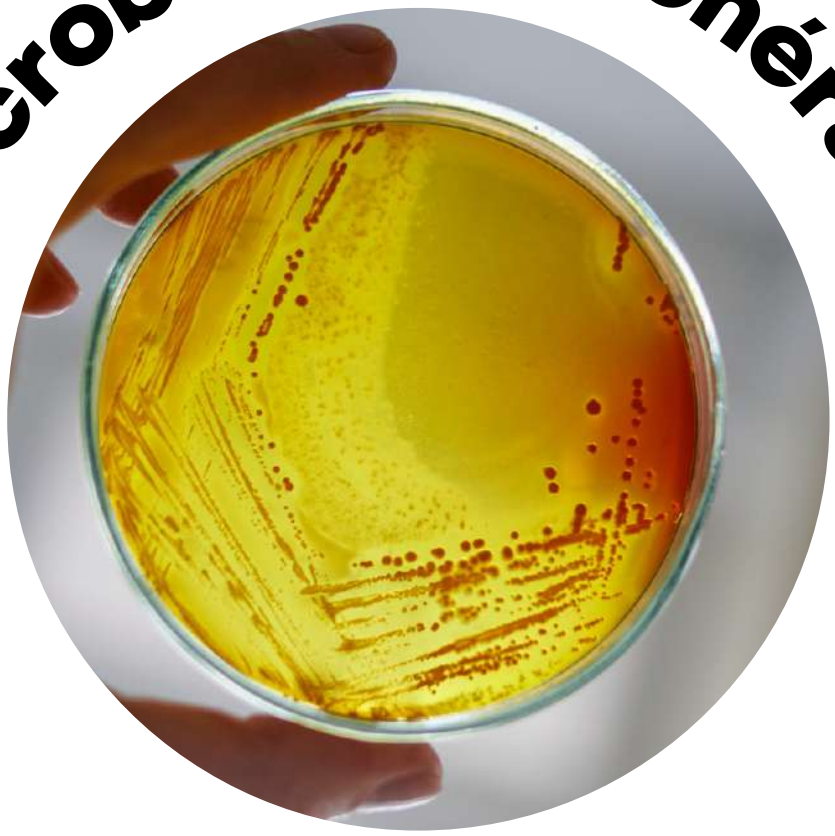
@Mohamed_Nahli

BIOLOGIE MAROC
www.biologie-maroc.com

Microbiologie Générale



SCIENCES DE LA VIE

Shop
• Cahiers de Biologie + Lexique
• Accessoires de Biologie

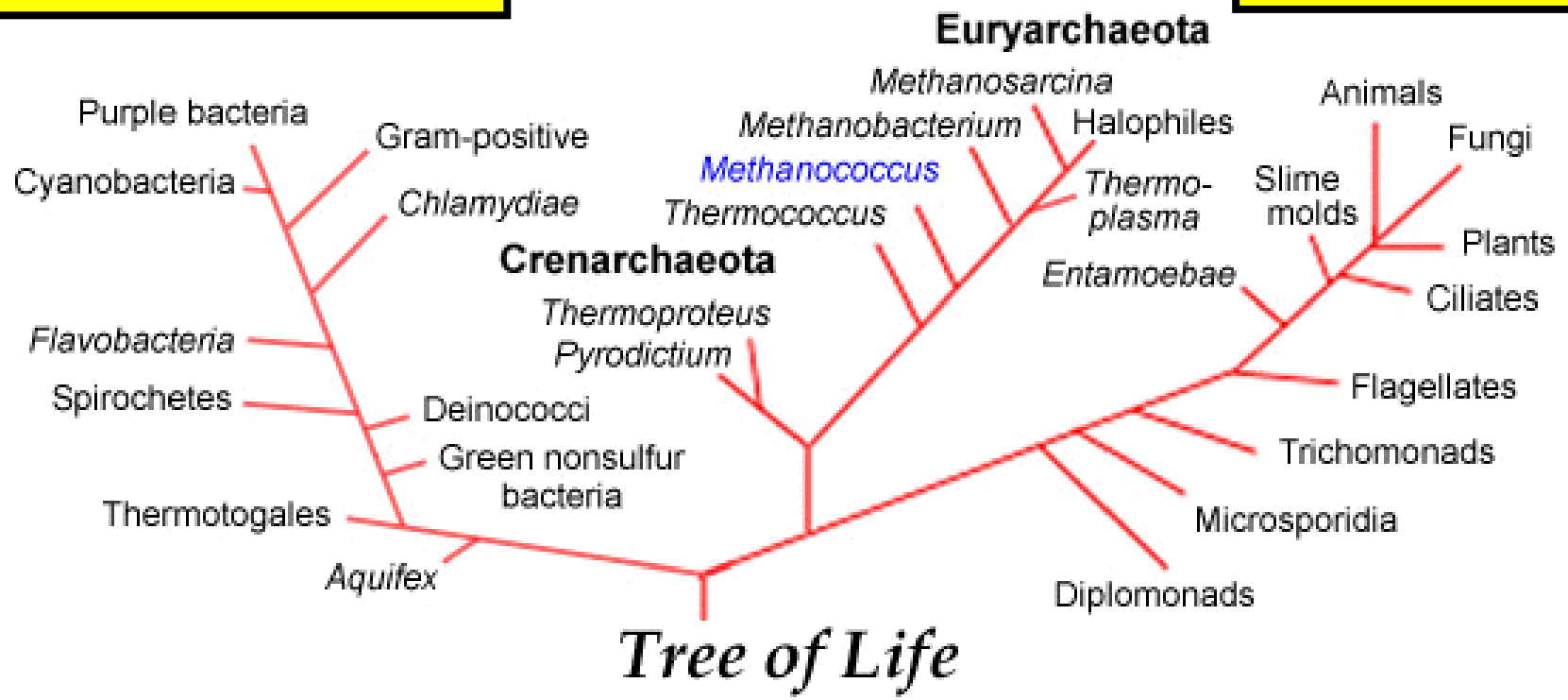
Etudier
Visiter Biologie Maroc pour étudier et passer des QUIZ et QCM enligne et Télécharger TD, TP et Examens résolus.

Emploi
• CV • Lettres de motivation • Demandes...
• Offres d'emploi
• Offres de stage & PFE

Domaine des Eubacteria

Domaine des Archaebacteria

Domaine des Eucaryotes



De plus en plus, on divise le vivant en trois "**DOMAINES**" :

- **Eubacteria**
- **Archaebacteria**
- **Eucaryotes**

Le domaine des Eucaryotes se divise en quatre Règnes

Les cinq règnes du vivant

On divise le monde vivant en 5 règnes :

1. Les Monères
2. Les Protistes
3. Les Mycètes
4. Les animaux
5. Les végétaux

Dans les ouvrages les plus récents, on ajoute un sixième règne: les **archéobactéries (ou Archaebacteria)**.

1. Les Monères

2. Les Protistes

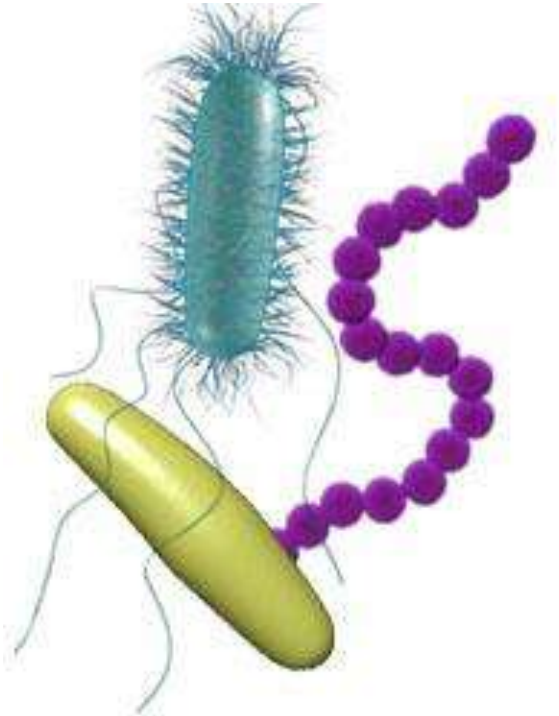
3. Les Mycètes

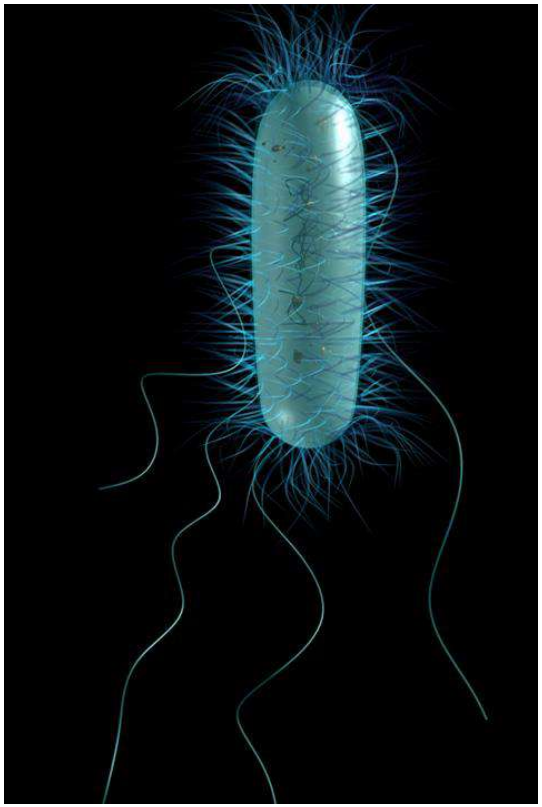
4. Les animaux

5. Les végétaux

= unicellulaires procaryotes

- Bactéries
- Cyanobactéries (bactéries autotrophes)





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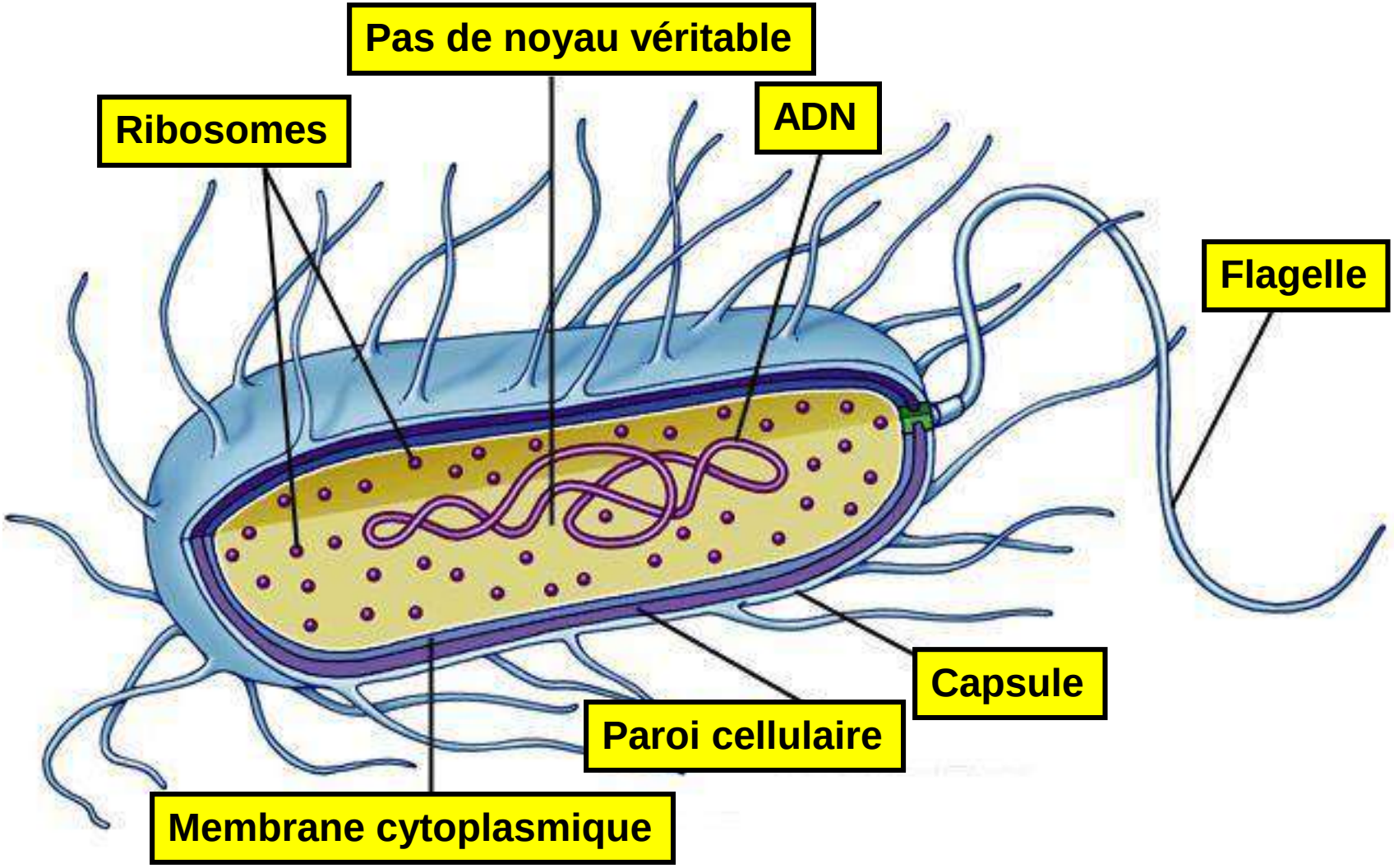
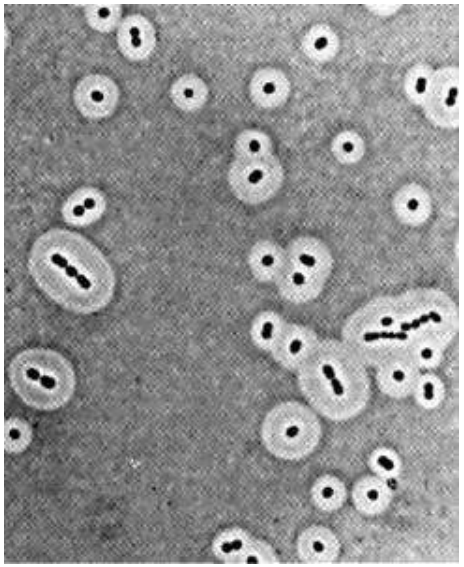
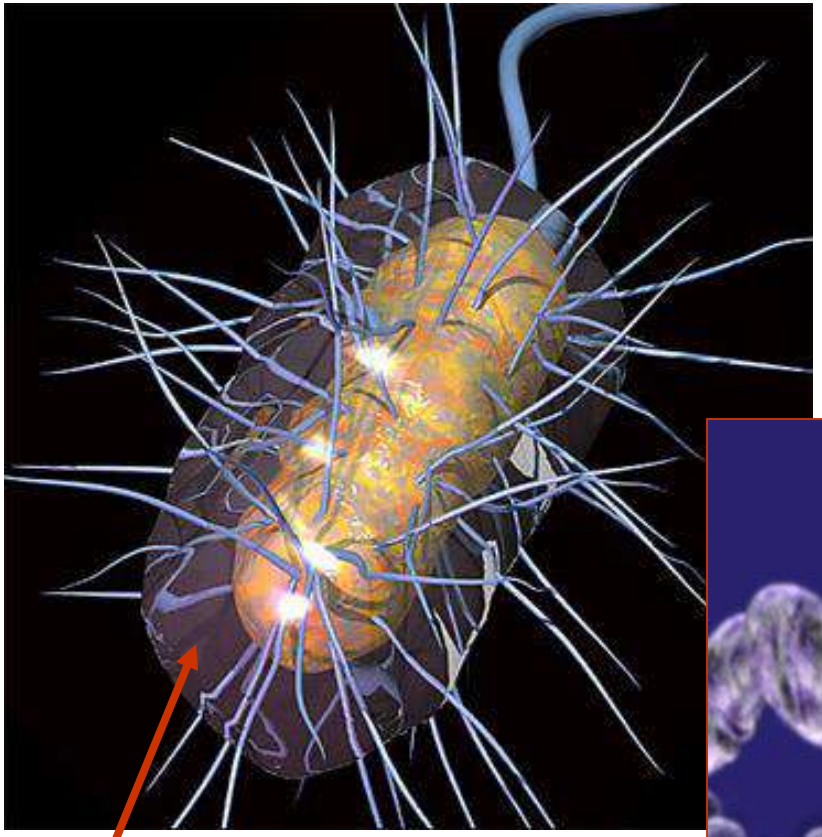
La cellule procaryote

