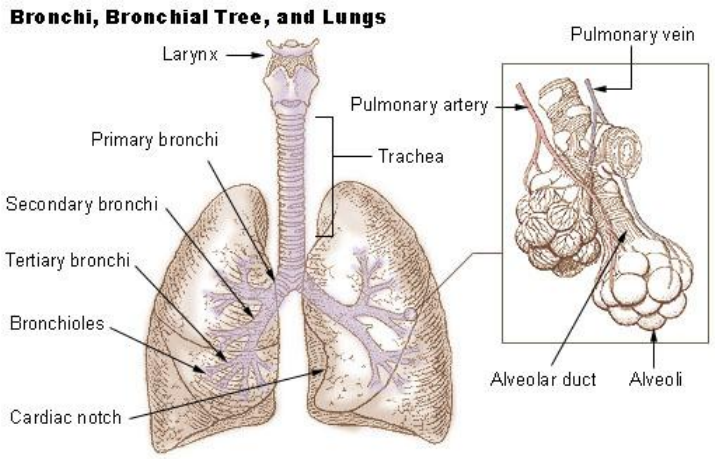
Sputum analysis

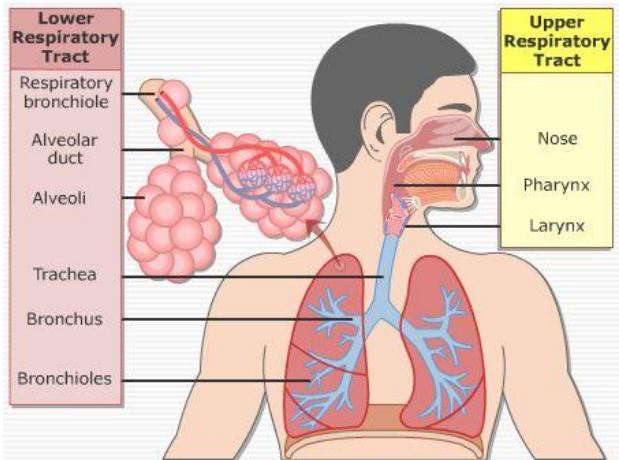
Sputum analysis

- What is sputum? (phlegm)
- Sputum is the secretion produced in lungs and the bronchi. This is mucus like secretion
- Can get infected, contain abnormal cells, blood stained
- Thus can play role in diagnosis of many diseases



Sputum analysis

- Composition
- Secretions of parts of respiratory system like trachea and bronchial are in constant mixture of plasma, water, electrolytes and mucin
- In addition to that upper and lower respiratory tract, nasal and salivary gland secretions
- Normal flora of oral cavity



Sputum analysis

- Sample collection
- Sputum comes up with deep coughing
- More fluid intake might help to get the sample easily
- 1st morning specimen is the best
- Prior rinsing of mouth before collection
- Sample collected in sterile container
- Perform test immediately

Sputum analysis

- Sample collection

Sputum analysis

Physical examination

Consistency and appearance

Color can indicate the pathological condition

Yellow color
- Pus and epithelial cells
- Pneumonia

Green
- Pseudomans
- sputum left morethan 24 hrs will turn green because of release of preoxidases from neutrophils

Rust red
- Decomposed hemoglobin
- pneumococcal pneumoneia
- pulmonay gangrane

Bright red
- recent hemorrhage
- acute cardiac failure
- pulmonary infection
- TB
- Ruptured blood vessel

Odor – no characteristic odor

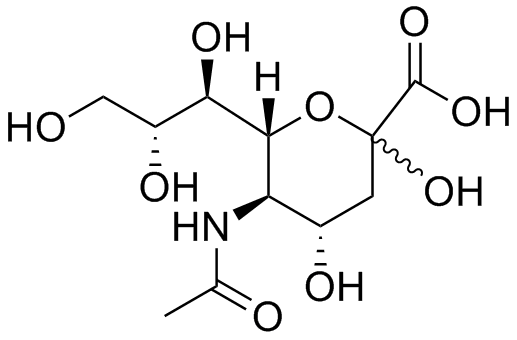
Sputum analysis

Physical examination

Viscosity & elastisity

Sputum has viscoelastic properties – some properties of liquid and some properties of solid

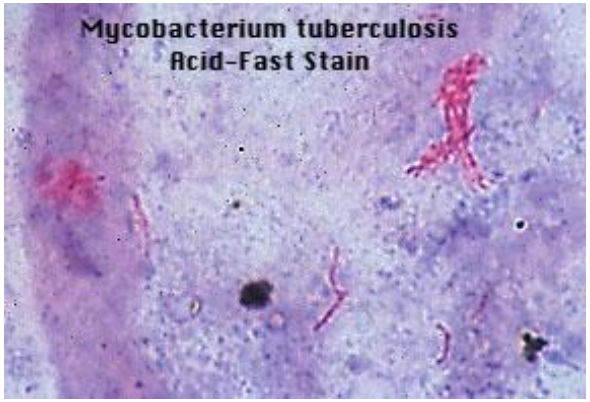
The consistency is dependent mainly on molecular structure of the glycoproteins and the degree of hydration of the tissues
Sialic acid is the component of sputum which determines the viscosity

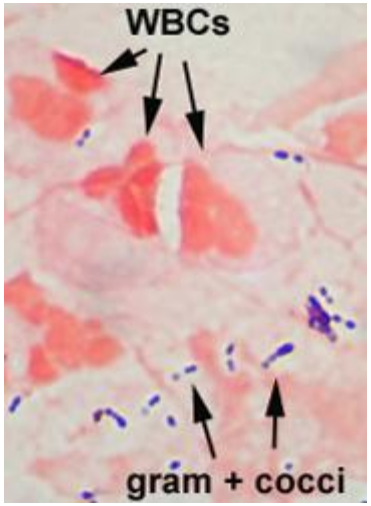


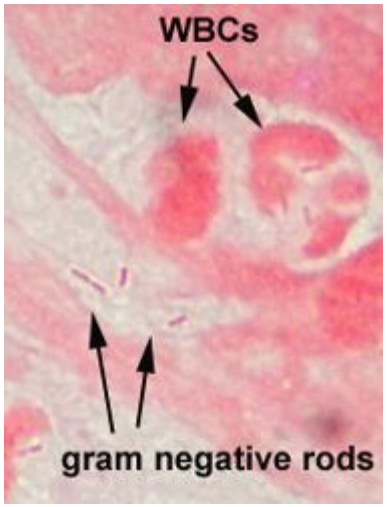
Sialic acid
(*N*-acetyl neuraminic acid)

Sputum analysis

Examination of Mycobacterium
Acid fast organisms
Sputum gram stain
Sputum culture







Next class….

Saliva analysis, Feces analysis