



## Bay Area Physical Sciences-Oncology Center

### Call for Pilot Projects, 2011/12

**Background.** The [National Cancer Institute](#) (NCI) recently funded a network of twelve “Physical Sciences-Oncology Centers”. The [PS-OC network](#) seeks to explore new and innovative approaches to better understand and control cancer. For the first time, this overall effort includes a systematic convergence of the physical sciences with cancer biology. By partnering with scientists from various non-biology disciplines, NCI envisions novel approaches to help generate answers to some of the major questions and barriers in cancer research.

[Our center](#) seeks (1) to develop new approaches to detect and to treat cancer and (2) to predict tumor behavior through quantitative measurement and manipulation of cell and tissue mechanics. Towards these goals, we are studying how cell and tissue mechanics (on length scales of nanometers to entire organs) evolve during cancer progression and in response to treatment. Our center has dedicated pilot project funds to facilitate progress in this exciting new area of investigation. The objective of the pilot program is to address outstanding research needs and to recruit new talent to the field of cancer mechanics from across the physical and medical sciences.

**Eligibility Limitations.** Proposals seeking to extend work already funded by NCI (or other agencies funding cancer research such as DOD or NASA) will not be considered. Research by teams that include a physical scientist and a life scientist will be given priority.

**Number of Awards.** We expect to make 3 awards. Typical budgets will be around 50k in direct costs. The maximum direct cost for any one award is 70k. Awards are limited to one year. In exceptional circumstances, particularly if the proposed work has a clinical/translational component, project funding can be extended.

**Key Dates.** Call release: Sept. 12, 2011. Proposals are due on **Monday, Oct 31, 2011**. We will notify applicants of our intent to fund proposals on Nov. 15, 2011.

**Proposal Format.** Proposals should be not more than 3 pages in length. One page should be dedicated to background and specific aims. One page shall contain an experimental description and timeline. The last page should include a detailed budget and budget justification.

**Proposal Submission.** Proposals should be emailed in pdf format to Ellen Dreksler ([Ellen@Berkeley.edu](mailto:Ellen@Berkeley.edu)).

**Proposal Review.** This is a high-risk, high-reward program. Proposals will be reviewed by Bay Area PS-OC physical scientists, biologists, and oncologists, and a representative of the NCI. If needed, we may solicit reviews from outside experts. Key review criteria are: innovation, potential for significant medical benefit, relevance to the [Bay Area PS-OC program](#), relevance to the Physical Sciences-Oncology initiative, and the feasibility of performing the proposed work within the 1 year project period.

#### **Areas of Special Interest.**

- Tools for quantifying cell and tissue mechanics deep within tissues.
- Technologies for discriminating normal and altered tissues based on inherent contrast.
- Tools for controlled mechanical manipulation of cells and tissues.
- Mathematics and physics-based modeling approaches that inter-relate cell and tissue mechanics with cancer genomics, proteomics, and systems biology.
- Clinical studies that relate altered tissue mechanics to outcomes and help to personalize treatment.
- Approaches for controlling the mechano-chemical signals provided to 3D cell cultures.