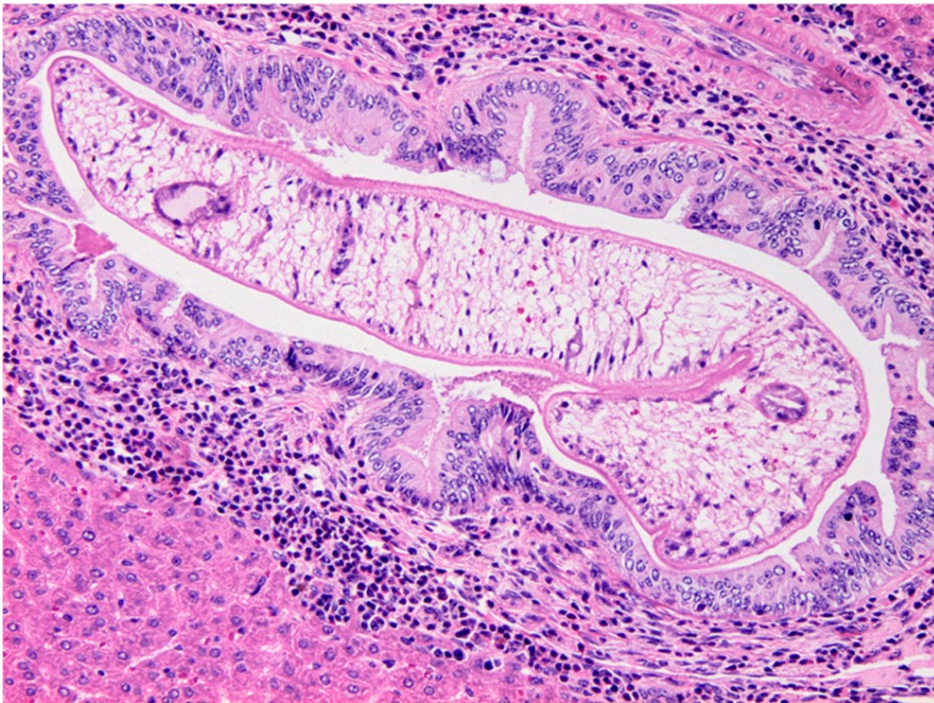
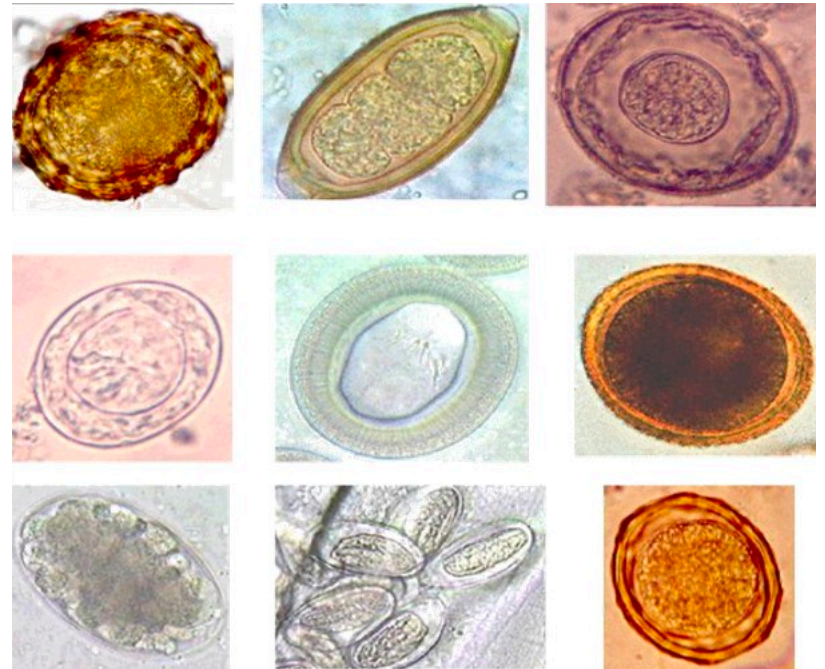


