M.I.P.

PROF. CHUCHU

David Alencar

Microbiologia

PROF. CHUCHU

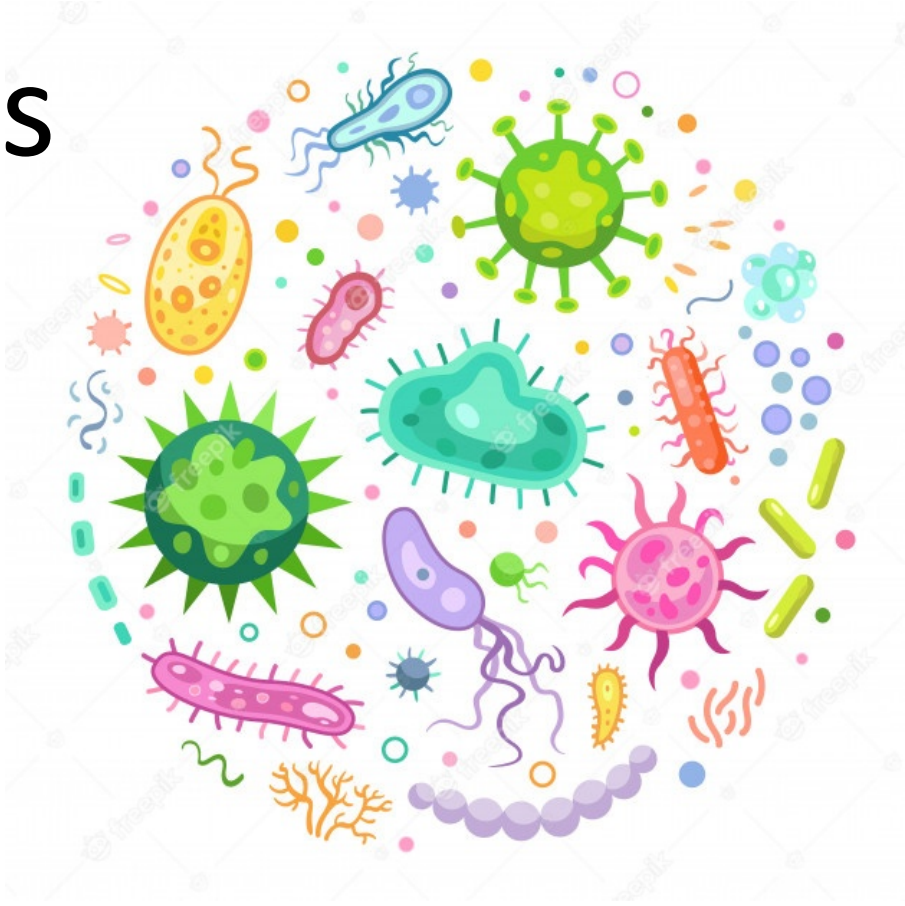
David Alencar

Microbiologia – básica

Algas

Vírus

Bactérias



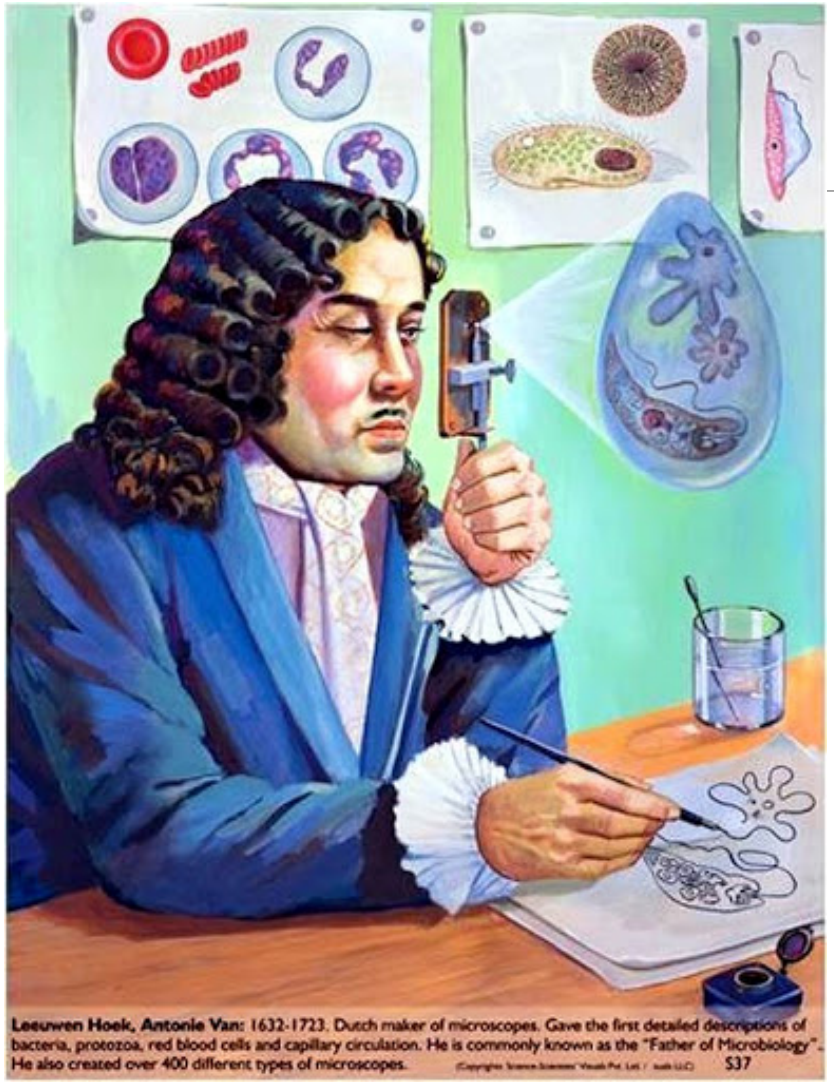
Fungos

Protozoários

Microbiologia - aplicada






Leeuwen Hoek, Antonie Van: 1632-1723. Dutch maker of microscopes. Gave the first detailed descriptions of bacteria, protozoa, red blood cells and capillary circulation. He is commonly known as the "Father of Microbiology". He also created over 400 different types of microscopes.
537


sbt
Chaves Chapolin e Cia


O que vemos no microscópio
O que a bactéria vê

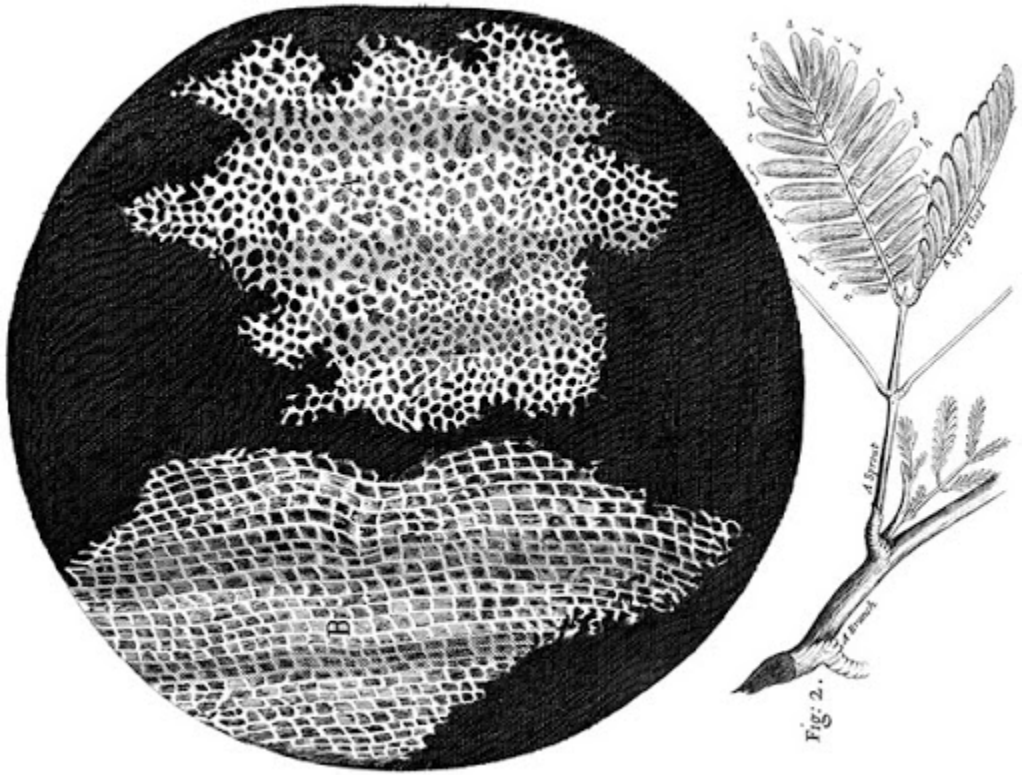


Robert
Hook

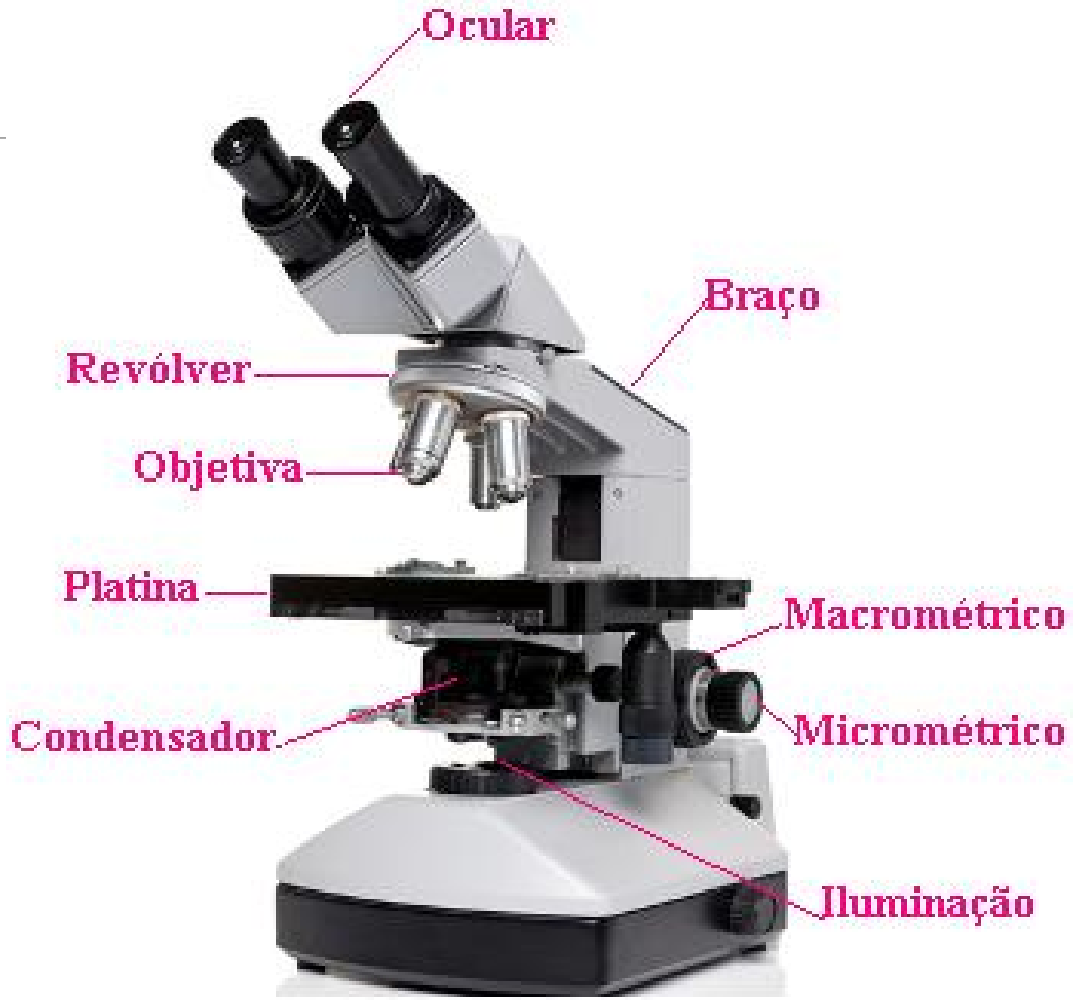






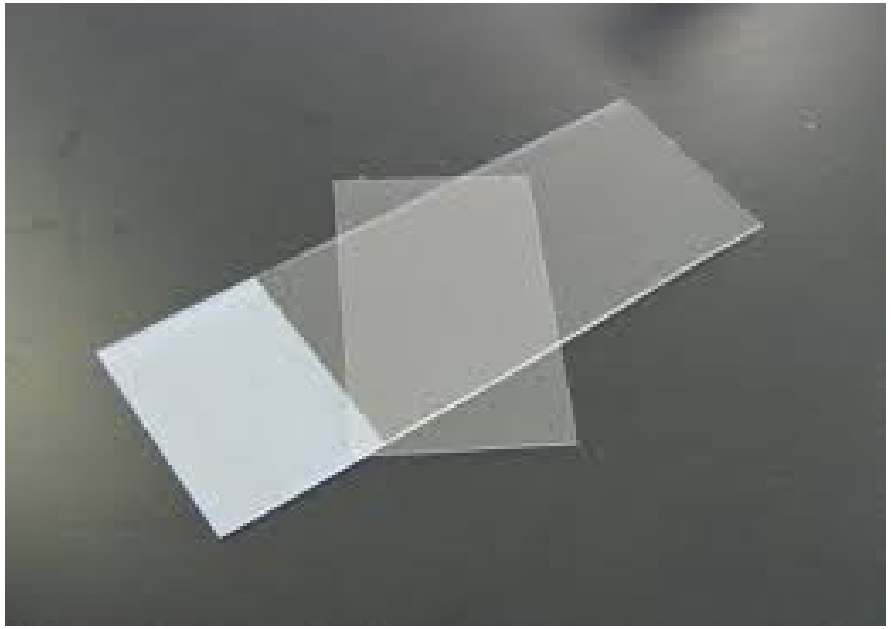

B
Fig. 2.

