

**Comments on Table 12-3: Text is over simplifying in many points.**

1. Does this mean no nuclear membrane?
2. Some bacterial chromosomes are linear (e.g., *Borrelia*, *Streptomyces*).
3. This is a bacterial property. Note that not all bacteria produce muramic acid (e.g., *Planctomyces* – proteins & *Mycoplasmas* -- sterols).
4. This is an important distinction. Where did eucaryotes get ester-linked lipid biosynthesis? Two possibilities: convergent evolution or endosymbiont transfer. (Note: *Aquifex* has both kinds of lipids!)
5. “S” refers to size – sedimentation rates. Most eucaryotic ribosomes are bacterial/archaeal in size. Only the multicellular types are larger!
6. Reflects conservation of translation apparatus: A/E to the exclusion of B.
7. Most eucaryotic genes **DO NOT** have introns. Note this refers to “splicesomal” introns, and such introns are rare in microbial eucaryotes; abundant only in multicellular genomes.
8. This correlation is unclear, e.g., nematodes have operons!
9. Eucaryotes are unique in capping, but Bacteria and Archaea also add poly-A-tails. The mechanisms for poly-A deposition may be different in Eucarya.
10. Fundamental difference between E/A and B.
11.  $\text{NH}_3 \rightarrow \text{NO}_3^-$  (as electron source).
12.  $\text{NO}_3^-$  as electron acceptor (to reduce N or  $\text{N}_2$ )
13. Eucarya did not invent – got from cyanobacteria!
14. Chemolithotrophic Eucarya do exist, by virtue of bacterial endosymbionts, e.g., hydrothermal vent associated animals.
15. Fundamental properties?