CB7410/IM7410 Cancer Immunology and Immunotherapy

3 credits, Winter 2023
Prerequisite: IM7010 Fundamentals of Immunology or equivalent basic immunology course
Time: Lecture Monday 10-11:15AM; Journal discussion Wednesday 10-11:15AM
Location: Hudson Webber 6th floor conference room

Lecture	Journal Discussion	Topic	Instructor
No class	**No class**		NA
9/4/2023 No class	**9/6/2023 **Lecture only**	Adaptive immunity - T cells and antibodies	Eric Sebzda, PhD
9/11/2023	**9/13/2023 **Lecture only**	Innate immunity 9/11 Preclinical tools for cancer immunotherapy 9/13	Heather Gibson, PhD
9/18/2023	**9/20/2023 Alexander Ullrich**	Inflammation and the tumor microenvironment	HyeonJoo Cheon, PhD
9/25/2023	**9/27/2023 Mark Gregory**	Tumor immune evasion and suppression 1. Passive immune evasion, immune checkpoints, regulatory T and B cells	Eric Sebzda, PhD
10/2/2023	**10/4/2023 Alexander Ullrich**	Tumor immune evasion and suppression 2. MDSCs, mast cells, eosinophils, secretory vesicles, regulatory RNAs, angiogenesis	Li Zhou, PhD
10/9/2023	**10/11/2023 Mark Gregory**	Biologics-based therapeutics 1. Immune checkpoint inhibitors, cytokines, epigenetic immune modifiers	Amy Weise, DO
10/16/2023 No class	**10/18/2023 No journal**	Final project discussion 1	Heather Gibson, PhD
10/23/2023	**10/25/2023 Alexander Ullrich**	The microbiota and cancer immunity/immunotherapy - Mucosal immunity, bacteria, viruses, and protozoa	Kang Chen, PhD
10/30/2023	**11/1/2023 Mark Gregory**	Biologics-based therapeutics 2. Bi-specific antibodies and engineered T cells	Abhinav Deol, MD
11/6/2023	**11/8/2023 Alexander Ullrich**	Biologics-based therapeutics 3. Vaccines and oncolytic viruses	Heather Gibson, PhD
11/13/2023	**11/15/2023 Mark Gregory**	Biomaterial-based immune modulation	Haipeng Liu, PhD
11/20/2023	**11/22/2023 No class**	Final project discussion 2	Heather Gibson, PhD
11/27/2023	**11/29/2023 Alexander Ullrich**	In vivo immune monitoring technologies	Jessica Back, PhD
12/4/2023	**12/6/2023 Mark Gregory**	Emerging trends and challenges - Combination therapy and synergy, big data, and artificial intelligence in immunotherapy	Hirva Mamdani, MD
12/11/2023 No class	**12/15/2023 Mock Study Section**	Final project "study section"	Mike Wilson, Jessica Back, HyeonJoo Cheon, Heather Gibson

Assessment:

Class attendance (10%)
Weekly written summary of journal club article (30%)
Journal club presentation and class discussion (30%)
Final project (30%)

Contacts:

Course director: Heather Gibson - gibsonh@karmanos.org

Learning outcomes:

The purpose of this course is to introduce students to fundamental concepts and methodologies in cancer immunology and immunotherapy, and cutting-edged developments in the academia and industry in this rapidly progressing field. Upon the completion of the course, the students will become familiar with principles of:

1) How the immune system identifies and eradicates cancer
2) How cancer cells evade immune recognition
3) How cancer immunity is influenced by host genetics and environmental factors
4) How cancer immunotherapies are currently performed and monitored in the clinical settings
5) What are the future developments expected in cancer immunotherapy
6) How to critically review the basic and clinical literature in cancer immunology and immunotherapy