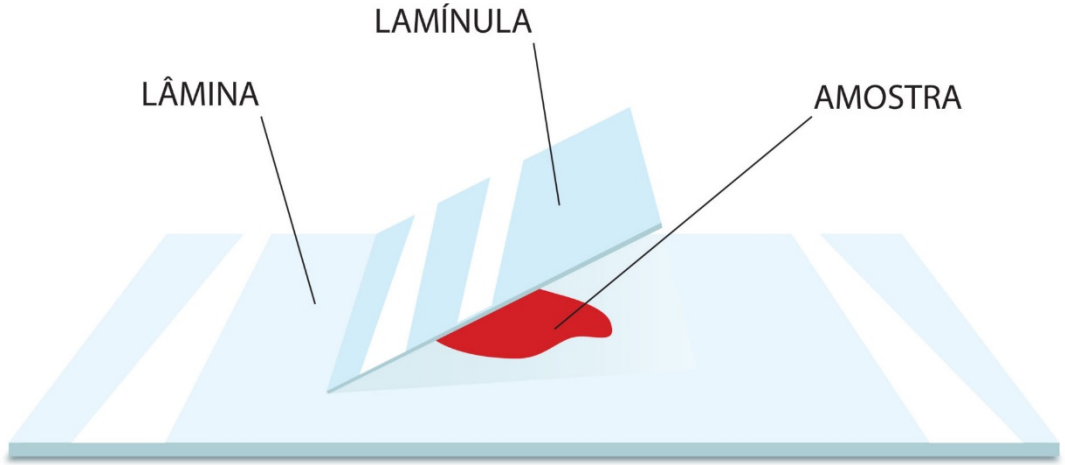
- Microscópio óptico – 400x



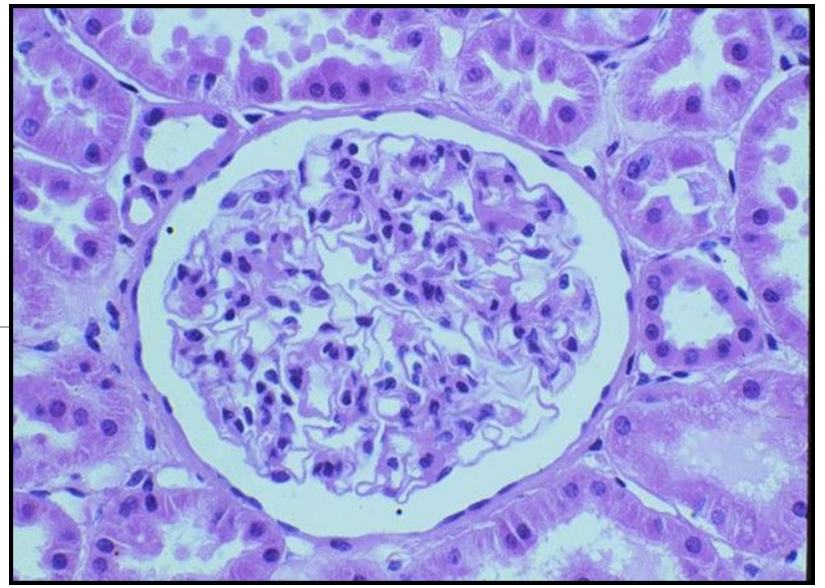


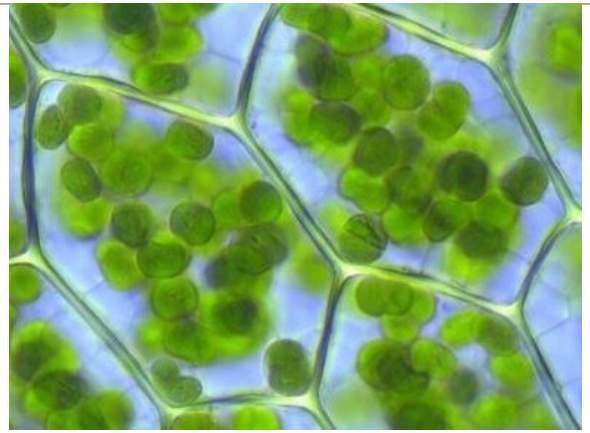
- Microscópio óptico

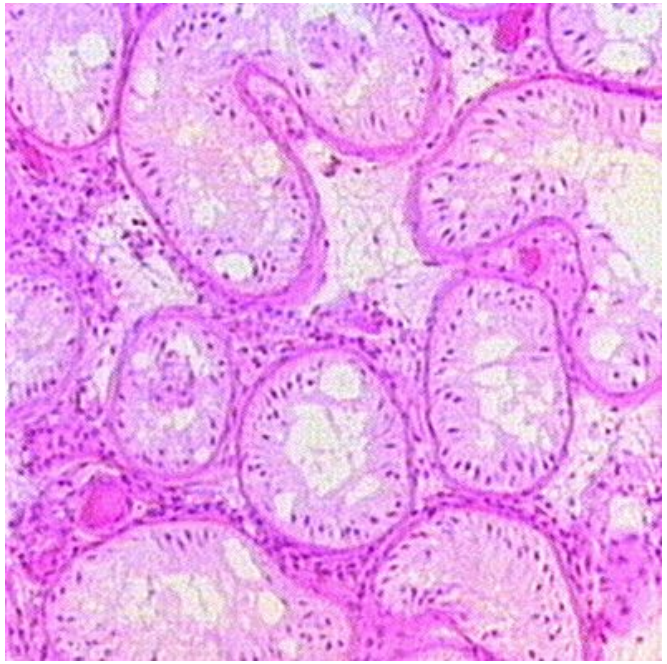




- Microscópio óptico

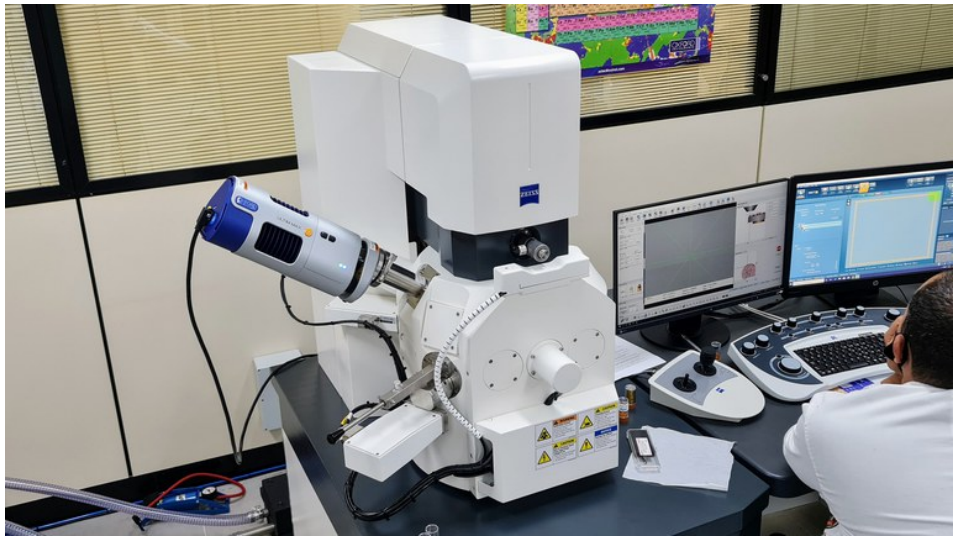




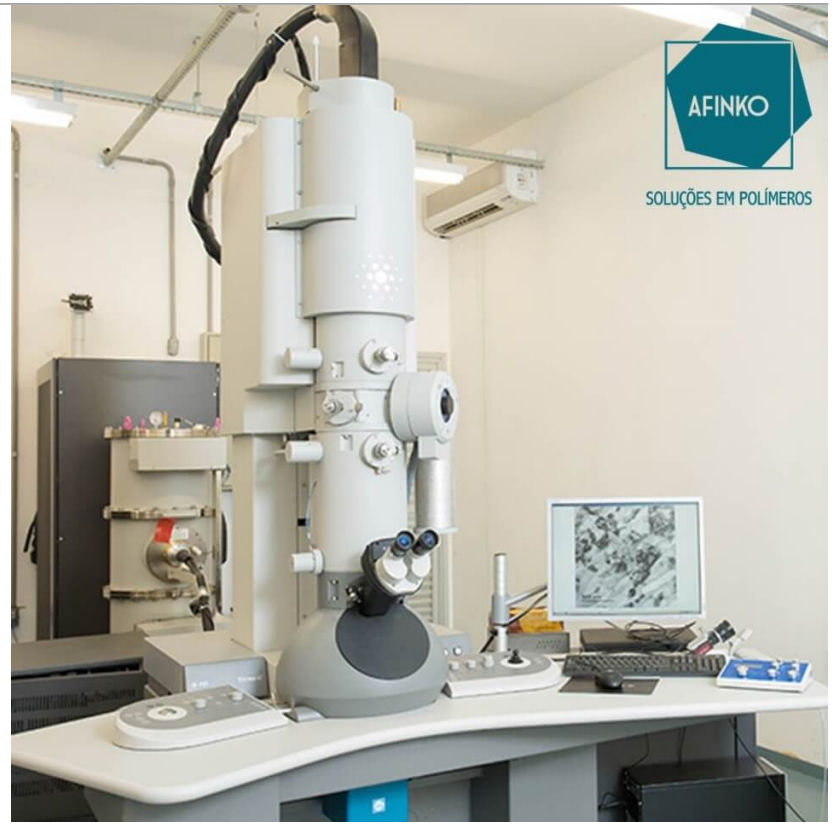




- Microscópio óptico

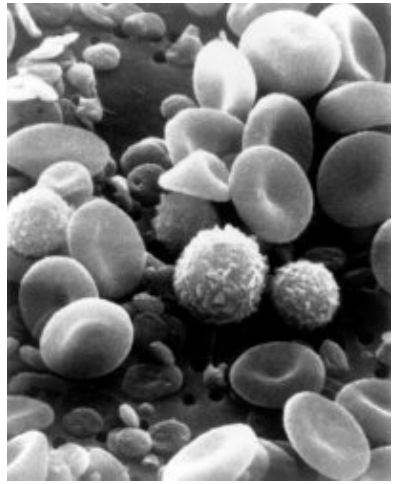


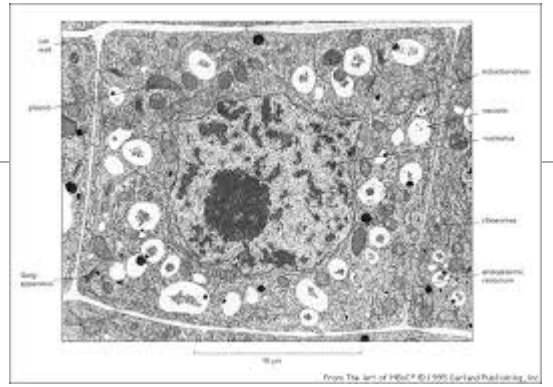
M.E. Varredura
50.000 x

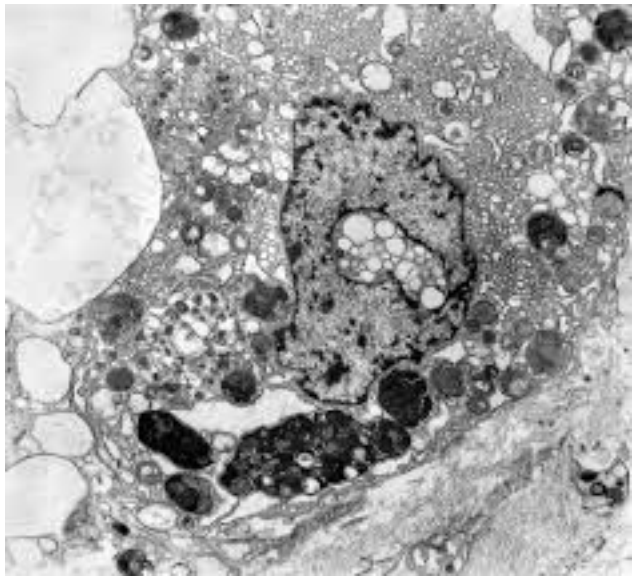


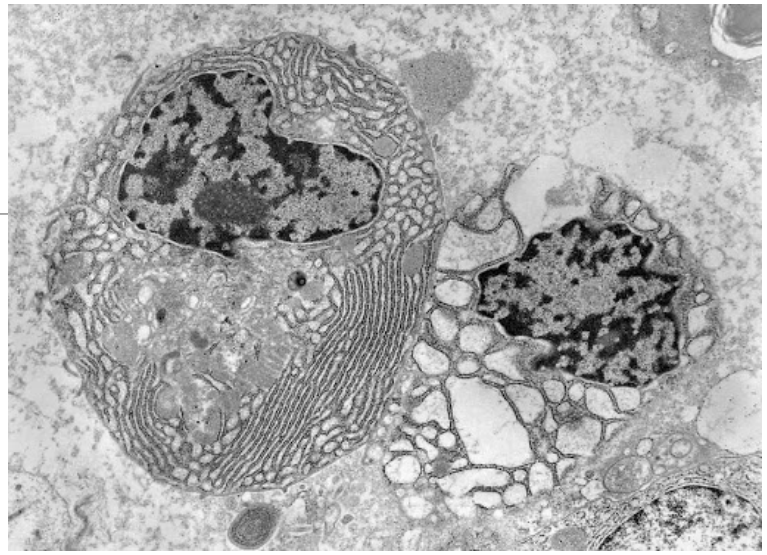
M.E. Transmissão
300.000x

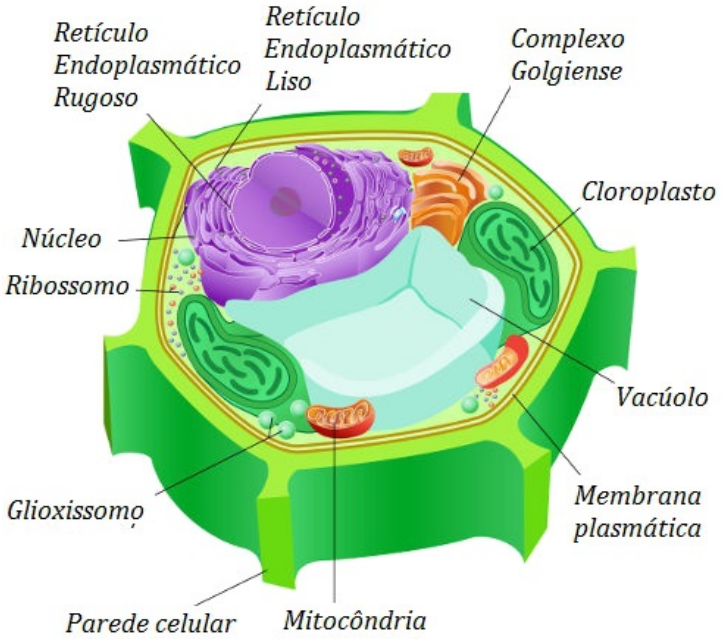
- Microscópio eletrônico

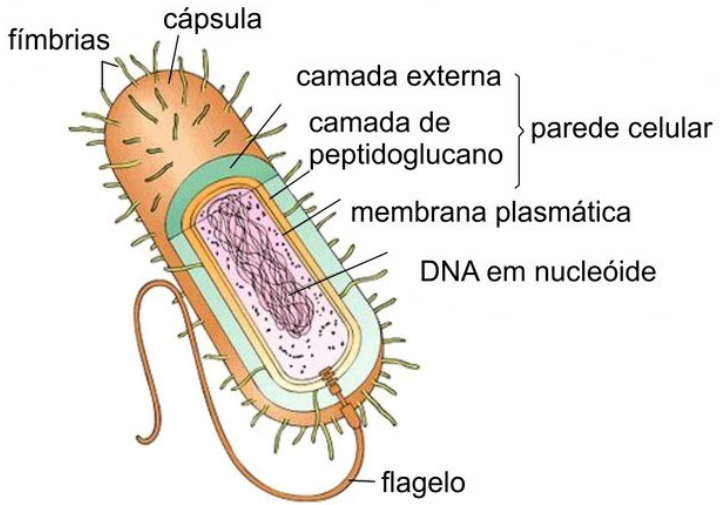


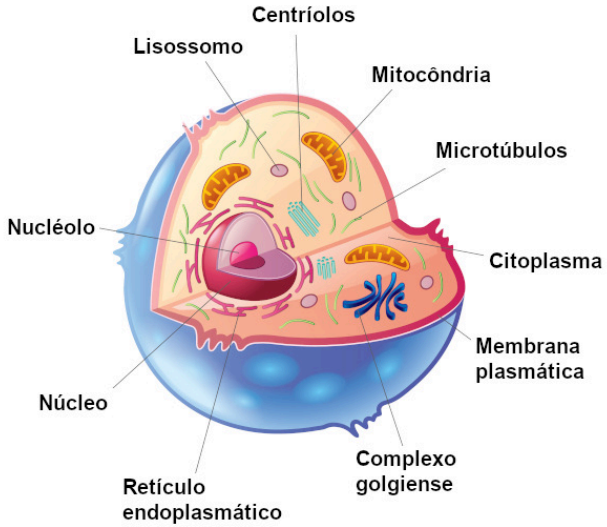


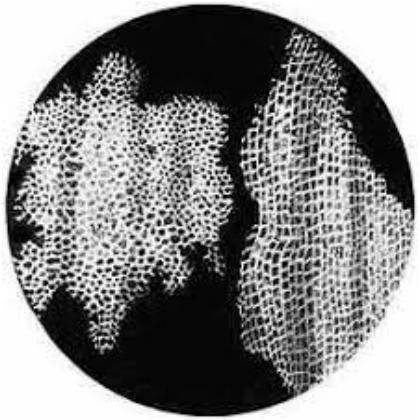


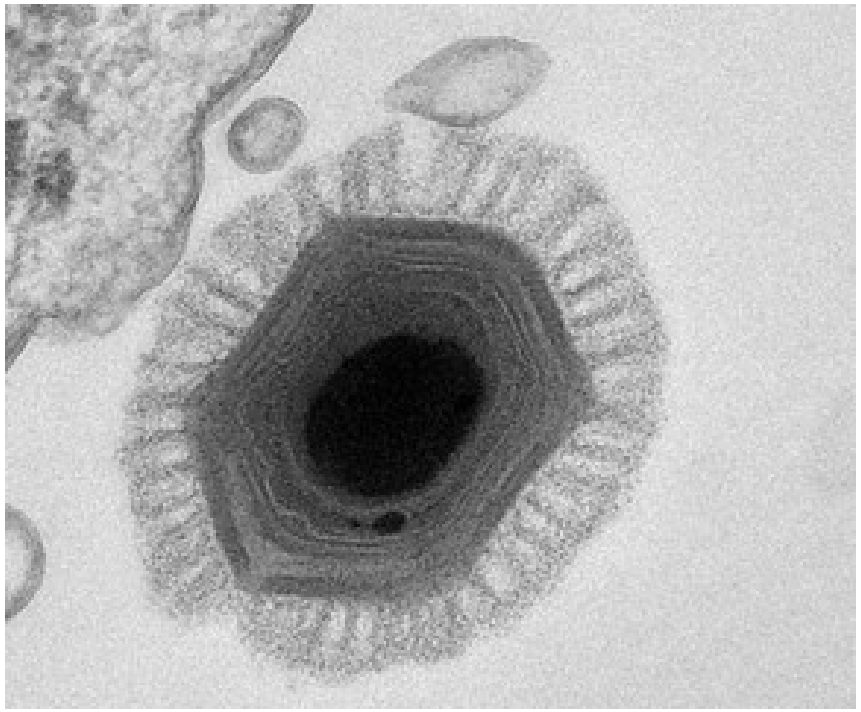



Retículo Endoplasmático Rugoso
Retículo Endoplasmático Liso
Complexo Golgiense
Cloroplasto
Núcleo
Ribossomo
Vacúolo
Glioxissomo
Membrana plasmática
Parede celular
Mitocôndria

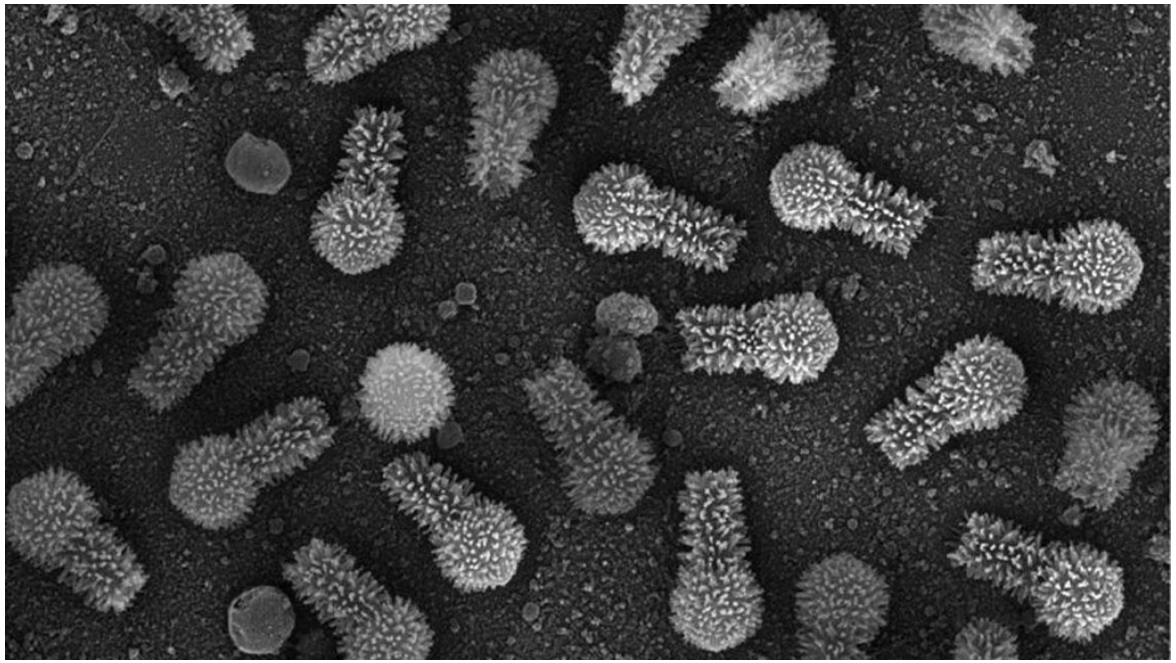

fímbrias
cápsula
camada externa
camada de peptidoglucano
parede celular
membrana plasmática
DNA em nucleóide
flagelo


Centríolos
Lisossomo
Mitocôndria
Microtúbulos
Nucléolo
Citoplasma
Membrana plasmática
Núcleo
Complexo golgiense
Retículo endoplasmático

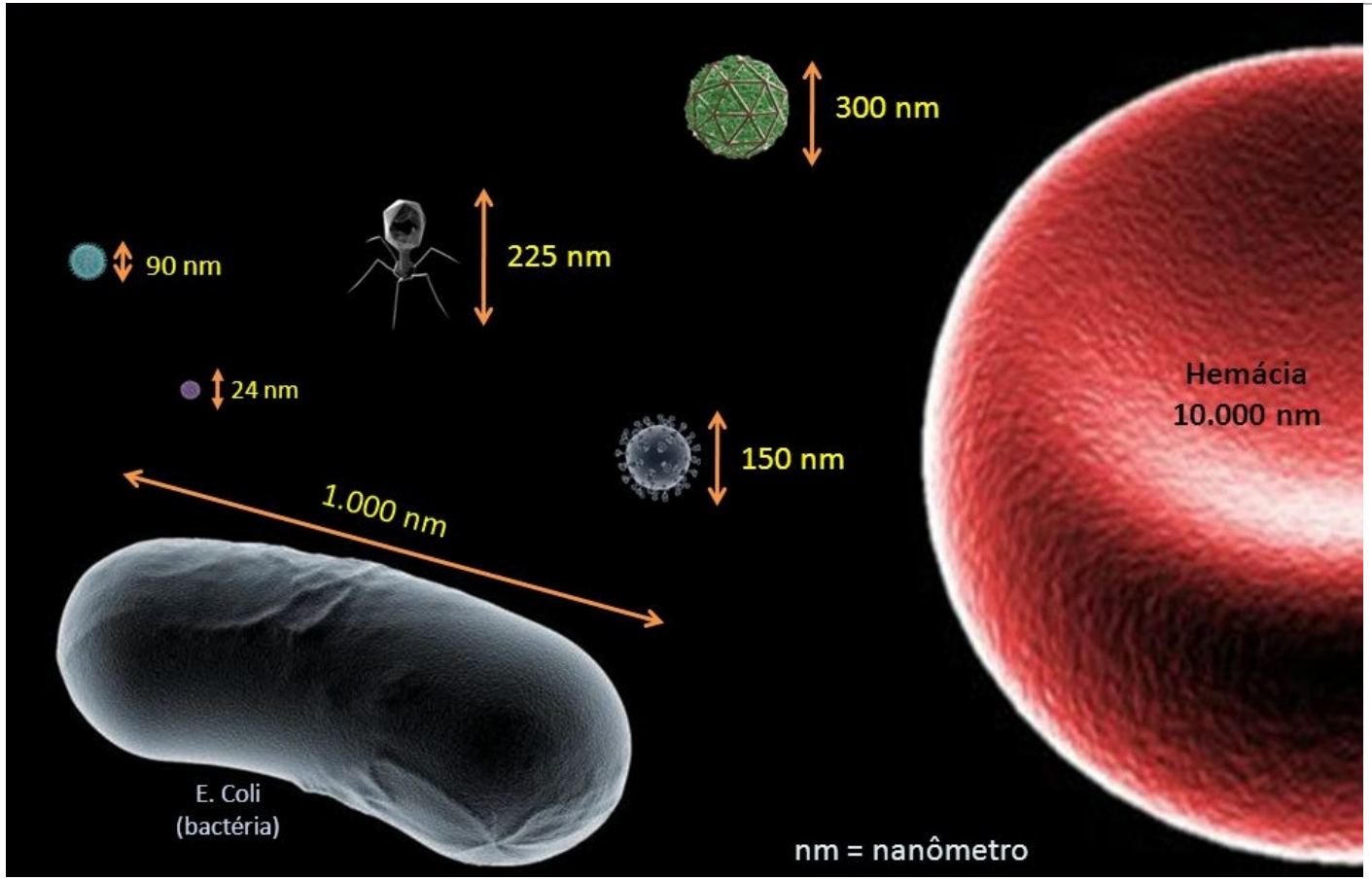


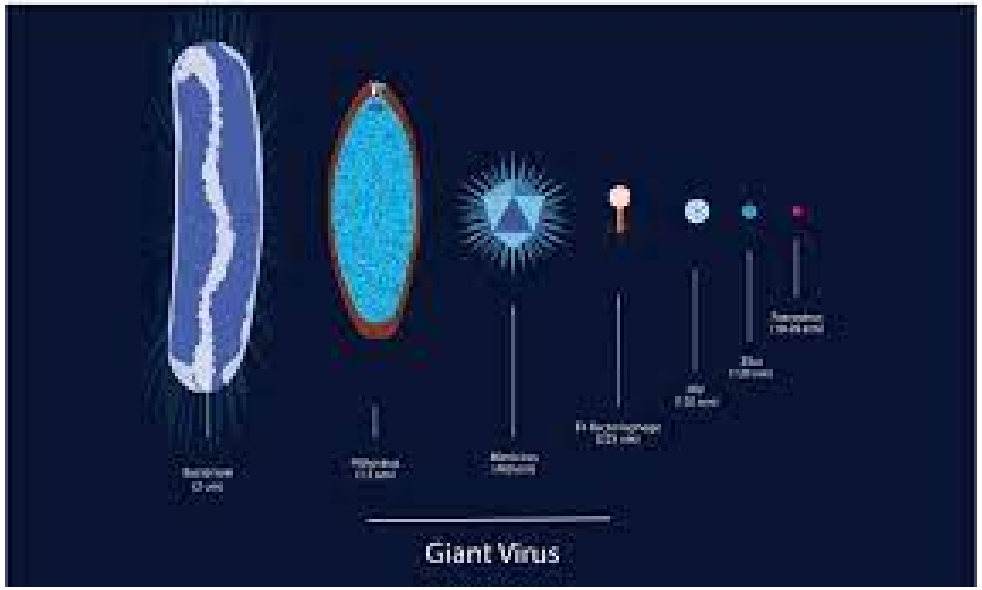


Megavirus chilensis



Tupanvirus


300 nm
90 nm
225 nm
24 nm
150 nm
1.000 nm
Hemácia
10.000 nm
E. Coli
(bactéria)
nm = nanômetro

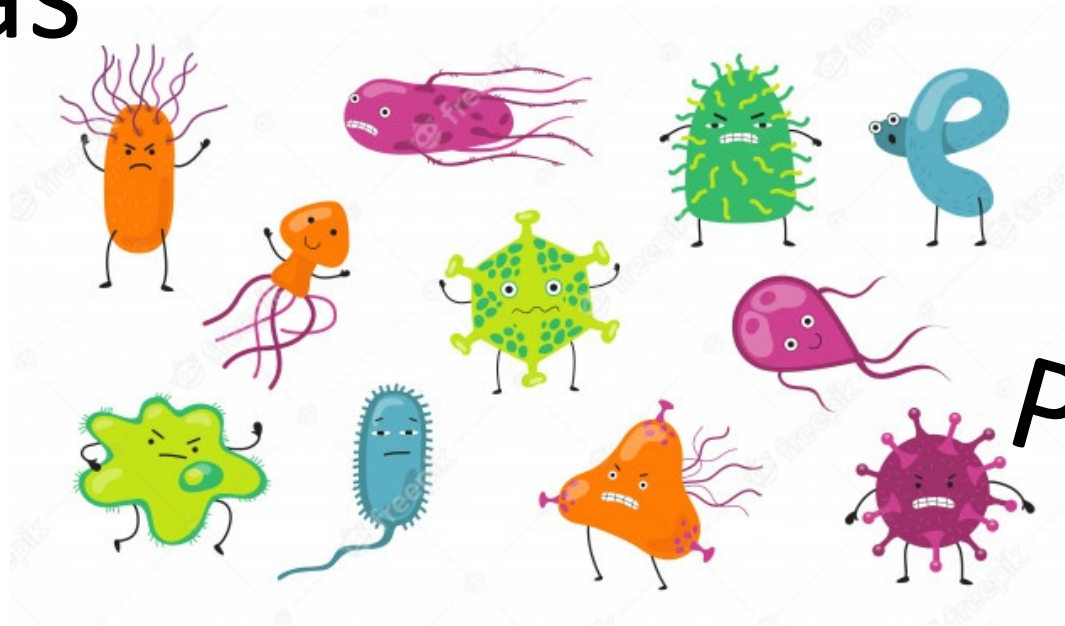

Giant Virus

Microbiologia

Algas

Vírus

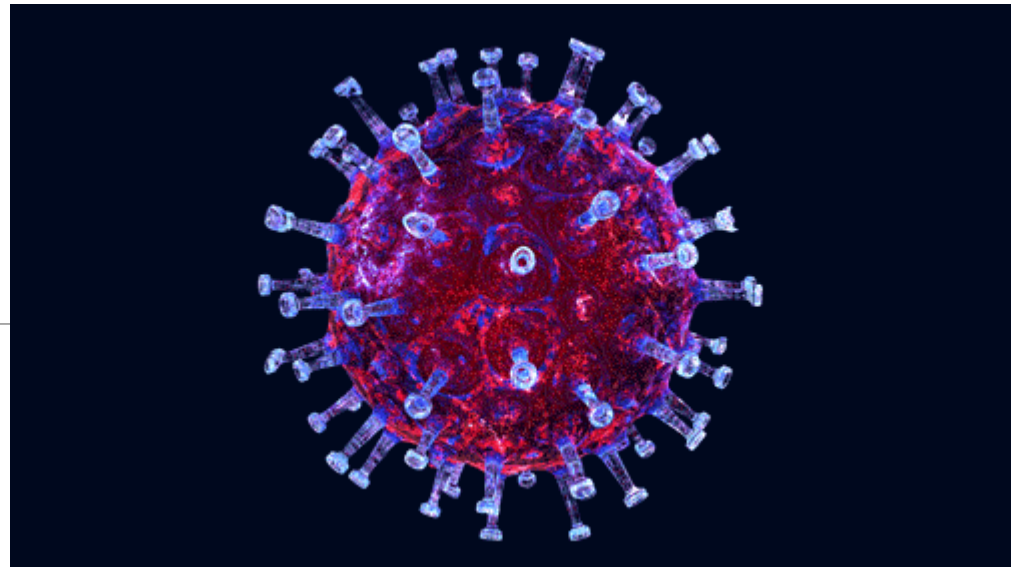
Bactérias



Fungos

Protozoários

Vírus

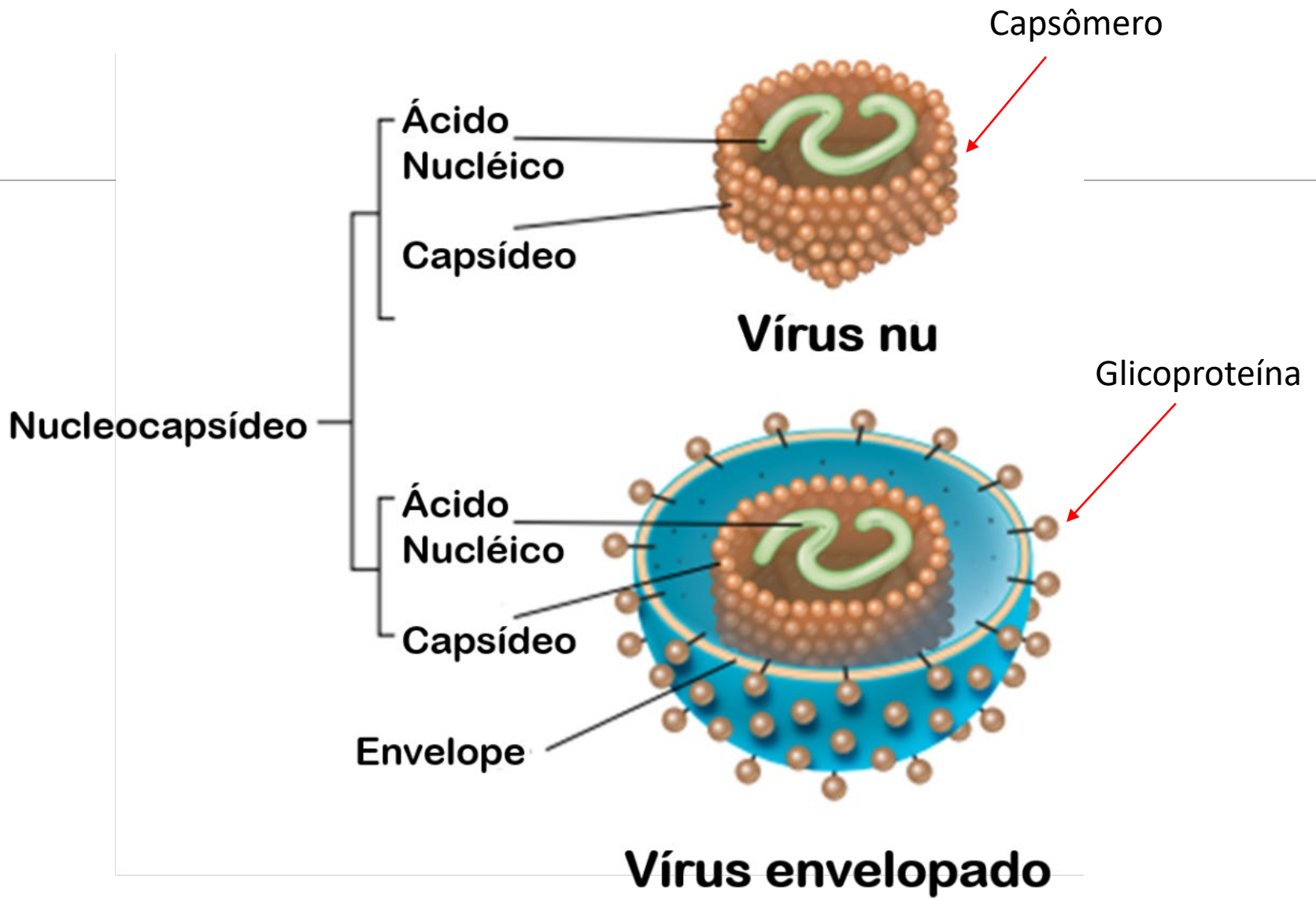


Características Gerais:

