

## **Immunology 5060 Fall 2023**

**Time 1.00-3.00. BRB 252.** The room is booked from 12 and can provide a place for you to sit between classes.

**Monday, Wednesday and Friday. Lectures are approx. 90 mins.**

**Course Directors:** Laurence Eisenlohr and Kellie Ann Jurado

**Teaching Assistants:** Joy Chiu and Jason Shoush

**Background** Welcome to your Immunology Core! This course has been a foundation for our graduate students for more than 50 years. The faculty volunteer their time to introduce students to the advanced concepts of immunology. The information provided is not meant to be exhaustive, but rather to provide background to key themes in immunology that may inform how you think about and approach your own research. This is an opportunity to survey the broad field of immunology and identify the areas you are most excited by.

### **Format and Expectations**

The format is a 90-minute lecture, followed by 30 minutes of TA office hour.

One of the major challenges of the course is that the material will be delivered in many different styles and as researchers you will have to learn how to extract and integrate the most useful information from different scientists and related fields. These are skill sets that will be critical as you transition through your career. *The stated goal is that you obtain the foundation in immunology that will allow you to integrate new concepts and learn how to independently find the relevant people and material that will help you understand a scientific topic.*

Our expectation is that participation will be an element of the class. The class size has been restricted to IGG students to facilitate a small group feel. We encourage you to engage with the lecturer throughout and after the course about the material covered. Further, the TA office hour after each class will be an opportunity to ask questions and gain additional clarification. This is an opportunity for you to start to develop the communication skills and ability to think critically about research that you will need for the rest of your career in science.

**Absence:** The current intent is that the course will be in-person. For students that are unable to attend class we ask that you inform us of absence – but there is no need to provide a reason (though it is appreciated). For extended absences, it would be helpful to inform the organizers and/or the graduate group chair. Typically, at this point in your graduate career the class should take precedent over time in the laboratory. A PI that prioritizes your time in lab over class – well, that's a red flag – and if needed we are happy to help navigate that.

**Exams:** Exam will be a take home format with the opportunity to select questions from different lecturers. Dates will be formalized once your other exam schedule is fixed to minimize deadlines overlap.

**Canvas site:** A site that will host the faculty power points will be available.

**Reading:** There is no assigned textbook, but there are numerous excellent texts: Kuby, Immunology and Janeway's Immunology are terrific options.

| <b>Date 2023</b> | <b>LECTURE</b>  | <b>Lecturer</b> |
|------------------|---|-----------------|
| 8/30/23          | Introduction  | Cancro          |
| 9/1/23           | Cytokines-Language of the immune system   | Hunter          |
| 9/4/23           |   |                 |
| 9/6/23           | Complement and myeloid cells  | Sullivan        |
| 9/8/23           | Hematopoiesis-Myeloid   | Pear            |
| 9/11/23          | PRR-Viruses and antiviral cell-intrinsic immunity                                       | Cherry          |
| 9/13/23          | Orchestration of antiviral immunity-IFNs  | Jurado          |
| 9/15/23          | Macrophage ontogeny and functions.  | Dang (NIH)      |
| 9/18/23          | PRR-Bacterial innate immunity   | Brodsky         |
| 9/20/23          | Inflammasome  | Taabazuing      |
| 9/22/23          | NK cells  | Kambayashi      |
| 9/25/23          | ILC   | Henao-Mejia     |
| 9/27/23          | How to you make a T cell? From hematopoietic stem cells to committed T cell progenitors | Bhandoola       |
| 9/29/23          | Antigen Receptor Gene Assembly  | Bassing         |
| 10/2/23          | Proximal TCR signals  | Jordan          |
| 10/4/23          | MHC-restriction- + and – selection  | Eisenlohr       |
| 10/6/23          | Co-stimulation and distal TCR signals   | Wells           |
| 10/9/23          | CAR-T cells   | Ma              |
| 10/11/23         | Early B cell development  | Allman          |
| 10/13/23         | B cell repertoire selection   | Allman          |
| 10/16/23         | Dendritic Cell Biology and subsets  | Behrens         |
| 10/18/23         | Antigen presentation and costimulation  | Eisenlohr       |
| 10/20/23         | Durability of humoral immunity  | Allman          |
| 10/23/23         | Lymphoid organs organization  | Germain         |
| 10/25/23         | Lymphocyte homeostasis  | Cancro          |
| 10/27/23         | Lymphocyte trafficking  | Alvarez         |
| 10/30/23         | T cell tolerance  | Oliver          |
| 11/1/23          | Tregs   | Jordan          |
| 11/3/23          | T helper subsets  | Hunter          |
| 11/6/23          | CD8 T cell memory   | Wherry          |
| 11/8/23          | T cell regulation of GC   | Vella           |
| 11/10/23         | T cell exhaustion and immunotherapy   | Wherry          |
| 11/13/23         | Immune cell metabolism  | Bailis          |
| 11/15/23         | IGG Retreat   |                 |
| 11/17/23         | IGG Retreat   |                 |
| 11/20/23         | Immunity to cancer  | Huang           |
| 11/22/23         | THANKSGIVING  |                 |
| 11/24/23         | THANKSGIVING  |                 |

|          |                                 |             |
|----------|---------------------------------|-------------|
| 11/27/23 | Vaccines                        | Escalano    |
| 11/29/23 | Inborn errors of immunity       | Romberg     |
| 12/1/23  | Type 2 Inflammation and Allergy | Hill        |
| 12/4/23  | mRNA vaccines and applications  | Weissman    |
| 12/6/23  | Mucosal Immunology              | Silverman   |
| 12/8/23  | Immunity and Host Physiology    | Henao-Mejia |
| 12/11/23 | NIH/Reading Period              |             |
| 12/13/23 | NIH/Reading Period              |             |
| 12/14/23 | <b>FINAL</b>                    |             |