## Th2 responses against helminths



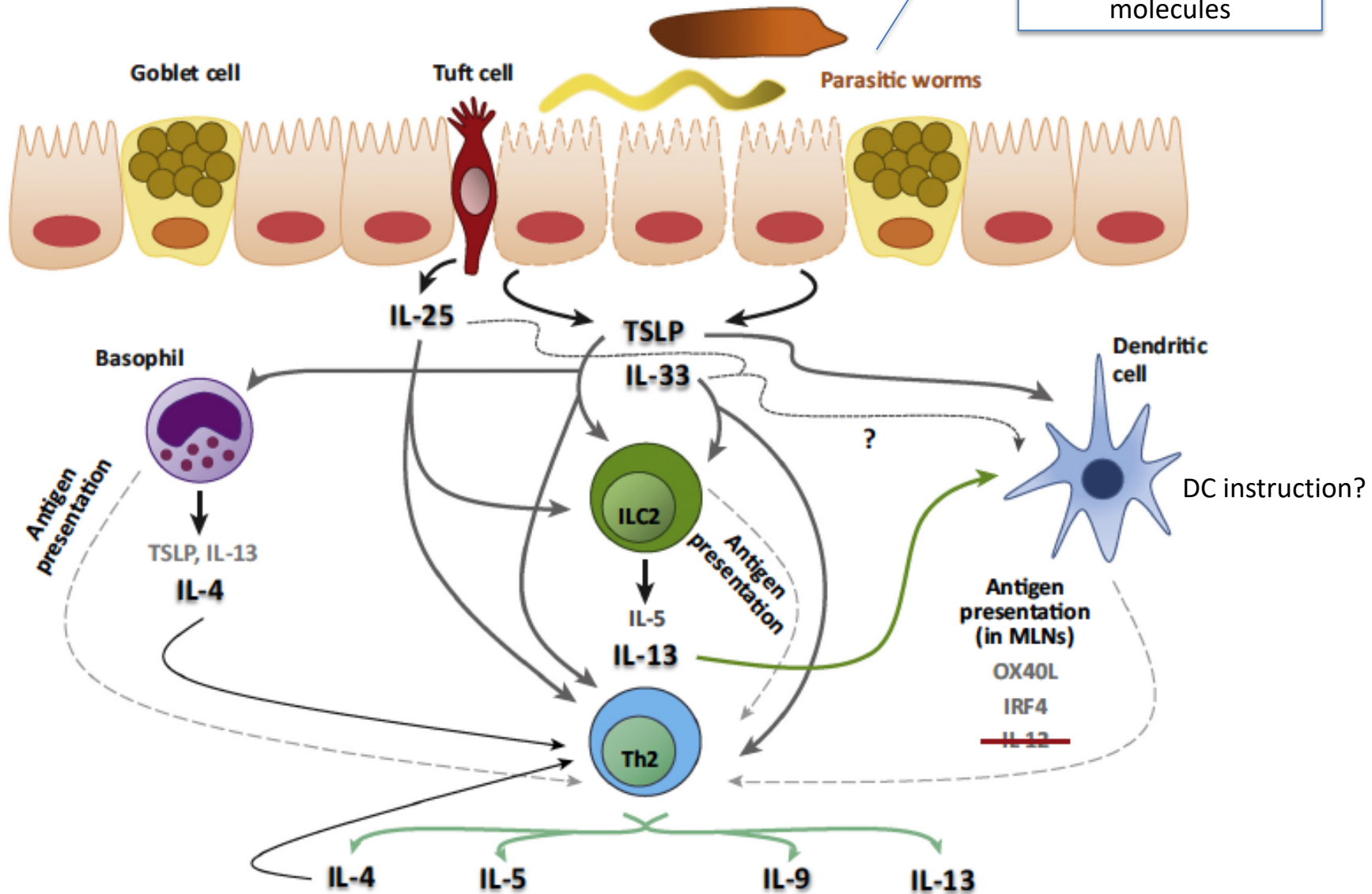
*Opisthorchis viverrini*