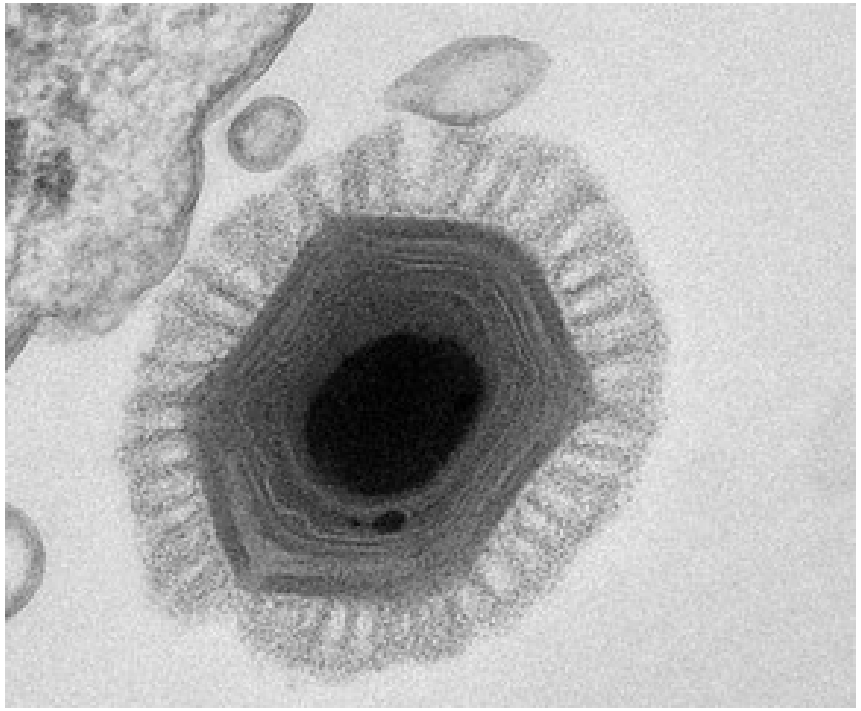
- Acelulares
- Fora da célula - Vírion
- Material genético
- DNA RNA ou ambos
- Não possuem metabolismo fora de uma célula.
- Parasita intracelulares obrigatorios.
- Agentes infecciosos (viroses)

Vírus

Estrutura:



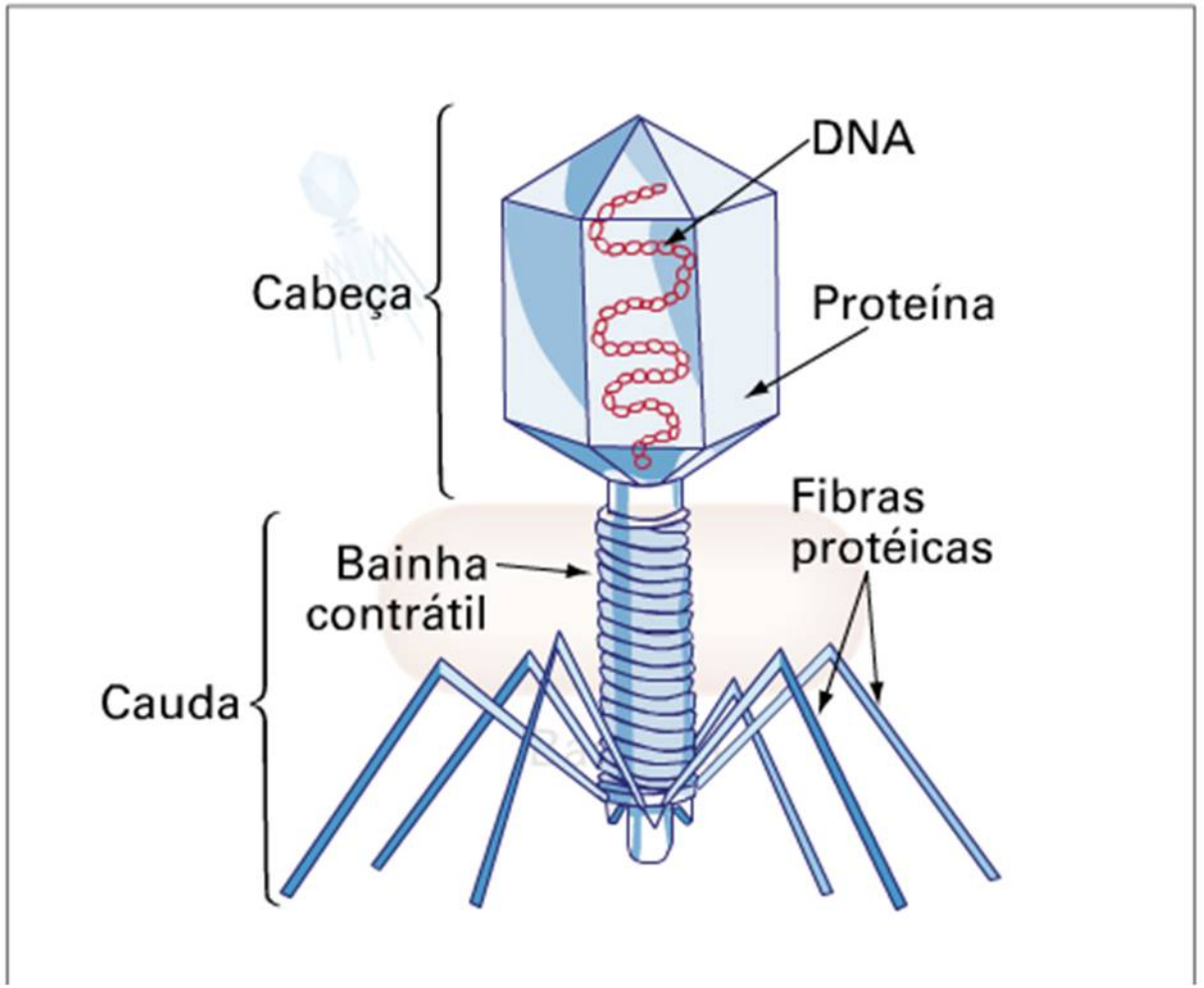
Vírus



Vírus

Estrutura:

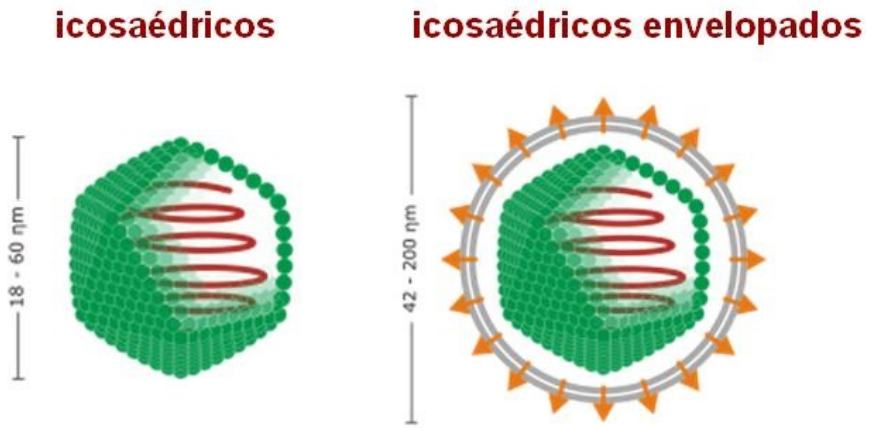
Bacteriófago

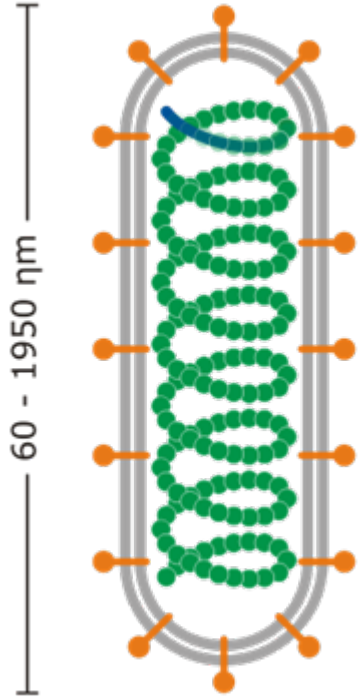


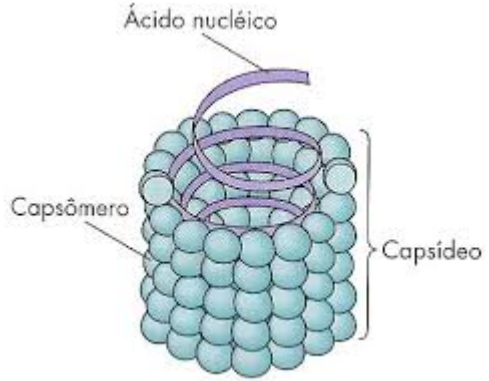
Vírus

Tipos/Classificação:

- Quanto ao capsídeo.
  - Icosaedros
  - Helicoidal
  - Complexos bacteriófagos
    - Apenas não envelopados



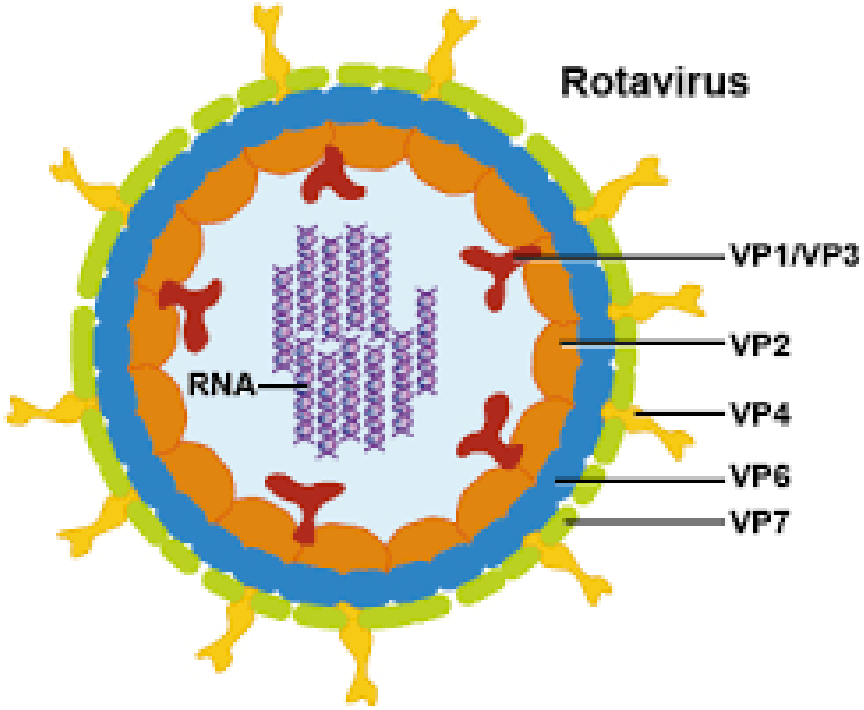




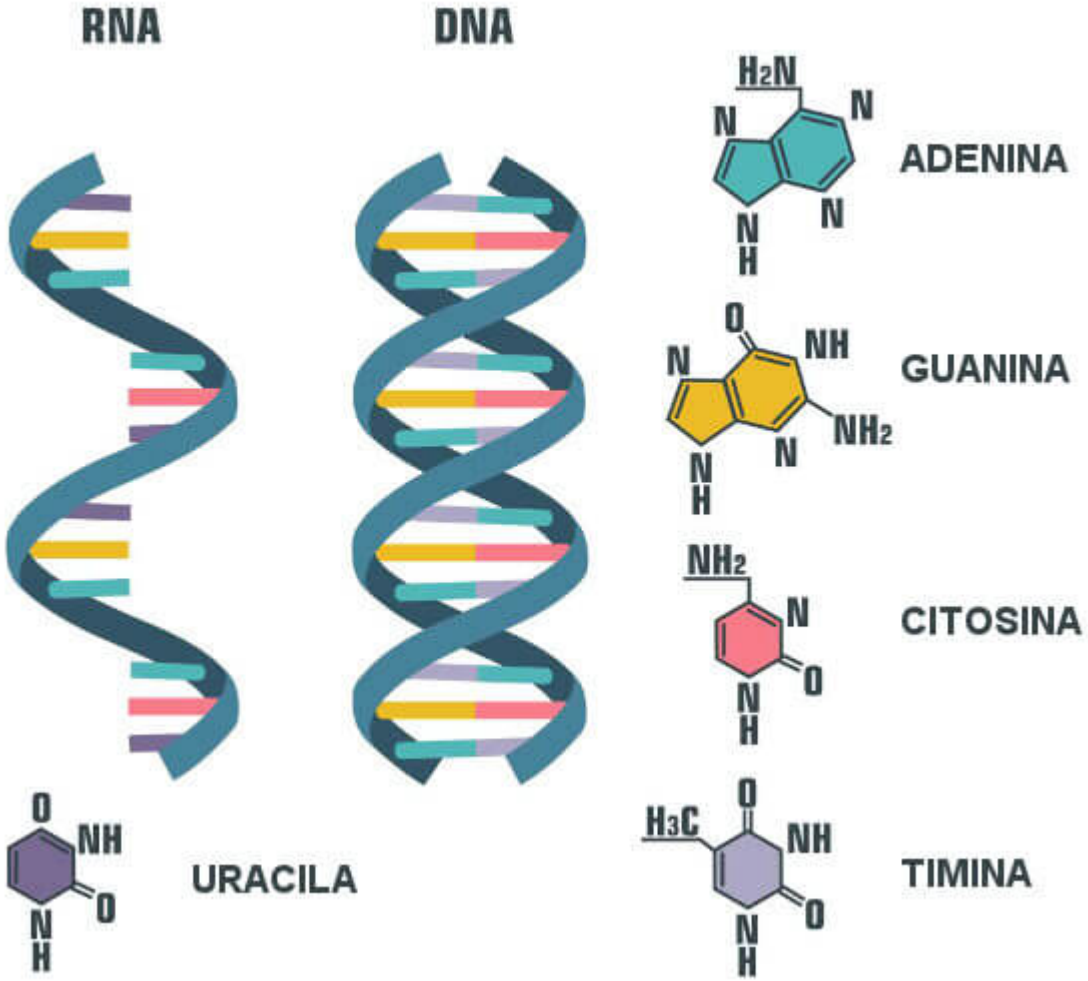
Vírus

Tipos/Classificação:

- Quanto ao material genético.
  - DNA
    - Fita dupla
    - Fita simples
  - RNA
    - Fita dupla
    - Fita simples
  - DNA & RNA



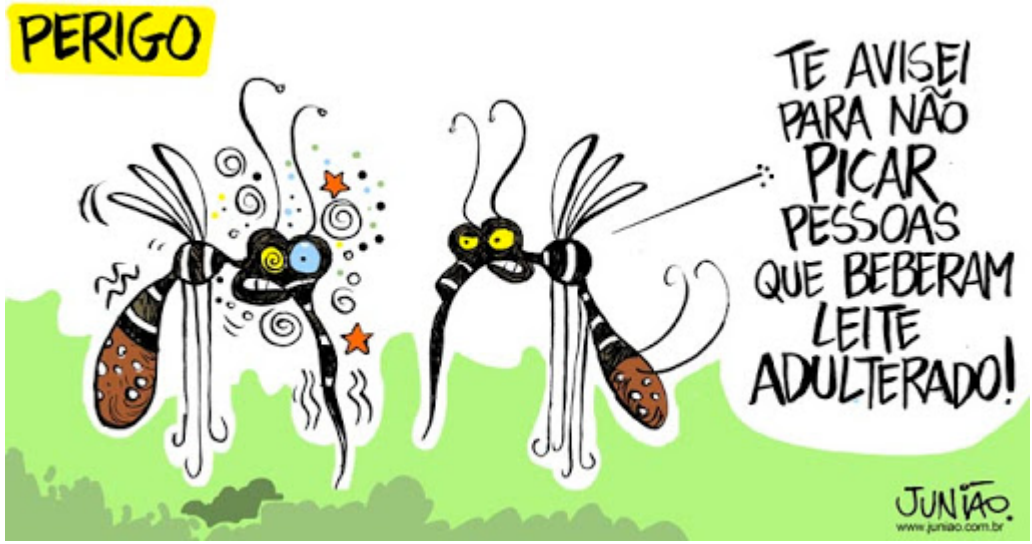
Vírus



Vírus

Tipos/Classificação:

- Retrovírus
  - RNA & Transcriptase reversa
- Arbovirus



Vírus

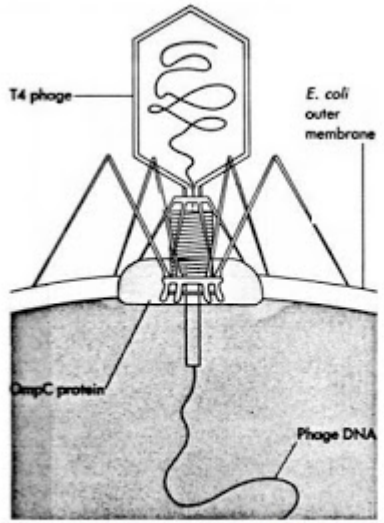
Ciclo de vida

- Penetração na célula.
  - Injeção
  - Fusão
  - Endocitose

Vírus

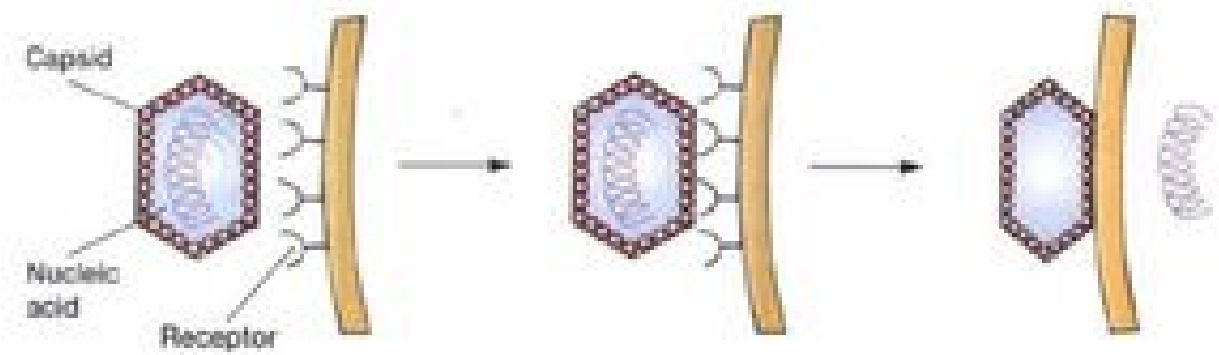
Ciclo de vida

- Penetração na célula.
  - Injeção/Penetração Direta
  - Bacteriófagos



Adsorption, penetration and injection of bacteriophage T4 DNA into an *E. coli* cell. T4 attaches to an outer membrane porin protein, ompC.

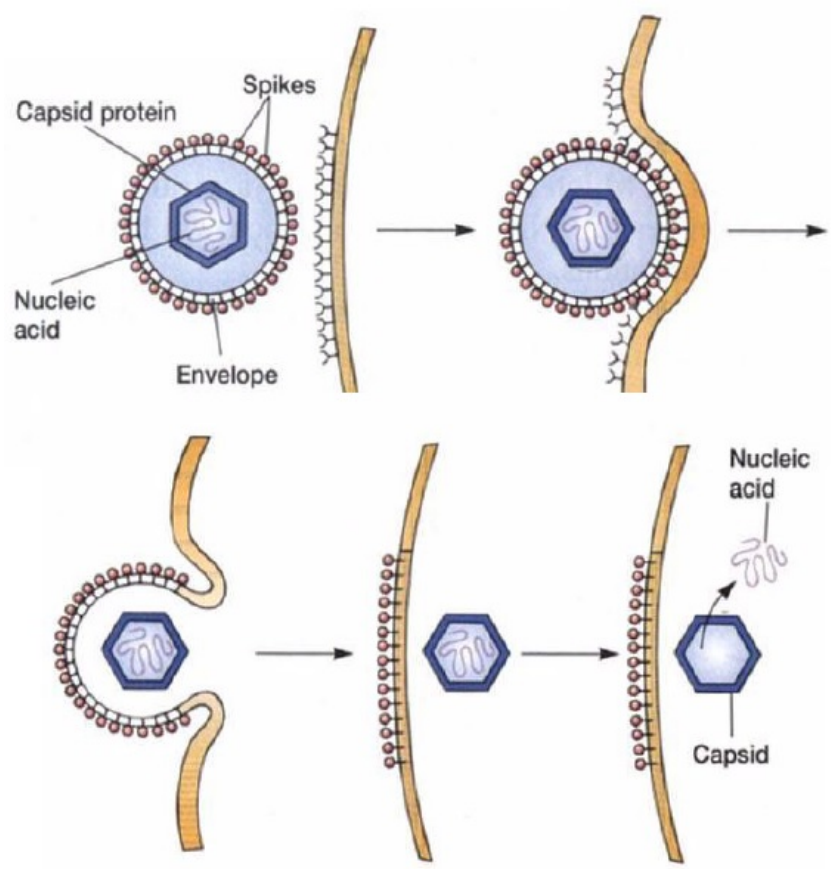
Fonte:
http://textbookofbacteriology.net/themicrobialworld/Phage.html