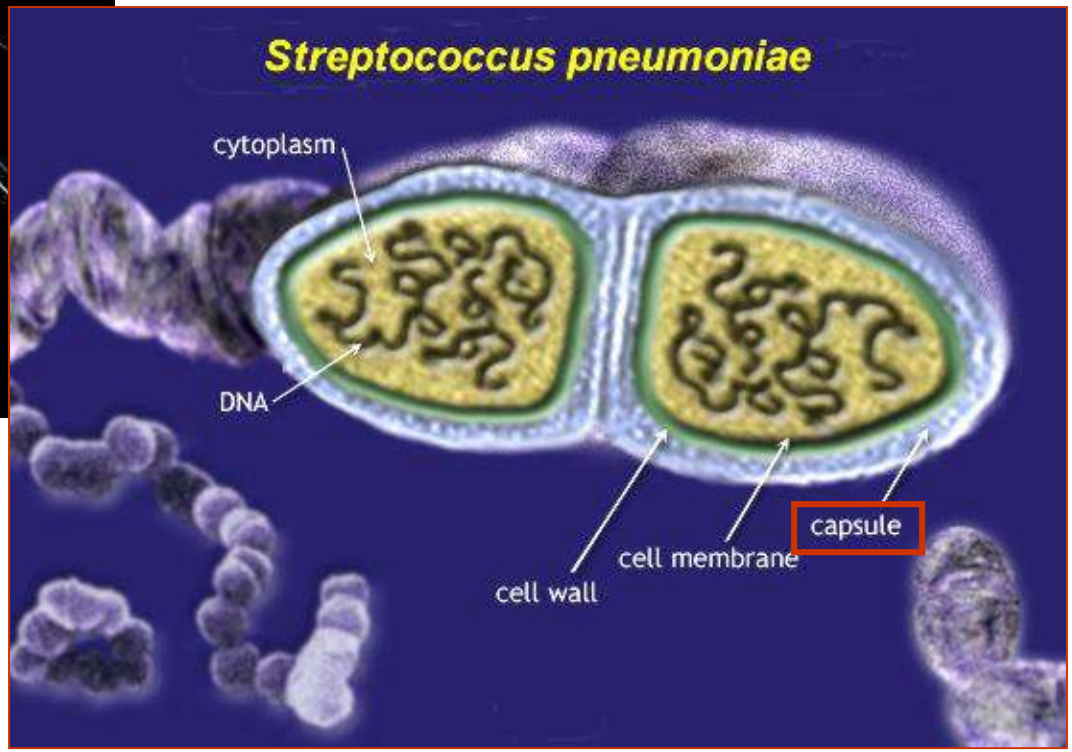


Certaines bactéries sécrètent une capsule:





Capsule



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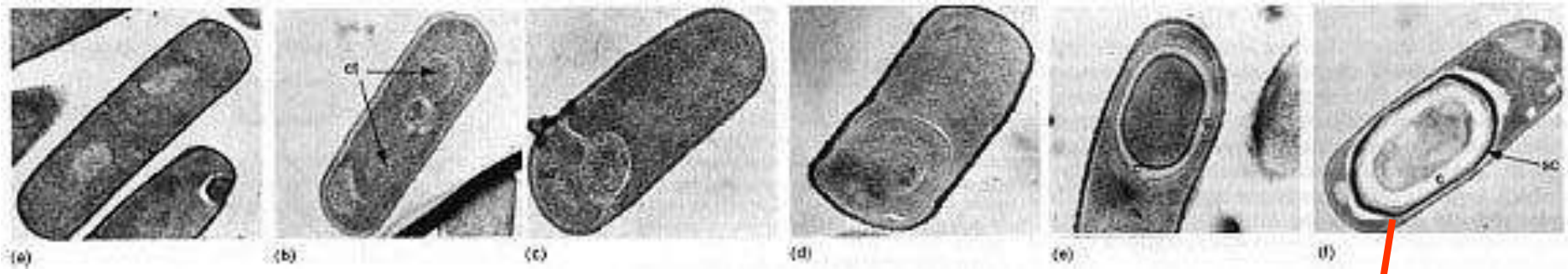
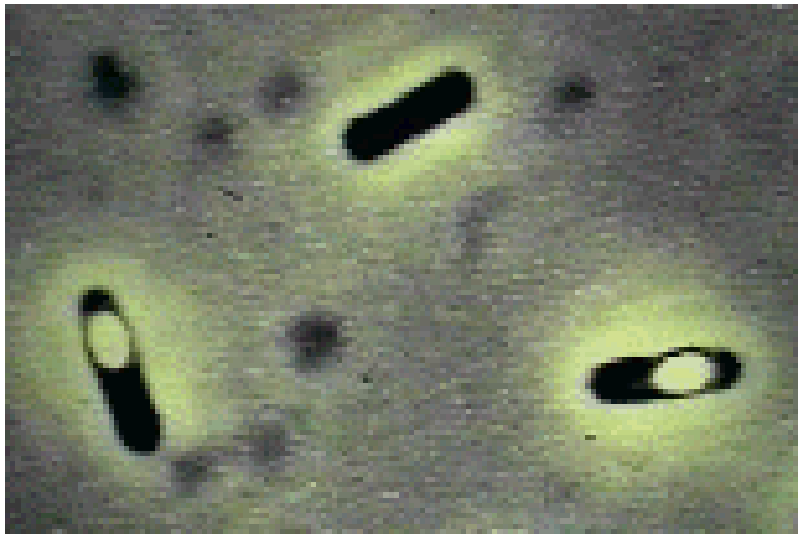
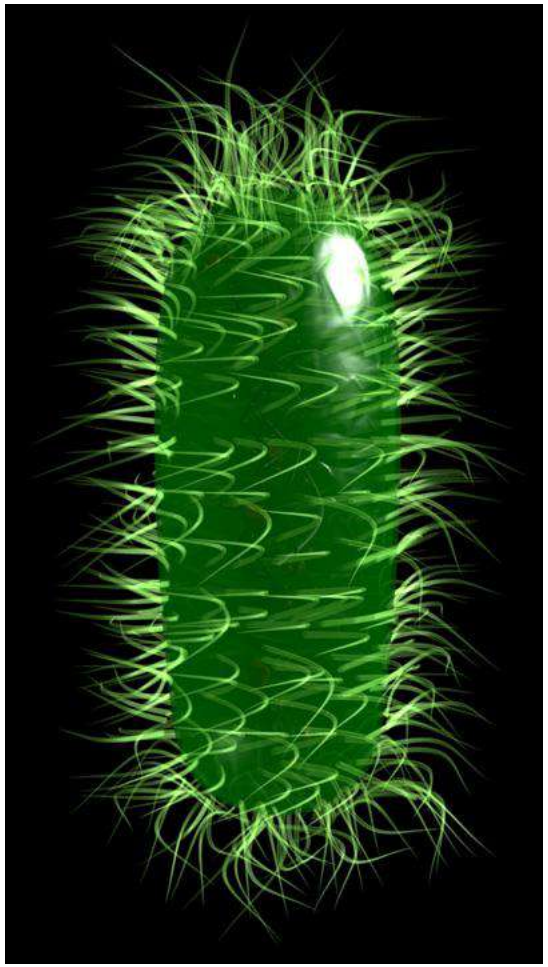
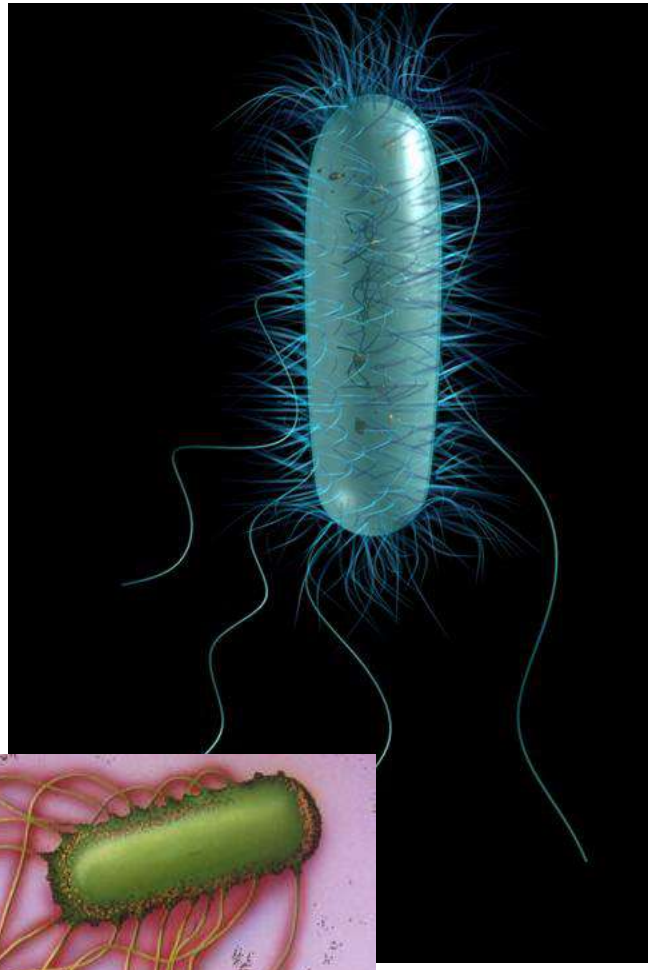
Sporulation

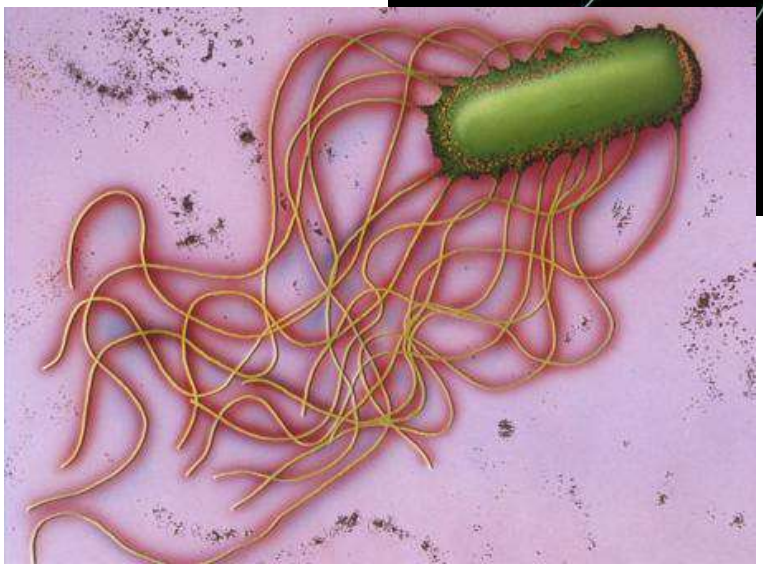


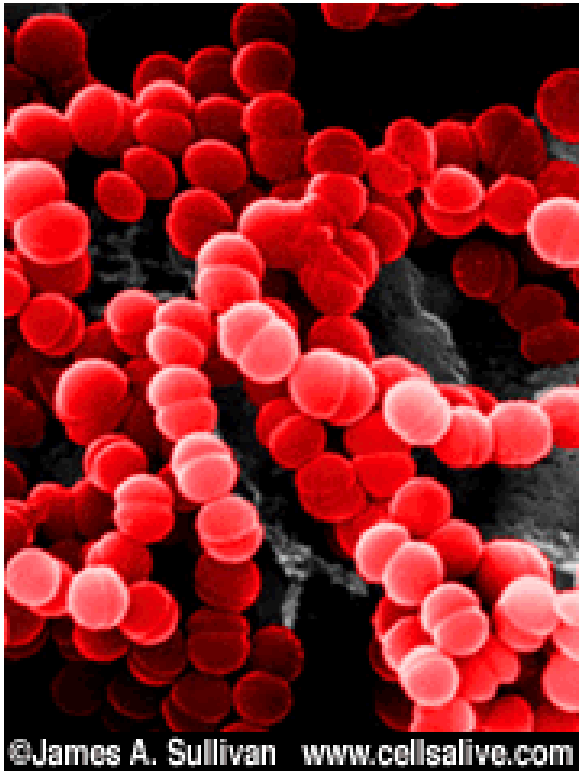


Flagelles et pili

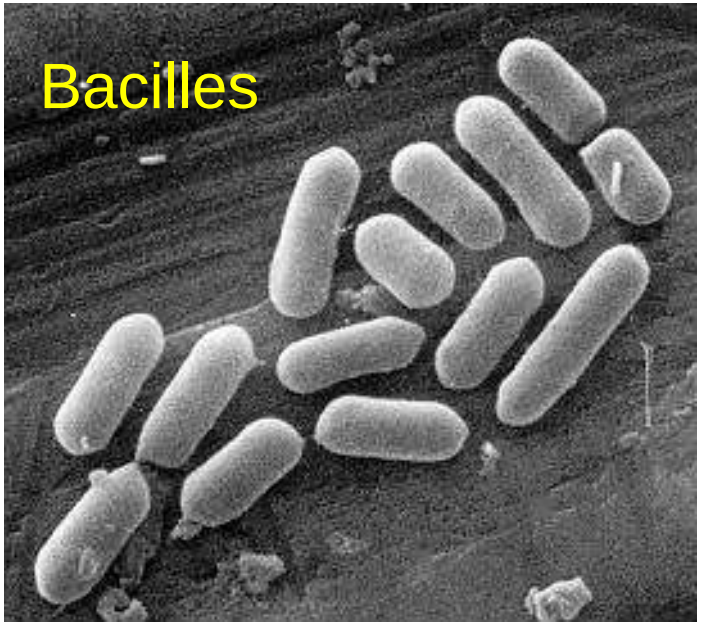




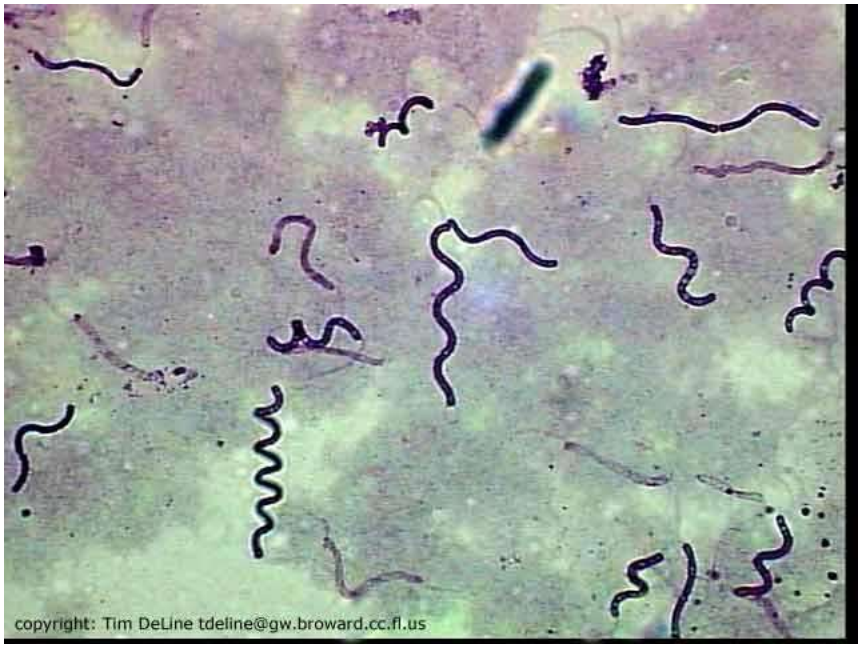


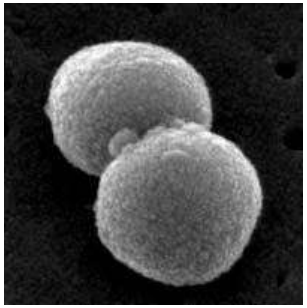


Cocci (coques)

