Mucosal immunity

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Introduction

• IgA accounts for most of Ig produced daily by normal individual
• IgA is mostly present in mucosal surfaces and in secretions
• The mucosa-associated lymphoid tissue (MALT)
Intestinal epithelial cells

• Express MHC I, MHC II and MHC Ib
• Secrete cytokines...-IL-7
  - TGF-beta and IL-10
Intraepithelial lymphocytes

- Limited variability in their receptors
- 2/3s express CD8
- 10% are gamma delta cells
- Most of the alpha beta cells have unusual characteristics (atypical)

Removal of infected cells and initiation of healing

E.g., T cells with TCR alpha beta: CD8 alpha alpha and NK cells with TCR and NKG2D
Intraepithelial lymphocytes, cont’d

• TL...a stress molecule on injured/infected cells...induces secretion of cytokines (not killing) by alpha beta TCR: CD8 alpha alpha and gamma delta: CD8 alpha alpha T cells

• HLA-G (Qa-2)...a stress molecule...induce alpha beta TCR: CD8 alpha alpha T cells to kill infected/injured cell

• MHC Ib (CD1d) presents non-peptide fragments by epithelial cells and other APCs

• NKG2D recognizes stress molecules such as MICA and MICB...IL-4 is secreted ...NK cells also secrete IL-10 and TGF-beta
M cells

- Over Peyer’s patches
- Irregularly shaped
Lamina propria

- Conventional alpha beta T cells (mostly CD4), plasma cells and phagocytes
- Dendritic cells ingest material transported by M cells (or directly from the lumen)
Adhesion and chemotactic molecules

• L-selectin and alpha 4 beta 7 integrin (LPAM-1) on T cells
  ...for MadCam-1 on vascular endothelium within MALT

• CCR9 and CCR10 on T cells...for CCL25 and CCL28 (from intestinal epithelial cells)
Non-inflammatory environment

- Th2-like environment
  - IgA more than IgG
  - IL-4, IL-10 and TGF-beta more than IL-12, IFN-gamma...etc.
Thank You