公開セミナー

開催日時：平成29年9月11日（月）　16：00　～　17：00

開催場所：４号館３階　国際粘膜ワクチン開発研究センターセミナー室

講師：Meirav Pevsner-Fischer

所属・職名：Department of Immunology,Weizmann Institute of Science・Senior Intern

演題：Host-microbiome interactions in health and disease

概要：The gastrointestinal tract harbors one of the highest densities of microorganisms on earth, encompassing more than 1000 bacterial species. The members of this microbial ecosystem, termed the microbiota, outnumber the host cells by a factor of 10-100 and collectively encompass 1000-fold more genes than the host. This assembly of microorganisms and their genomes, termed the microbiome, is separated from the host by only a single layer of epithelial cells. Many of the bacterial inhabitants of the mammalian gut perform functions critical for host physiology, but at the same time pose a threat of translocation into its sterile intestinal milieu with ensuing pathologies. The full scope of these profound microbiota-driven host physiological and pathological processes remains obscure. Tight regulation of the host-microbiota niche is essential for maintaining a mutualistic relationship between the host and its inhabitants. This crucial task is provided by specialized immune and epithelial cell subsets that control the composition and local containment of the gut microbiome, while preserving an ability to elicit a potent inflammatory response against invading pathogens. Deciphering currently unknown molecular cues governing mammalian and microbial communication networks bears critical importance in understanding mucosal homeostasis and initiation of disease.

主たる世話人：植松　智

世話人：清野　宏

公開セミナー

開催日時：平成29年9月11日（月）　17：00　～　18：00

開催場所：４号館３階　国際粘膜ワクチン開発研究センターセミナー室

講師：Andrea Reboldi

所属・職名：　Howard Hughes Medical Institute and Department of Microbiology and Immunology, University of California San Francisco・Assistant Professor

演題：Mechanisms controlling intestinal IgA production.

概要：Secretory immunoglobulin A (IgA) is made by intestinal plasma cells and has roles both in protection from gut pathogens and in maintaining homeostasis of intestinal commensals.

Peyer’s patches (PPs)- the major organized lymphoid tissues of the small intestine, numbering 100 to 200 in humans and 6 to 12 in mice- are the dominant source of IgA-producing cells.

PPs are unique compared to other secondary lymphoid tissues in their continual exposure to an enormous diversity of microbiome- and food-derived antigens and in the types of pathogens they encounter.

Antigens are delivered to PPs by specialized microfold (M) epithelial cells and they may be captured and presented by resident dendritic cells (DCs).

In accord with their state of chronic microbial antigen exposure, PPs exhibit continual germinal center (GC) activity. These GCs not only contribute to the generation of B cells and plasma cells producing somatically mutated gut antigen-specific IgA antibodies but have also been suggested to support non-specific antigen diversification of the B-cell repertoire.

However, the cellular interactions necessary for IgA class switching are poorly defined. Here we show that in mice, activated B cells use the chemokine receptor CCR6 to access the subepithelial dome (SED) of PPs. There, B cells undergo prolonged interactions with SED

dendritic cells (DCs). PP IgA class switching requires innate lymphoid cells, which promote lymphotoxin-b receptor (LTbR)- dependent maintenance of DCs. PP DCs augment IgA production by integrin avb8-mediated activation of transforming growth factor- b (TGFb). In mice where B cells cannot access the SED, IgA responses against oral antigen and gut commensals are impaired. These studies establish the PP SED as a niche supporting DC- B cell interactions needed for TGFb activation and induction of mucosal IgA responses

主たる世話人：植松　智
世話人：清野　宏