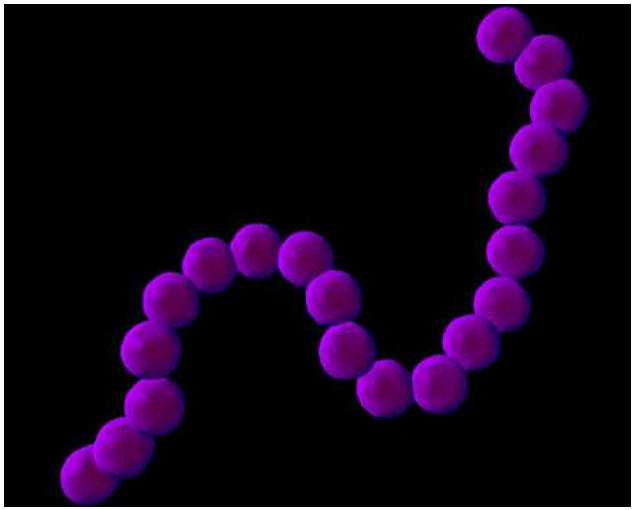


Spirilles



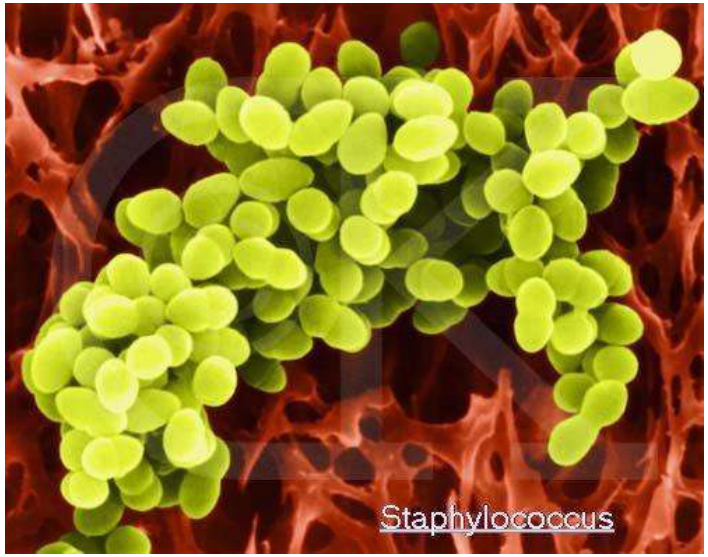


Diplocoque

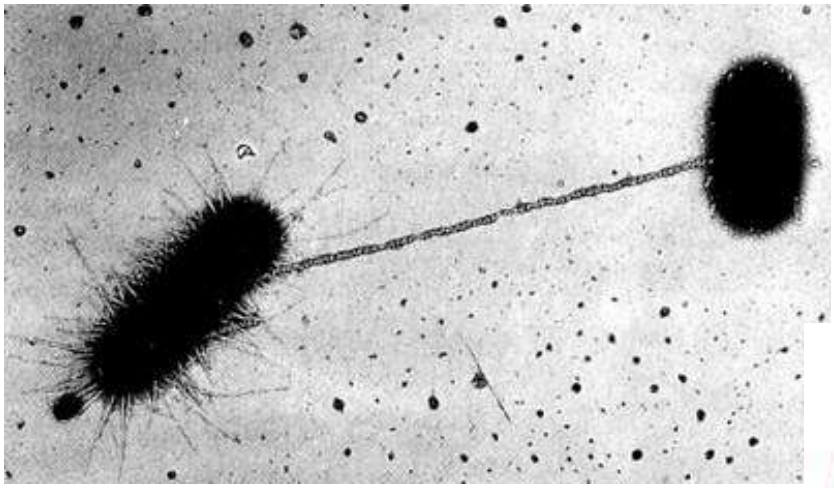


Streptocoque

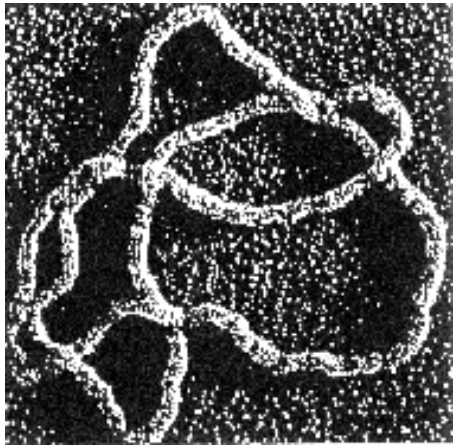
Staphylocoque

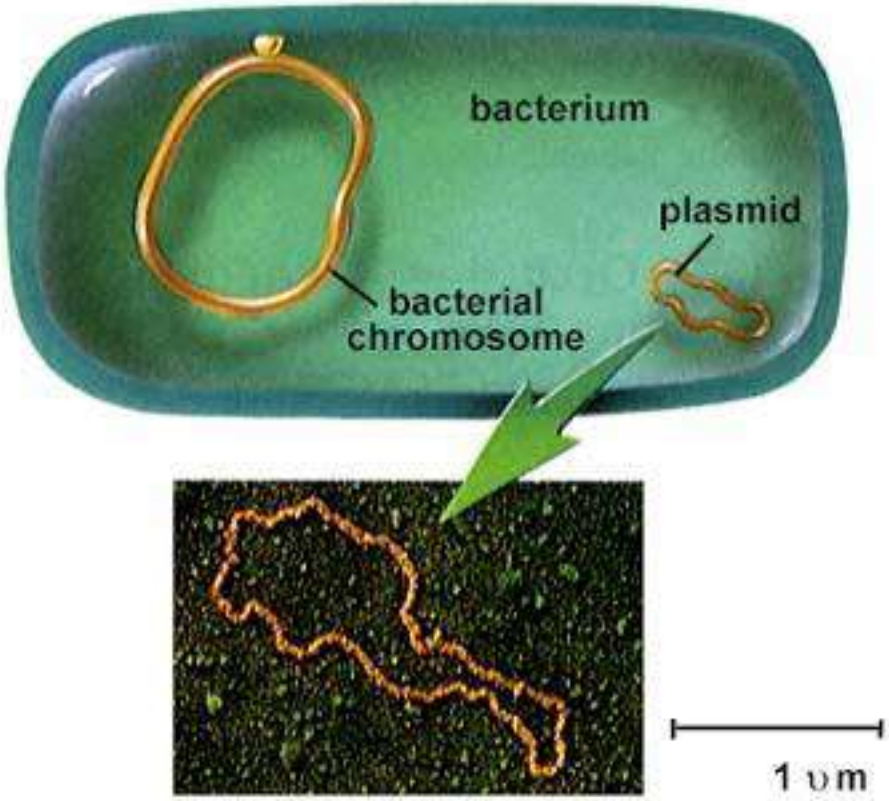


Reproduction sexuée



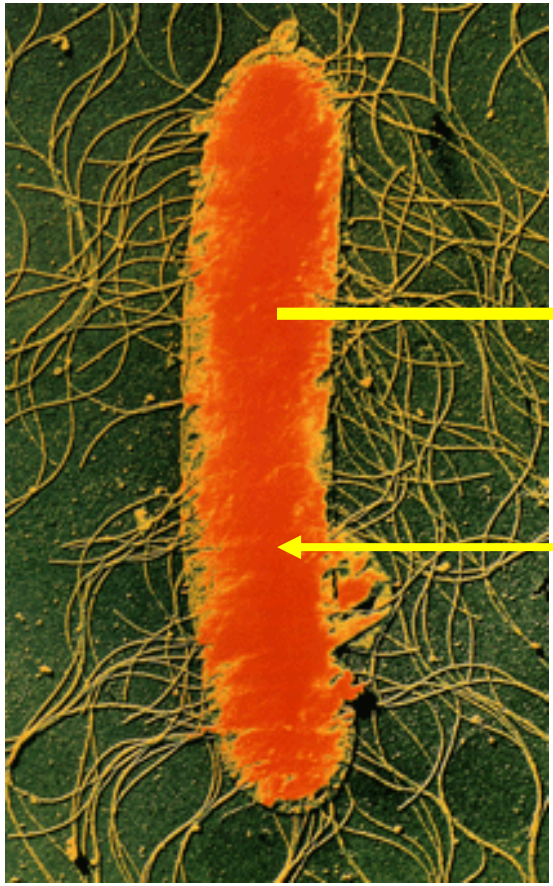
Certaines bactéries peuvent s'échanger du matériel par l'intermédiaire d'un pilus spécial





La plupart des échanges se font par l'intermédiaire de virus

Bactéries hétérotrophes: digestion extracellulaire

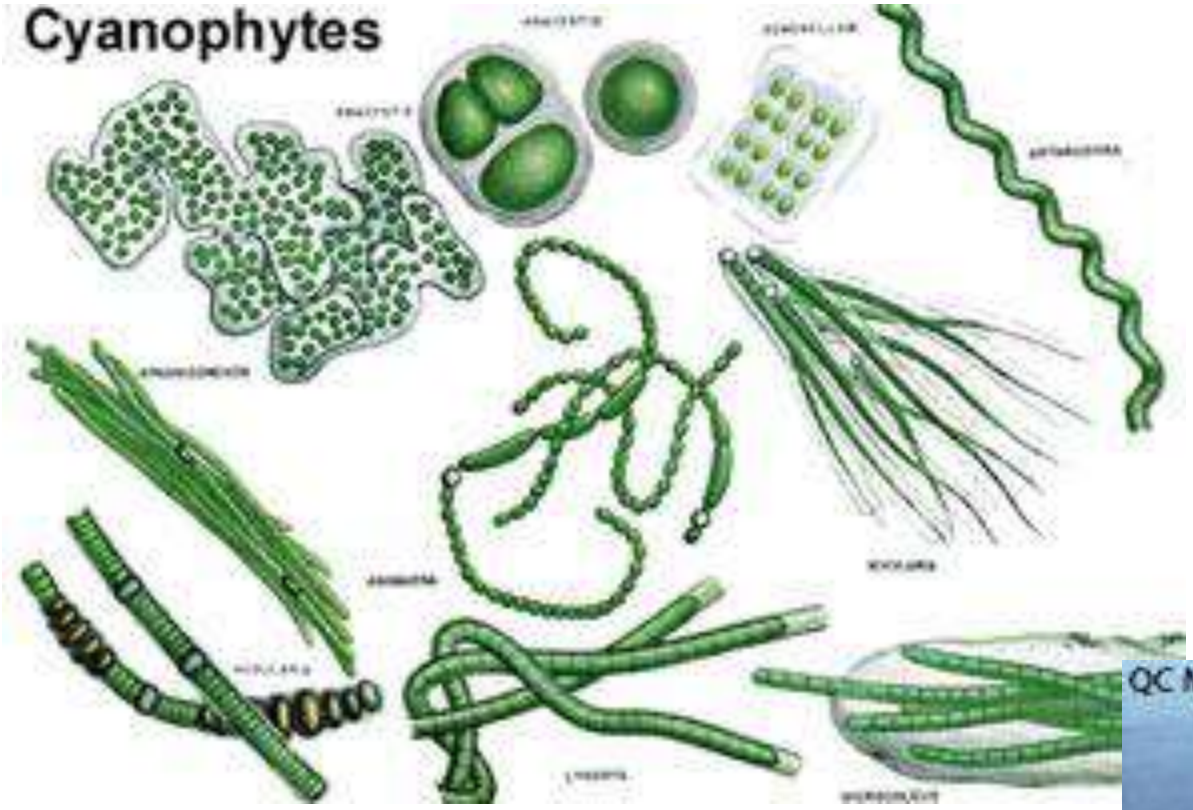


Sécrétion d'enzymes digestives

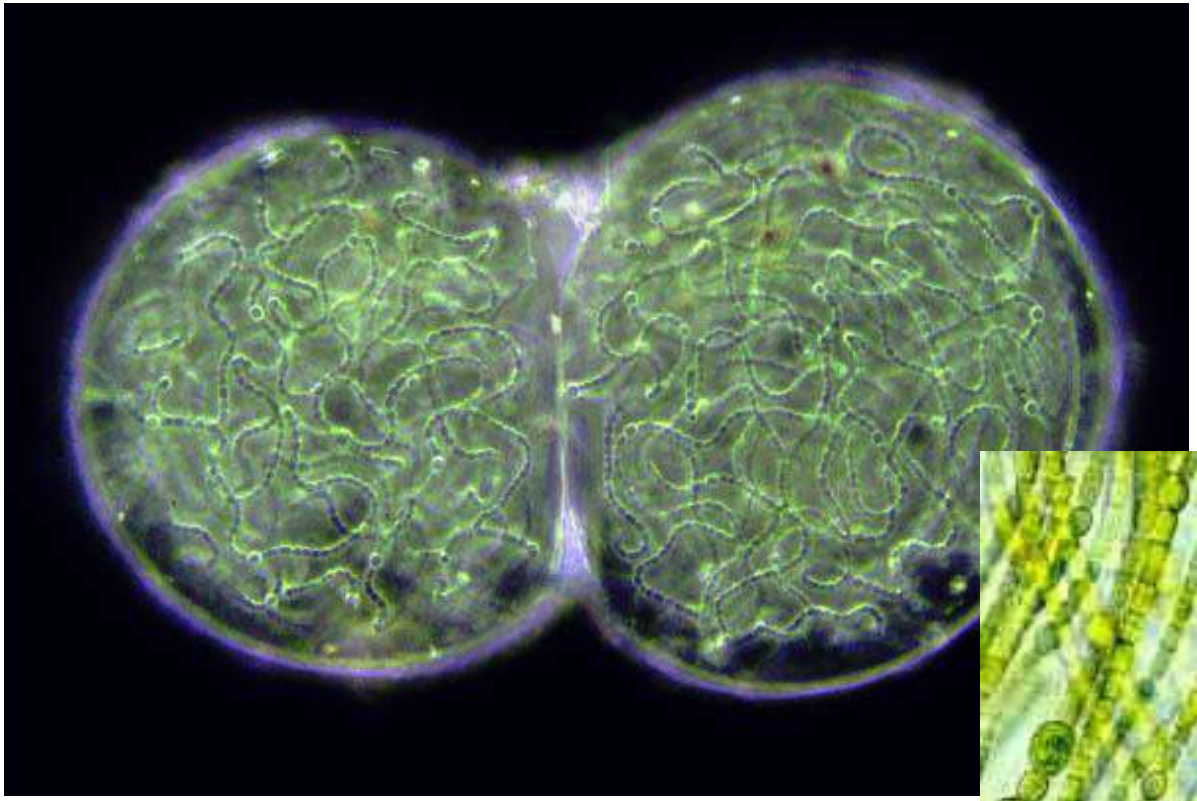
Digestion

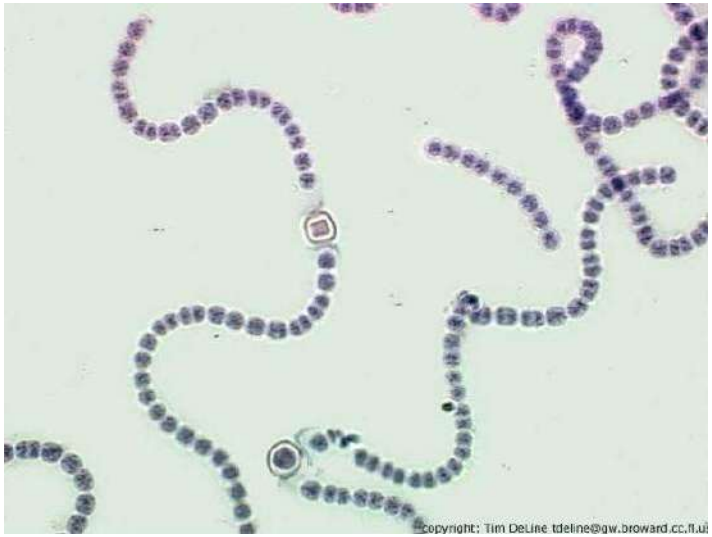
Absorption

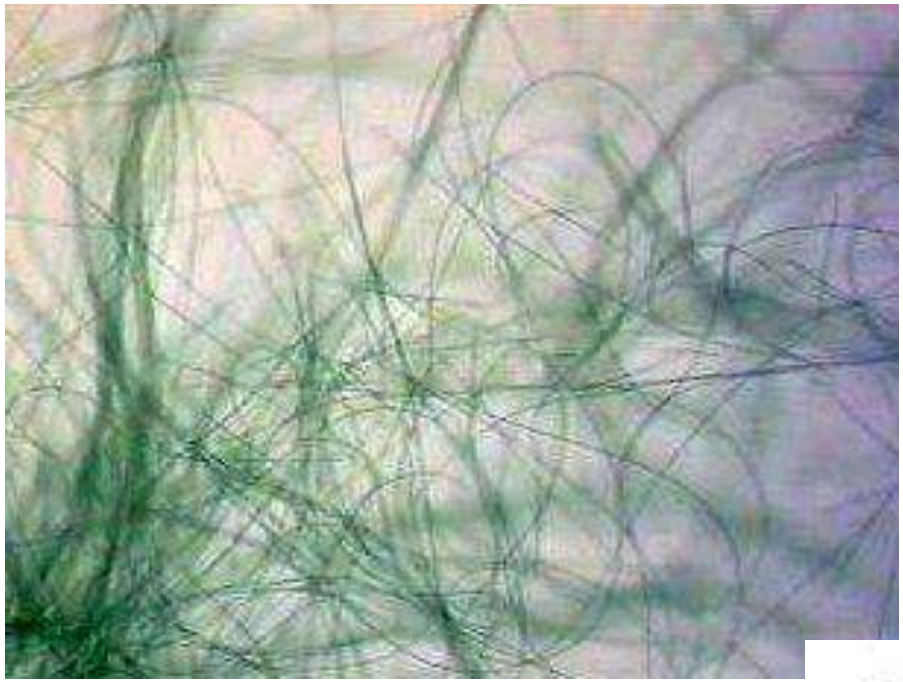
Bactéries autotrophes : les Cyanobactéries