Vírus

Ciclo de vida

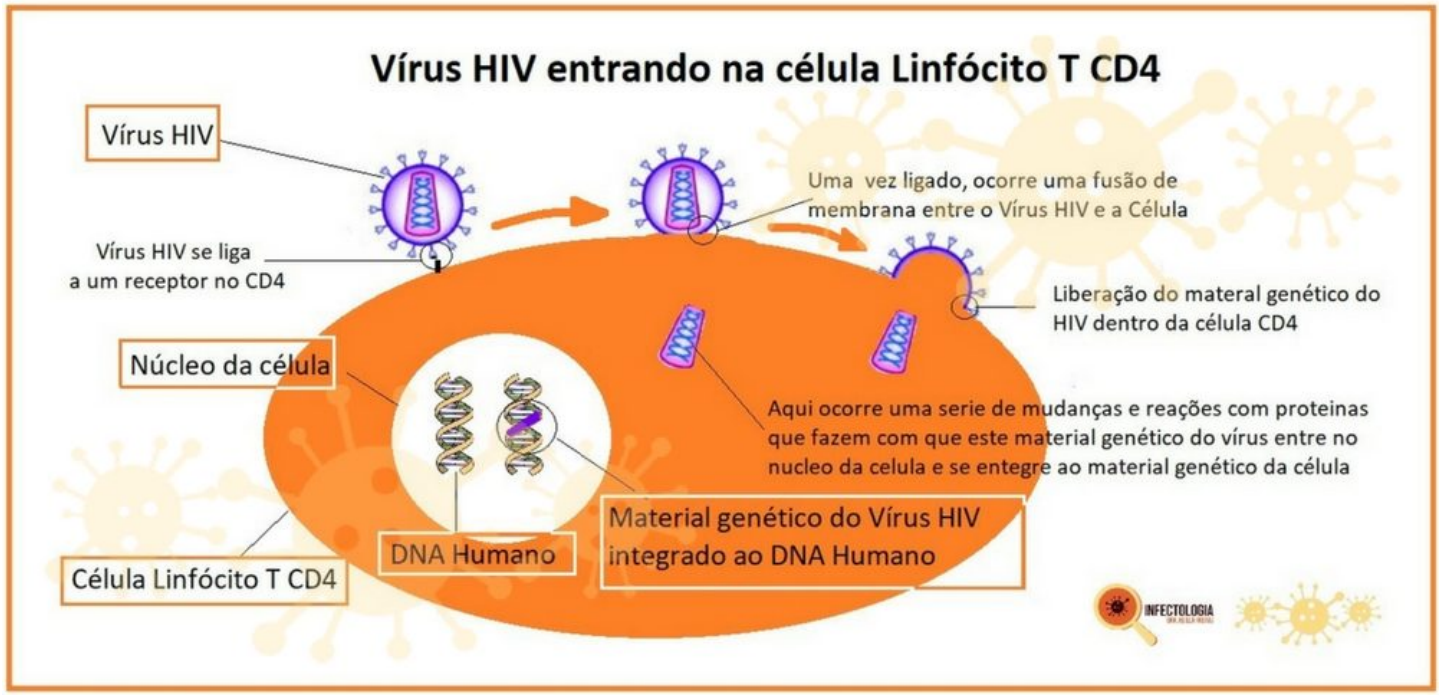
- Penetração na célula.
  - Fusão



Vírus

Ciclo de vida

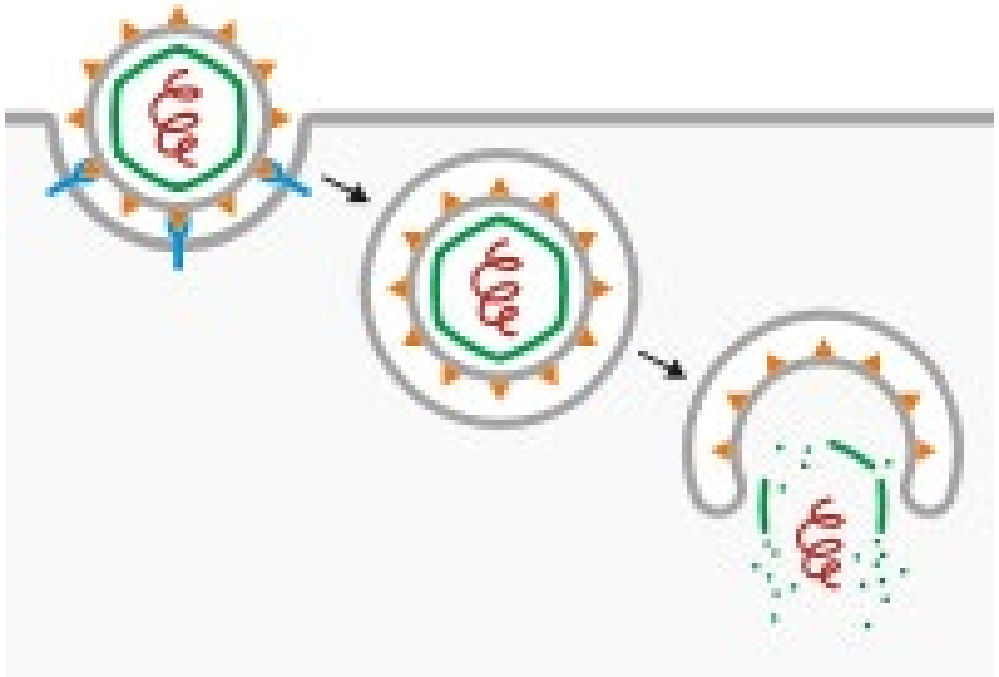
- Penetração na célula.
  - Fusão



Vírus

Ciclo de vida

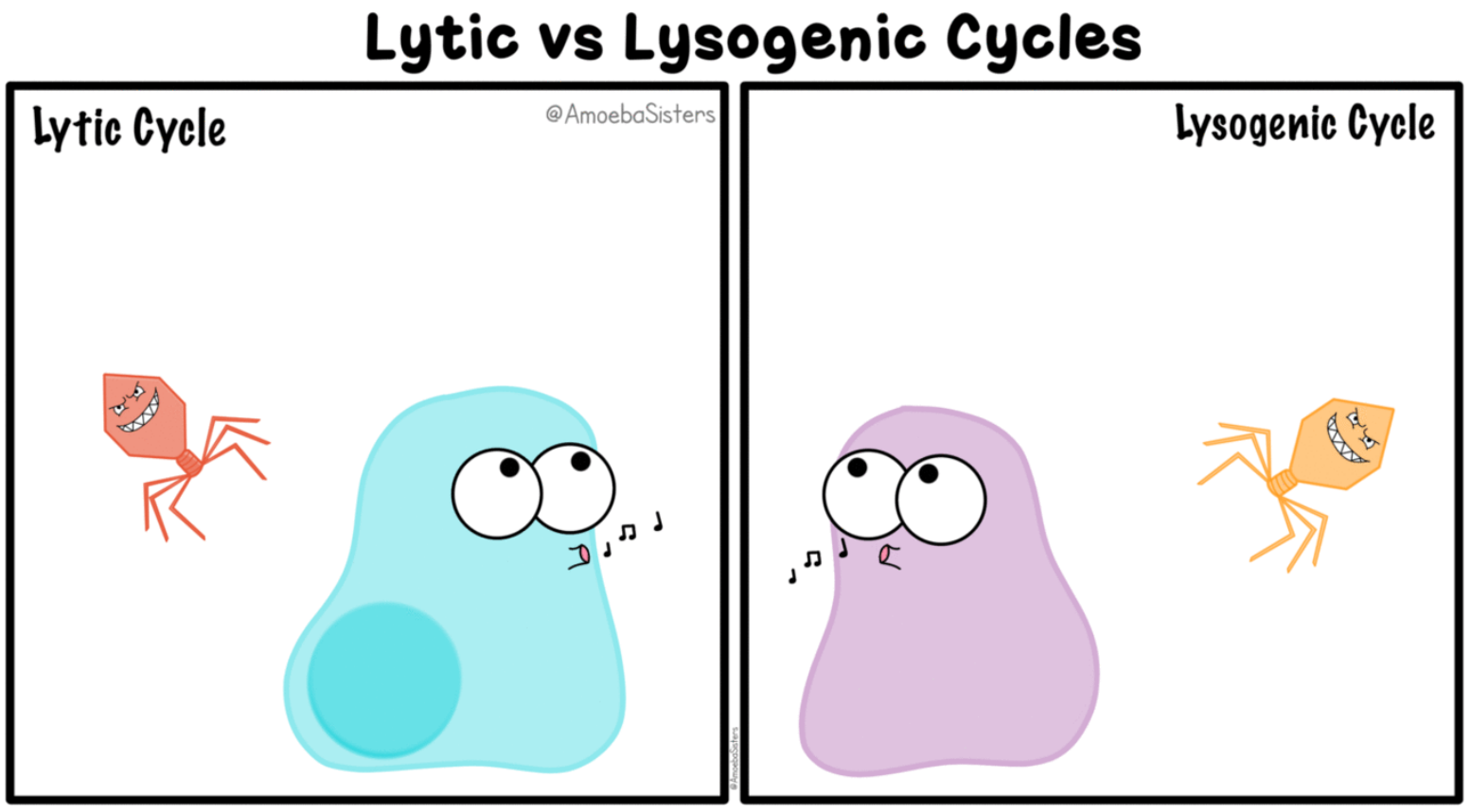
- Penetração na célula.
  - Endocitose



Vírus

Ciclo Reprodutivo

- Bacteriófago
- Ciclo Lítico
- Ciclo Lisogênico

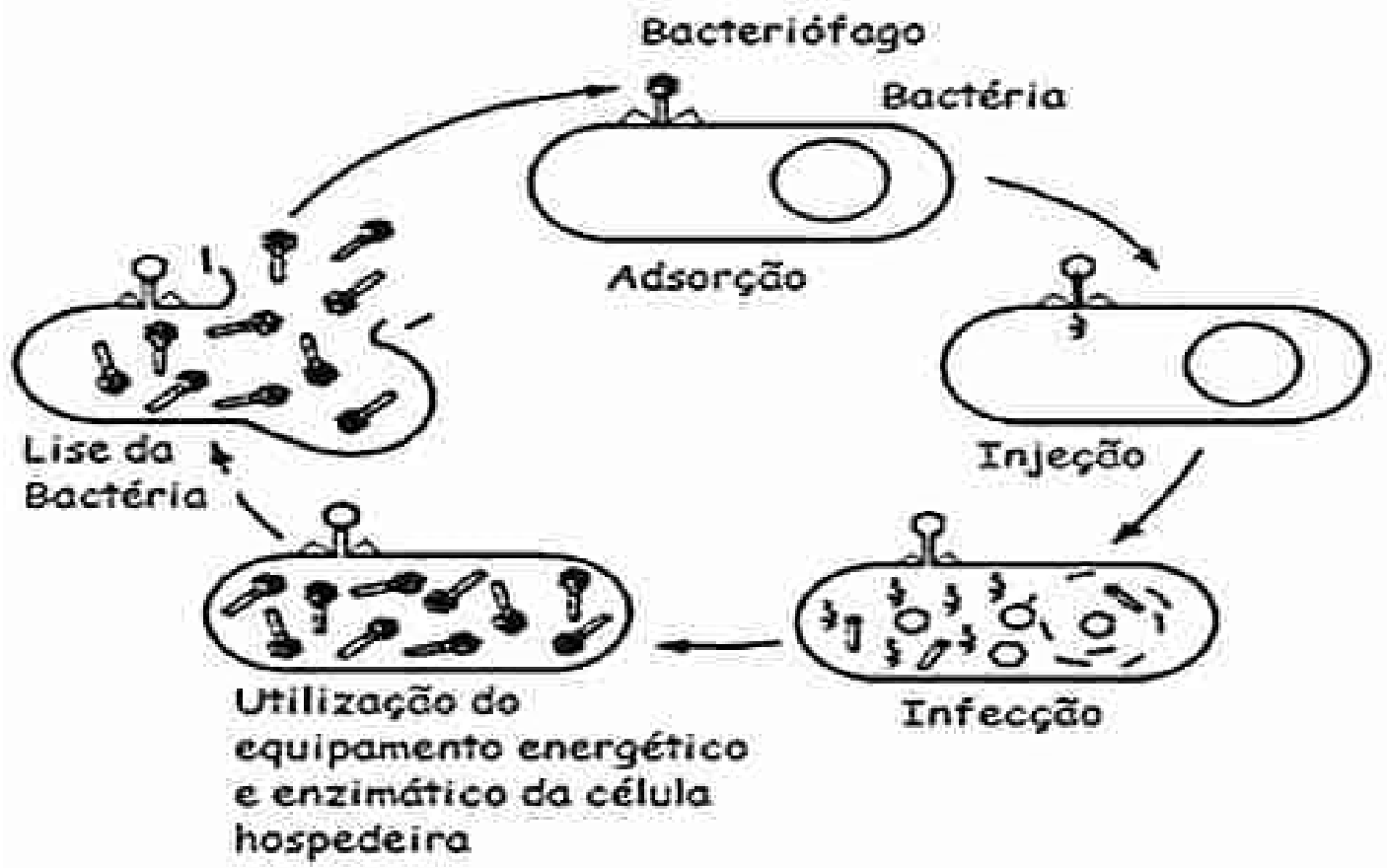


Vírus

Ciclo Reprodutivo

- Ciclo Lítico

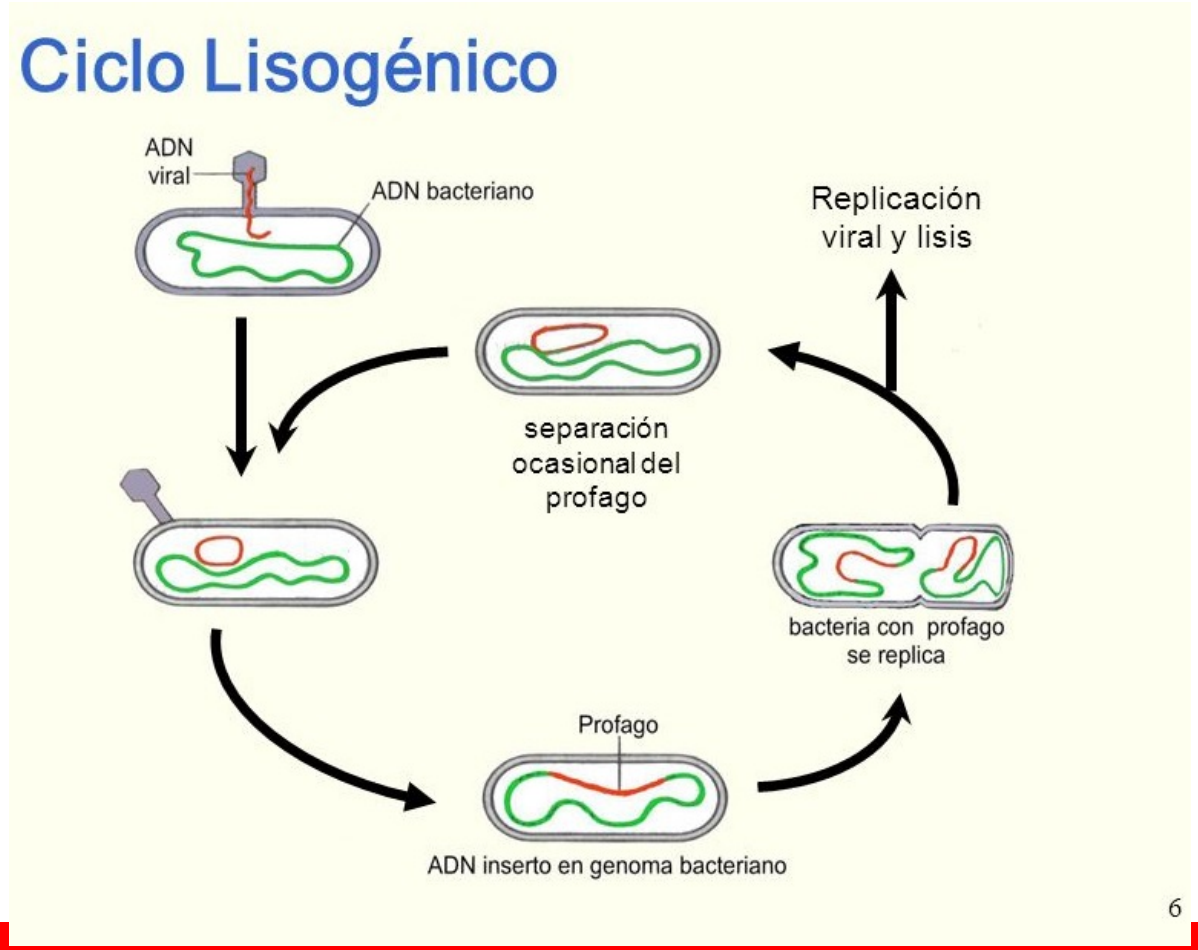
Adesão
Penetração
Biossíntese
Maturação
Liberação



Vírus

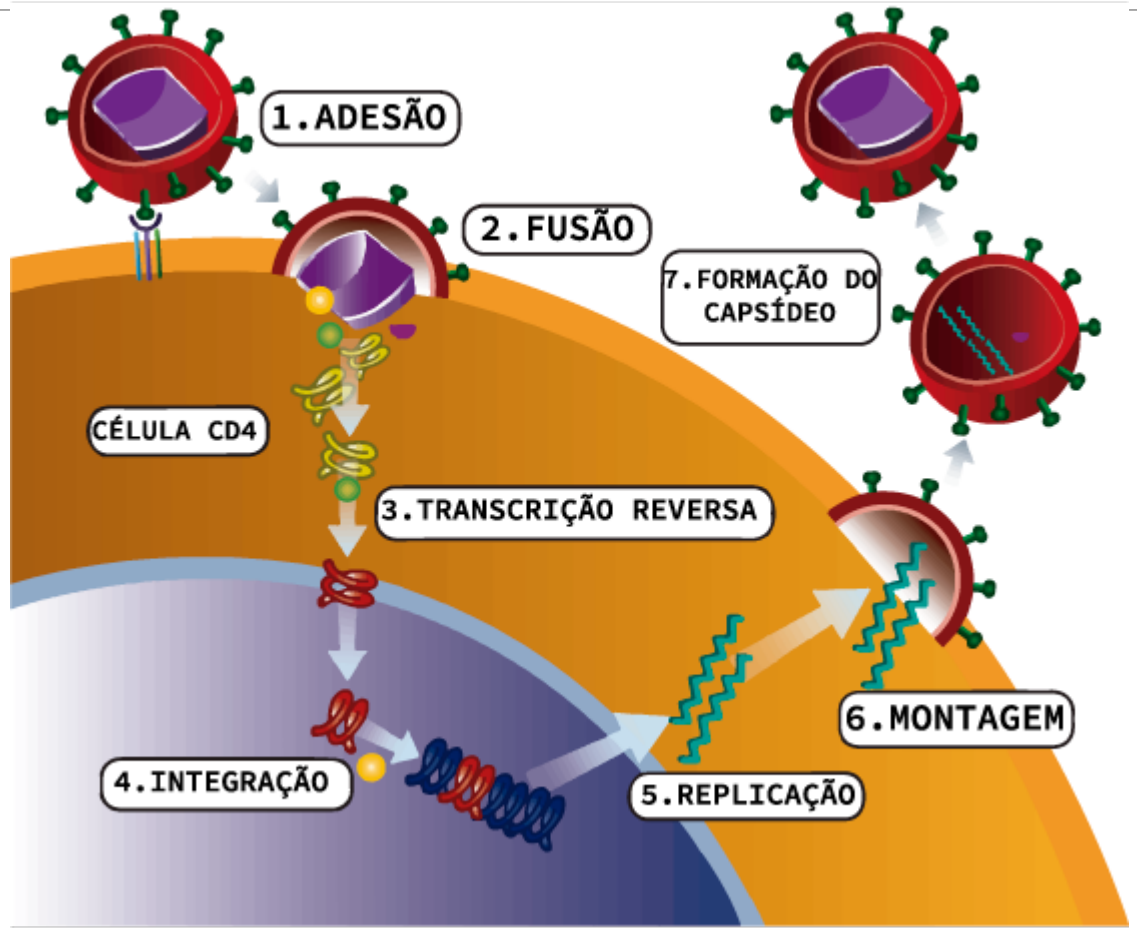
Ciclo Reprodutivo

- Ciclo Lisogênico



Vírus

Retrovírus



Vírus

Partículas Sub virais

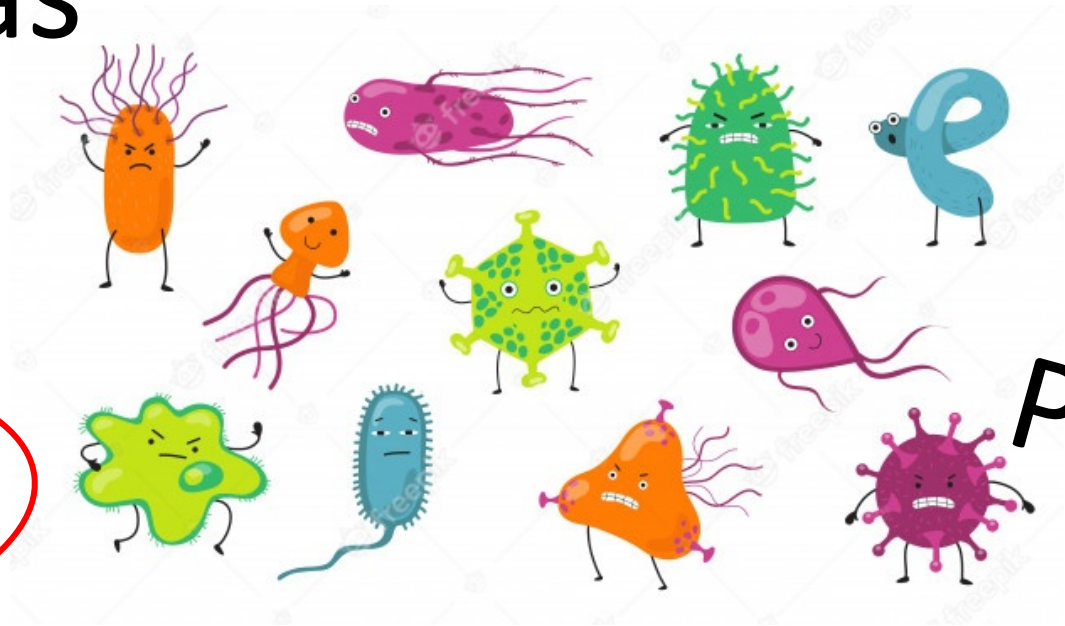
- Viroides
  - RNA Simples.
  - Se aloja no núcleo da célula hospedeira.
  - Doenças apenas em plantas.
- Virusoides
  - Semelhante aos viroides
  - Se propaga apenas na presença de outros vírus
  - Hepatite D ➡ Hepatite B
- Príons
  - Proteínas infectantes

Microbiologia

Algas

Vírus

Bactérias



Fungos

Protozoários

Monera

Características Gerais:

- Procariontes ⇨ Não apresentam núcleo.
- Unicelulares
- Autótrofos ou Heterótrofos
  - Saprófitas
  - Parasitas
  - Simbiontes

Fotossíntese
Quimiossíntese

- Aeróbicos ou Anaeróbicos
  - Facultativas
  - Estritas (Obrigatórias)

Fermentação láctica.

Monera

Fotossíntese e Quimiossíntese bacterianas

Fotossíntese

$6CO_2 + 12H_2S \longrightarrow C_6H_{12}O_6 + 6H_2O + 12S$

Gás sulfúrico

Fotossíntese Cianobactérias

$6CO_2 + 12H_2O \longrightarrow C_6H_{12}O_6 + 6H_2O + 6\ O_2$

luz

Quimiossíntese

$2NO^-_2 + O_2 \longrightarrow 2NO^-_3 + \text{Energia química}$

$6CO_2 + 12H_2O \longrightarrow C_6H_{12}O_6 + 6H_2O + 6\ O_2$

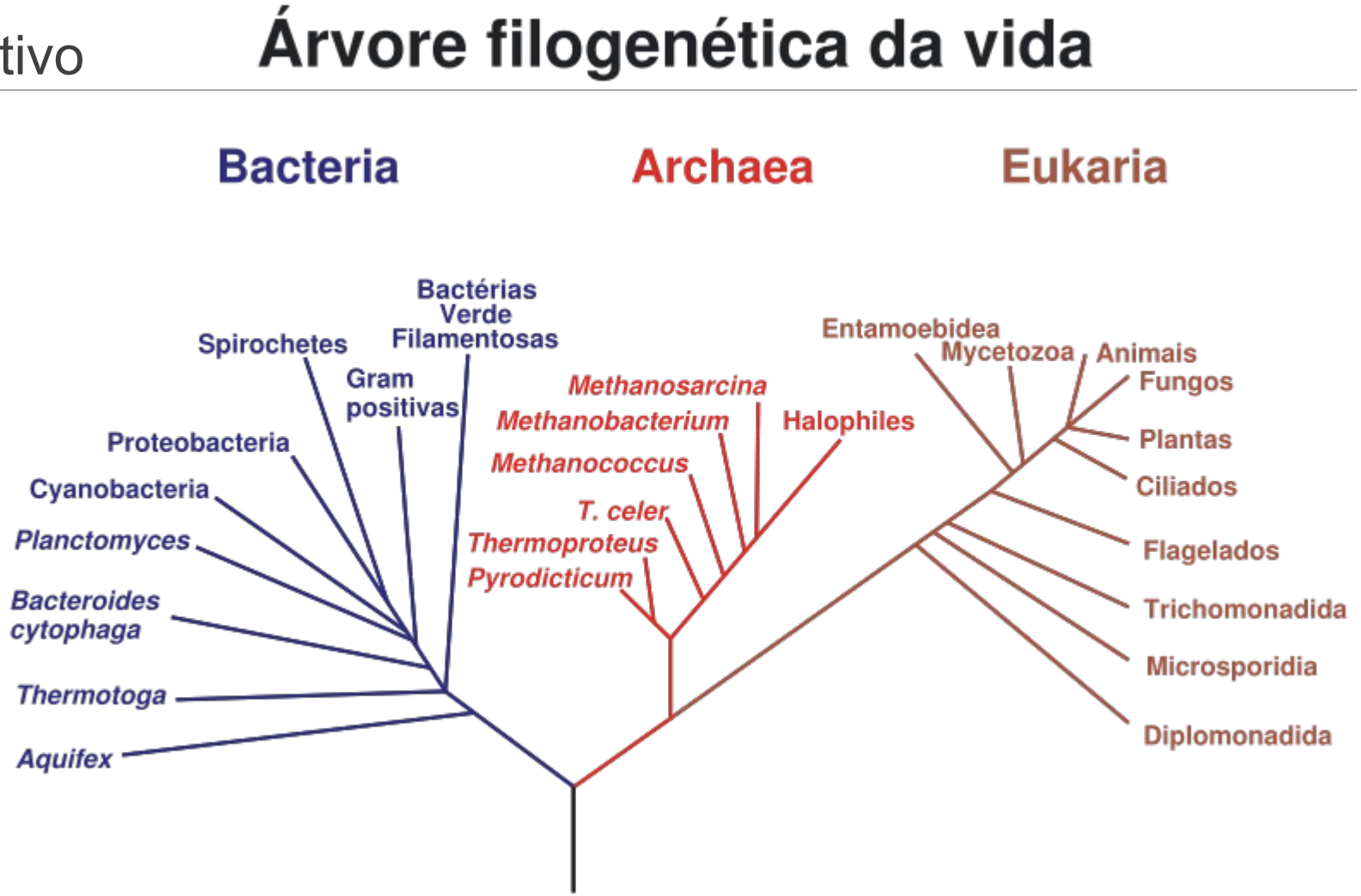
Monera

Fermentação lática.



