

IMMUNOLOGY AND HISTOCOMPATIBILITY ROTATION

Faculty and Staff:

- Steven Goldstein, MD
- Mai Ta, MT

1. **Rotation description and goals:** This four-week rotation is designed for the resident to understand the principles and clinical application of laboratory tests performed for immunology and transplantation. The resident is assigned reading material (books, reviews or research papers) to cover aspects of basic and clinical laboratory immunology. The residents and laboratory director meet to discuss the content of the material assigned as often as is necessary. For each objective listed below, the resident will be given a worksheet with more detailed topics or questions to guide their reading.

As time allows, residents will also review clinical cases. As appropriate to the individual case or consultation, ethical, socioeconomic, medicolegal and cost-containment issues are reviewed and discussed. By use of the literature, PubMed and textbooks, the resident is trained to become a lifelong learner. Residents are also expected to attend related clinical conferences when they occur during the rotation (e.g., M&M for a transplant patient). An additional four-week elective rotation is available for more detailed discussion of clinical histocompatibility topics and cases.

2. **Laboratory work:** The resident is expected to perform an HLA typing and become familiar with lymphocyte isolation, T- and B-cell isolation, and complement dependent cytotoxicity. Other laboratory procedures in transplantation include alloantibody detection; flow cytometry crossmatch; detection of anti-HLA antibodies by solid phase assays; and DNA sequencing for bone marrow transplant patients.
3. **Resident supervision:** Residents are supervised by the rotation director. They may also be supervised by the laboratory supervisor or medical technologists while in the transplant laboratory.
4. **Resident evaluation:** The evaluation at the end of the rotation has three components. The first is a combined written/oral examination of the basic, clinical and laboratory aspects of immunology studied during the rotation. The second is an assessment of the resident performance in the form of brief comments, typically immediately following the examination. The third is an evaluation of the competencies required for residency training ([New Innovations](#)). A list of objectives/topics (below) is given to residents, and discussed, the first day they report to the rotation. Additional expectations including laboratory participation and the final exam are also discussed at this time.

Immunology and Histocompatibility Objectives/Syllabus

Resident name: _____ Dates of rotation: _____

Faculty: **Steven Goldstein, M.D.**

Basic Immunology & Technical Objectives

1. Innate Immunity
2. Complement
3. MHC structure, function and genetics
4. Molecular HLA typing
5. Immunoglobulin structure and function
6. HLA antibody testing – FlowPRA, Luminex, single antigen
Crossmatch – Flow cytometry and complement dependent cytotoxicity (CDC)
Serologic HLA typing
7. T-cell receptor and Antigen Presenting Cells
8. TH1 TH2 and Co-stimulatory and Adhesion Molecules
9. B-cells
10. IMMUNOLOGY DIAGRAMS
11. Thymus & Direct and Indirect Alloimmunization

Clinical Objectives

12. HLA matching in solid organ transplant
13. Sensitization (anti-HLA antibodies) in organ transplant
14. Causes of sensitization
15. Hematopoietic stem cell transplantation
16. SCID and HLA Disease Associations

EXAM