

They are unable to use CHO, proteins, and other organic substrates

3-Major Groups of Methanogens

Group 1:

- Methanobacterium
- Methanobrevibacter

Group 2:

- Methanococcus
- Methanospirillum

Group 3:

- Methanosarcina

At least three different types of cell walls are found among these bacteria

The most complex group is Group 1, which is rigid and composed of "**Pseudomurein**"

Group 2:

- In these bacteria, the cell wall is flexible and composed of chiefly proteins with traces of "Glucosamine"

Group 3:

- Have most complex, flexible cell wall composed of two layers:
 - a. An inner, electron dense of unknown chemistry
 - b. An outer, composed of entirely proteins resistant to hydrolysis

Halophiles (Salt-resistant)

Genera:

- Halobacterium
- Halococcus

They are obligate halophiles, grow at least at 15% NaCl

- Concentration with unique metabolic features

Light energy is converted to ATP by "**bacteriorhodopsin**" -a red pigment in the red membrane

In addition to respiration, there is also light-dependent ATP generation