Monera

Parentesco evolutivo



Monera

Archea

- Extremófilas.
  - Metanogênicas
  - Termofilas
  - Halobacterias

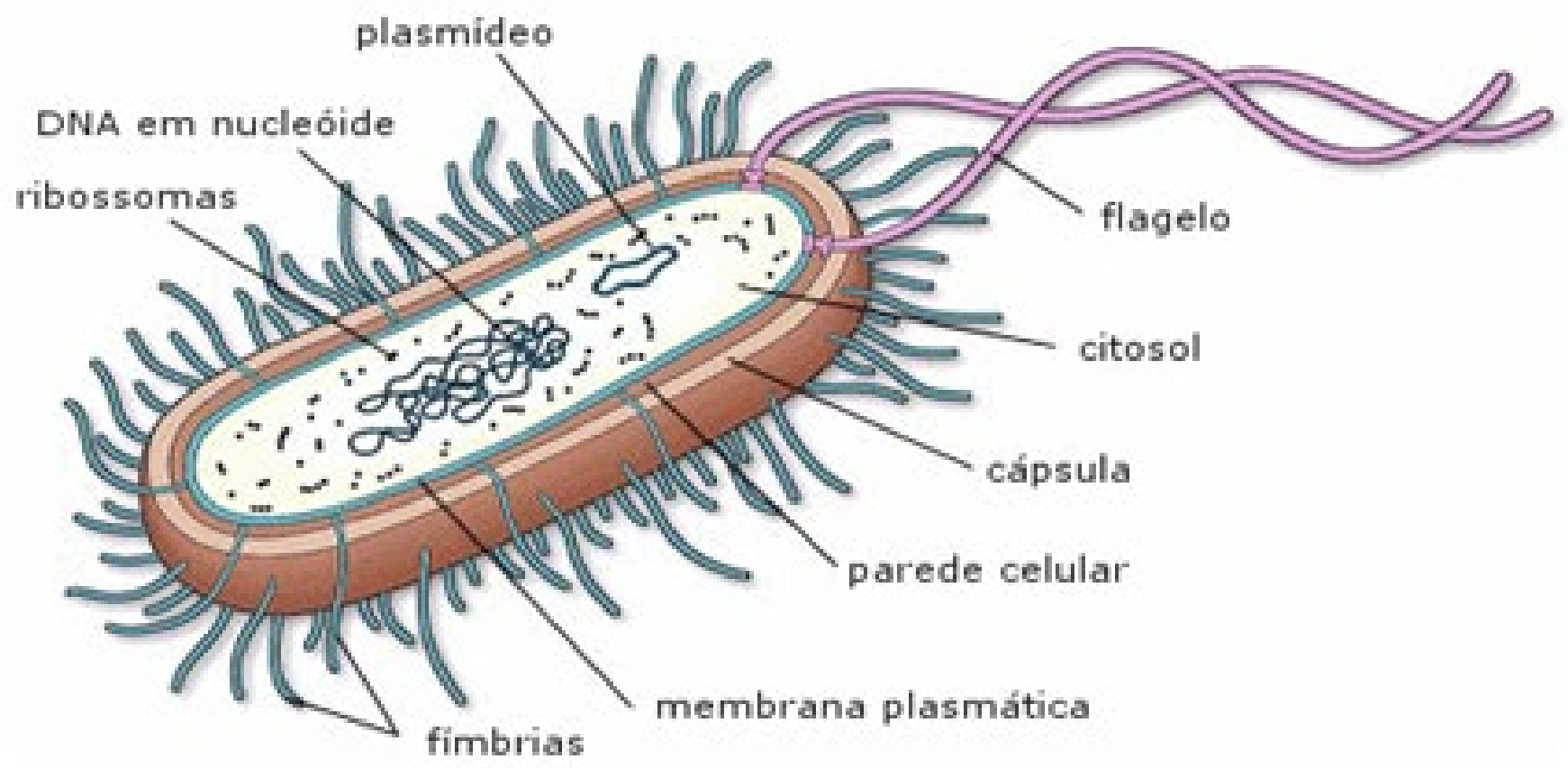


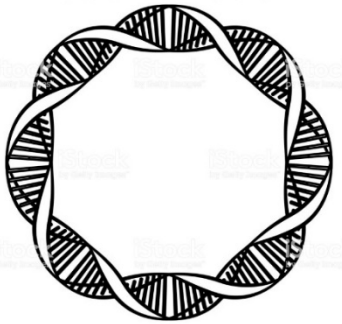


Pyrococcus furiosus

Monera

Morfologia

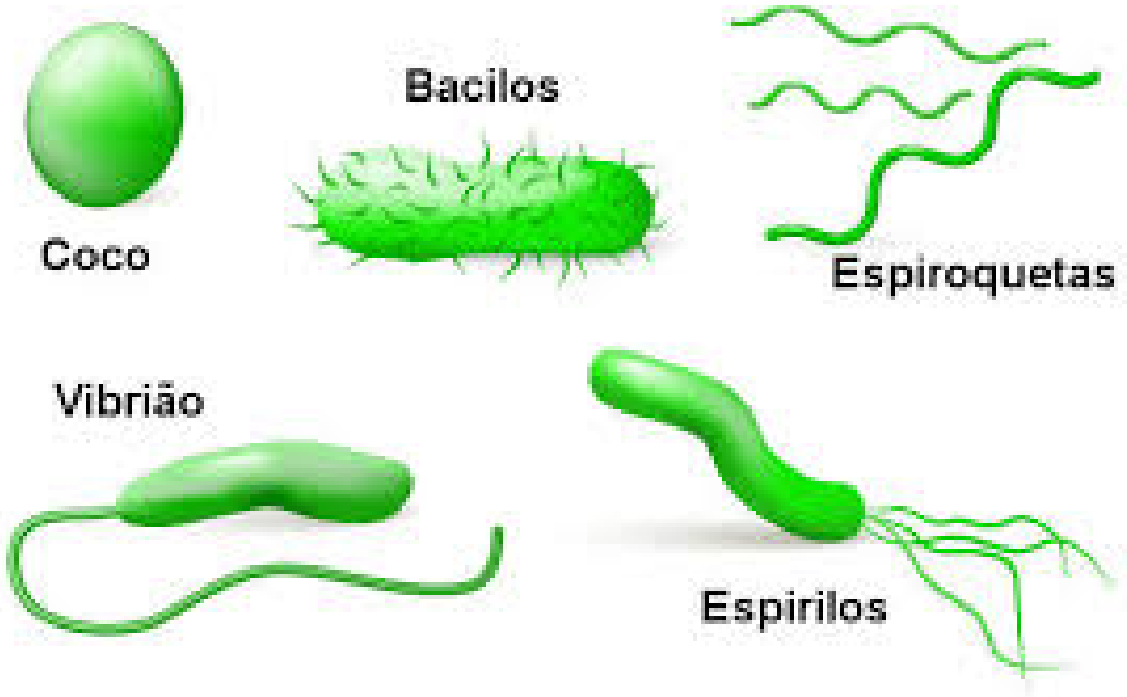




DNA circular

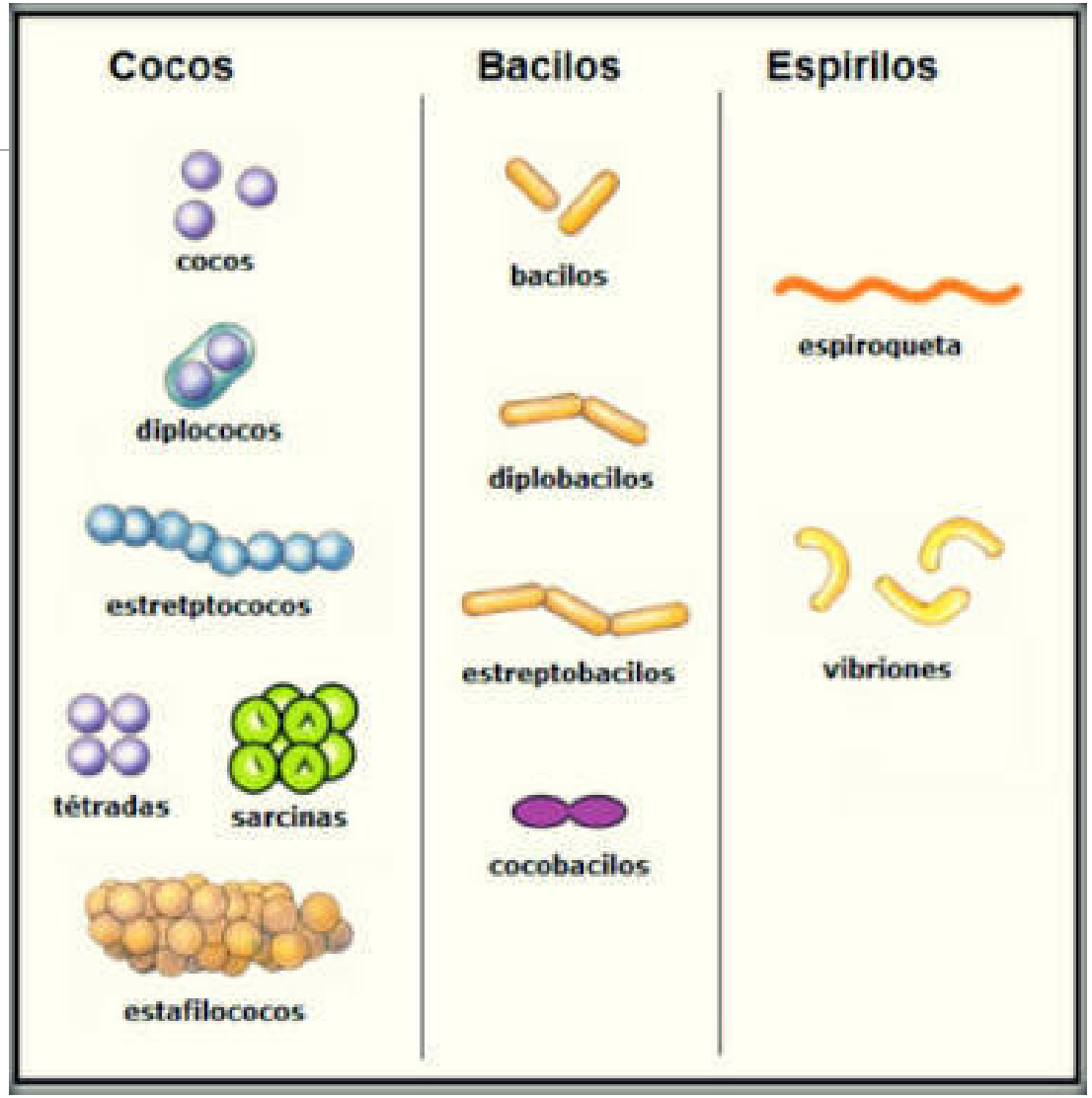
Monera

Classificação



Monera

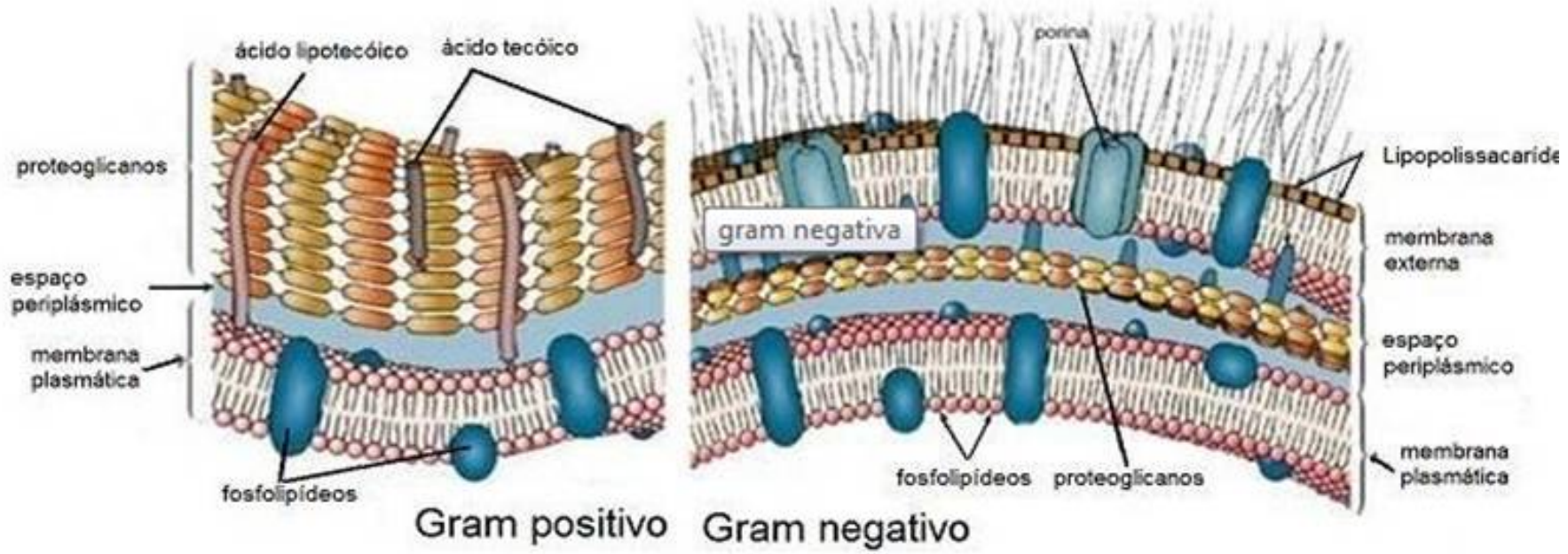
Classificação



Monera

Classificação

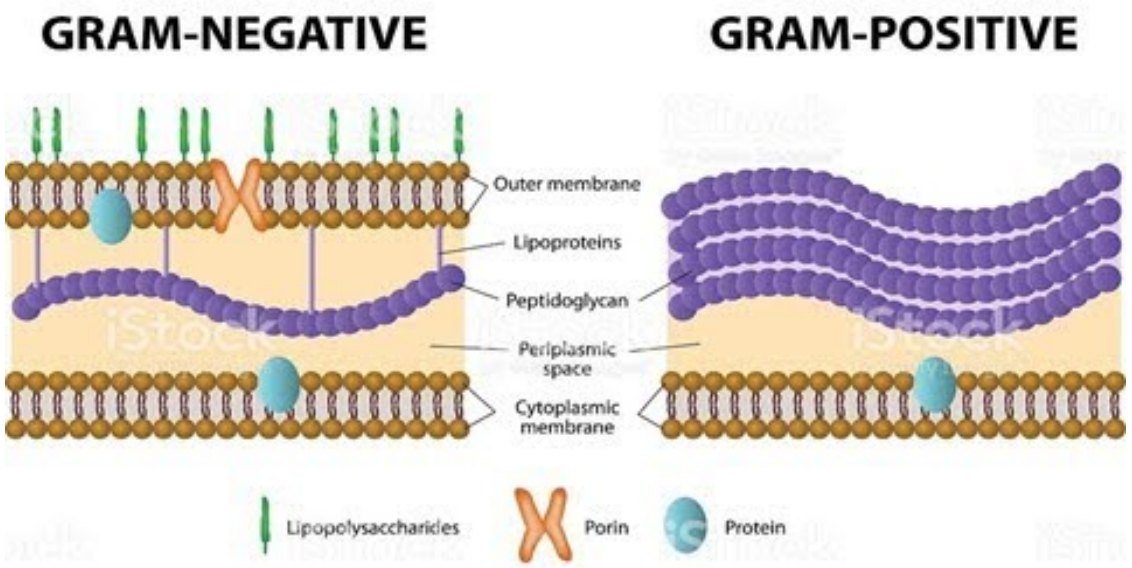
- Parede celular



Monera

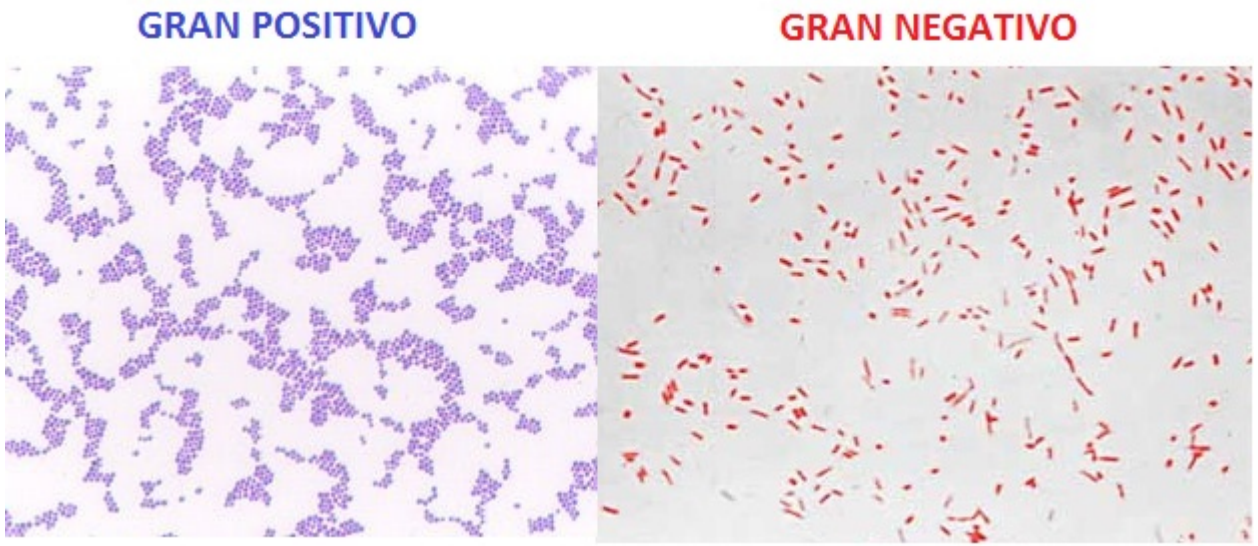
Classificação

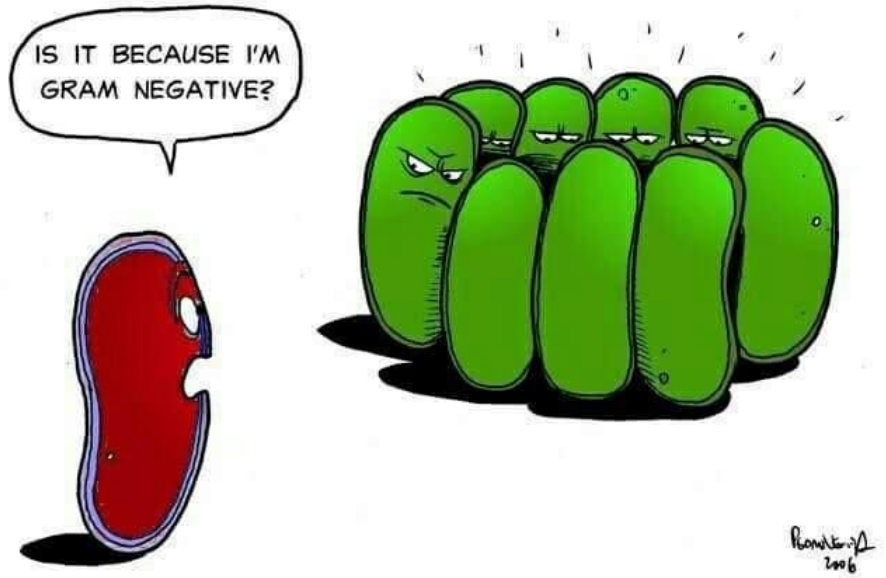
- Parede celular



Monera

Classificação





Monera

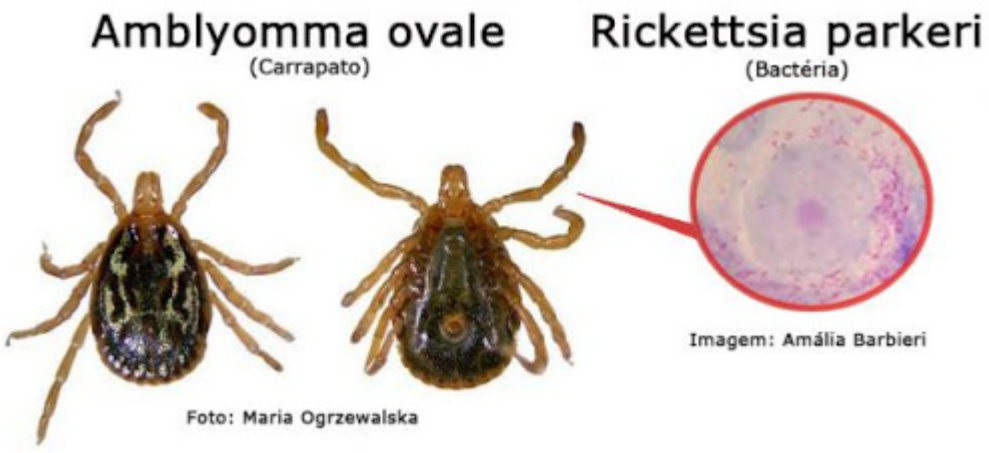
Parasitas intracelulares.

- Bactérias diminutas.

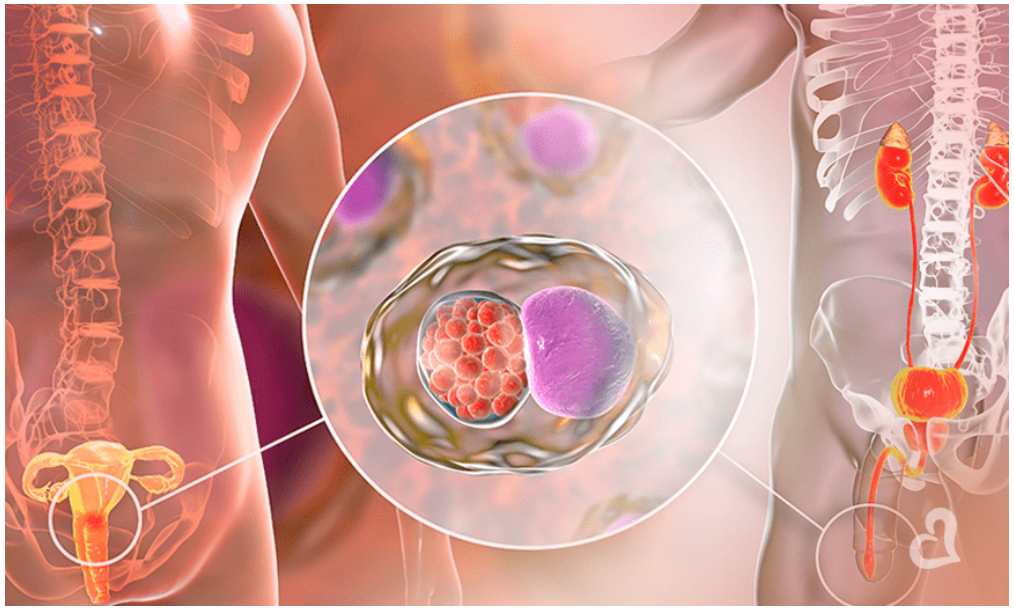
Micoplasma



Riquetsia

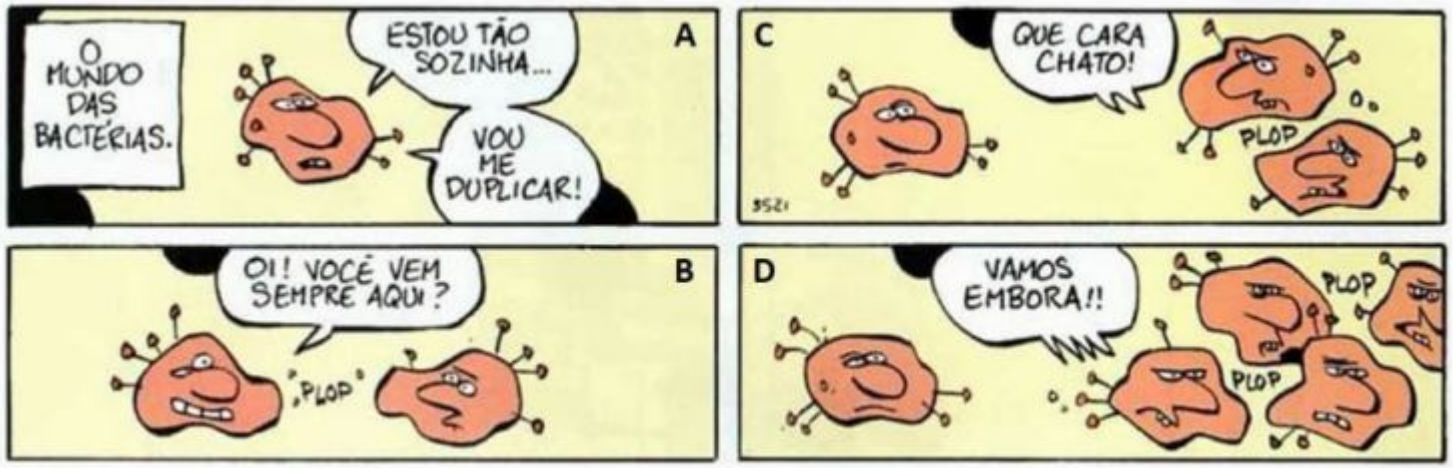


Clamídia



Monera

Reprodução Bacteriana



GONSALES, F. **Niquel Náusea**. Disponível em: http://escreverciencias.blogspot.com.br. Acesso em: 16 jun. 2014.

Monera

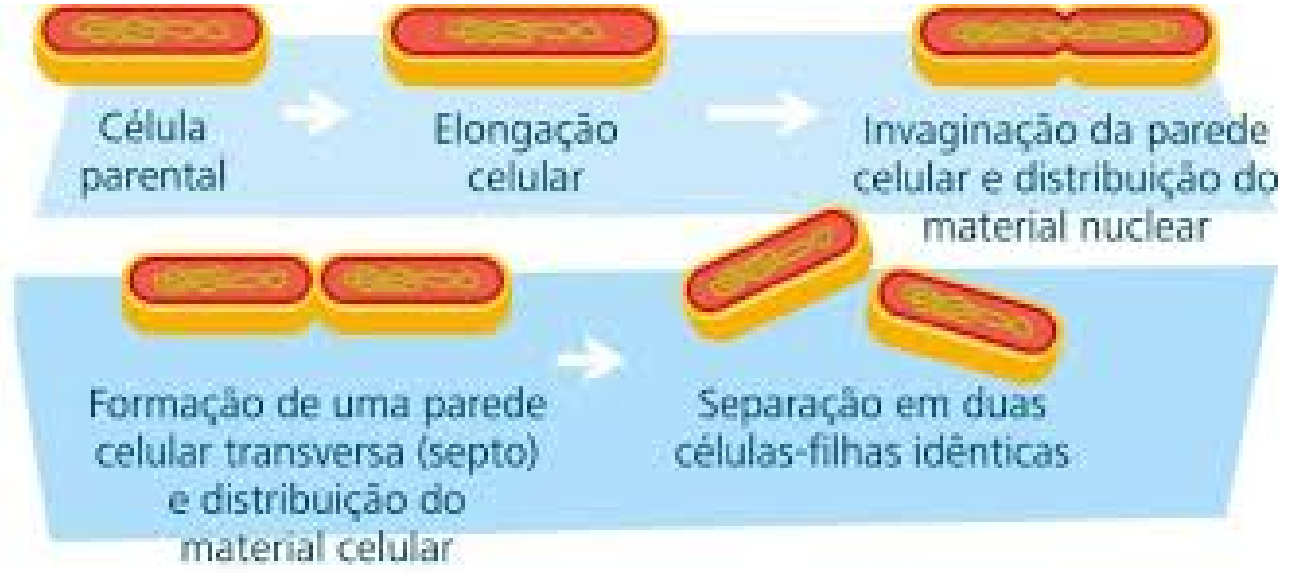
Reprodução Assexuada.



Monera

Reprodução Assexuada.





