

Test yourself in mast cell (MC) and atopy

Elham M. Hossny

Professor of Pediatrics, Ain Shams University

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 α , 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 ϵ 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 α blockade
- e) Anti-CD63 monoclonal antibodies

(Answers on page 104)