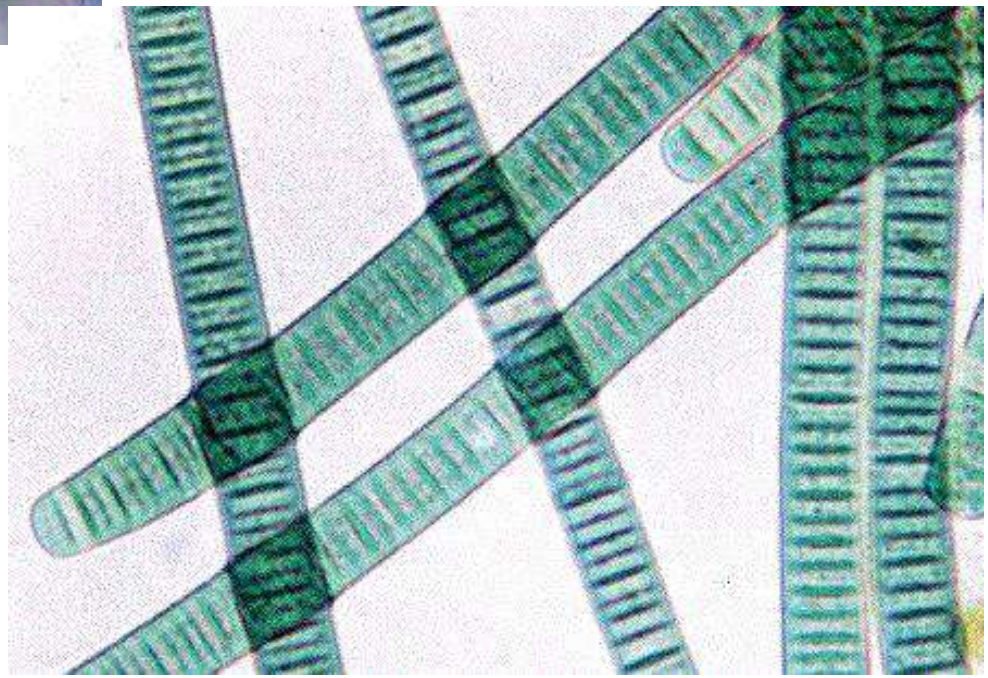


Nostoc







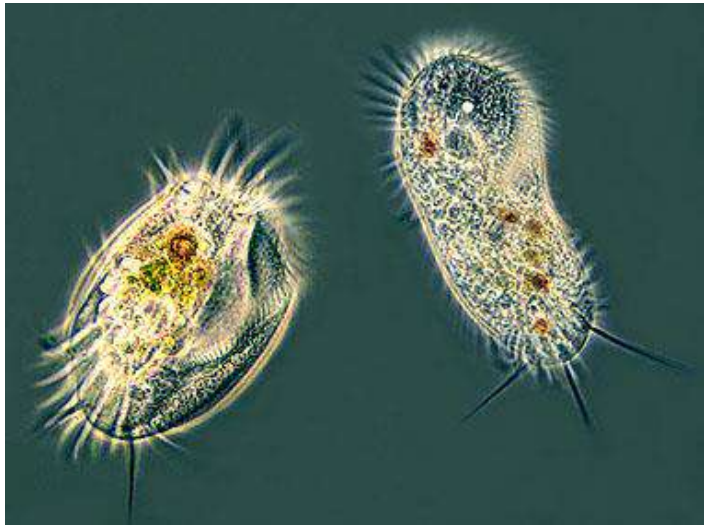


Oscillatoria

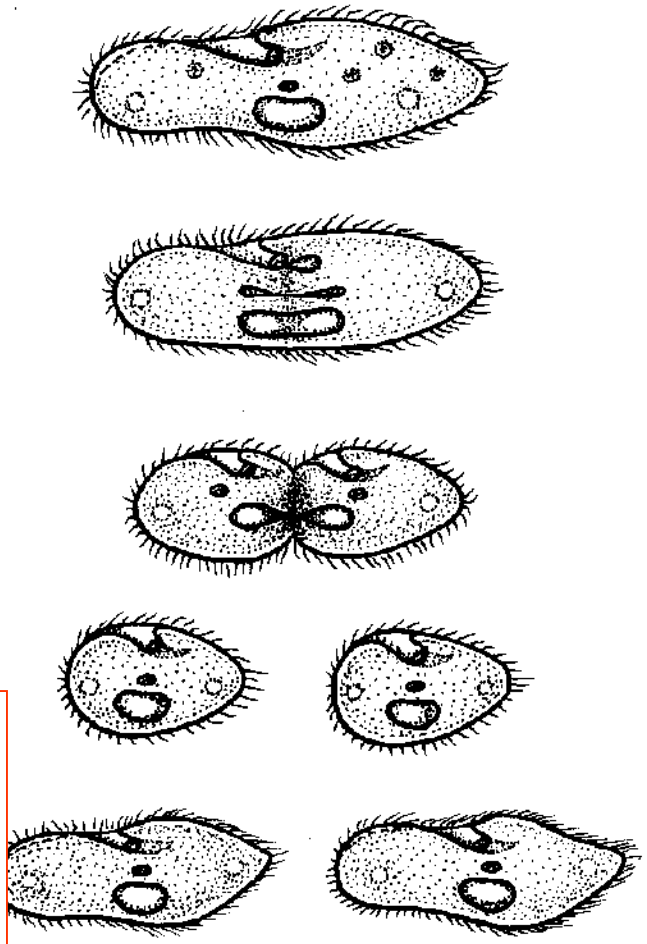
- Aérobie obligatoire
- Anaérobie facultative
- Anaérobie obligatoire

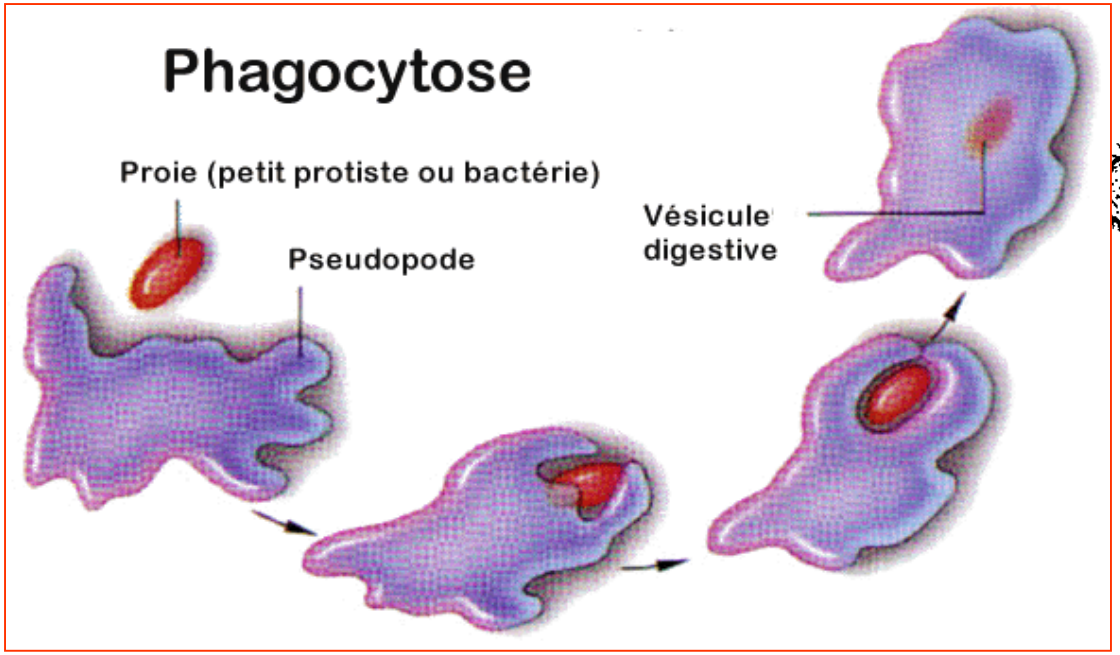
1. Les Monères
2. Les Protistes
3. Les Mycètes
4. Les animaux
5. Les végétaux

Unicellulaires eucaryotes

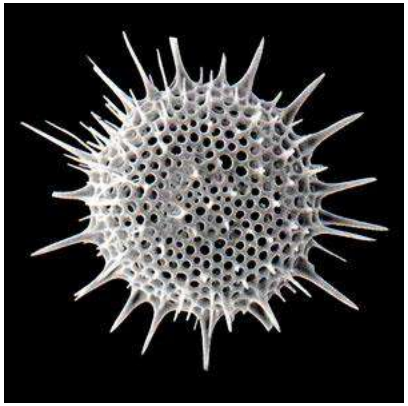


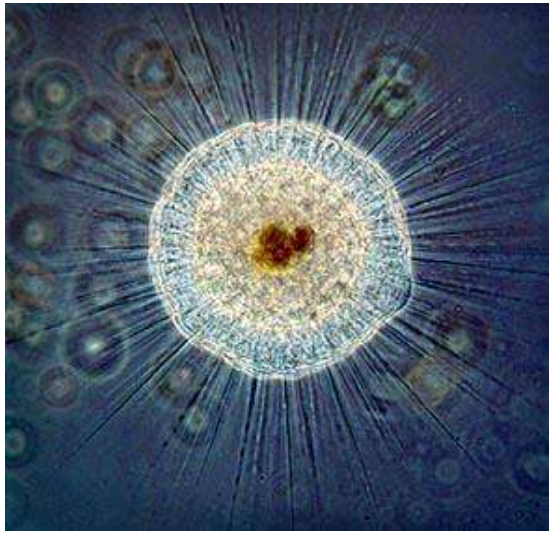
- Habitat
- Nutrition
- Reproduction
- Évolution et classification