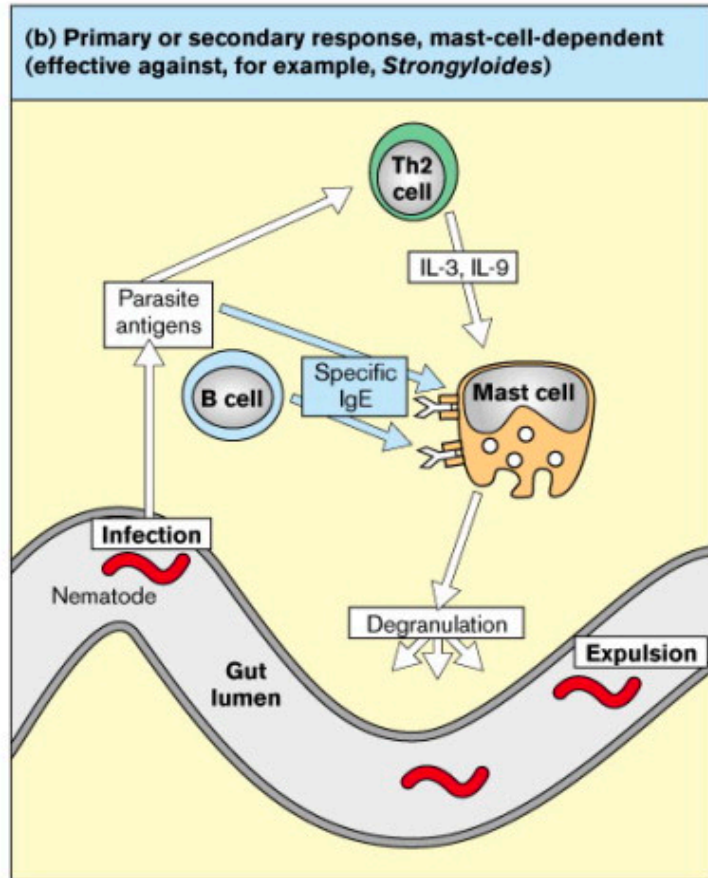
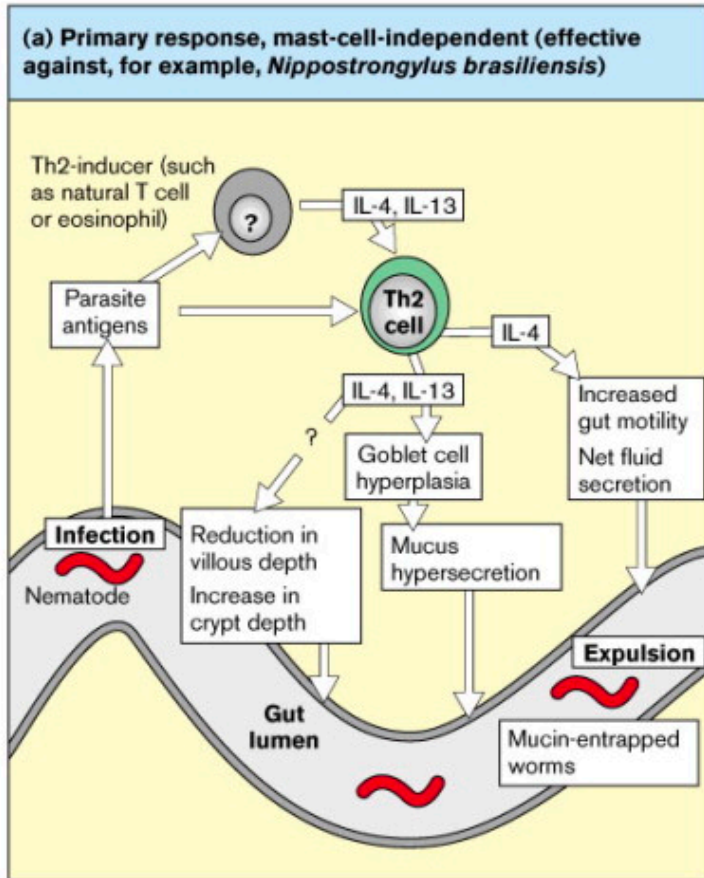
eggs

