
HMX Short Course

Immune Tolerance

One of the fundamental properties of our immune system is its ability to respond to pathogens while sparing our own cells, tissues, and any molecules that do not pose danger to us. Defects in the mechanisms that impart immune tolerance to harmless antigens can result in autoimmunity, chronic inflammatory diseases, or allergies. Understanding these mechanisms is essential for anyone working to develop or apply new therapies that induce immune tolerance to treat these conditions in the clinic.

This course offers a unique way for professionals to learn from leading Harvard Medical School faculty about immune tolerance and how it can be harnessed to treat various conditions.

Participants will:

- Understand the process that leads to the generation of auto-reactive lymphocytes
- Learn the mechanisms that promote immune tolerance to self- or otherwise innocuous antigens
- See examples of therapeutic interventions that can induce tolerance to treat autoimmune diseases and allergies, or to prevent transplant rejection

Topics Covered

Immune Tolerance

- Overview of the Importance of Immunological Tolerance
- Generation of Lymphocyte Diversity
- T Cell Development and Central Tolerance in the Thymus
- Regulatory T Cells
- Peripheral T Cell Tolerance
- B Cell Development and Tolerance
- Inducing Tolerance
- Broken and Breaking Tolerance
- Clinical Linkage: CTLA-4 Haploinsufficiency
- Current and Novel Approaches that Induce Immune Tolerance

HMX Short Courses feature targeted lessons on the latest medical science information and advancements to keep learners up to date.