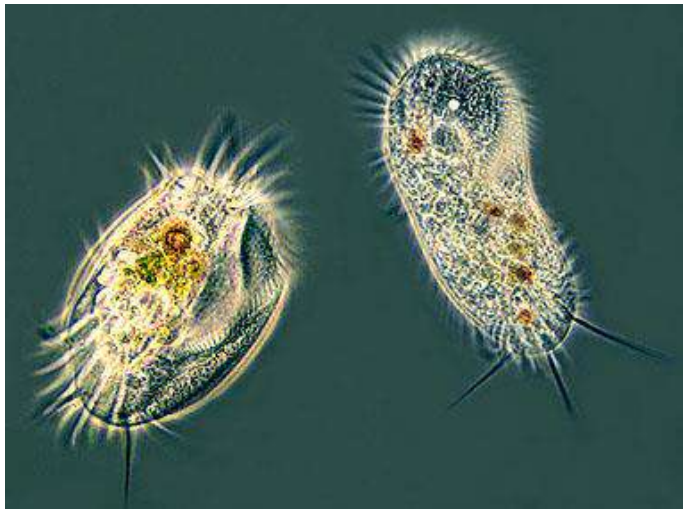


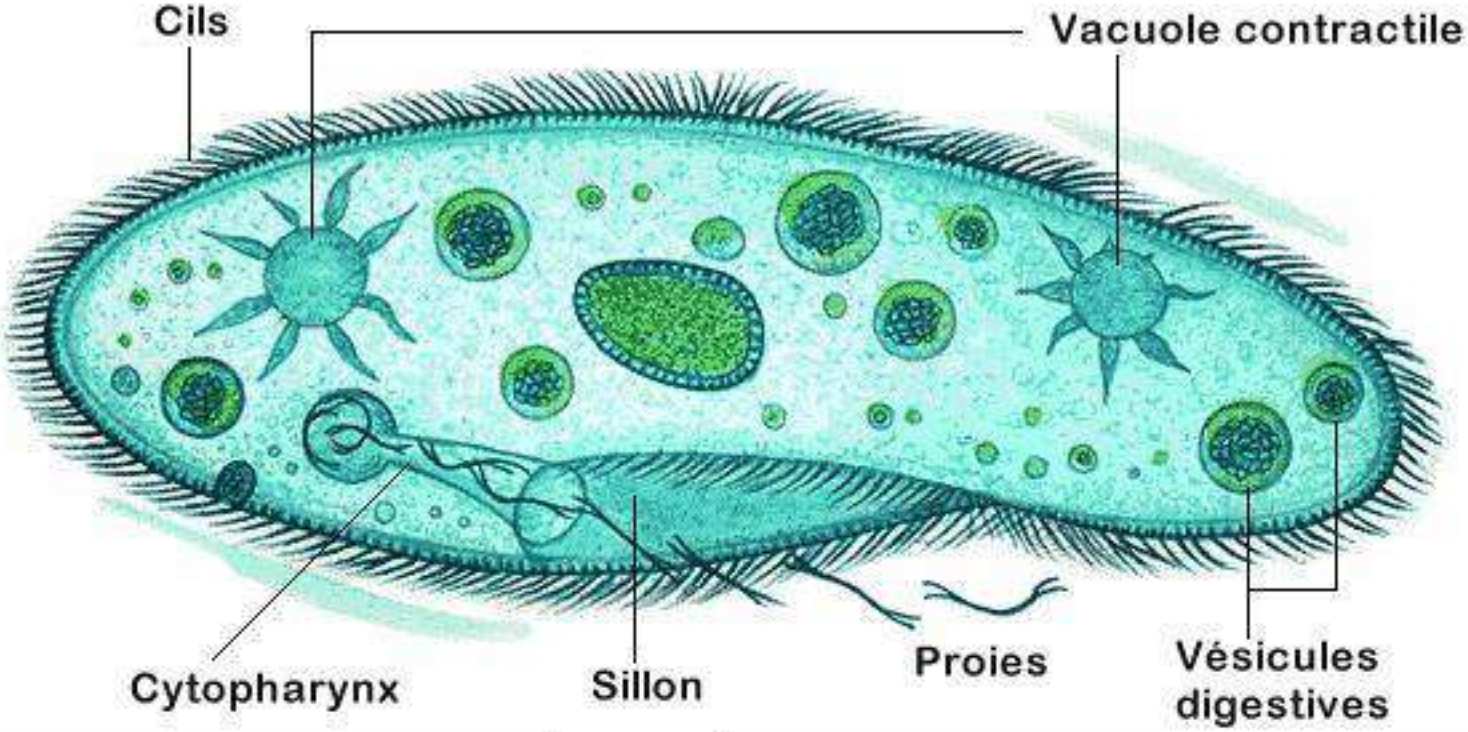


Les Protistes hétérotrophes

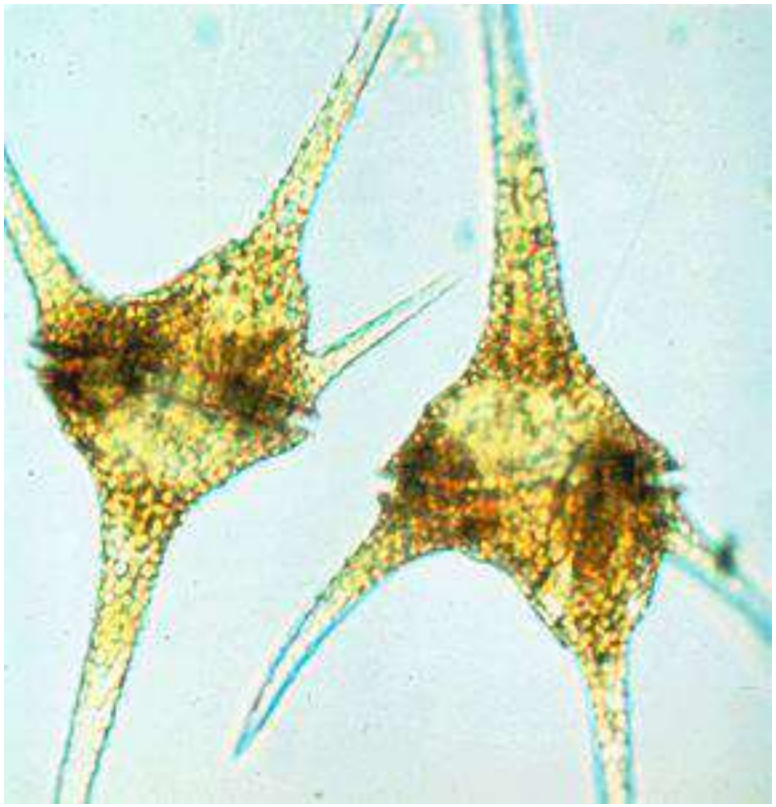


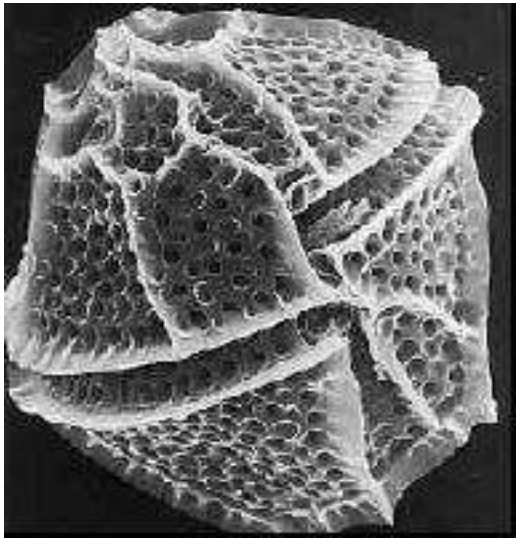


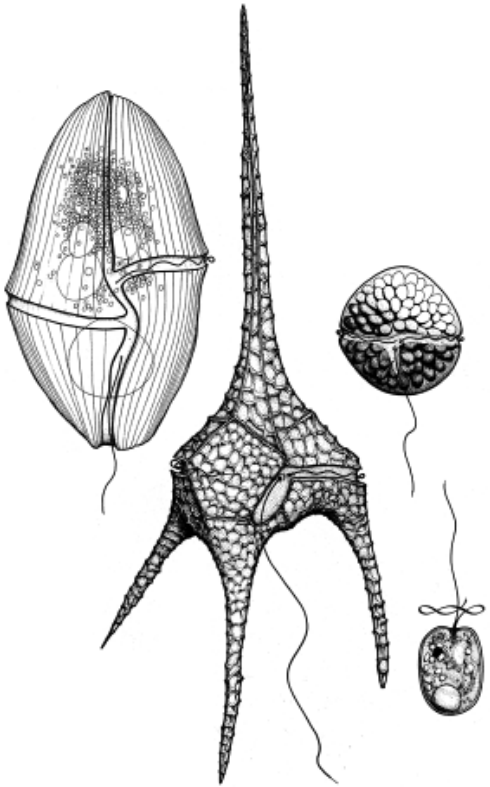



Cils
Vacuole contractile
Cytopharynx
Sillon
Proies
Vésicules digestives

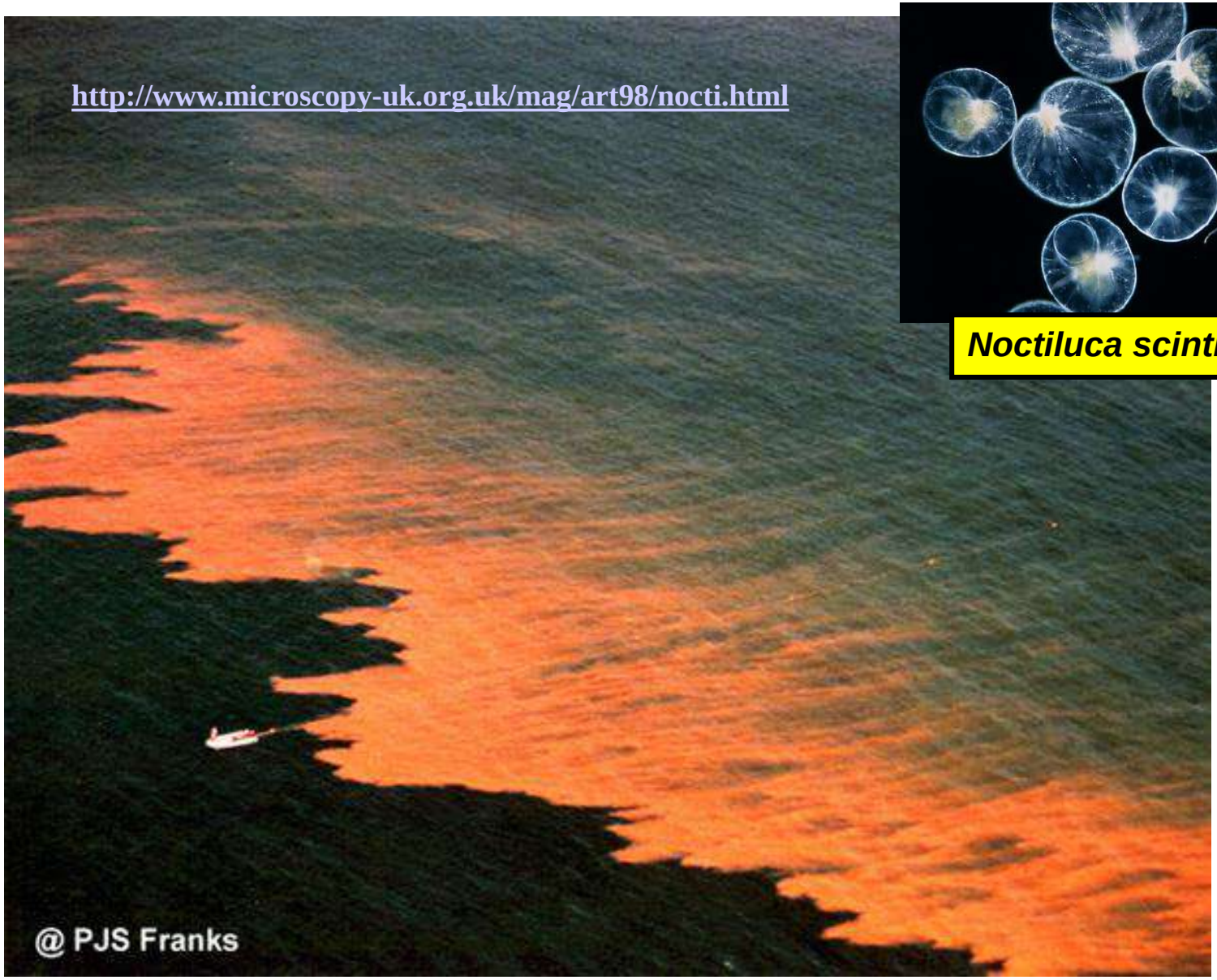
Les Protistes autotrophes







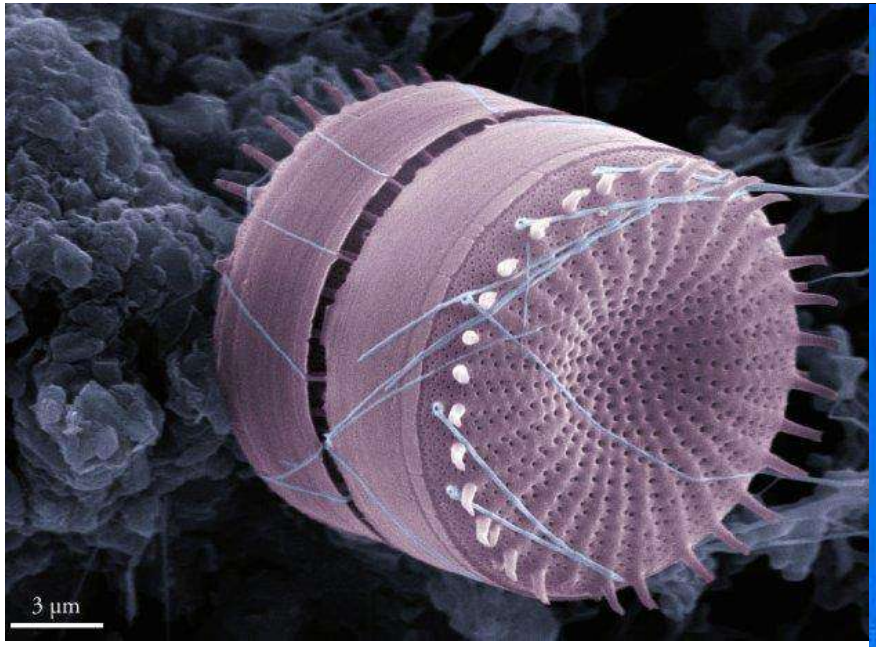
Les Dinoflagellés

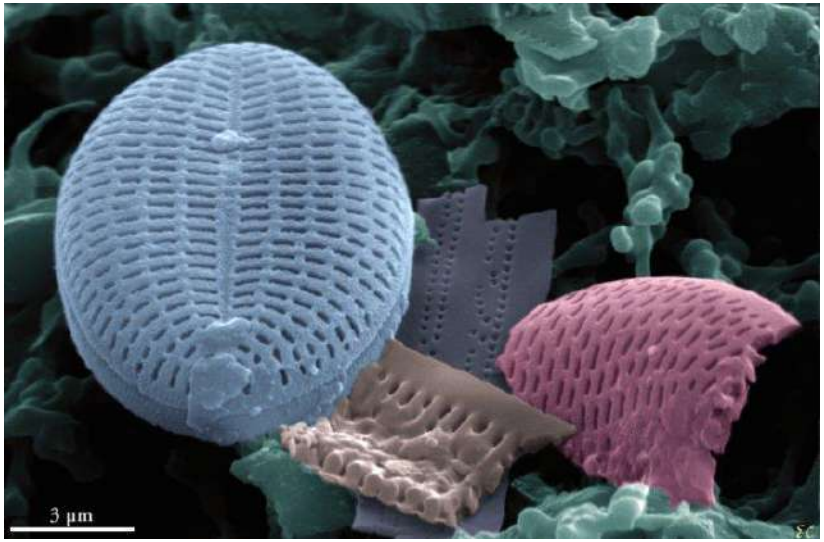


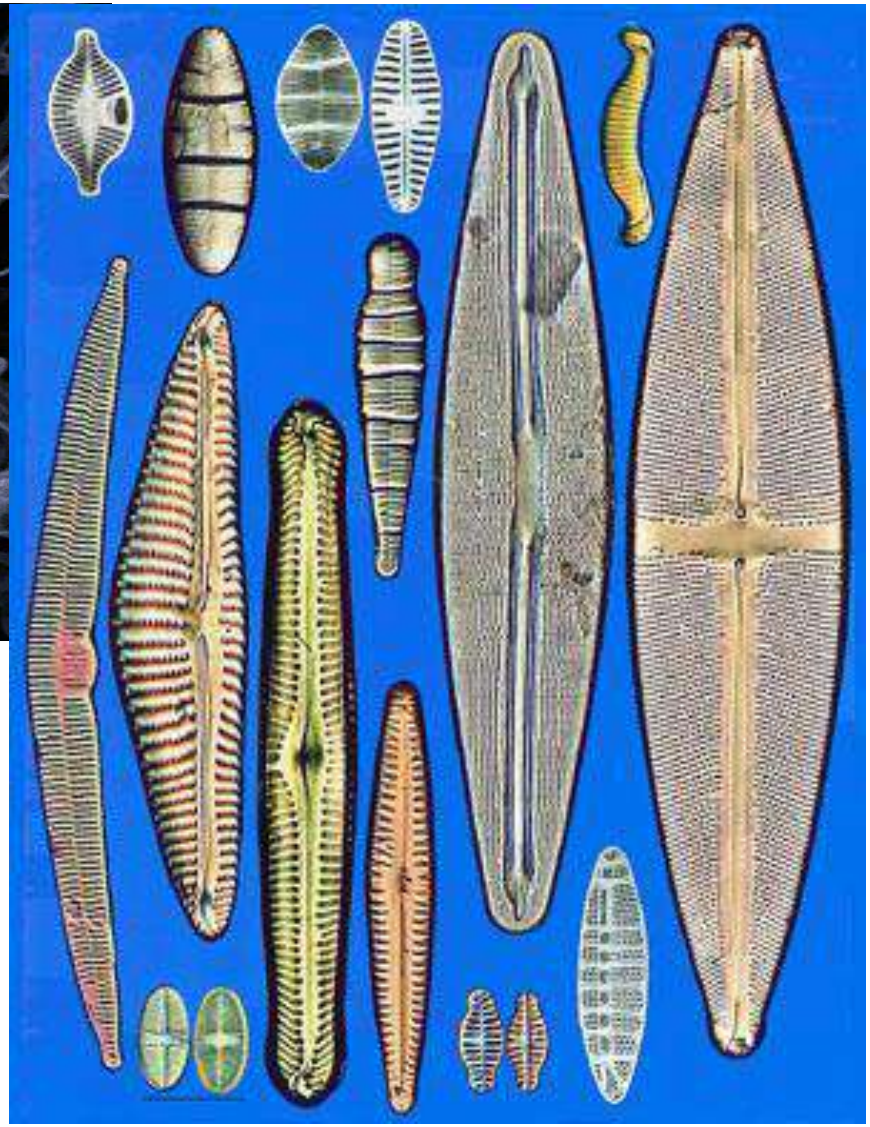
Noctiluca scintillans