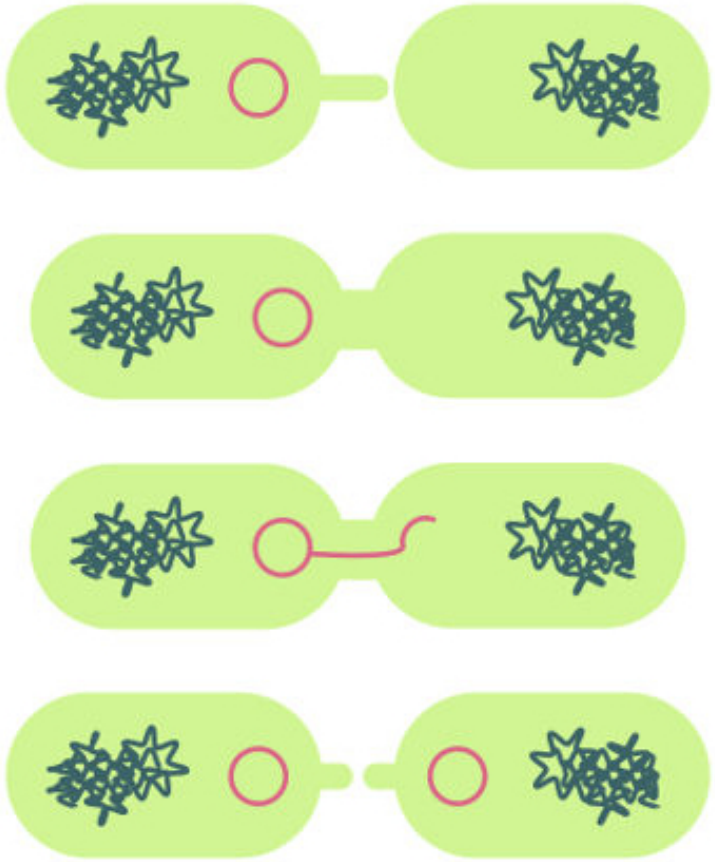
Monera

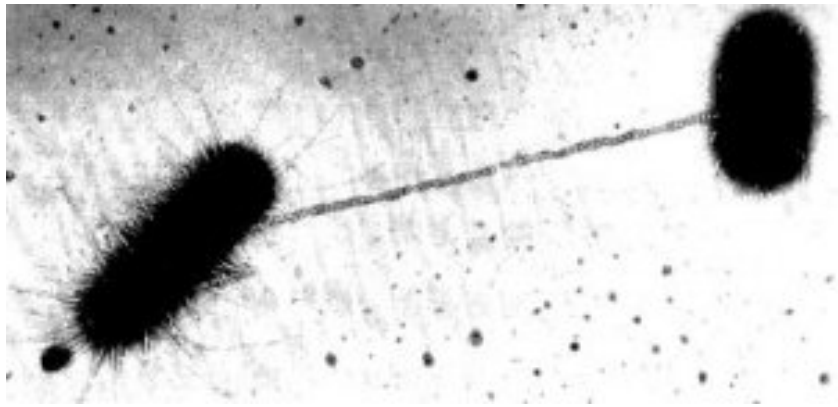
Reprodução Sexuada – Conjugação.



Monera

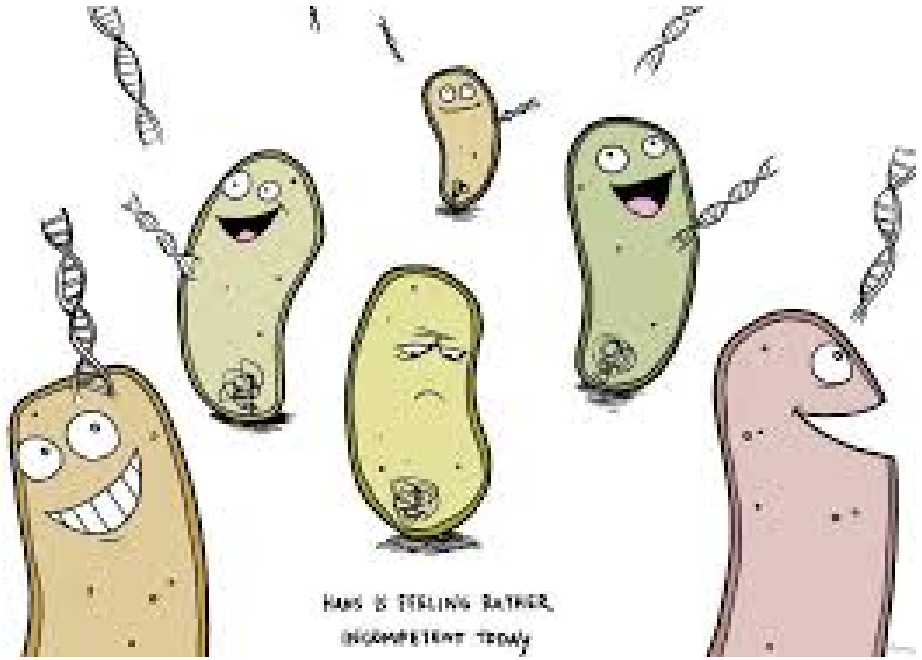
Reprodução Sexuada – Conjugação.





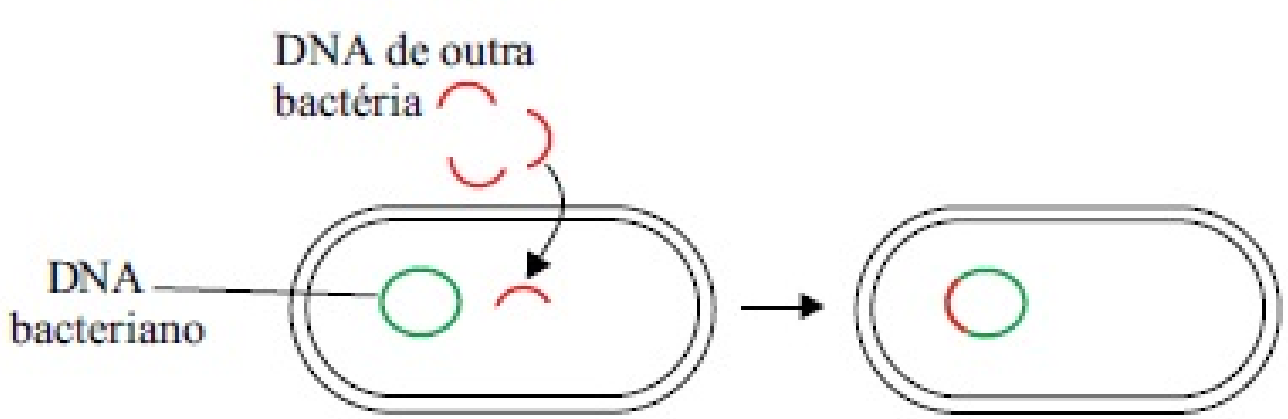
Monera

Reprodução Sexuada – Transformação.



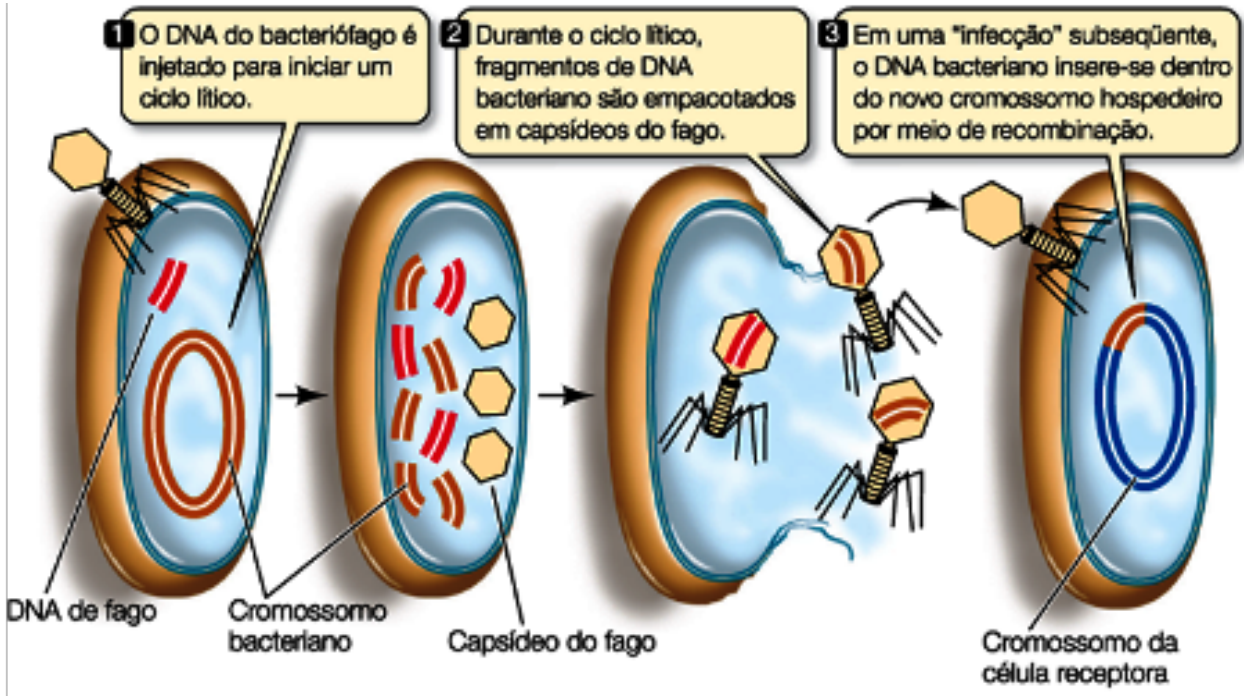
Monera

Reprodução Sexuada – Transformação.



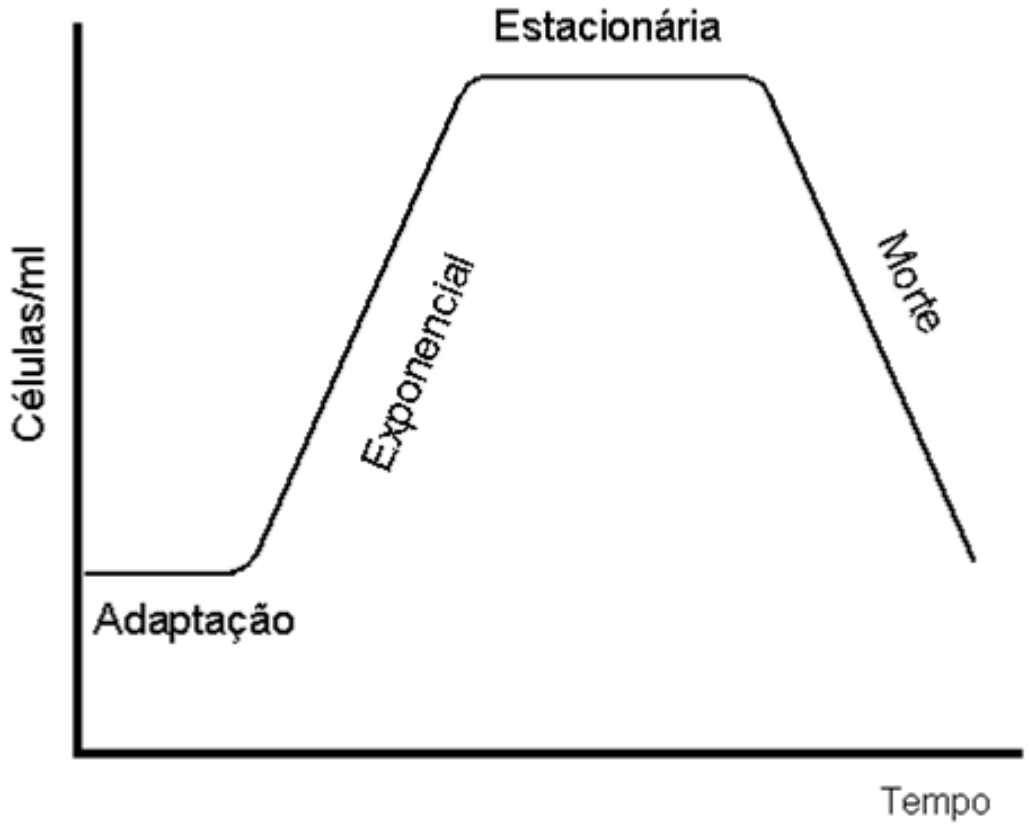
Monera

Reprodução Sexuada – Transdução.



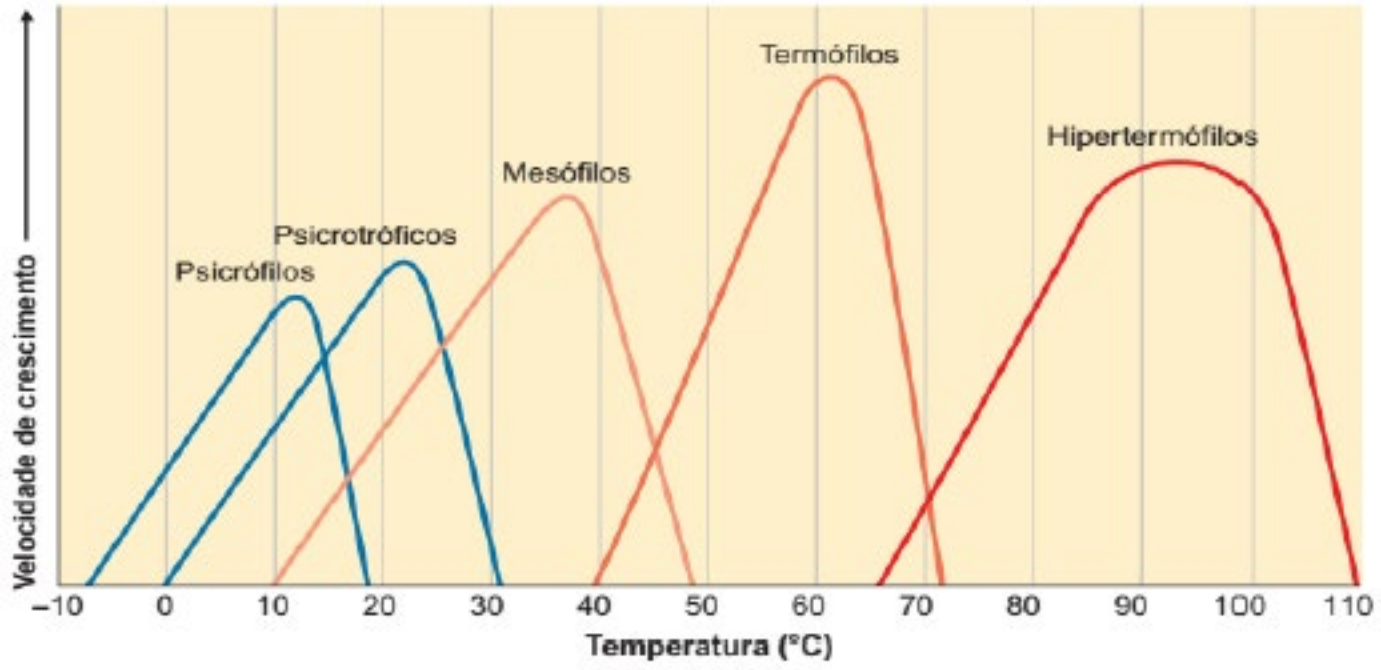
Monera

Crescimento.



Monera

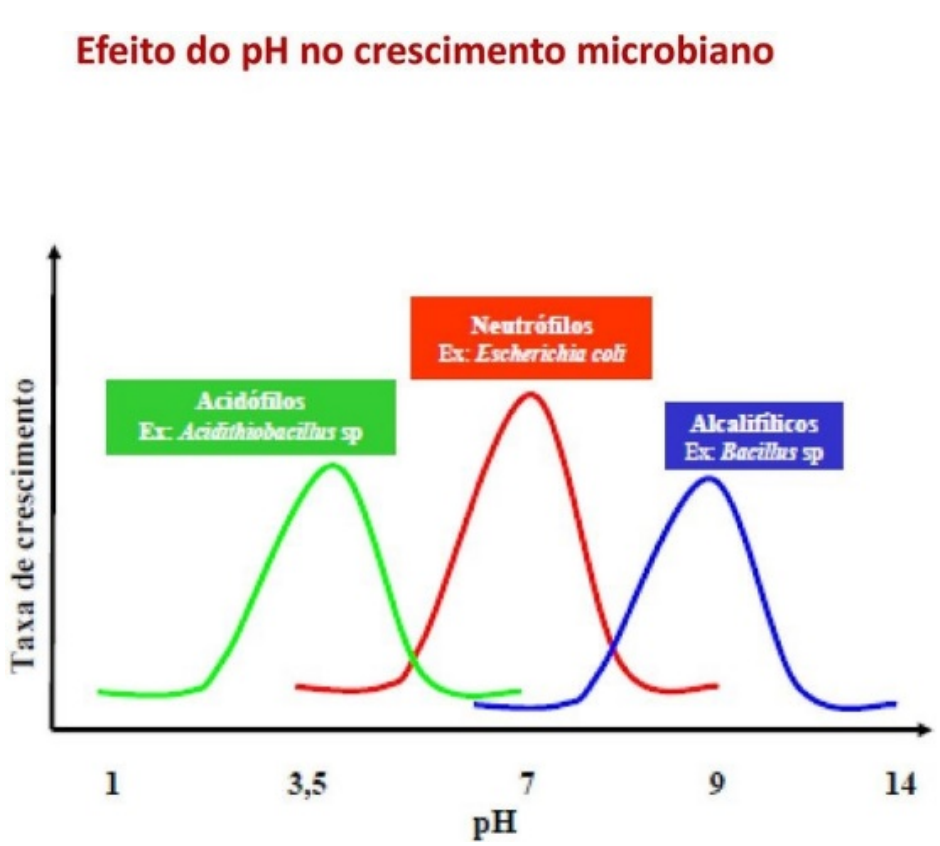
Crescimento – Fatores limitantes.





Monera

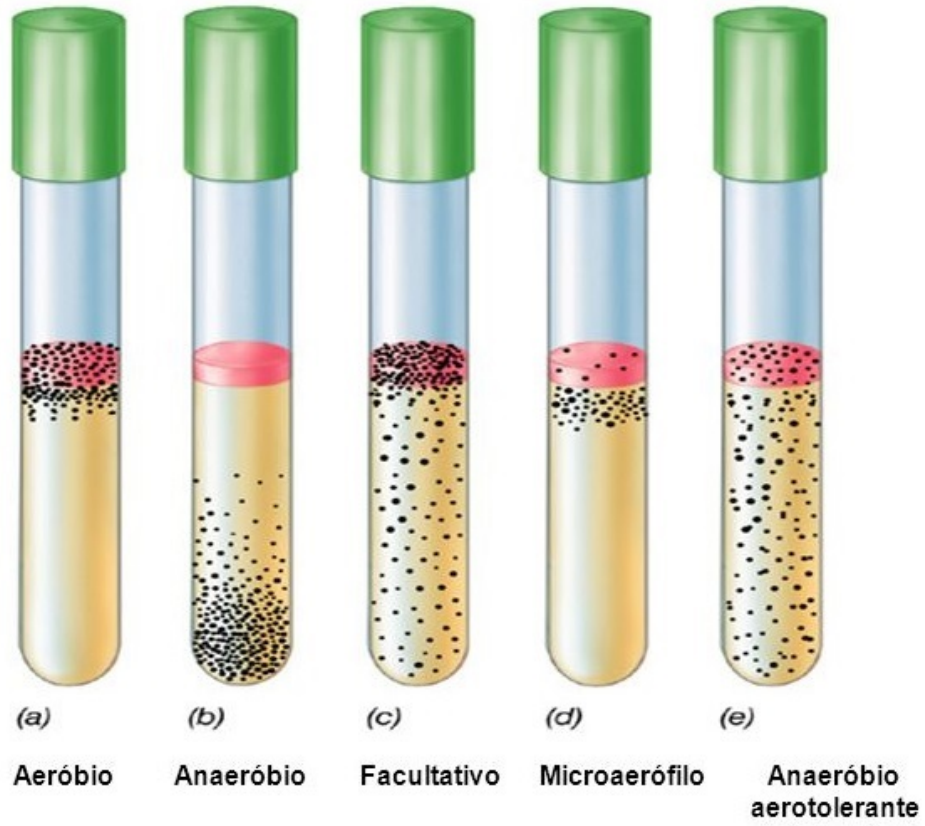
Crescimento – Fatores limitantes.

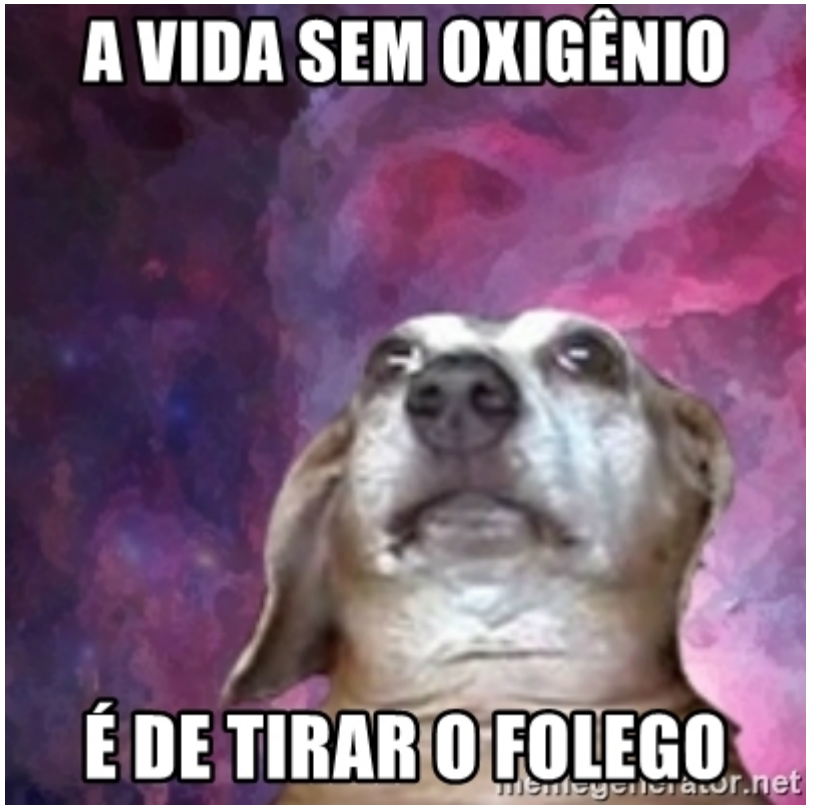




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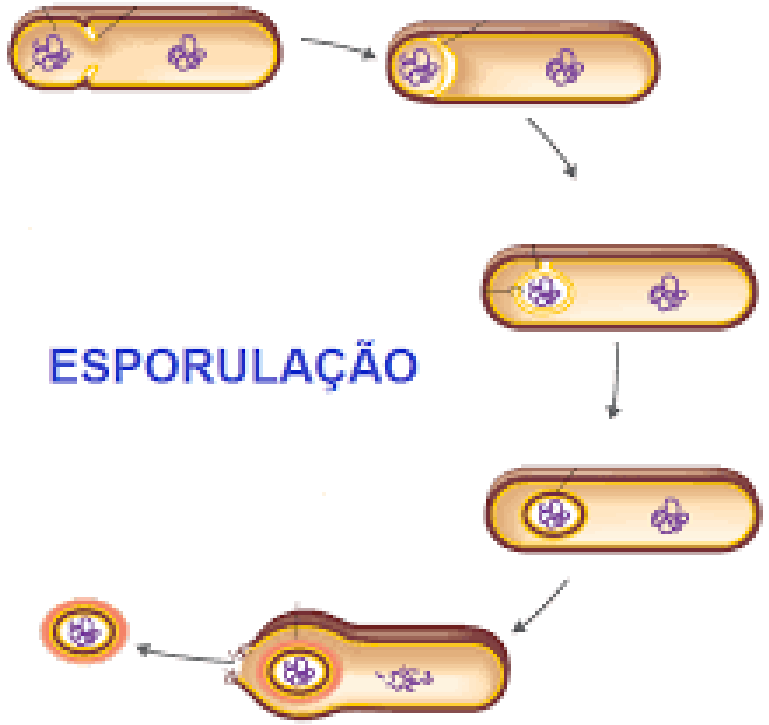
Crescimento – Fatores limitantes.





