

## **CAMB 7010: The Tumor Microenvironment**

**Directors:** Celeste Simon, PhD, Todd Ridky, MD, PhD, Ronny Drapkin, MD, PhD

**Thursdays 3:30-5:30 pm**  
**1201 BRB II/III**

### **Syllabus Spring 2024**

Class Format:

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

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

(1/18/24) Class 1: Organizational Meeting

(1/25/24) Class 2: Immune Surveillance (Todd)

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

(2/1/24) Class 3: Metastatic Niche (Ronny)

Mukherjee et al. "**Adipocyte-induced FABP4 expression in ovarian cancer cells promotes metastasis and mediates carboplatin resistance**", *Cancer Research* (2020).

(2/8/24) Class 4: Crosstalk between the Tumor and Microenvironment (Celeste)

Banh et al. "**Neurons release serine to support mRNA translation in pancreatic cancer**", *Cell* (2020)

(2/15/24) Class 5: 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)

(2/22/24) Class 6: Inflammation and Tumor Progression (Ronny)

Liudahl et al. **“Leukocyte Heterogeneity in Pancreatic Ductal Adenocarcinoma: Phenotypic and Spatial Features Associated with Clinical Outcome”**, *Cancer Discovery* (2021)

Cappellesso et al. **“Targeting the bicarbonate transporter SLC4A4 overcomes immunosuppression and immunotherapy resistance in pancreatic cancer”**, *Nature Cancer* (2022)

(2/29/24) Class 7: Systemic Factors and Tumor Progression (Celeste)

Argiles et al. **“Cancer-associated cachexia — understanding the tumour macroenvironment and microenvironment to improve management”**, *Nature Review Clinical Oncology* (2023)

Queiroz et al. **“Blocking ActRIIB signaling and restoring appetite reverses cachexia and improves survival in mice with lung cancer”**, *Nature Communications* (2022)

Spring Break: March 4-8, 2024

(3/14/24) Class 8: The Tumor Stroma, Cancer Associated Fibroblasts (Todd)

**“Antiandrogen treatment induces stromal cell reprogramming to promote castration resistance in prostate cancer”**, *Cancer Cell* (2023)

(3/21/24) Class 9: 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)

(3/28/24) Class 10: Tumor-Nervous System Interactions (Ronny)

Kamiya et al. **“Genetic manipulation of autonomic nerve fiber innervation and activity and its effect on breast cancer progression”**, *Nature Neuroscience* (2019).

Balood et al. **“Nociceptor neurons affect cancer immunosurveillance”**, *Nature* 2022

(4/4/24) Class 11: The Influence of Microbiome on Tumor Growth (Todd)

**“Targeting PD-L2-RGMB overcomes microbiome-related immunotherapy resistance”**, *Nature* (2023)

(4/11/24) Class 12: Tumor Metabolism (Celeste)

Xiao et al. **“Emerging therapies in cancer metabolism”**, *Cell Metabolism* (2023)

Tang et al. **“Immunogenic coevolution defines unique microenvironmental niches in ccRCC”**, *Cell Metabolism* (2023)

(4/18/24) Class 13: Tumor Dormancy (Ronny)

Albregues et al. **“Neutrophil extracellular traps produced during inflammation awaken dormant cancer cells in mice”**, *Science* (2018).

Correia et al. **“Hepatic stellate cells suppress NK cell-sustained breast cancer dormancy”**, *Nature* (2021)

(4/25/24) Class 14: Sex as a Biological Variable in Tumor Progression (Todd)

Vellano et al. **“Androgen receptor blockade promotes response to BRAF/MEK-targeted therapy”**, *Nature* (2022)

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

(5/2/24) Class 15: Cancer Heterogeneity, Plasticity, and Tumor Evolution (Celeste)

Dentro et al. **“Characterizing genetic intra-tumor heterogeneity across 2,658 human cancer genomes”**, *Cell* (2021)

Concepcion et al. **“SMARCA4 inactivation promotes lineage-specific transformation and early metastatic features in the lung,”** *Cancer Discovery* (2021)

**Course Grade:** 40% assigned presentations, 40% overall class participation (and weekly questions), and 20% News and Views Article

<b>Date</b>	<b>Background Presenter</b>	<b>Paper Presenter</b>
1/25/24	Erik Williams	Morgan Kuczler
2/1/24	Taku Harada	Jayne McDevitt
2/8/24	Diana Cruz	Joe Tandurella
2/15/24	Daniel Boehmler	Shira Rosengerg
2/22/24	Kayla Rose	Sarah Acolatse
2/29/24	Nivitha Murali	Alexandra Neeser
3/7/24	NO CLASS	NO CLASS
3/14/24	Andrea Valdespino	Anna Thickens
3/21/24	Joe Tandurella	Erik Williams
3/28/24	Morgan Kuczler	Taku Harada
4/4/24	Alexandra Neeser	Diana Cruz
4/11/24	Shira Rosenberg	Nivitha Murali
4/18/24	Jayne McDevitt	Daniel Boehmler
4/25/24	Anna Thickens	Kayla Rose
5/2/24	Sarah Acolatse	Andrea Valdespino