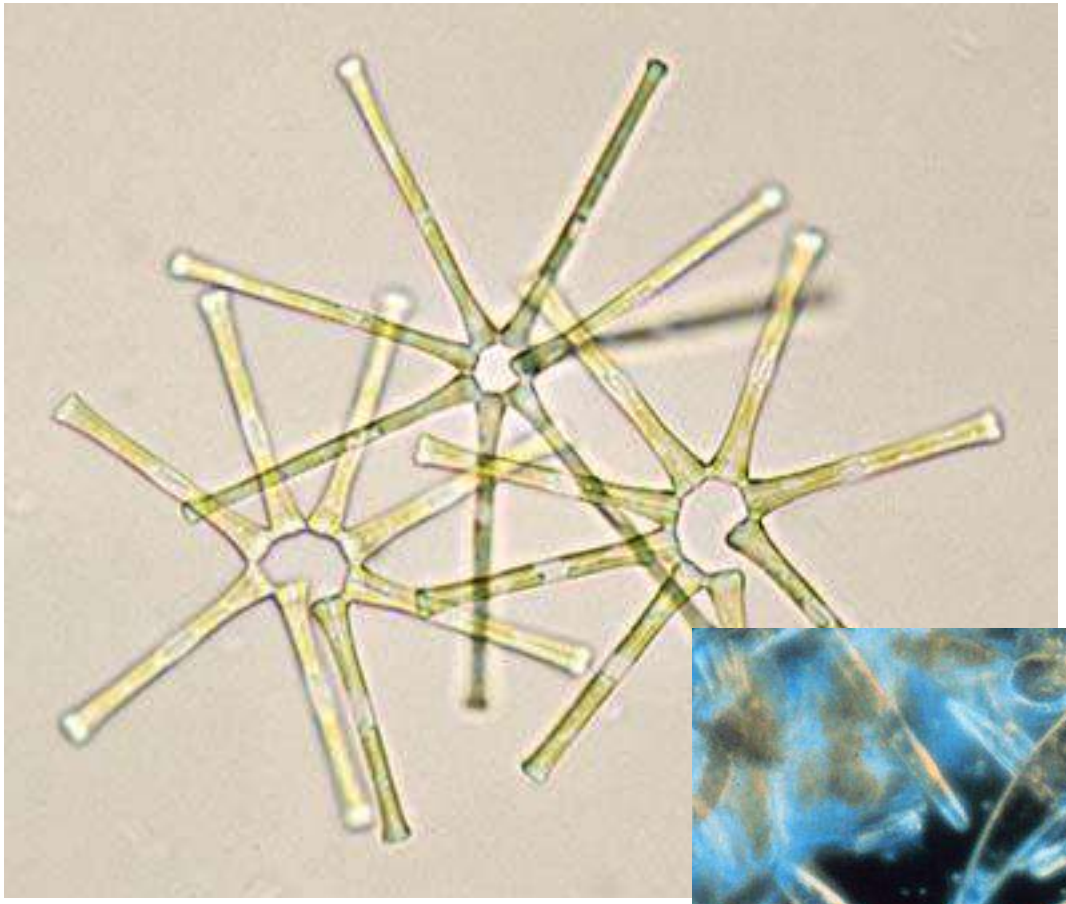
Marée rouge lumineuse causée par le Dinoflagellé *Noctiluca scintillans*

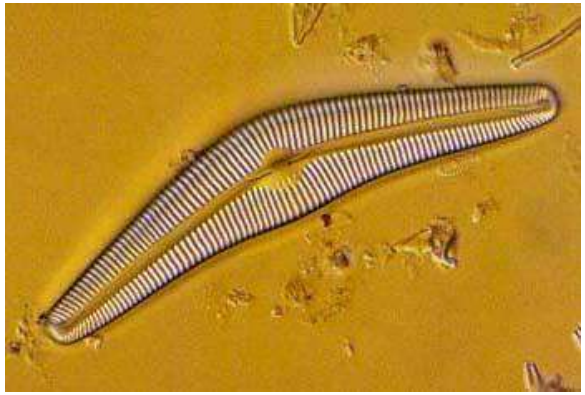
Les Diatomées

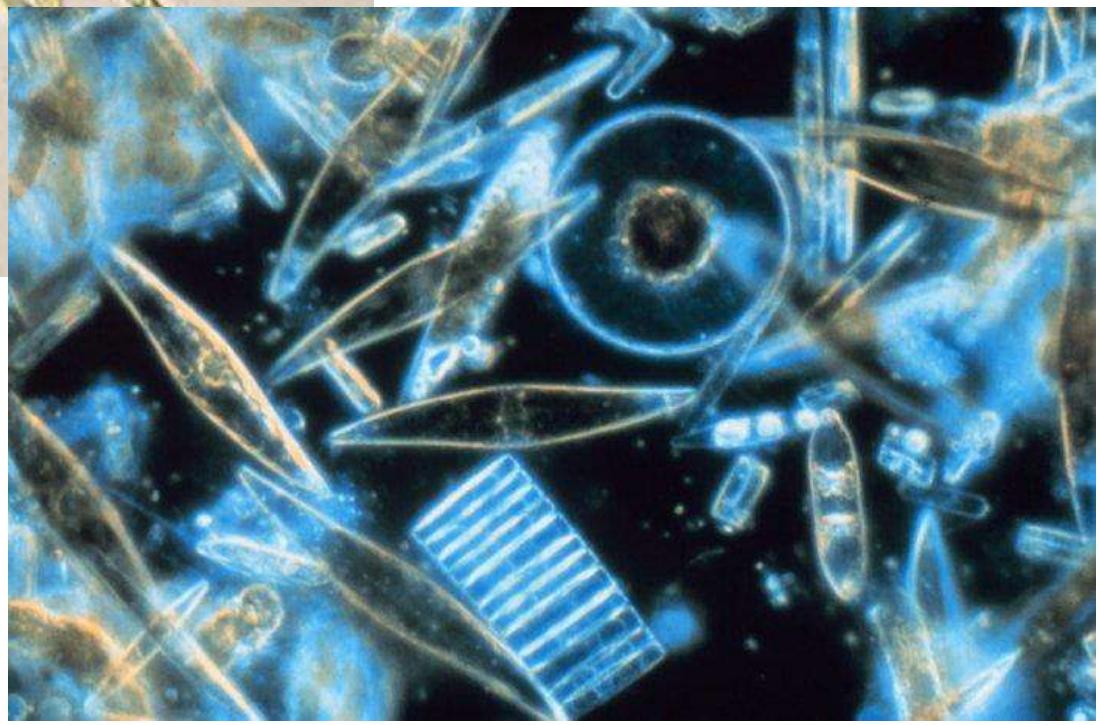




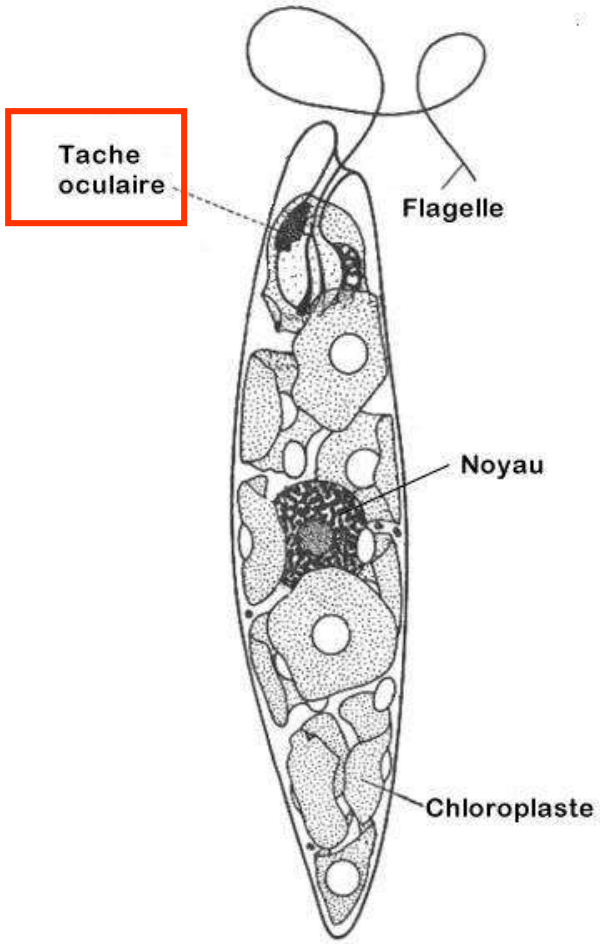








Les Euglènes



1. Les Monères

2. Les Protistes

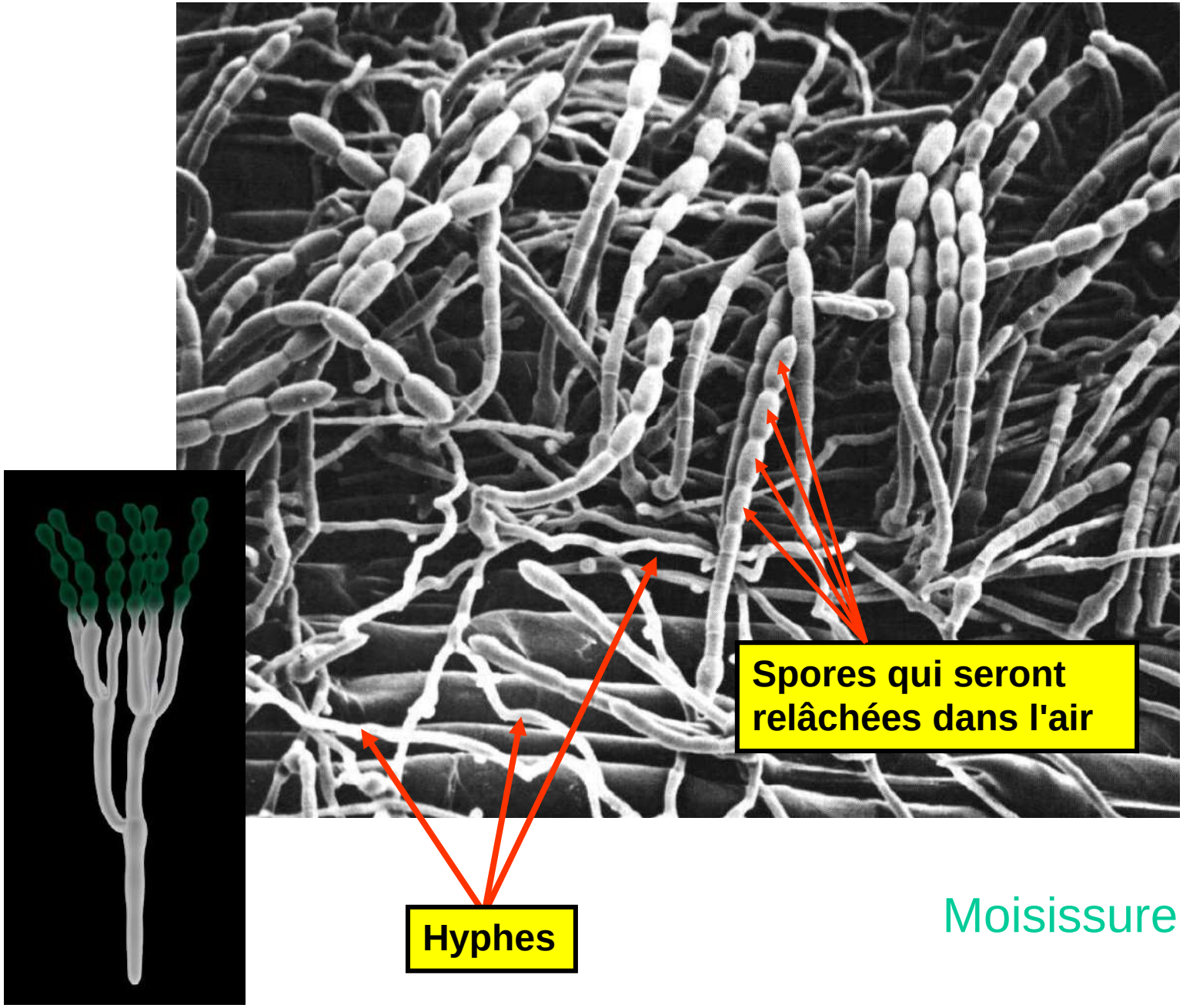
3. Les Mycètes

4. Les animaux

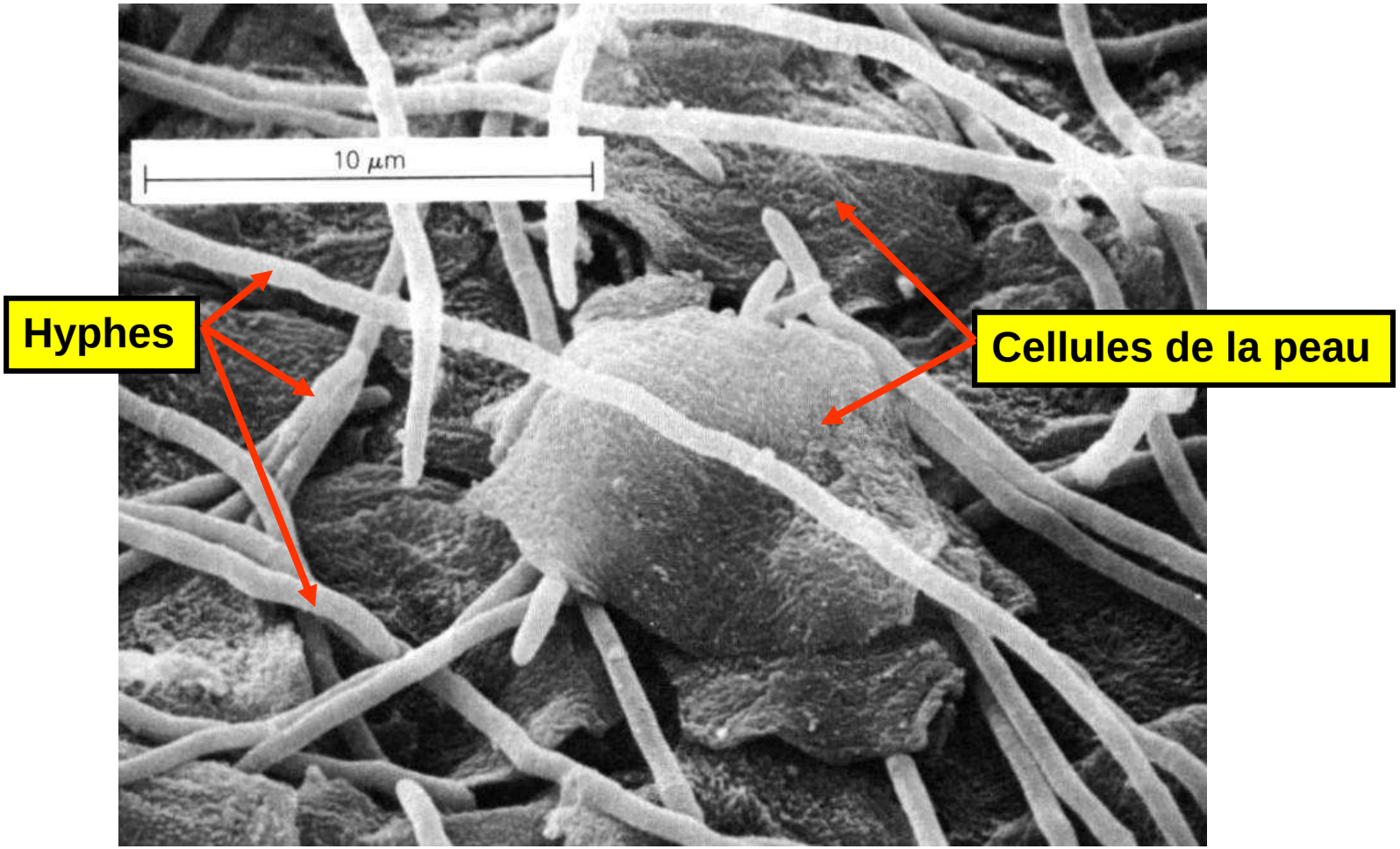
5. Les végétaux

Groupe des « champignons »

- Levures (unicellulaires)
- Moisissures
- Champignons « à chapeau »
- Et autres formes peu connues

