

Systematic Botany. Lecture 19

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Outline

Questions and answers

Monera

Bacteria

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Monera

Bacteria

Previous final question: the answer

Name one photosynthetic phylum of Bacteria

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Name one photosynthetic phylum of Bacteria

- ▶ Cyanobacteria
- ▶ Chlorophlexi

Announcement: Lab 1 paper

- ▶ Due October 21
- ▶ 1000-1200 words
- ▶ Topics: (1) Basic principles of plant construction; (2) Prairie plant communities

Comparative biology of prokaryotic and eukaryotic cells

- ▶ Eukaryotic cells are 10–100 times bigger than prokaryotic*
- ▶ Eukaryotes have cell motility and capable to endo- and exocytosis*
- ▶ Prokaryotes have combined RNA and protein synthesis
- ▶ Prokaryotes are more diverse chemically, whereas eukaryotes are more diverse morphologically

Basal gracilicutes (B-4, B-5, B-8)

Superphylum *Gracilicutes* [^{6,2}*Rhodospirillum*] s.a.

Phylum 7. ELUSIMICROBIA [⁶*Elusimicrobium*] sed.m.

Classis 1(21). *Elusimicrobes* [⁵*Elusimicrobium*]¹⁴

Phylum 8. SYNERGISTETES [⁶*Synergistes*] sed.m.

Classis 1(22). *Synergistia* [⁵*Synergistes*]

Phylum 9. SPIROCHAETAE [⁶*Spirochaeta*] sed.m.

Classis 1(23). *Spirochaetes* [⁵*Spirochaeta*] s.a.¹⁵

Phylum 10. BACTEROIDETES [⁶*Bacteroides*] s.a.¹⁶

Classis 1(24). *Gemmatimonadetes* [⁵*Gemmatimonas*] sed.m.

2(25). *Fibrobacteria* [⁵*Fibrobacter*]

3(26). *Chlorobia* [⁵*Chlorobium*]

4(27). *Bacteroidia* [⁵*Bacteroides*]¹⁷

5(28). *Ignavibacteria* [⁵*Ignavibacterium*]

6(29). *Salinibacteria*[†] [⁵*Salinibacter*] stat.m.s.

Planctobacteria (B-11)

Phylum 11. PLANCTOBACTERIA [⁶*Planctomyces*]¹⁸

Classis 1(30). *Planctomycea* [⁵*Planctomyces*]

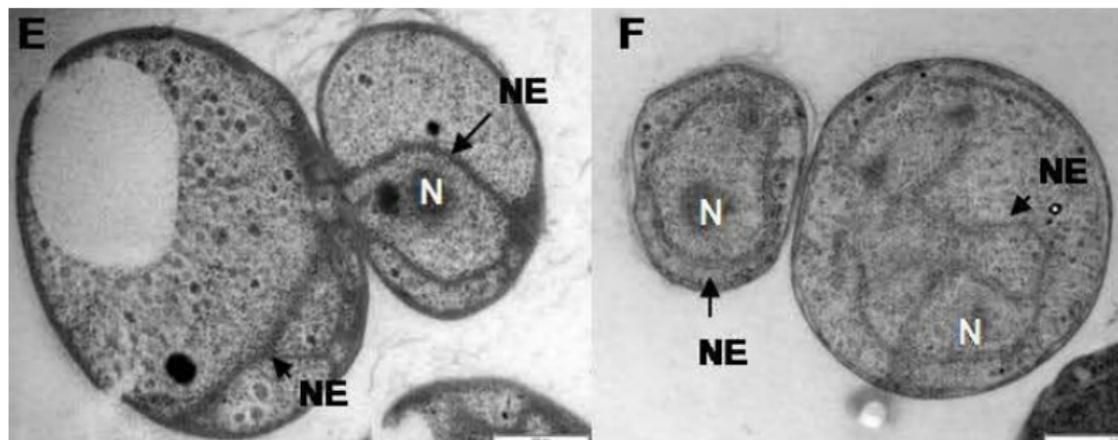
2(31). “*Poribacteria*” [⁵“*Poribacter*”]

3(32). *Chlamydiae* [⁵*Chlamydia*]

4(33). *Lentisphaeria* [⁵*Lentisphaera*]

5(34). *Verrucomicrobiae* [⁵*Verrucomicrobium*]¹⁹

PCV bacteria have nucleus-like structures



From Lee et al., 2010

Proteobacteria (B-3)

Phylum 12. PROTEOBACTERIA [⁶*Rhodospirillum*] s.a.

Classis 1(35). *Caldiseria*[†] [⁵*Caldisericum*] i.s.²⁰

2(36). *Epsilonproteobacteria* [⁵*Campylobacter*]

3(37). *Deferribacteres* [⁵*Deferribacter*] i.s.²¹

4(38). *Acidobacteria* [⁵*Acidobacterium*] sed.m.²²

5(39). *Desulfobacteria* [⁵*Desulfobacter*] s.a.²³

6(40). *Zetaproteobacteria* [⁵*Mariprofundus*]

7(41). *Rhodobacteria* [⁵*Rhodobacter*] s.a.²⁴

Representatives of Proteobacteria

Epsilonproteobacteria *Helicobacter*—agent of gastric diseases,

Desulfobacteria (delta-) *Bdellovibrio*—the only bacterial predator

Rhodobacteria (alpha-, beta- and gamma-)

Rhizobium—nitrogen fixator, *Rhodobacter*—purple bacterium, *Neisseria*—cause of meningitis, *Vibrio*—cause of cholera, and famous *Escherichia coli*.

Final question (1 point)

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Which group of bacteria cause syphilis disease?

For Further Reading



Margulis and Chapman. 2009.

Kingdoms and domains: an illustrated guide to the phyla of life on Earth. 4th edition.

Chapter 1 (pp. 37–57; 65–107).