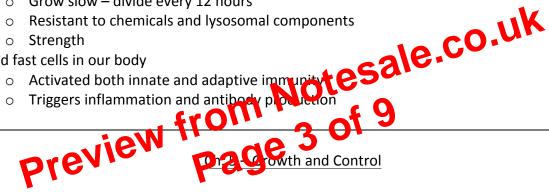
- Site of protein synthesis
- Prokaryotic Rb are 70S (smaller) while eukaryotic Rb are 80S in size (Svedberg Units)
- Small and large subunits

⇒ No membrane bound nucleus

- Single circle of dsDNA
- Nucleoid
- o DNA looped and coiled to be packed inside the bacteria cell
- Plasmids extra chromosomal DNA, there are different types as long as they are compatible
- ⇒ **Chemotaxis** movement in response to chemicals
 - Attracted by nutrients
 - Repelled by toxic/harmful substances
 - Can sense substances in their environment

⇒ Acid Fast Bacteria

- Stain poorly w/ Gram stain
- Mycobacterium and Nocardia some are pathogenic
 - M. tuberculosis, M. leprae, M. avium-intracellulare complex
 - Nocardia spp.
- ⇒ Purpose of acid fast cell wall
 - o Grow slow divide every 12 hours
- ⇒ Acid fast cells in our body



⇒ Growth

- Increase in cell number but doesn't actually divide
- Increase in cell constituents
- Coenocytic cell more than one nucleus

⇒ Cell Division

- Binary fission how the majority of prokaryotes reproduce.
- Septum when a nucleoid divides, the cell wall and membrane begin to form a septum
- Partitioning
- The time required to complete the growth is variable.
- o It is dependent on availability of nutrients, genetic factors, and environmental conditions.
 - *V. natragens* 6 mins
 - *E. coli* 20 mins
 - *Mycobacterium tuberculosis* 12 hr

⇒ Generation time

- o The time it takes for the population to double in number.
- o E. coli 20 minutes
- Tim 0 = 1 cell
- o 6 h 40 m (20 generations) = 1,000,000
- 24 hours = 1,000,000,000,000,000,000,000 cells)
- ⇒ Generally, when organisms are studied, they are grown in a **batch culture**.