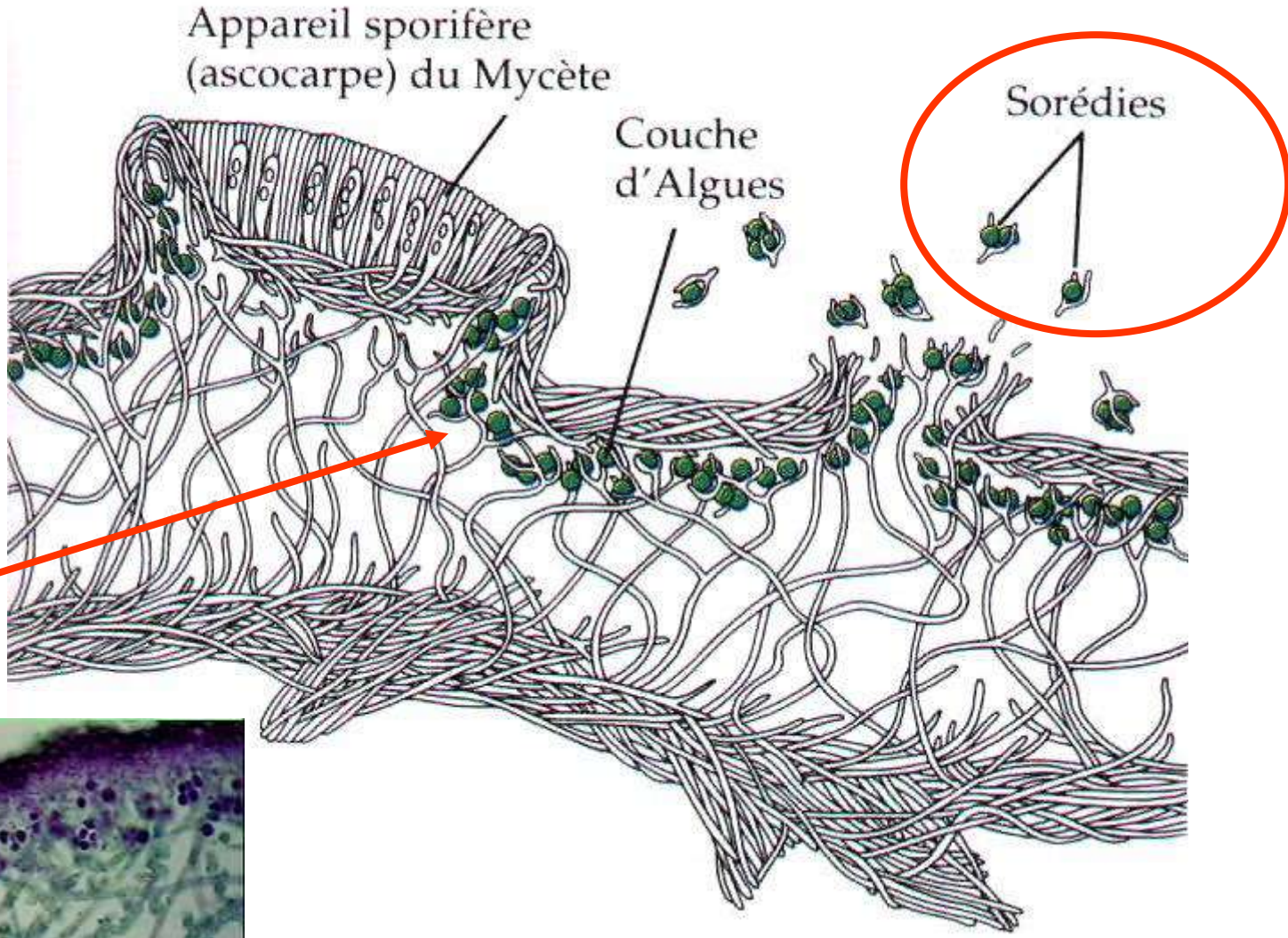


Moisissure

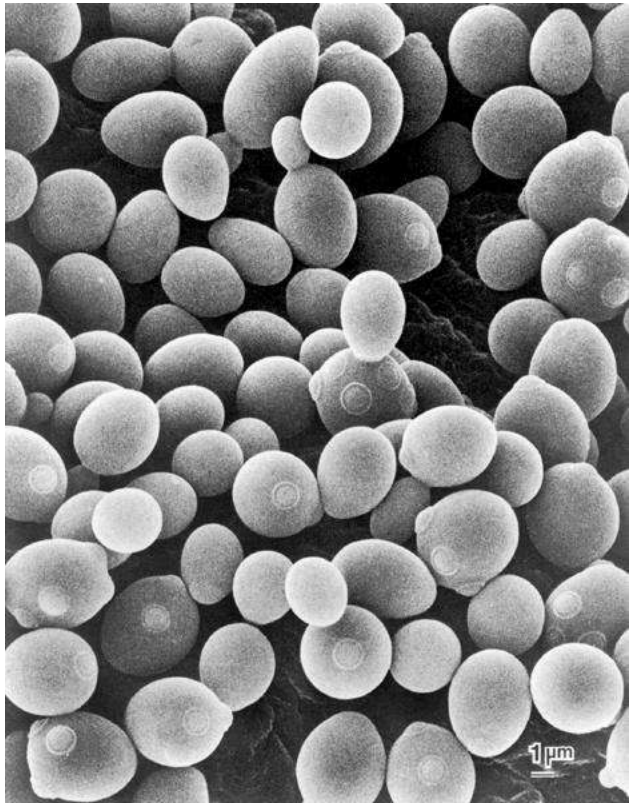


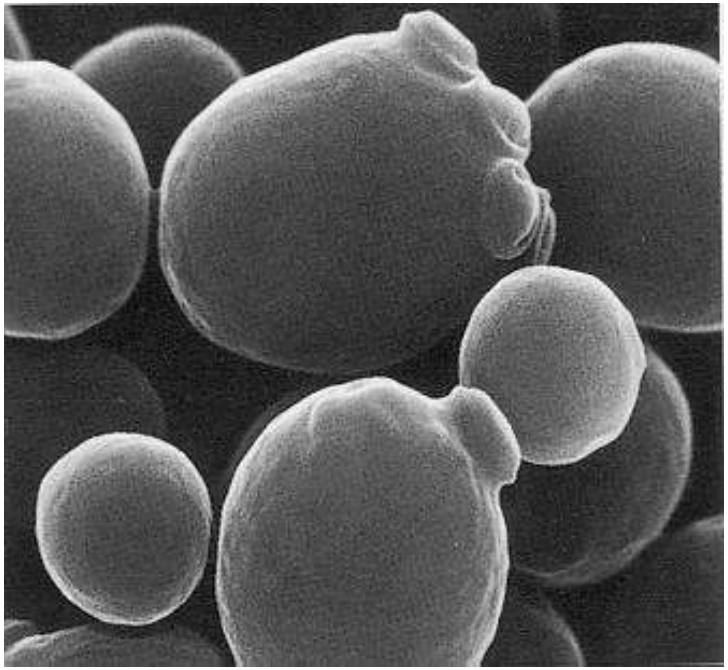
Mycose (pied d'athlète)

Trychophyton interdigitale


Appareil sporifère
(ascocarpe) du Mycète
Couche
d'Algues
Sorédies

Algues

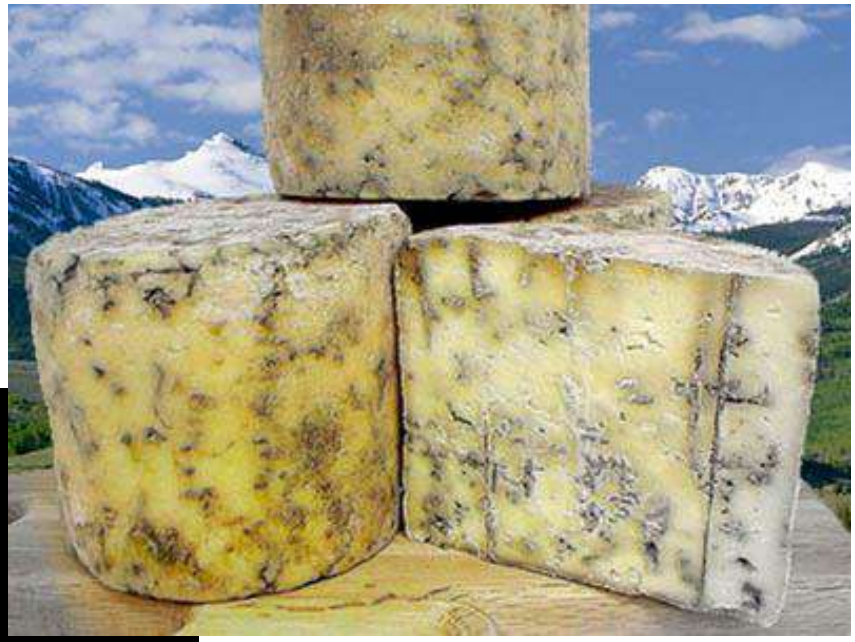

1 µm



Les levures

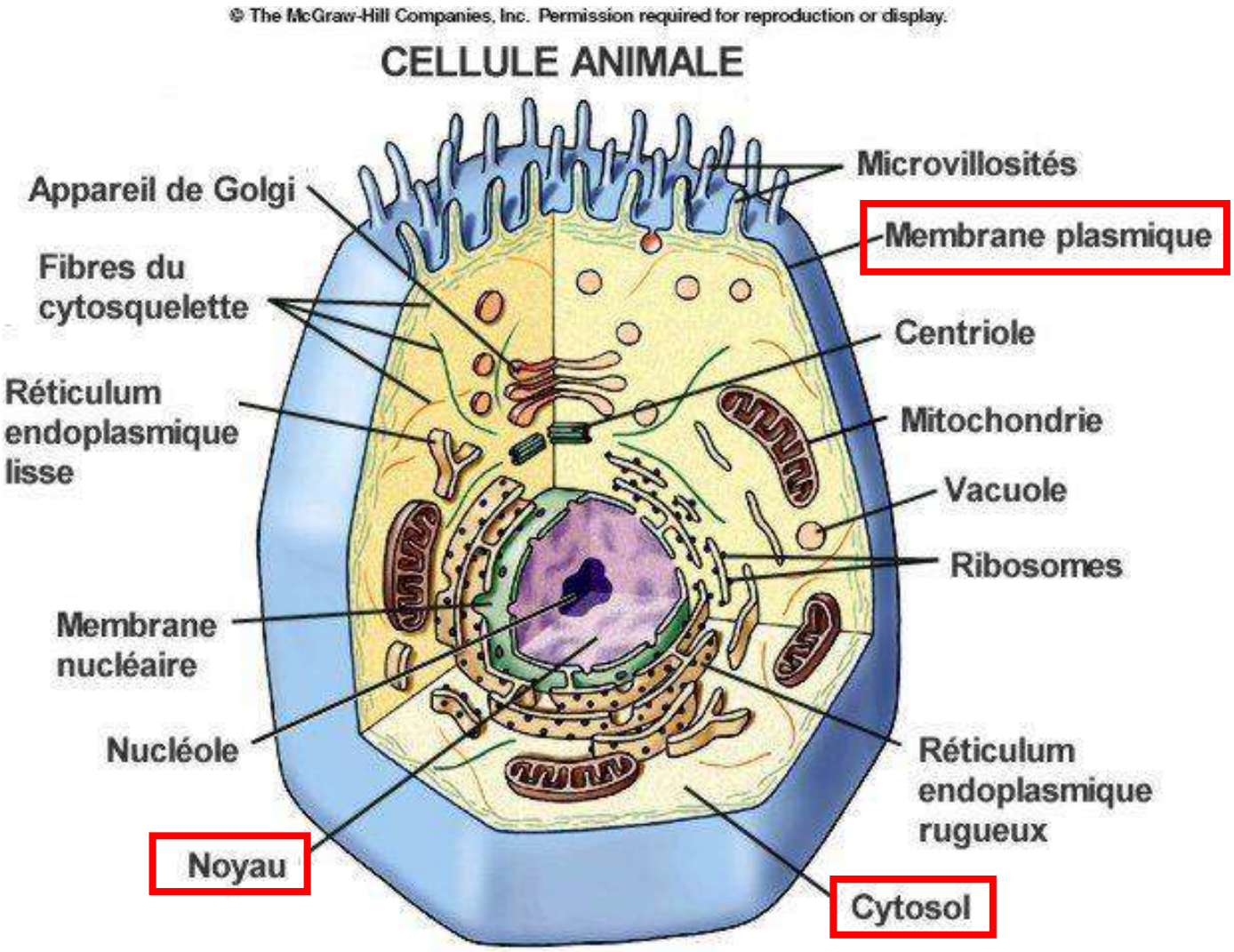
Fleischmann's
QUICK-RISE
INSTANT YEAST
125 g

Canada's #1
Yeast Brand
for Over
130 Years
Fleischmann's



Utilisation de Mycètes en alimentation

Structure générale d'une cellule animale eucaryote



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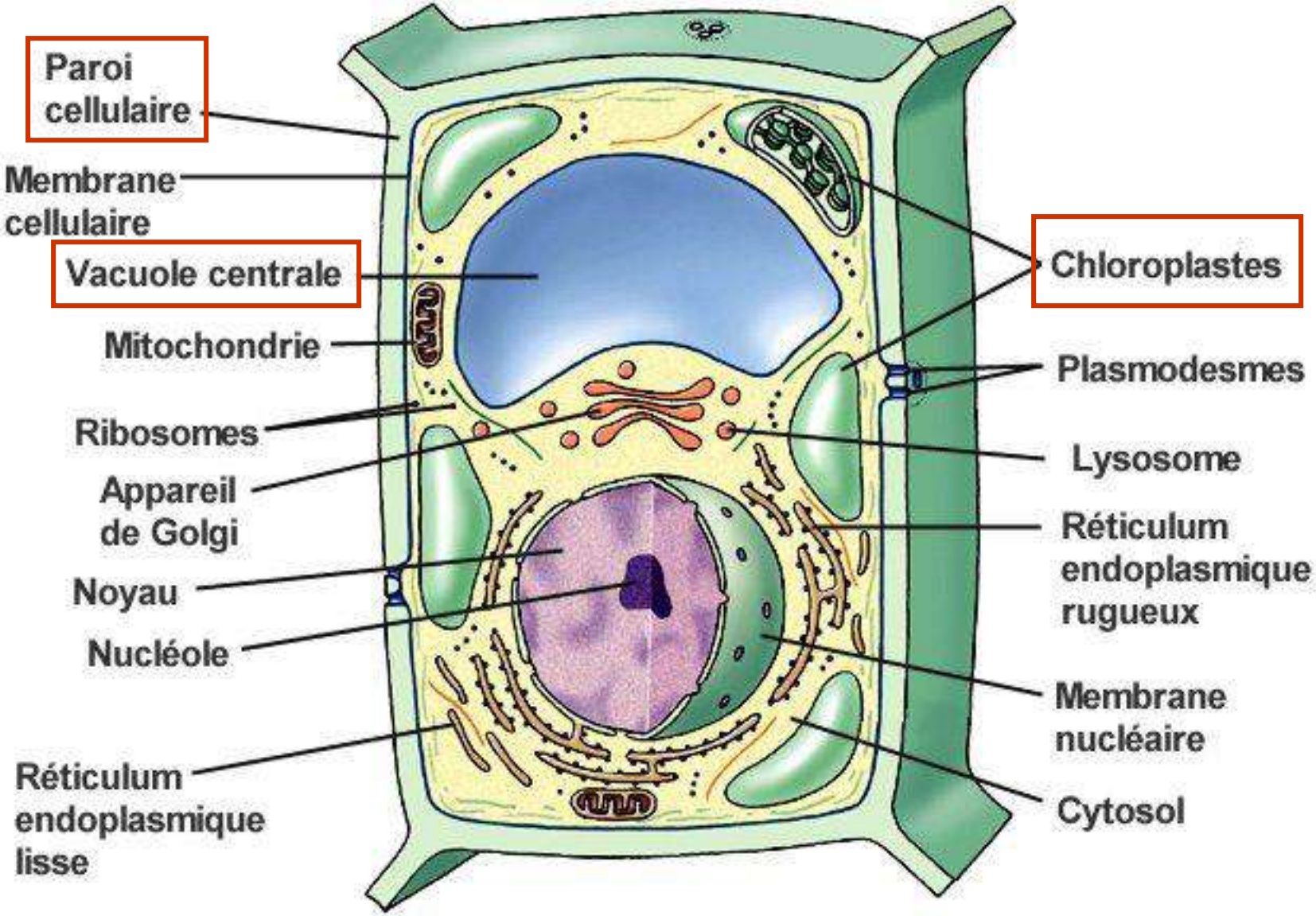
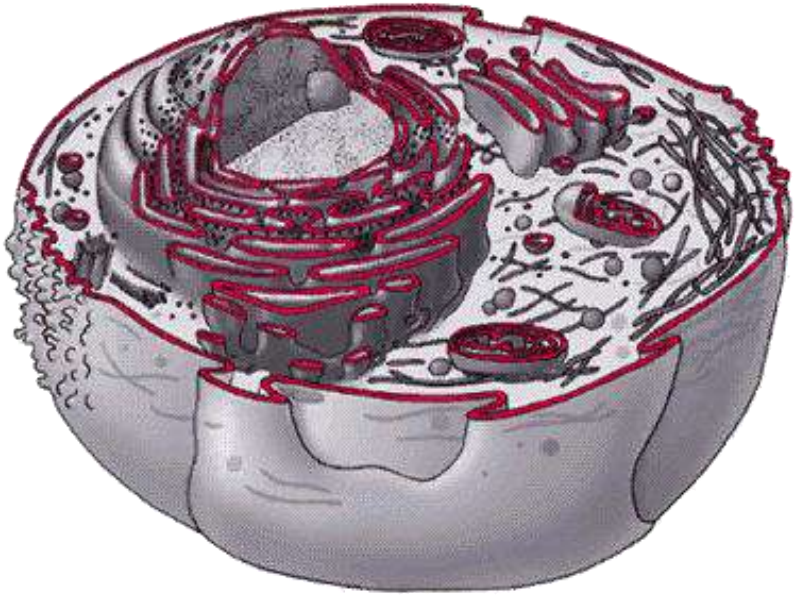
CELLULE VÉGÉTALE



