

Q7 Outline the non-respiratory functions of the lung (Sept 2013)

NON RESPIRATORY FUNCTIONS OF LUNG:

- **BLOOD FILTER**
 - Pulmonary capillary bed acts as a blood filter to prevent small clots and detached cells from reaching the systemic circulation
- **BLOOD RESERVOIR**
 - High capacitance pulmonary circulation accommodates 16% of total blood volume in the supine position and 9% erect, and can redistribute volume to the vital organs in hypotensive shock
- **METABOLIC FUNCTION**
 - Conversion of ATI to ATII by angiotensin converting enzyme in pulmonary vascular endothelium
 - Metabolism of serotonin (almost complete), noradrenaline (30%), bradykinin (80% inactivated), PGE2/PGF2a and leukotrienes
- **SYNTHETIC FUNCTION**
 - Synthesis of immunoglobulins (IgA), surfactant, prostaglandins, peptides (eg, substance P), heparin by mast cells, collagen and elastin
- **ACID BASE REGULATION**
 - Accomplished by alteration of arterial PCO₂
- **HOST DEFENCE**
 - Secretion of IgA
 - Removal of airborne particles by mucociliary elevator
 - Phagocytosis by alveolar macrophages
- **DRUGS**
 - Takes up fentanyl
 - Delivery route for inhaled agents
- **PHONATION**
- **TEMPERATURE CONTROL**
 - Mainly upper airways