Th17 Cells in Allergy and Autoimmunity
Session 4014 Monday Feb. 25, 2013 7-8AM
Third Floor, Conference Room 12 (Marriott Rivercenter)

1. Basics of Th17 cells and discovery
   a. Discovery of Th17 cells through IL-23
   b. Differences in differentiation between mice and men
      i. Mice – require TGF-β and IL-6 for differentiation
      ii. Men – require IL-1β and IL-23 and some TGF-β for differentiation
   c. Biological role of IL-17A – aid in host defense
   d. Ligand:receptor relationships

2. Autoimmune diseases and Th17 cells
   a. Current findings with
      i. Rheumatoid Arthritis
      ii. Multiple Sclerosis
      iii. Inflammatory Bowel Disease
      iv. Psoriasis
   b. Roles of IL-17, IL-23, IL-6 and IL-22 in disease
   c. Treatments and clinical trials currently underway
      i. Neutralization of IL-17
      ii. Clinical trials on IL-12p40, how effective is treatment in different diseases

3. Allergic diseases and Th17 cells
   a. Atopic dermatitis
      i. IL-17A was detected in skin biopsies of patients with acute AD lesions but not chronic AD lesions. Koga et al J Invest Dermatol 2008 128:2625-30
   b. Asthma – do Th17 cells or other IL-17 family members play a role??
      i. IL-17A has been detected in sputum of patients
      ii. IL-17 increases epithelial cell production of IL-6, IL-8, and GM-CSF
      iii. Role of Th17 cells in neutrophilic (or noneosinophilic) asthma and eosinophilic asthma
      iv. Effects that Th2 cytokines have on Th17 development
      v. Clinical trial of anti-IL-17RA February 26, 2013

4. Importance of IL-17 produced from other cell types in autoimmune and allergic diseases
   a. Innate lymphoid cells
   b. Gamma-delta T cells
   c. NK cells
Figure 1: Basic Schematic of Th17 cell differentiation in humans. (1) T cell is activated in the presence of IL-1β, IL-6, and TGF-β. (2) Increases activation and expression of STAT3, IRF4, RORC2. (3) IL-21 protein expression is increased and increases expression of the IL-23R. (4) IL-23 binds to the IL-23R increasing IL-17A transcription. (5) IL-17A is secreted from the T cell.