

## Test yourself in mast cell (MC) and atopy

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### **Choose only one answer:**

**1. What is true about mast cell location?**

- a) Usually intravascular
- b) Abundant in bone marrow
- c) Increased density in exposed skin
- d) Rare in the GIT
- e) All of the above

**2. Mast cell activation occurs through:**

- a) Direct binding of pathogens or their components by pathogen associated molecular pattern (PAMP) receptors located on the MC surface
- b) Binding of opsonized bacteria or their products by complement receptors or immunoglobulin receptors
- c) Recognition of endogenous peptides produced by infected or injured host cells
- d) All of the above
- e) None of the above

**3. Mark the incorrect answer:**

- a) Allergen sensitization is a primary immune response that involves the binding of specific IgE to MC
- b) Endotoxins can act on MCs via TLRs inducing the secretion of TNF-alpha
- c) Sensitized MCs may amplify the allergic response by acting as antigen presenting cells to further drive allergen specific Th2 proliferation
- d) Preformed MC cytoplasmic granule-associated mediators include heparin, tryptase TNF $\alpha$ , and leukotrienes

**4. Chemokines produced by mast cells include all except**

- a) Eotaxin
- b) RANTES
- c) Prostaglandins
- d) IL-8
- e) MCP-1

**5. In the allergic reaction:**

- a) IL-5 inhibits eosinophil mobilization from the bone marrow
- b) IL4 up-regulates Fc $\epsilon$ R1 and allows eosinophil recruitment
- c) RANTES recruits monocytes-macrophage lineage cells
- d) MPC-1 induces histamine release from basophils

**6. The Th2 cell- mast cell- eosinophil axis means:**

- a) Stem cell factor produced from eosinophils allows MC activation.
- b) MCs regulate stem cell factor release.
- c) Th2 cytokine- stimulated MCs express inflammatory mediators that can activate eosinophils
- d) All of the above

**7. Mark the incorrect statement:**

- a) MCs may contribute to a model of Th17 cell-dependent neutrophils-associated lung inflammation
- b) LTB4 produced on MC activation induces airway inflammation by recruiting effector CD8 and CD4 T cells
- c) Toll-like receptors (TLRs) on MCs play an important role in allergy exacerbation.
- d) Staph. aureus enterotoxin B shifts the cytokine pattern toward Th1 which activates the mast cells

**8. Mast cells may contribute to tissue remodeling as follows:**

- a) Increase mucus-producing goblet cells in the airway epithelium
- b) Increase collagen deposition and bronchial smooth muscle
- c) Produce growth factors and angiogenic factors that induce skin thickening and fibrosis in atopic dermatitis
- d) All of the above
- e) None of the above

**9. Mark the correct answer**

- a) Within the heart, mast cells are located on the pericardium
- b) Activation of cardiac mast cells may prevent cardiopulmonary failure.
- c) Cardiac mast cells release many of the classic mast cell mediators of anaphylaxis except PAF
- d) PAF is thought to be a critical factor in the development of anaphylactic shock through its ability to induce hypotension
- e) Individuals with recurrent anaphylaxis tend to have less dermal mast cells than those without anaphylaxis

**10. Mast cell directed treatment modalities may include all except:**

- a) Corticosteroids
- b) Tryptase enzyme
- c) IL4 and IL13 inhibitors
- d) TNF $\alpha$  blockade
- e) Anti-CD63 monoclonal antibodies

(Answers on page 104)