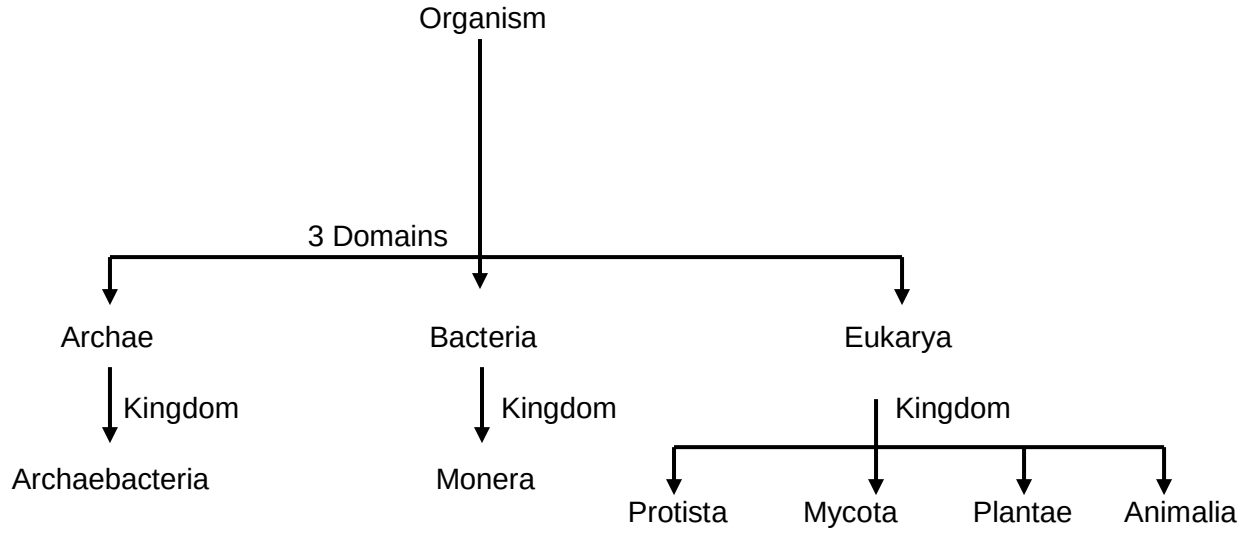
FIVE KINGDOM

1. **Monera :** All the prokaryotes (Eubateria, Rickettsia Actinomycetes, BGA, Archaebacteria, Mycoplasma) and Akaryots (virus)
2. **Protista :** All the Unicellular eukaryotes (Dinoflagellates, Diatoms, Euglenoids, Slime moulds and Protozoas)
3. **Mycota :** True fungi
4. **Plantae :** All the multicellular plants - Algae, Bryophtya, Pteridophyta, Gymnosperm, Angiosperm
5. **Animalia :** All the multicellular animals

Note : Carl Woese suggested separate kingdom for "Archaebacteria". he proposed six kingdom classification



KINGDOM - MONERA

(PROKARYOTES)

- **Christesen & dougherty -** gave the term **'prokaryote'** and **'eukaryote'**
- **C.B. Van Neil :** Divided the living organisms into **prokaryotes** and **eukaryotes.**

Main characteristic of prokaryotes :

(1) Cell wall :

Cell wall of prokaryotes is made up of peptidoglycan (or murein) which is a type of mucopeptide.

The structure of peptidoglycan has two parts

(A) **Polysaccharides :** They are made up of glucose, mannose, galacotse and amino sugar units.

Amino sugars $\rightarrow$ N-acetlyl glucosamine, N-acetyl muramic acid

(B) **Amino acids :** Following amino acids are present in the cell wall of prokaryotes :

(i)L - alanine (ii) L - Lysine (iii) D- alanine (iv) D- glutamic acid

1. **Diaminopimelic acid -** This non proteineous amino acid is found in all eubacteria (Gram + & Gram -) and blue green algae.
2. **Muramic acid -** This acid is found in eubacteria and BGA
3. **Teichoic acid -** This acid is found only in Gram (+) eubacteria.

Note : The structure of cell wall in prokaryotes is complicated and this is the primitive characster. Generally the cell wall of prokaryotes is not made up of cellulose but exceptionally there are some prokaryotes in which cell wall made up cellulose, which are as follows -

eg. *Acetobacer acetogenum Acetobacter Xylenum Zymosarcina*

Prokayotes which are intra cellular lack cell wall

e.g. *Mycoplasma*

(2) Cell membrane :

(A) Like eukaryotes the cell membrane of prokaryotes is made up of lipoprotein [lipid + protein]
(B) The space between cell wall and cell membrane is known as periplasmic space. This space, is **analogus** to lysomome because in this space the digestion of complex substance is done.

(3) Cytoplasm :

(A) The cytoplasm of prokaryotes lacks membrane bound cell organelles.
(B) In Prokaryotic cell, the nucleus is indistinct. The nucleus of prokaryotes is also known as **incipient nucleus, genophore, nucleiod** or **fibrillar nucleus.** Nuclear membrane is absent around nucleus. It also lacks nucleolus.

Prokaryotes also lack the true chromosome. Instead of it, a false chromosome is present, which is made up of ds circular naked DNA + Non histone protein. Non histone proteins are polyamines. This false chromosome coils and forms the chromosomal region, which is known as nucleoid.

(C) Is prokaryotes ribosomes are of 70s type.