# Differentiation of Th2

Lipids, glycans,  
glycoproteins,  
enzymes, undefined  
molecules

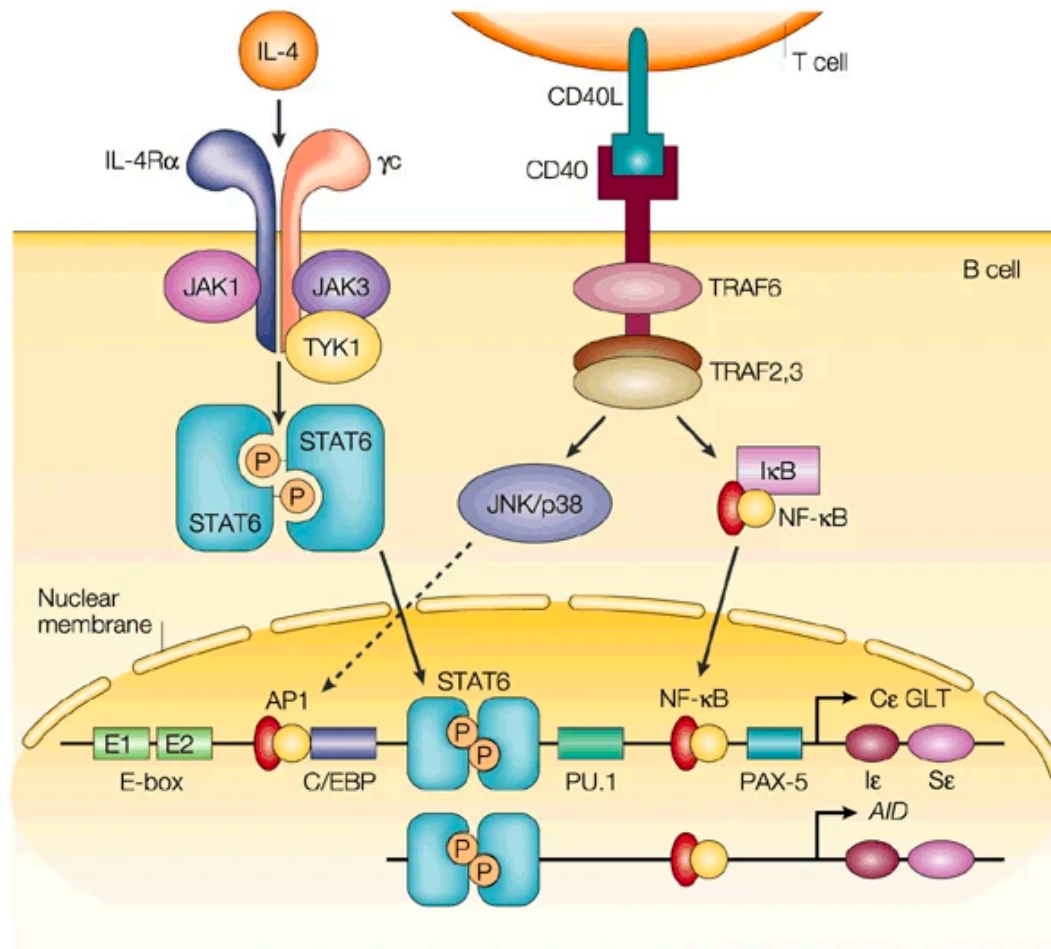