Monera

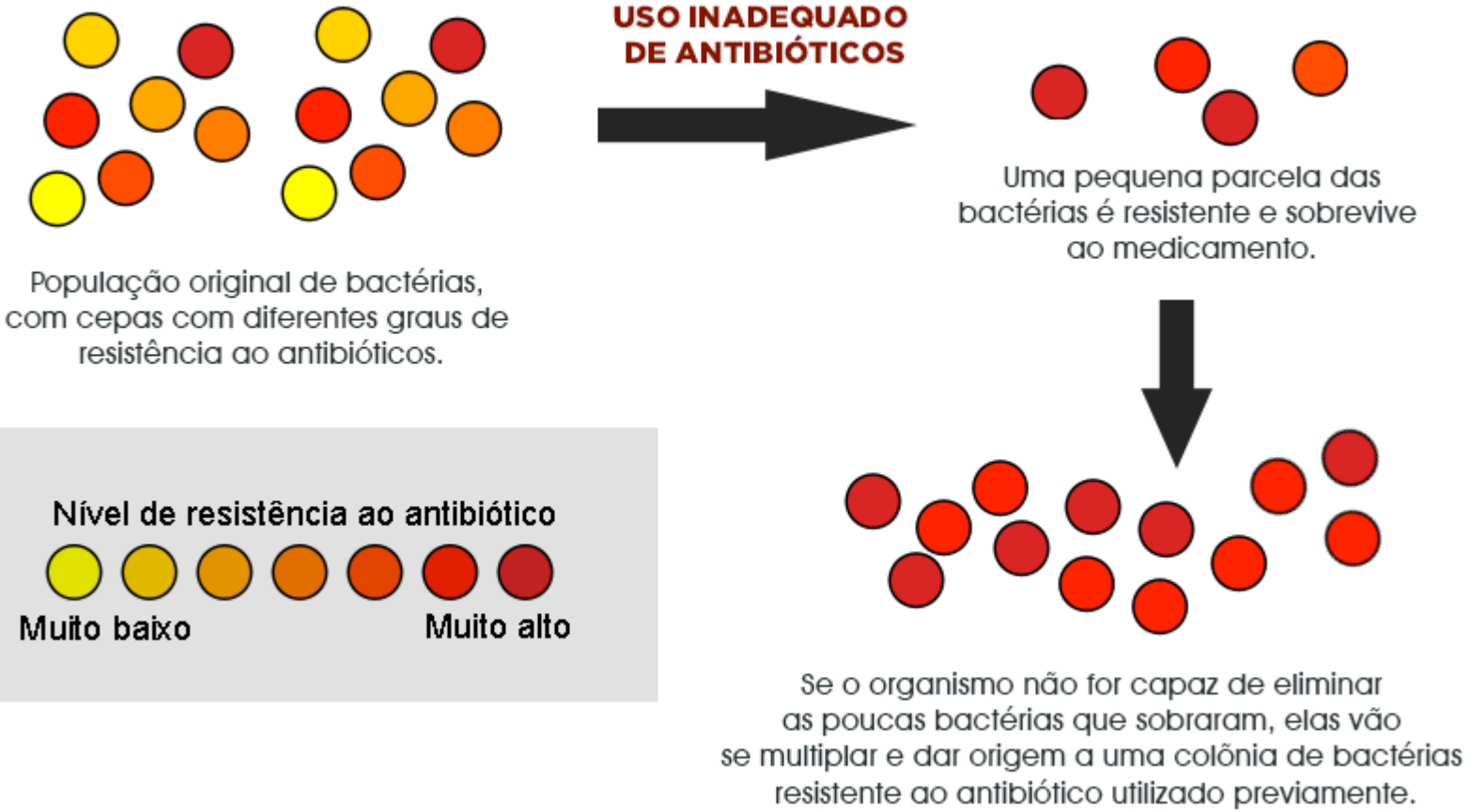
Crescimento – Fatores limitantes.





Monera

Resistência à antibióticos.



Fungi





Fungi

Cogumelos



Fungi

Cogumelos



Fungi

Cogumelos



Fungi



Cogumelos



Fungi

Bolores



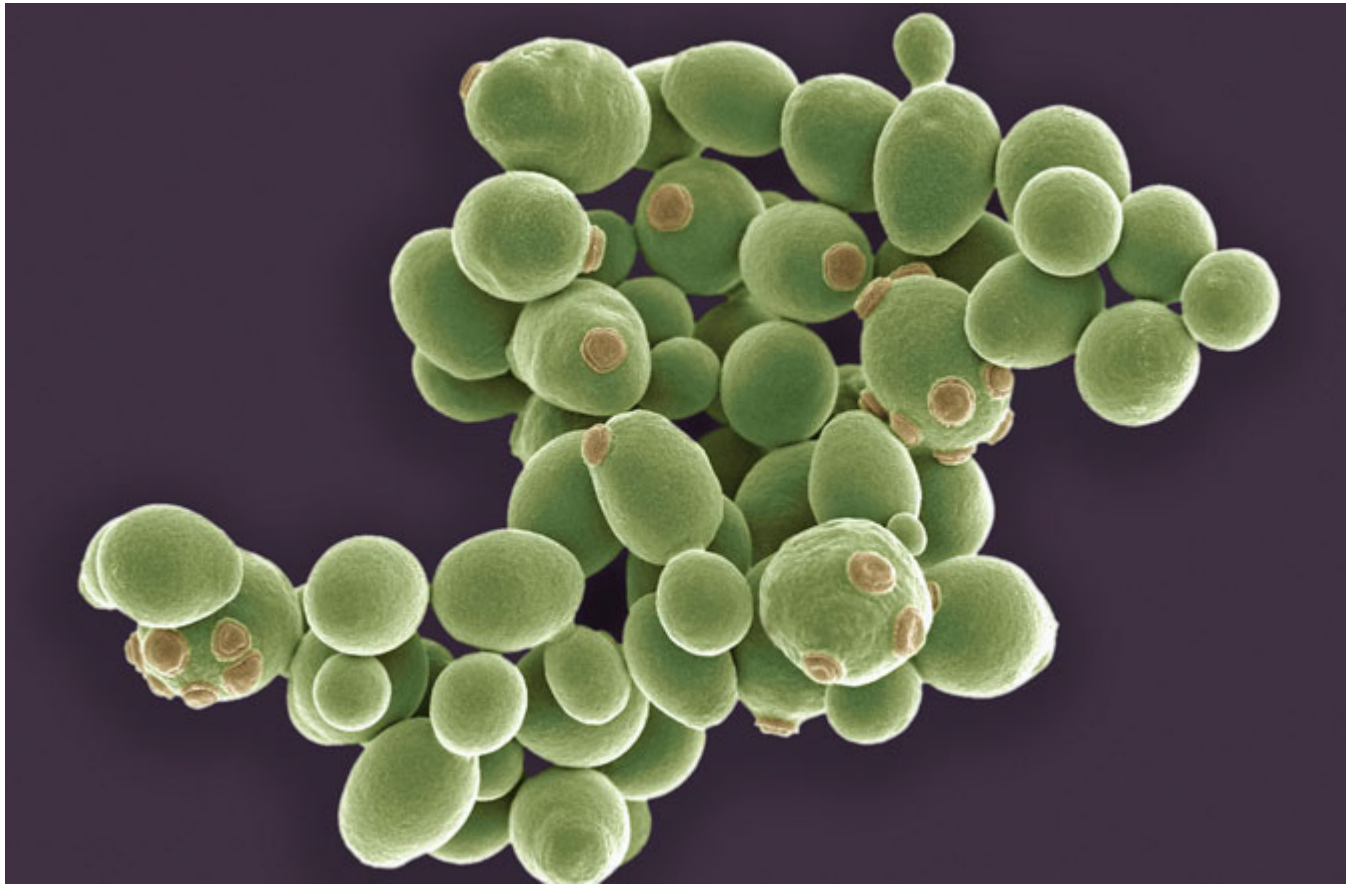
Fungi

Orelhas de pau



Fungi

Leveduras



Fungi

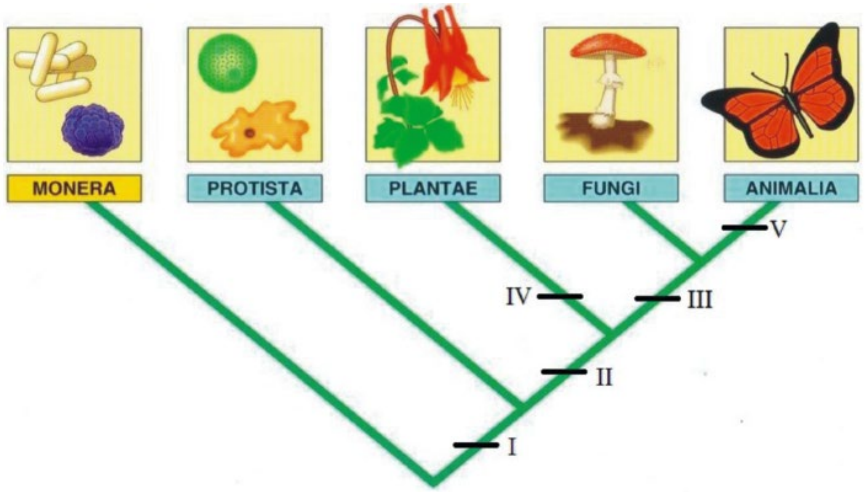
Características Gerais:

- Uni ou Pluricelulares
- Eucariontes
- Parede celular → Quitina
- Reserva de energia → Glicogênio
- Heterotróficos → Absorção
  - Sapróbios
  - Parasitas
- Produzem esporos
  - Sexuado (meiose)
  - Assexuado (mitose)

Fungi

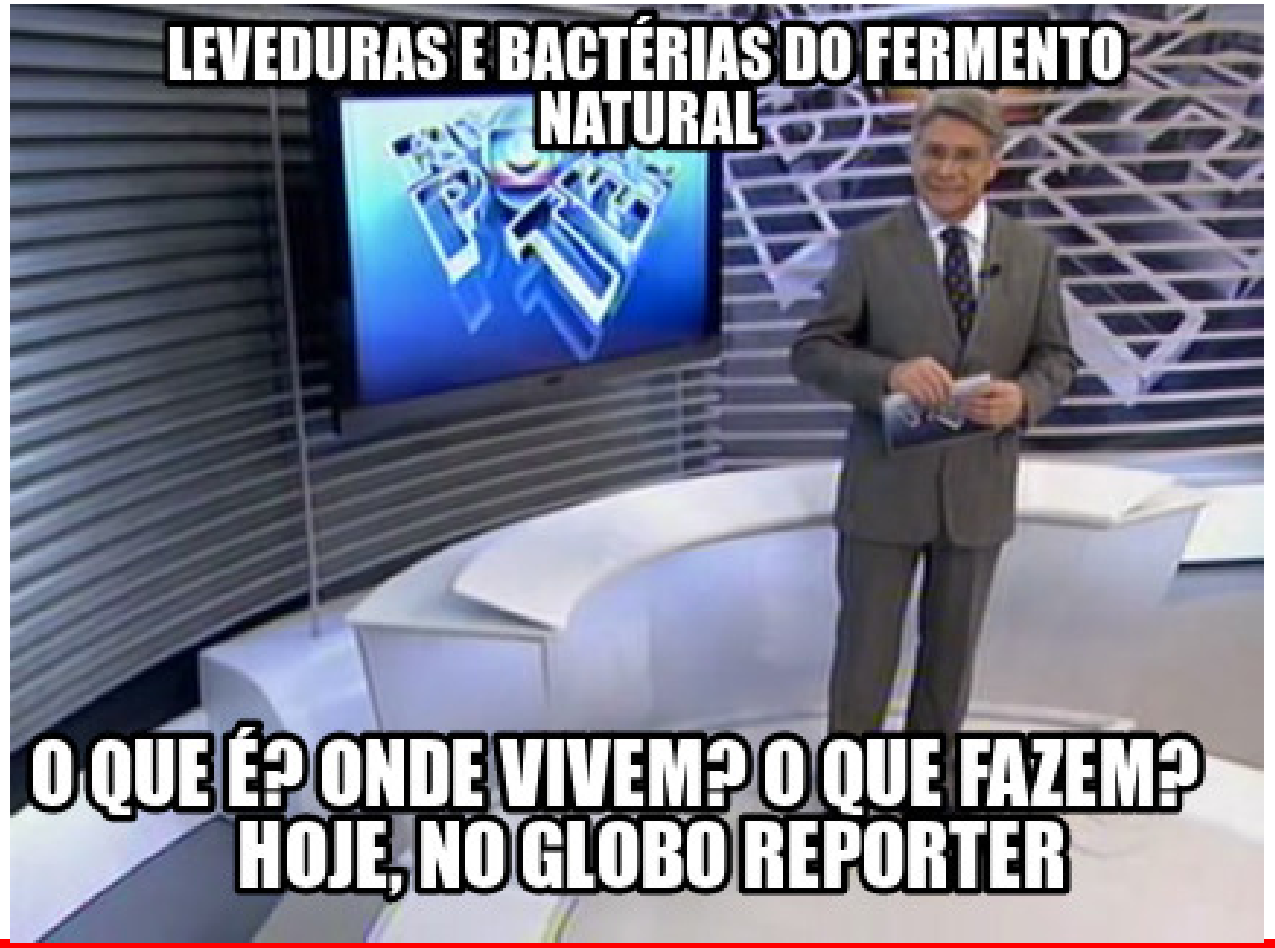
Características Gerais:

- Produzem esporos
  - Sexuado (meiose)
  - Assexuado (mitose)
- Vivem em locais úmidos
- Podem ser Aeróbicos, anaeróbicos ou anaeróbicos facultativos



Fungi

Importância



Fungi

Importância



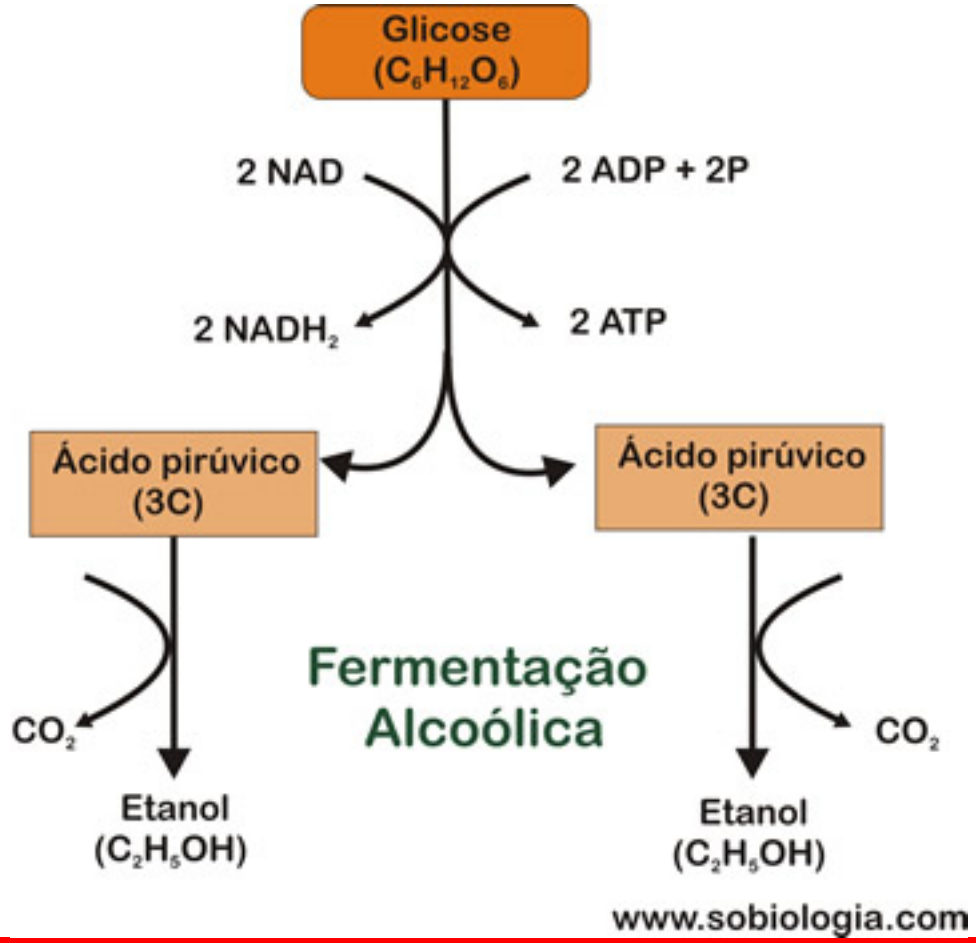
Fungi

Importância



Fungi

Importância



Fungi

Importância

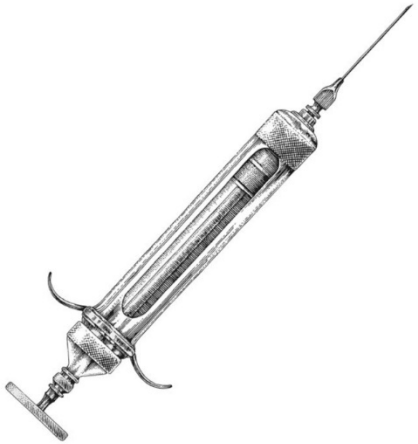


Queijo Roquefort

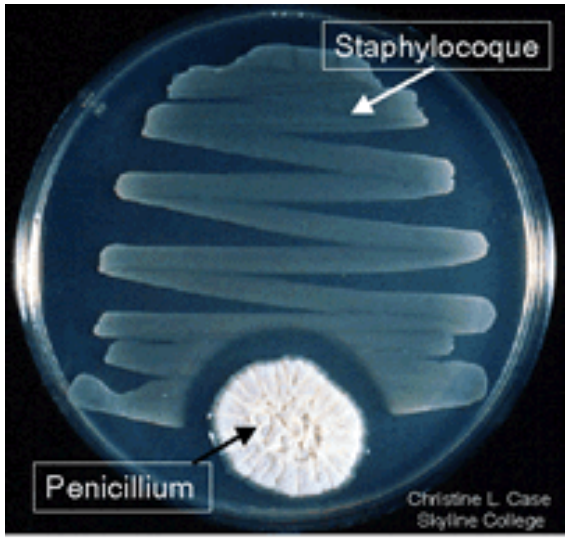
Fungi

Importância









Fungi

Importância



Fungi

Importância



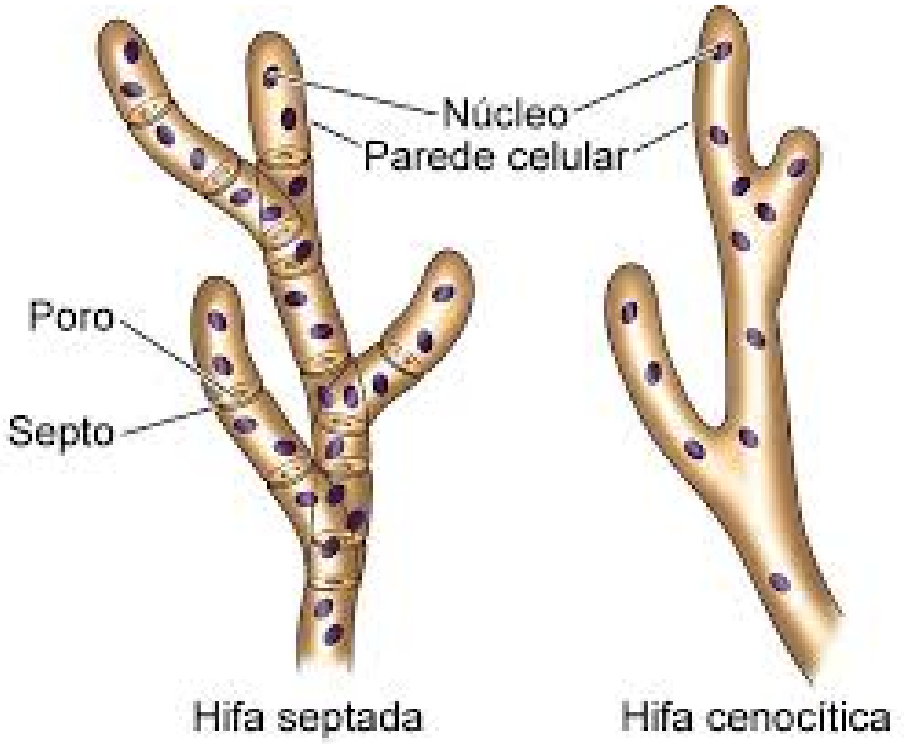
Fungi

Organização corporal

- Hifas → Micélio

- Hifas
  - Septadas (possuem septos)
  - Cenocíticas (não possuem septos)

- Micélio
  - Vegetativo (absorção)
  - Reprodutivo (reprodução)



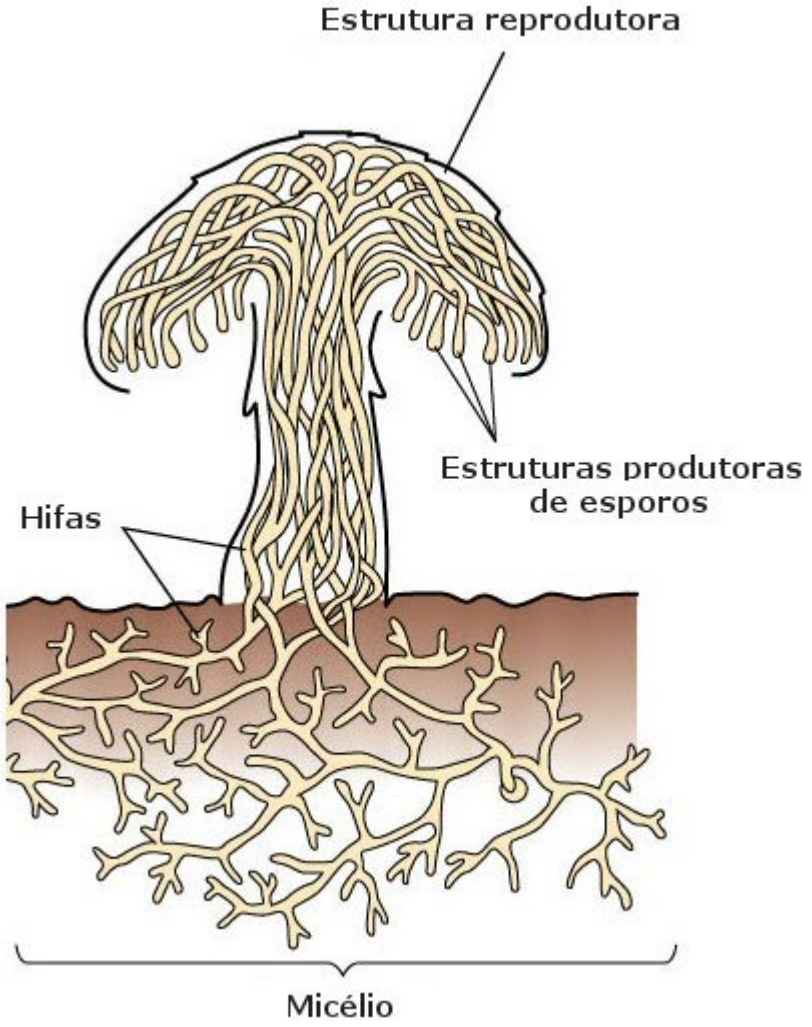
Fungi

Organização corpora

- Hifas → Micélio

- Hifas
  - Septadas (possuem septos)
  - Cenocíticas (não possuem septos)

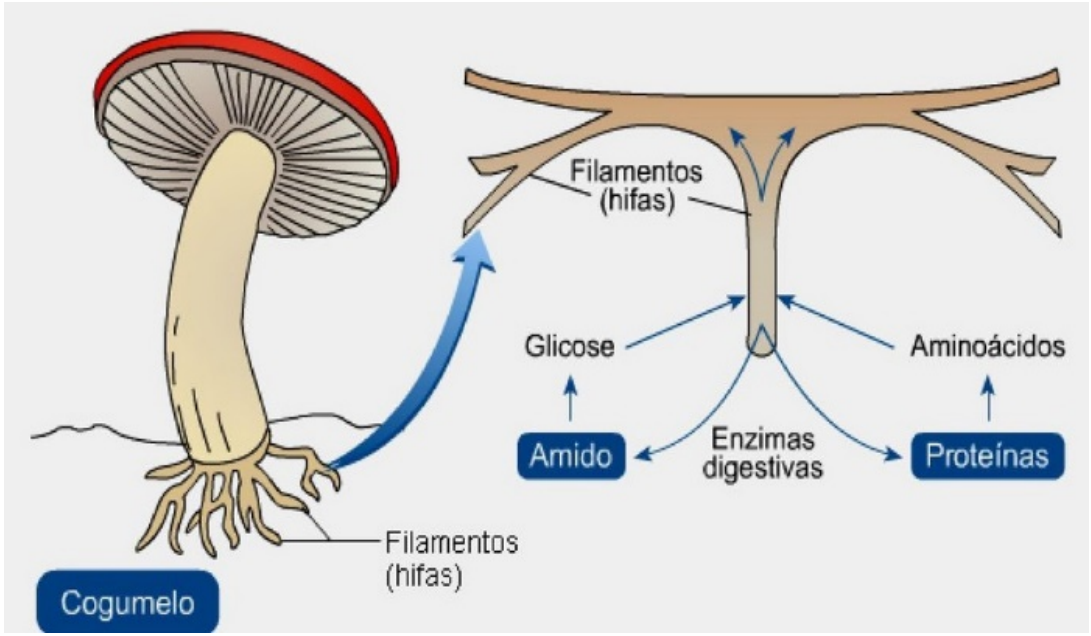
- Micélio
  - Vegetativo (absorção)
  - Reprodutivo (reprodução)



Fungi

Nutrição

- Heterotróficos
  - Parasitas e Decompositores (sapróbio)
- Digestão extracorpórea



