

**CAMB 701: The Tumor Microenvironment**  
**Directors: Celeste Simon, PhD and Todd Ridky, MD, PhD**  
**TA: Hunter Reavis**

**Syllabus Spring 2022**  
**Tuesdays 3:30-5:30 pm**  
**901 BRB II/III**

Reminder: each week students that are not presenting on a given day will submit two questions they would like to discuss concerning impact/novelty/implications and/or questions about the papers to Celeste, Todd, and Hunter, the day of class.

Class Schedule:

- Students present background (30-40 minutes).
- 10-minute break.
- Students present key data in paper (45-50 minutes).
- Feedback from Celeste and Todd to presenters only (10 minutes).

Class 1: (1/18/2022). Organizational meeting; intro to Immunology, Tumor Microenvironment etc. (Hunter)

Class 2: (1/25/22) Crosstalk between the Tumor and Microenvironment (Celeste)  
**Reinfeld et al. "Cell-programmed nutrient partitioning in the tumour microenvironment", *Nature* (2021)**

Class 3: (2/1/22) Immune Surveillance (Hunter)  
**Li et al. "The allergy mediator histamine confers resistance to immunotherapy in cancer patients via activation of the macrophage histamine receptor H1," *Cancer Cell* (2021).**

**Herrera et al. "Low dose radiotherapy reverses tumor immune desertification and resistance to immunotherapy," *Cancer Discovery* (2021).**

Class 4: (2/8/22) Cancer Heterogeneity, Plasticity, and Tumor Evolution (Celeste)  
**Concepcion et al. "SMARCA4 inactivation promotes lineage-specific transformation and early metastatic features in the lung" *Cancer Discovery* (2021)**

Class 5: (2/15/22) Metastatic Niche (Hunter)  
**Mukherjee et al. "Adipocyte-induced FABP4 expression in ovarian cancer cells promotes metastasis and mediates carboplatin resistance," *Cancer Research* (2020).**

**Hoshino et al. "Tumor exosome integrins determine organotropic metastasis," *Nature* (2015).**

Class 6: (2/22/22) Inflammation and Tumor Progression (Celeste)  
**Liudahl et al. "Leukocyte Heterogeneity in Pancreatic Ductal Adenocarcinoma: Phenotypic and Spatial Features Associated with Clinical Outcome" *Cancer Discovery* (2021)**

Class 7: (3/1/22) Mock Study Section (Celeste)

Spring Break: March 7-11, 2022

Class 8: (3/15/22) Systemic Factors and Tumor Progression (Hunter, Celeste, Todd)  
**Monje et al. "Roadmap for the Emerging Field of Cancer Neuroscience" *Cell* (2020)**

Class 9: (3/22/22) The Tumor Stroma, Cancer Associated Fibroblasts (Todd)  
Katarkar et al. **“NOTCH1 gene amplification promotes expansion of Cancer Associated Fibroblast populations in human skin”** *Nature Communications* (2020)

Zhang et al. **“Macropinocytosis in Cancer-Associated Fibroblasts Is Dependent on CaMKK2/ARHGEF2 Signaling and Functions to Support Tumor and Stromal Cell Fitness”** *Cancer Discovery* (2021)

Class 10: (3/29/22) Stressful Tumor Microenvironments (Hypoxia and Nutrient Scarcity) (Celeste)  
Lien et al. **“Low glycaemic diets alter lipid metabolism to influence tumour growth”** *Nature* (2021)

Ubellacker et al. **“Lymph protects metastasizing melanoma cells from ferroptosis”** *Nature* (2020)

Class 11: (4/5/22) The Influence of Microbiome on Tumor Growth (Todd)  
Lam et al. **“Microbiota triggers STING-type I IFN-dependent monocyte reprogramming of the tumor microenvironment”** *Cell* (2021)

Geller et al. **“Potential role of intratumoral bacteria in mediating tumor resistance to the chemotherapeutic drug gemcitabine”** *Science* (2017)

Class 12: (4/12/22) Tumor-Nervous System Interactions (Hunter)  
Kamiya et al. **“Genetic manipulation of autonomic nerve fiber innervation and activity and its effect on breast cancer progression,”** *Nature Neuroscience* (2019).

Venkataramani et al. **“Glutamatergic synaptic input to glioma cells drives brain tumor progression,”** *Nature* (2019).

Class 13: (4/19/22) Tumor Angiogenesis, Lymphangiogenesis (Todd)  
Garcia Silva et al. **“Melanoma-derived small extracellular vesicles induce lymphangiogenesis and metastasis through an NGFR-dependent mechanism”** *Nature Cancer* (2021)

Stella Stasso **“Lymphangiogenesis-inducing vaccines elicit potent and long-lasting T cell immunity against melanomas”** *Science Advances* (2021)

Class 14: (4/26/22) Sex as a Biological Variable in Tumor Progression (Todd)  
Ma et al. **“Sustained androgen receptor signaling is a determinant of melanoma cell growth potential and tumorigenesis”** *J. Exp. Med* (2020)

Aguirre-Portoles et al. **“ZIP9 is a druggable determinant of Sex Differences in Melanoma”** *Cancer Research* (2021)

Class 15: (5/3/22) Tumor Dormancy (Hunter)  
Albregues et al. **“Neutrophil extracellular traps produced during inflammation awaken dormant cancer cells in mice,”** *Science* (2018).

Lawson et al. **“Osteoclasts control reactivation of dormant myeloma cells by remodeling the endosteal niche,”** *Nature Communications* (2015).

Mock Study Section: each student submits a one page Specific Aims on an assigned paper from class. Each student will be assigned as the primary reviewer of someone else's aims page to present that day.