# Differentiation of Th2



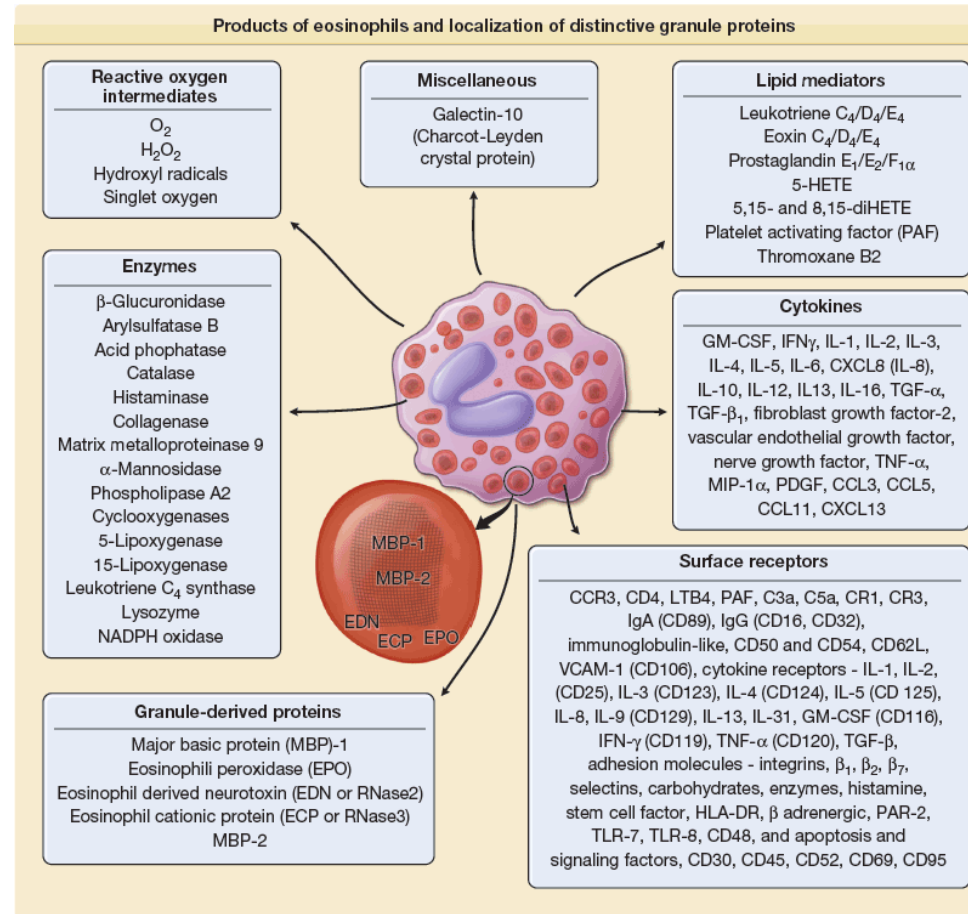
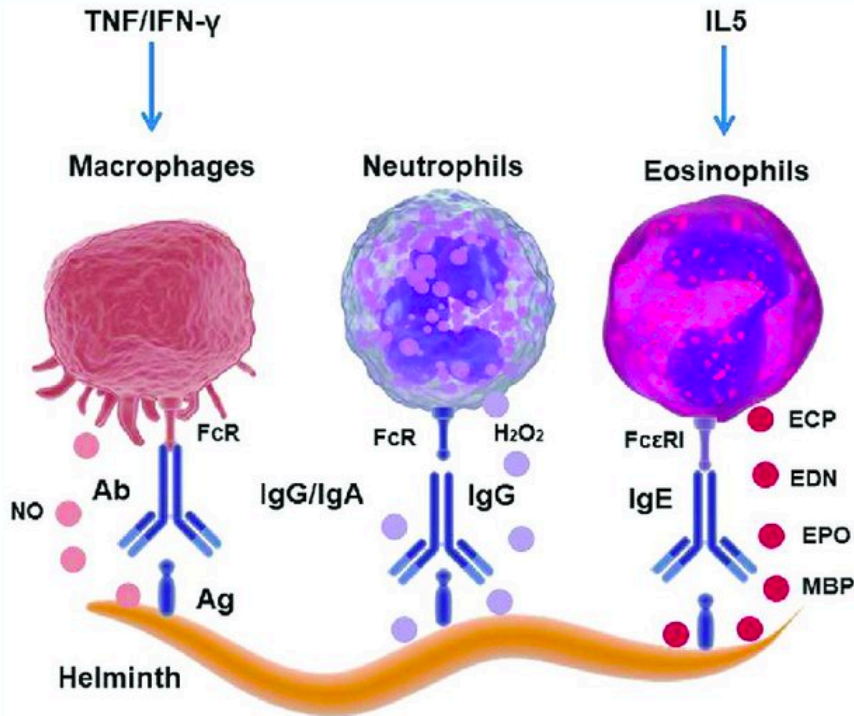


