download the dataset at <ftp://caftpd.nci.nih.gov/psondcc/CellLineGenomics/>
- **PSON007 A physical sciences network characterization of non-tumorigenic and**

metastatic cells Supplemental material for the [| Nature publication of the Physical Sciences-Oncology Network](#) .Download the dataset at ftp://caftpd.nci.nih.gov/psondcc/SciRep_2013.v2/

- **PSON005 Circulating Epithelial Cells**