

## MCC Team Science Padres Pedal the Cause Fall 2020

### UCSD-UCSF Specialized Program of Research Excellence (SPORE) in Head and Neck Cancer



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#### **Scientific Abstract:**

Our Team Science Award will support the development and submission (2021) of an application from UCSD and UCSF for a Specialized Program of Research Excellence (SPORE) in Head and Neck Cancer (HNC), with the overall goal of improving the treatment of head and neck cancer through translating exceptional science from the laboratory to the clinic and back. The HNC SPORE will use an interdisciplinary approach to meet its objectives by carrying out projects jointly led by investigators in basic, applied, and clinical science. The HNC SPORE will be led by two co-principal investigators who are internationally recognized leaders in translational science in head and neck squamous cell carcinoma (HNSCC). The three main projects include: 1) co-targeting HNSCC and immune cell signaling networks for precision immunotherapy; 2) enhancing the response to PD-1 inhibition in HNSCC by suppressing the transcription factor STAT3; and 3) investigating the use of engineered interleukin 7 to reverse lymphopenia to enhance immunotherapy in HNSCC. The Administrative Core will solicit feedback from the Internal and External Scientific Advisory Boards and provide scientific, regulatory and fiscal oversight, and shared biostatistics and computational biology expertise. The Biorepository/Tissue Technology and Immunophenotyping Core will provide centralized tissue and biospecimen collection and analysis. The two cores will interact closely to assist the main research projects, developmental research projects, and career enhancement program in carrying out translational HNC research. HNC SPORE investigators will interact closely from other SPORE-supported institutions and cooperative groups to improve the outcomes for head and neck cancer patients.

#### **Lay Abstract:**

Cancer immunotherapies have led to major treatment breakthroughs for a number of different cancers, but the majority of head and neck cancer patients do not respond to immunotherapies, and clinical responses are often not durable. Generally, this is explained by an insufficient reversal of immune-suppressive mechanisms and, concurrently, an inadequate augmentation of existing anticancer immunity. Collectively, our multi-institutional group of internationally recognized investigators in the field of translation head and neck cancer immune- oncology research has undertaken several interdisciplinary approaches to address this outstanding problem and improve the outcomes for head and neck cancer patients. Specifically, we have demonstrated that responses to immunotherapies are augmented by simultaneously co-targeting cancer cell vulnerabilities and immune effector cells and by reversing the immune-suppressive landscape imposed by established cancers both locally within the tumor and systemically within the patient. With this team award, we propose the following principal projects in head and neck cancer: 1)

co-targeting cancer and immune cell signaling networks for precision immunotherapy; 2) enhancing the response to immunotherapies by suppressing the transcription factor STAT3; and 3) investigating the use of engineered interleukin 7 to reverse lymphopenia to enhance immunotherapy. Our short term goal is that this Team Science Award will support the development and submission (in 2021) of an application from UCSD and UCSF for a Specialized Program of Research Excellence (SPORE) in Head and Neck Cancer with the overall goal of improving the treatment of head and neck cancer through translating exceptional science from the laboratory to the clinic and back.