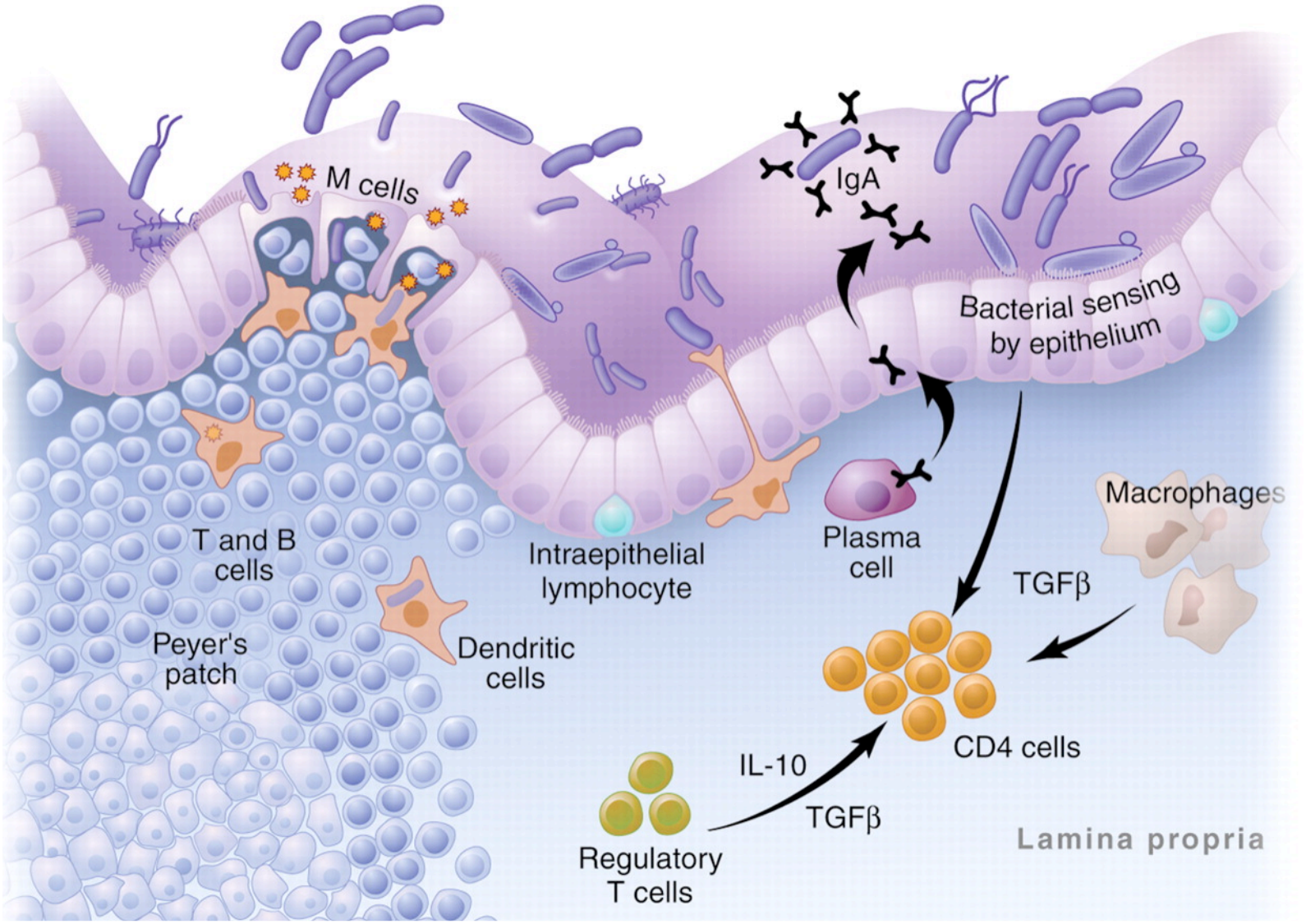
Lecture 14. Mucosal Immunity

Learning Objectives and Summary



14. Mucosal immunity

Learning objectives:

1. Appreciate the unique challenges faced by the mucosal immune system
2. Be able to describe how different cells specialize in order to confront the challenges faced by the mucosal system
3. Be able to explain how the mucosal immune system is organized
4. Understand the clinical manifestations of IgA deficiency
5. Understand the basic immune mechanisms that underlie the pathogenesis of IBD and celiac disease
6. Appreciate the potential therapeutic uses of mucosal immunization

SUMMARY

1. The mucosal immune system faces a unique set of challenges. It needs to mount an effective immune response against a vast number of potential pathogens while remaining hyporesponsive to harmless substances.
2. Secretory IgA is the major humoral mediator of mucosal immunity
3. A variety of different T cell subsets participate in mucosal immune responses. IELs are a unique set of CD8+ T cells present in the mucosa that play a key role in the first line of defense against pathogens. Many different regulatory T cell subsets exist in the mucosa that ensure that immune responses are properly regulated.
4. A specialized epithelial cell called the M cell exists in the intestine. The major function of M cells is to sample antigens in the lumen
5. The mucosal immune system is organized into inductive (e.g. Peyer's Patches) and effector sites.
6. IgA deficiency is the most common primary immunodeficiency
7. Deregulated immune responses underlie the pathogenesis of inflammatory bowel disease (Crohn's and ulcerative colitis) and of celiac disease
8. A better understanding of the mucosal immune system is necessary for the development of efficacious vaccines as well as potentially for the treatment of autoimmune diseases.