Applications Requested for Stand Up To Cancer (SU2C) Convergence Grants

**Goal:** develop data- and computation-intensive collaborations that will advance understanding of the human immune system and cancer immunotherapy. Collaborations are available and can be arranged with Microsoft Research researchers and other computer science researchers.

**Possible topics to consider:**

(a) How can we predict responders and non-responders to checkpoint or CAR therapies? Can we predict patients that will develop side effects to these therapies?
(b) How can we relate the peptide sequences of antigens to the nucleic acid sequences of B and T-cell receptor variable regions? Can we predict peptide antigens from T-cell receptor sequences?
(c) How do we determine the health of the immune system? How do we quantify the effects of an aging immune system or exhausted immune system?
(d) Can we determine with some confidence the neo-antigens expressed by tumors that are being recognized by the immune system in an HLA dependent fashion?
(e) How does the microbiome impact immunotherapy? How does it communicate with the immune system and the nervous system?
(f) Please feel free to propose additional ideas for projects.

**Applications:** A letter of intent, listing all members of a team, with a two to three page description of a project. Collaborative groups of researchers from diverse institutions are preferred. Curriculum vitae and a recent (five year) publication list as well as current funding should be included. Optimally, projects should have a basic science or translational component and propose a small clinical trial to test ideas or early proof of concept. Existing data sets of clinical measurements from immunotherapy trials will be very useful to proposed hypotheses and test ideas, design new algorithms and test them by experiments. Adding components and assays to clinical trials already in progress or planning is acceptable, and this program could augment the clinical trial funding to cover the additions. Projects should be for three to four years. While a budget is not necessary at this time, the scale of a project should not exceed 2.5 million dollars total. Please submit your applications to www.su2c.org/ConvergenceApplications by June 30, 2017.

**Notification.** The committee to choose teams and projects will rate the applications, estimate budgets, and each applicant will be notified by Sept/Oct 2017, for a projected start date of January 2018. All regulatory requirements will have to be in place before funding begins. In the fall of 2017, SU2C will hold a meeting of researchers funded for this set of projects. Prior to that meeting, we will explore possible collaborations with computer science researchers involving machine learning, and other advanced statistical methods for analysis of large complex data sets.