# IgE production



Nature Reviews | Immunology

# Effector mechanisms - granulocytes



Source: Goldsmith LA, Katz SI, Gilchrist BA, Paller AS, Leffell DJ, Wolff K: Fitzpatrick's Dermatology in General Medicine, 8th Edition: www.accessmedicine.com

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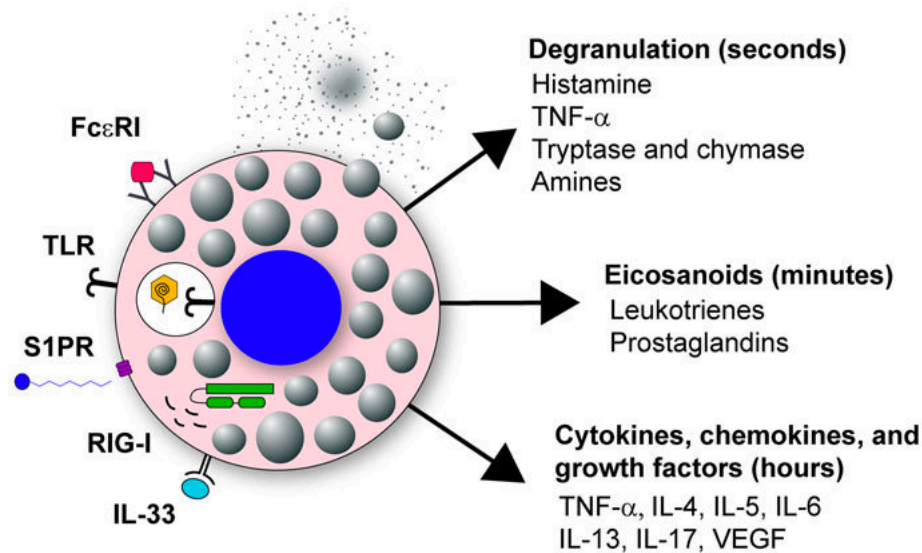
eosinophils

<https://www.instagram.com/p/BeQg8fglkpf/>

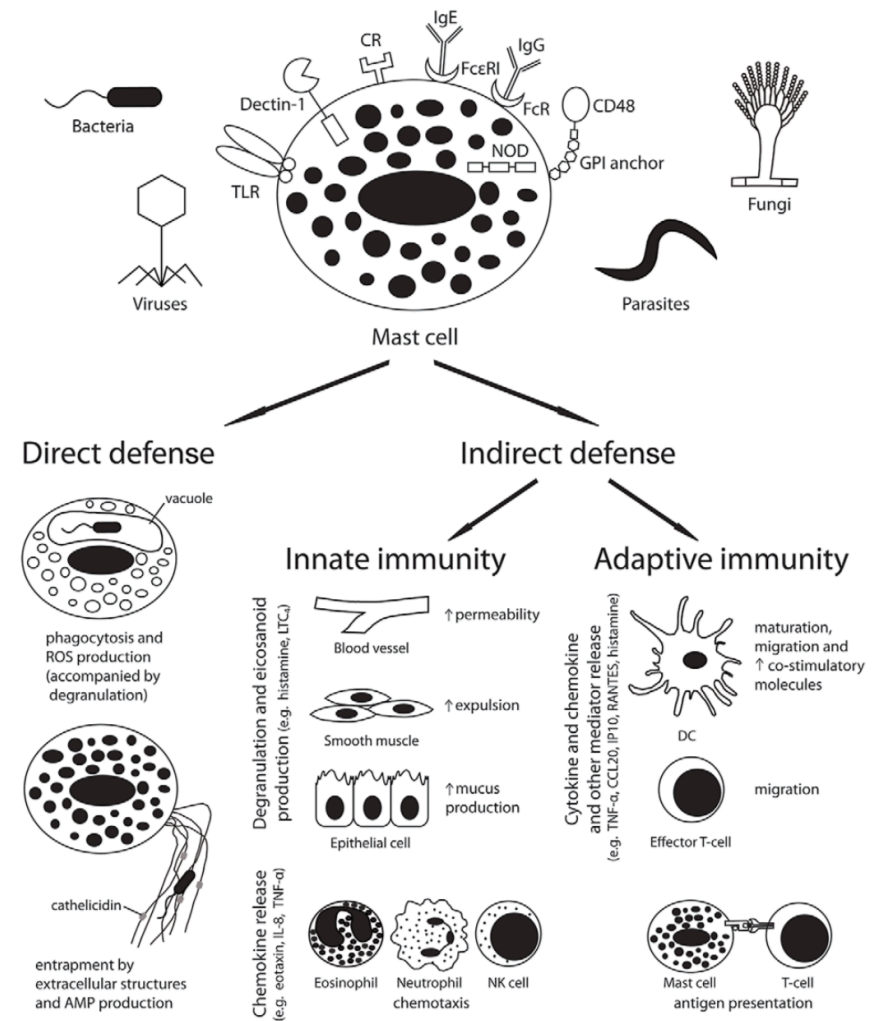
<https://www.youtube.com/watch?v=dDn9hFdn7n8>

