



SAND2012-8480P



INFLAMMATION



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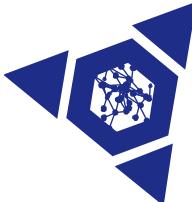




Inflammation

- **Acute inflammation develops within minutes after tissues are damaged**
- **Damaged tissue exposes damage associated molecular patterns**
 - Recognized by dendritic cells and neutrophils
 - **Release cytokines, other inflammatory mediators, and enzymes**
- **Invading microbes express pathogen associated molecular patterns**
 - Recognized by dendritic cells and neutrophils
 - **Release cytokines, other inflammatory mediators, and enzymes**
- **Complex mixture of released molecules attracts leukocytes (neutrophils and lymphocytes) and also increases vascular permeability**
- **Production of leukotrienes and prostaglandins by enzymes results in redness, heat, and pain**





Inflammation: Leukocyte migration

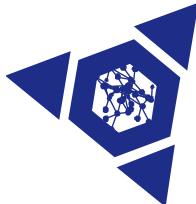
- **Vasodilation**

- Increase blood flow to injured area
- Occurs in response to cytokines (interleukin 1 and tumor necrosis factor and prostaglandins and leukotrienes)
- Increased permeability of vessels
 - **Leakage of fluid into interstitial spaces – edema or swelling**
 - **Leukocyte migration into tissue to result in more inflammation**
 - Degranulation and phagocytosis
 - *Mannheimia haemolytica*
 - **Immune components leave vessel and enter tissue**

- **Pain due to activation of nerves in the tissue by inflammation**

- Prostaglandins
- Leukotrienes
- Enzymes released by neutrophils and mast cells





Inflammation