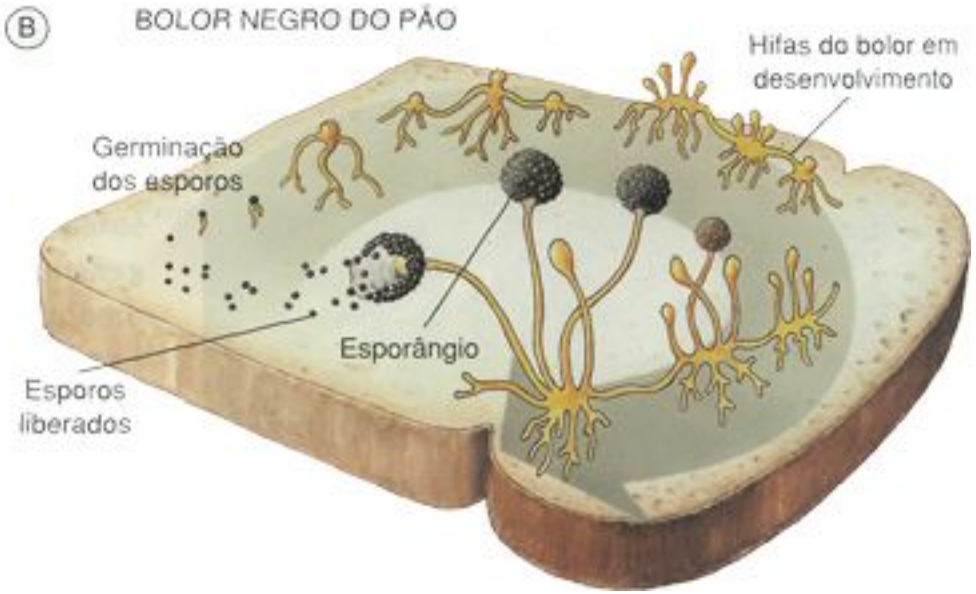
Fungi

Reprodução

Assexuada

- Fragmentação
- Brotamento
- Esporulação
  - Esporo → Hifa



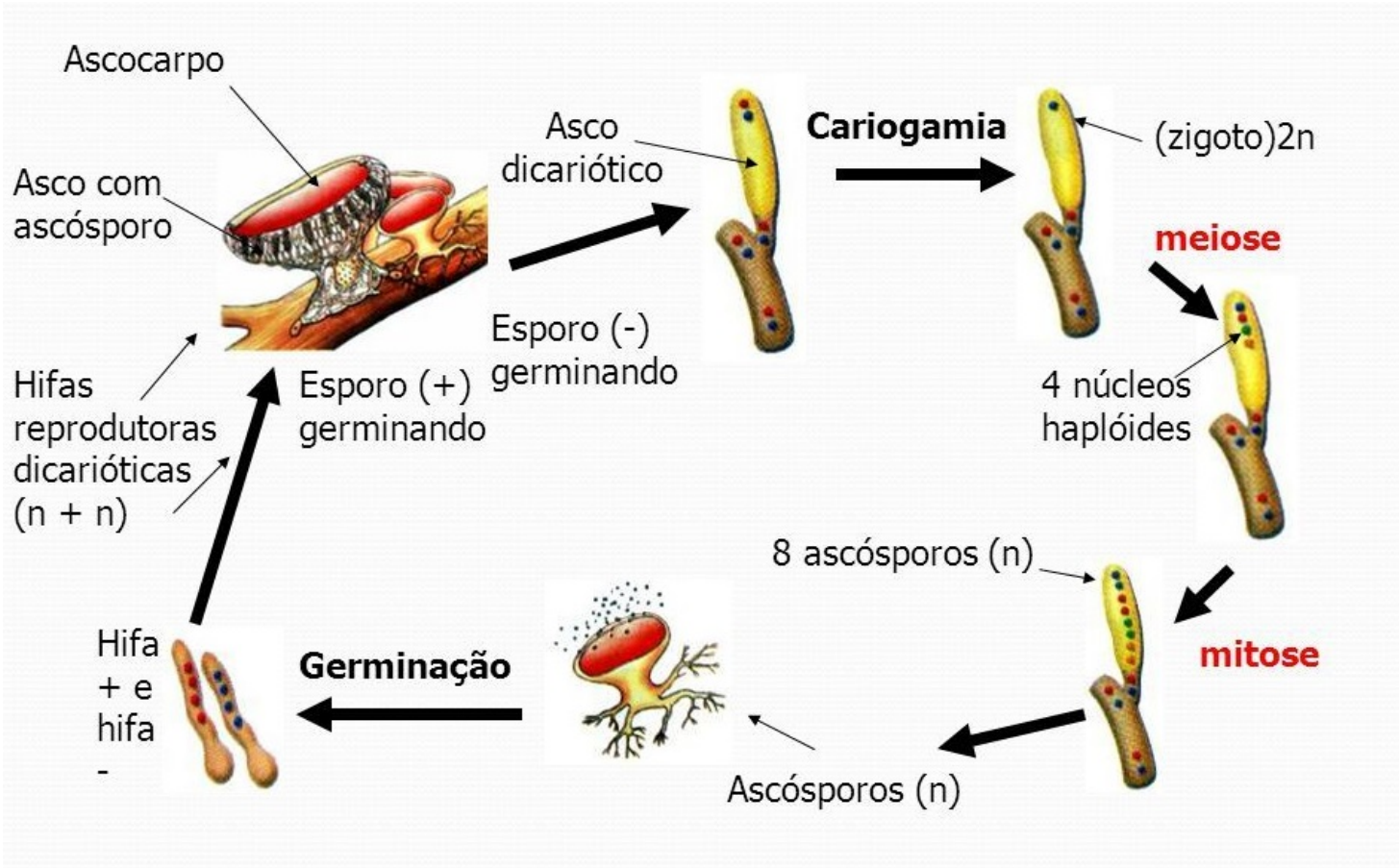


Fungi

Reprodução

Sexuada

- Meiose zigótica
- “Tipos” sexuais



Fungi

Associações

Liquens

Fungos + algas
ou
Fungos + cianobactérias

Troca de benefícios
Reprodução conjunta → sorédios
Organismos pioneiros
Bioindicadores



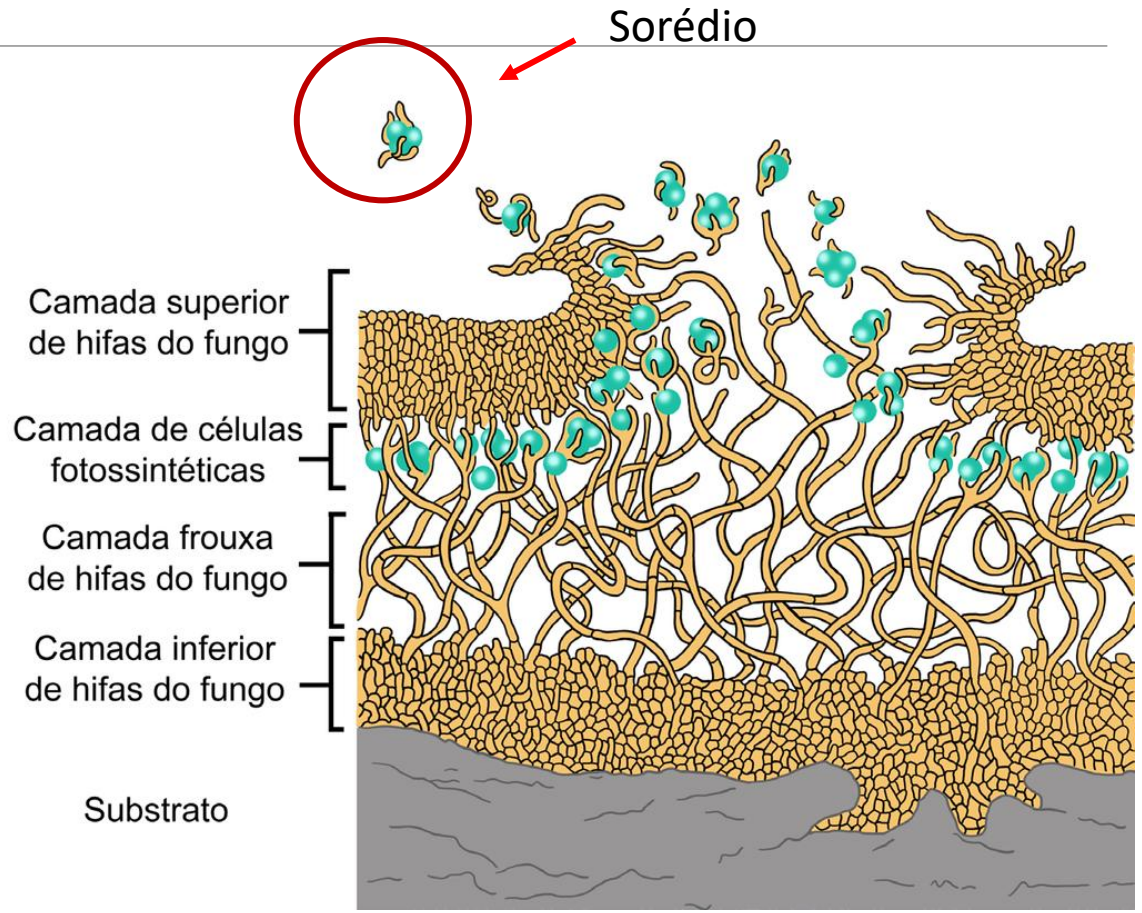
Fungi

Associações

Liquens

Fungos + algas
ou
Fungos + cianobactérias

Troca de benefícios
Reprodução conjunta → sorédios
Organismos pioneiros
Bioindicadores



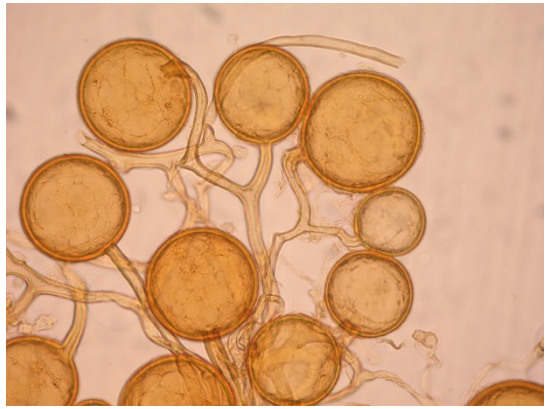
Fungi

Associações

Micorrizas

Hifas + Raízes

- Ectomicorrizas → se enrola
- Endomicorrizas → penetra

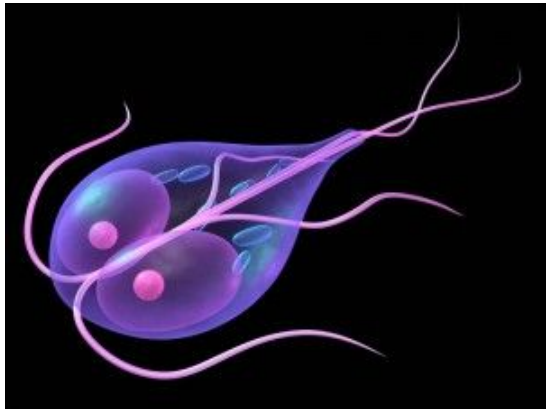


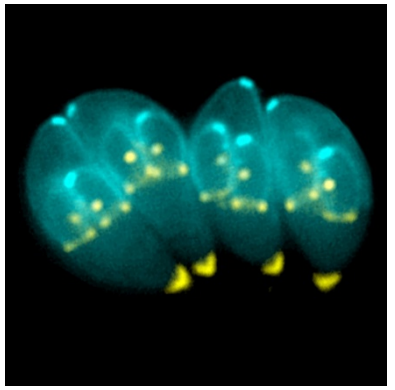


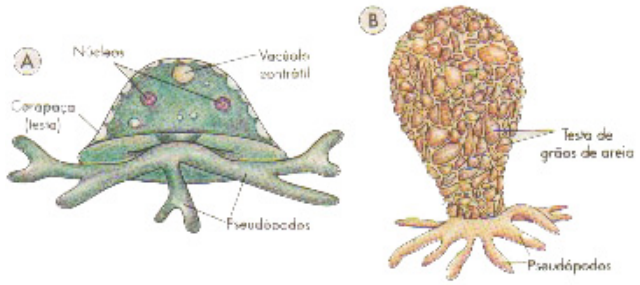
Troca de benefícios

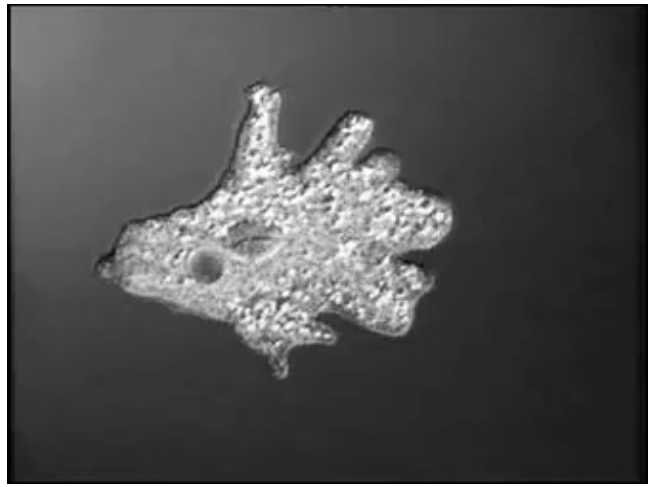
Fungos ganham: vitamina e açúcar
Plantas ganham: água, sais (fósforo), proteção

Protozoarios







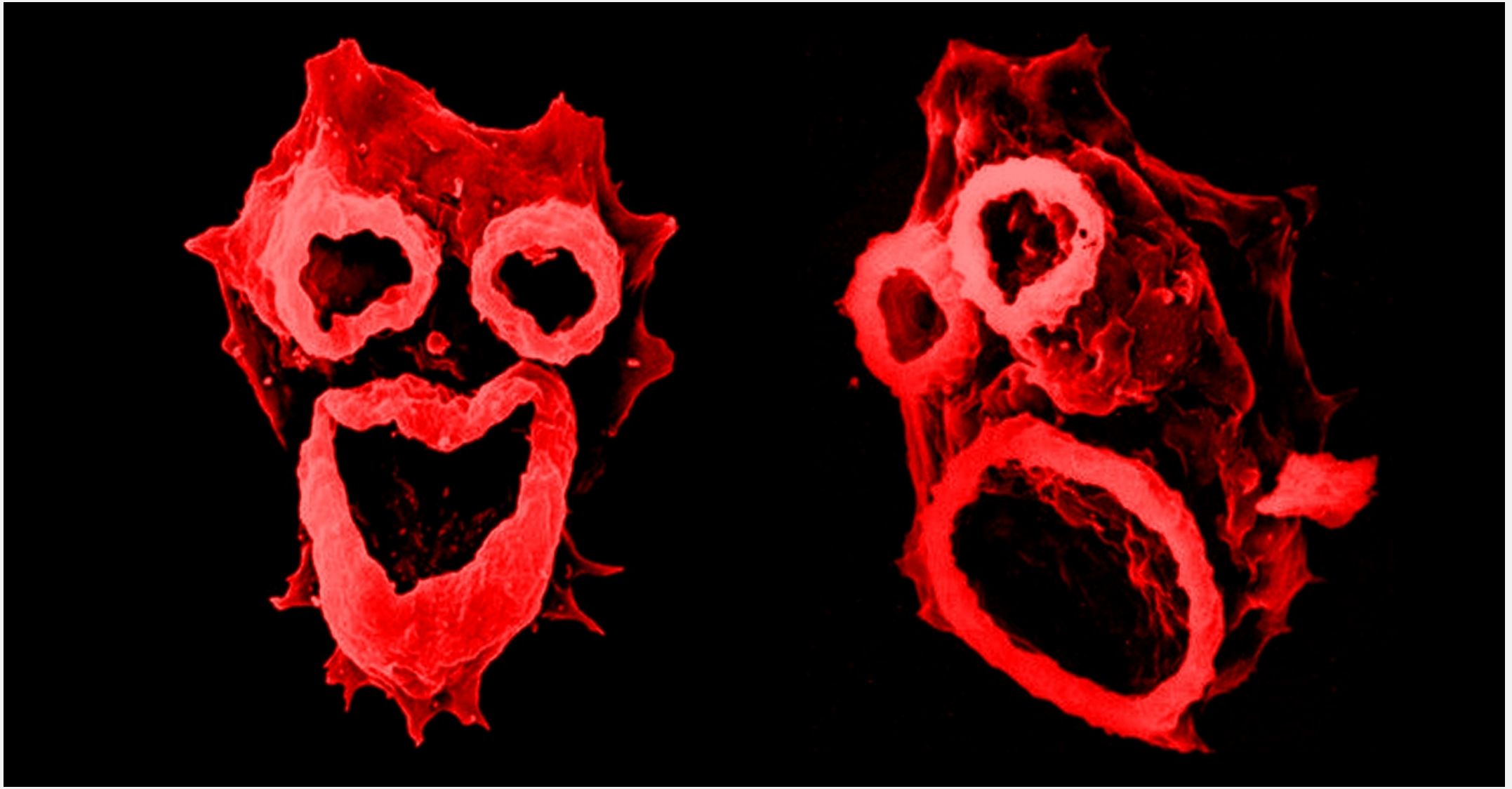


Protozoarios

Características Gerais:

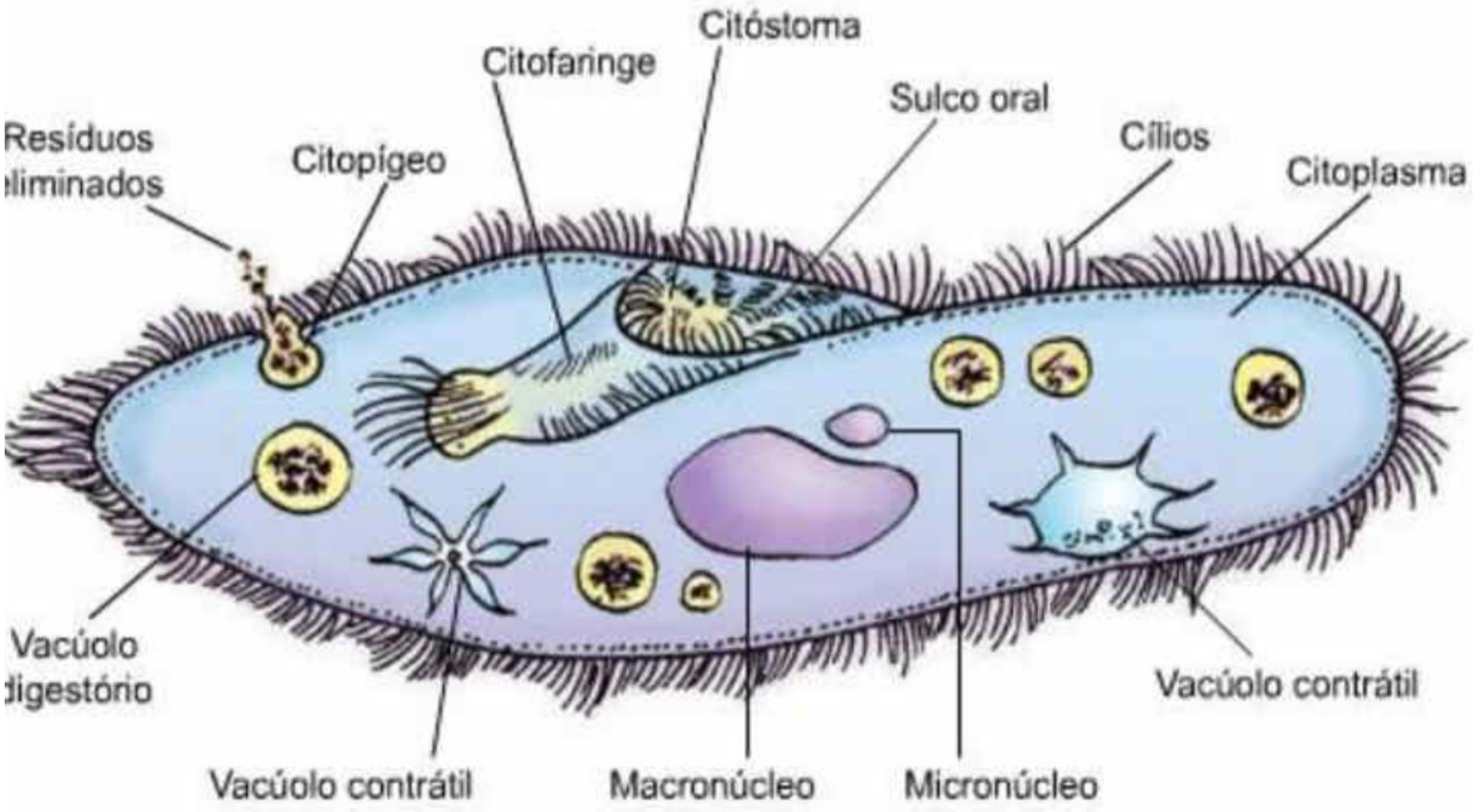
- Eucariontes
- Heterotróficos;
- Aeróbicos ou Anaeróbicos
- Unicelulares
- Digestão intracelular
- Maioria Vida livre,
- Alguns Parasitas.
- Reprodução Sexuada ou assexuada

Agua doce
Agua salgada
Locais úmidos



COLÉGIO Globomax

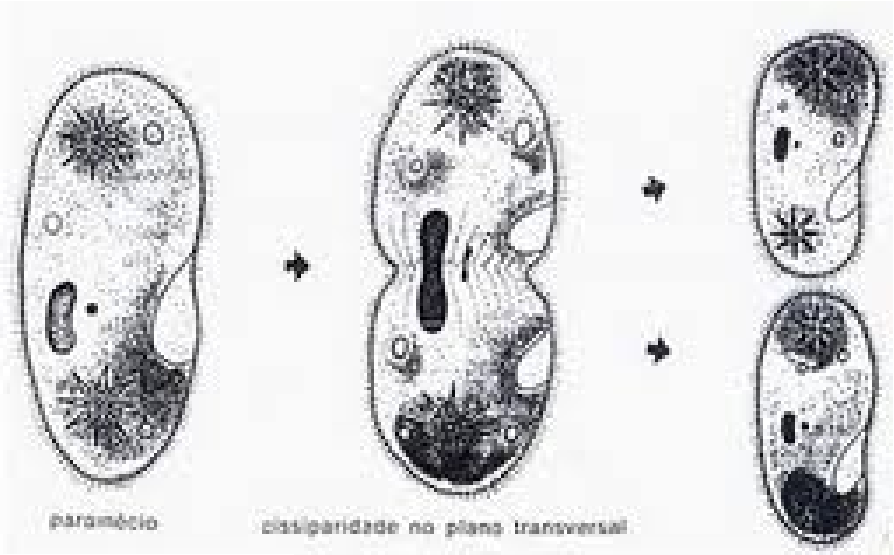
Protozoarios

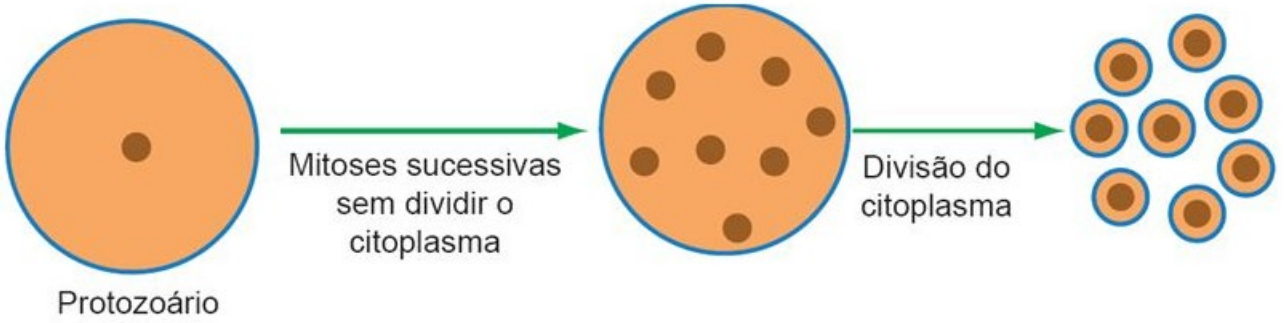


Protozoarios

Reprodução:

- Assexuada
  - Divisão Binaria
    - Vida Livre
  - Divisão Múltipla

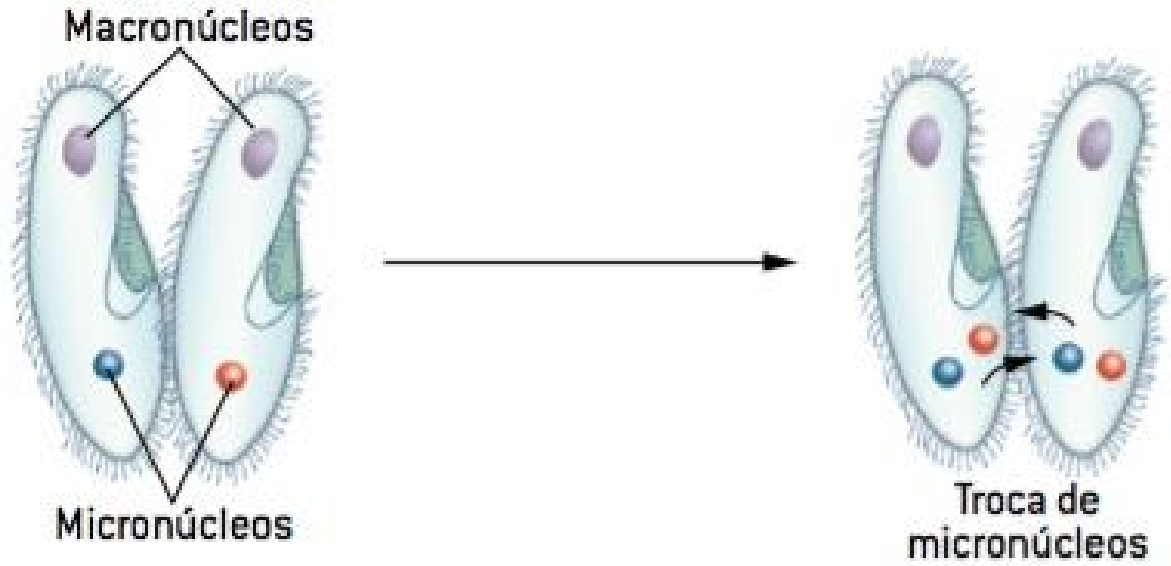




Protozoarios

Reprodução:

- Sexuada
  - Troca de material genético
  - Não ocorre aumento da quantidade de células.
  - Conjugação



EFIVEST

CURSINHO DA UNIVERSIDADE

OBRIGADO!!!