Major basic protein – proteolytic maturation, cytotoxic, disrupts lipid bilayers, activates mast cells and basophils, activates neutrophils

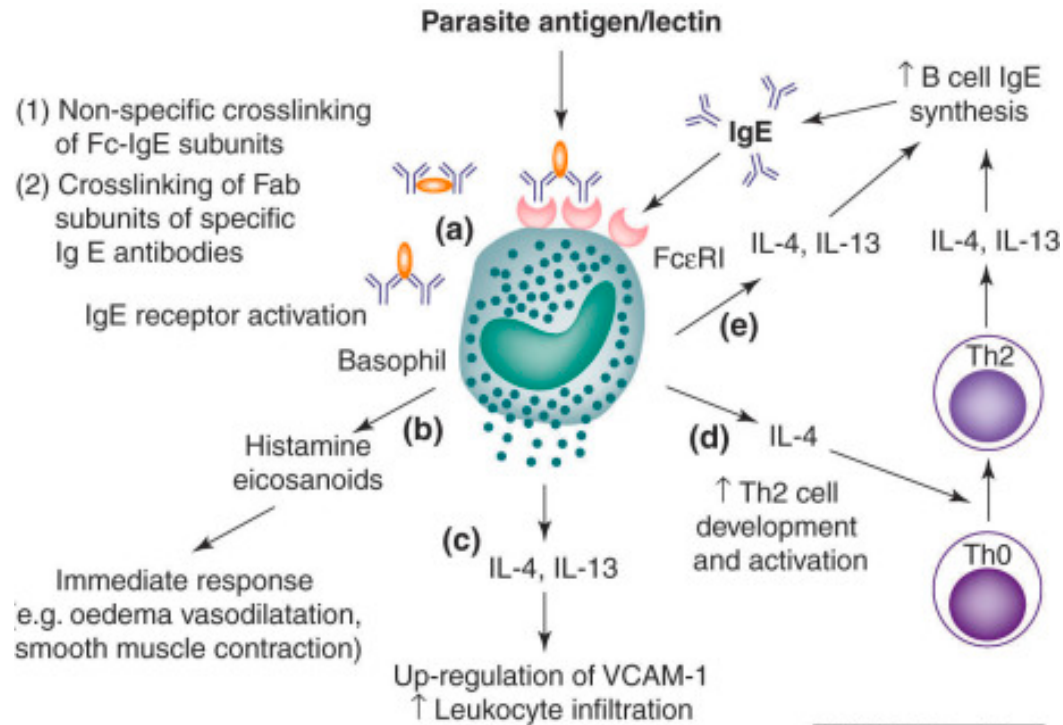
# Mast cells



Mast cell protease 2 → Worm elimination

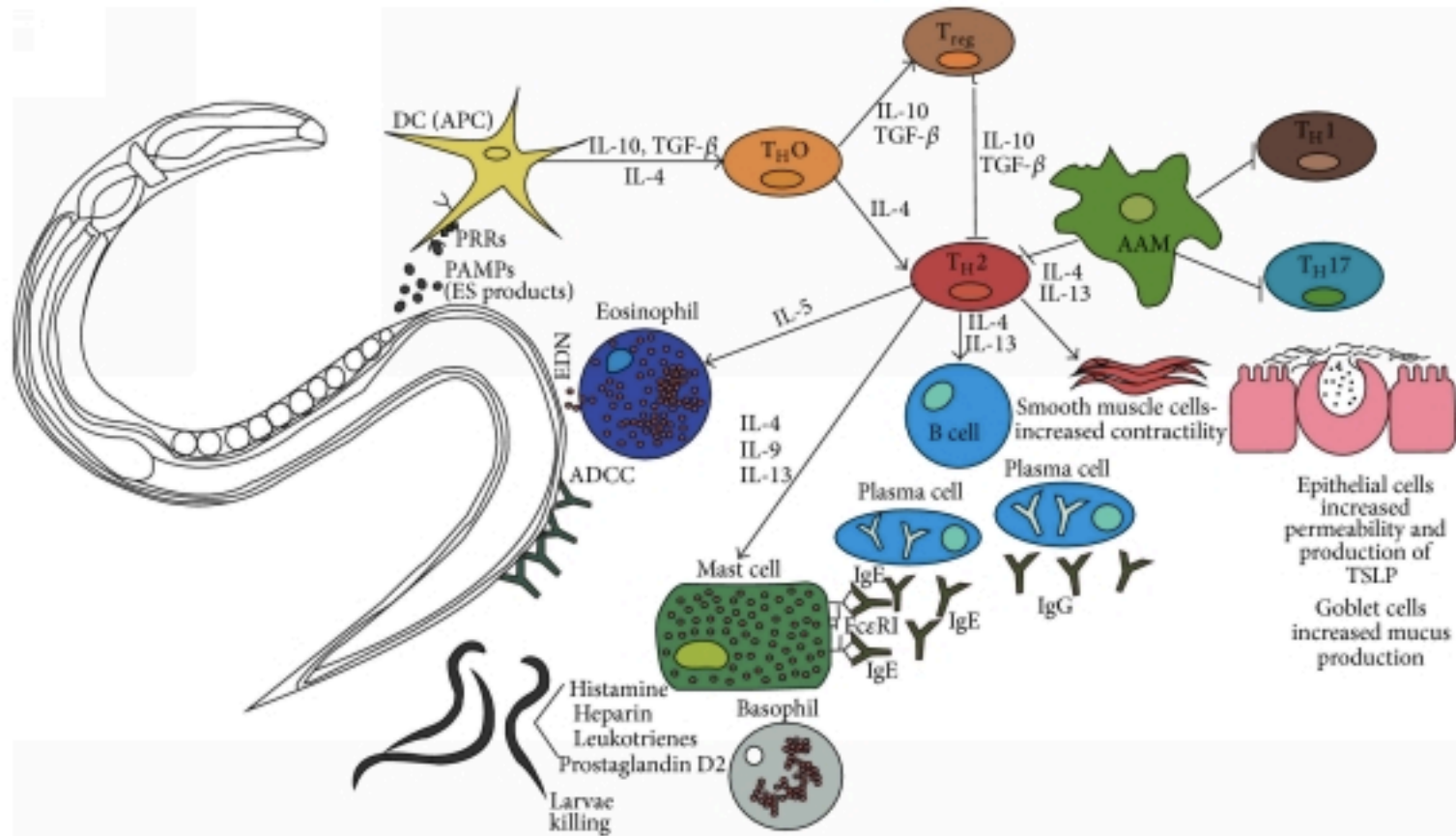


# Basophils





## Effector mechanisms - summary



IL-5 – eosinophil recruitment and activation

IL-13 – mucus production, smooth muscle cells contraction – peristalsis

IgE – recruitment of effector cells to the pathogen surface, cell activation

Granulocytes – degranulation – inflammation, cytotoxicity