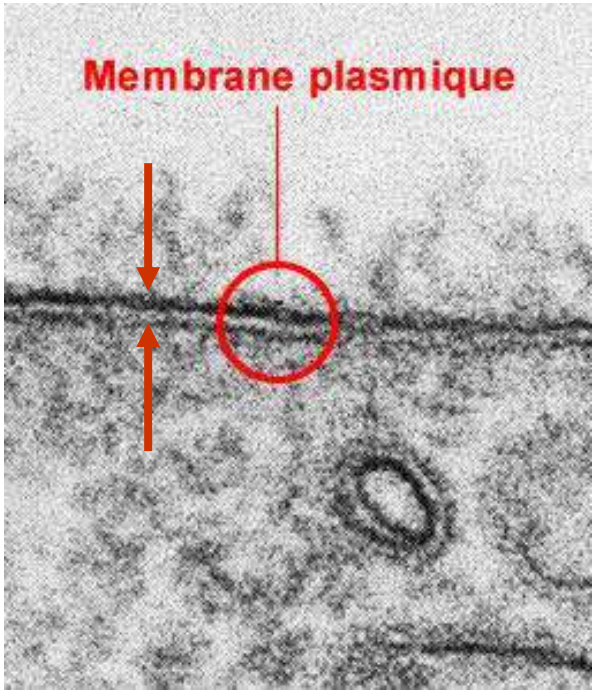
La membrane cellulaire (1-63)

- Frontière entre l ’intérieur et l ’extérieur de la cellule et compartimentation interne
- Union des cellules entre elles
- Échanges entre le cytosol et le liquide interstitiel



Structure de la membrane

- Épaisseur : 7 à 8 nm
- Deux feuillets visibles au microscope électronique



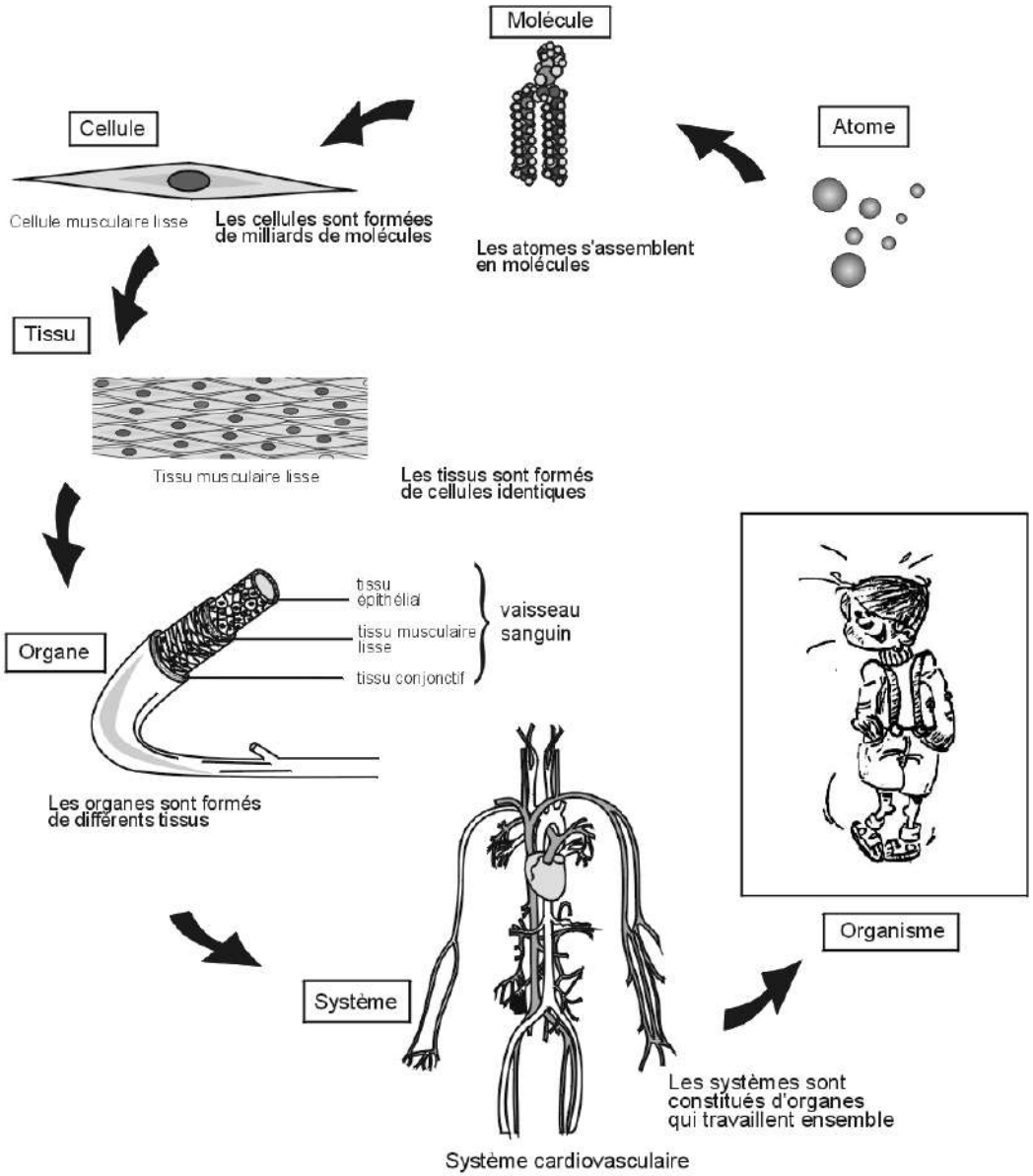
À chaque niveau, de nouvelles propriétés apparaissent:
propriétés émergentes

Les molécules ont des propriétés que n'ont pas les atomes les constituant.

Les cellules ont des propriétés (la vie) que n'ont pas les molécules, même les plus complexes.

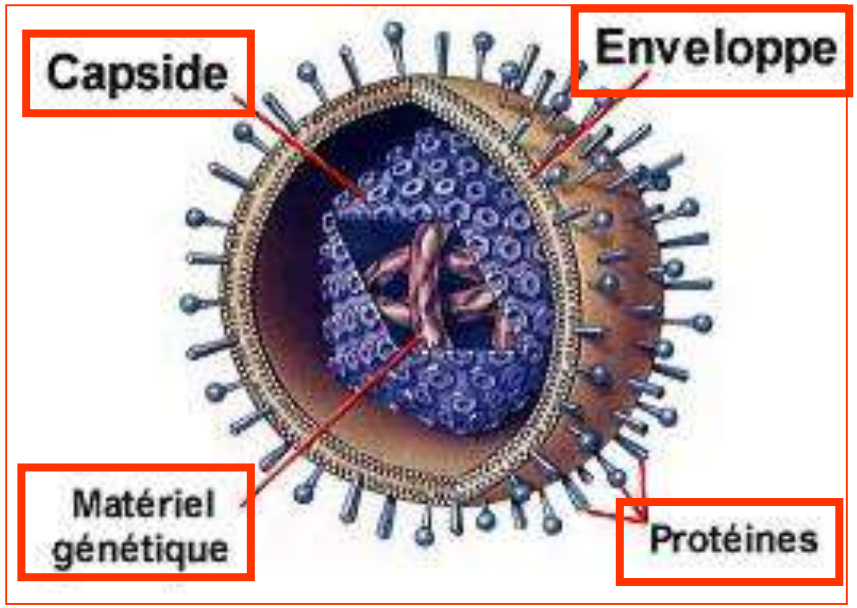
Le cerveau (organe) a des propriétés que n'ont pas les neurones (cellules) qui le forment.

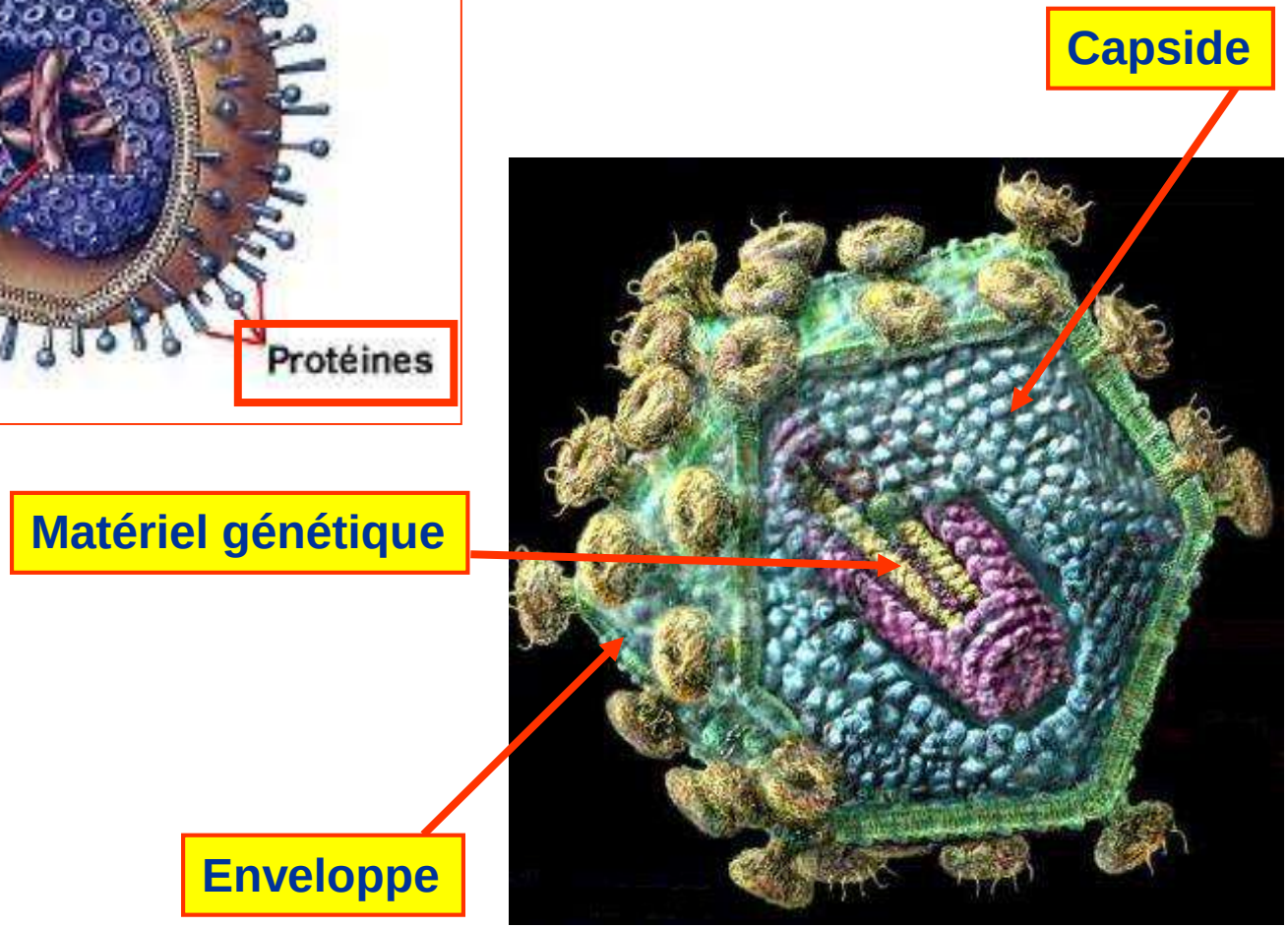
Etc.



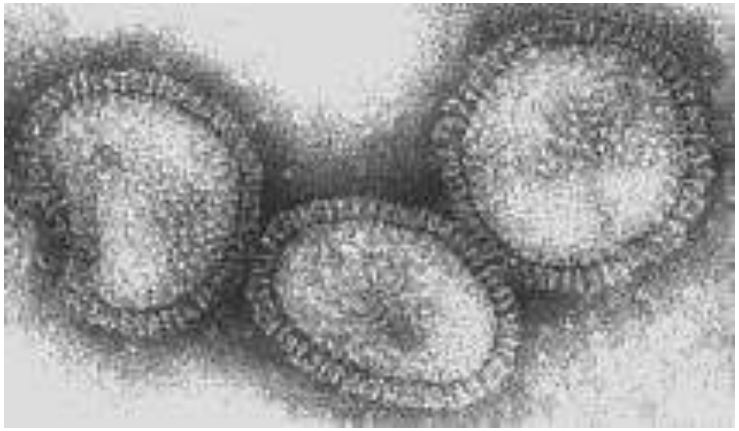
Les niveaux d'organisation du corps

Structure des virus

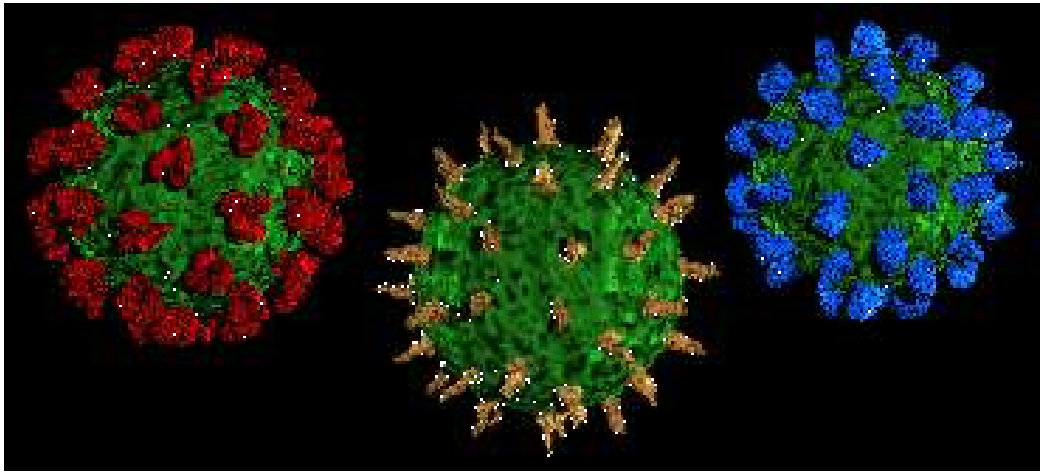


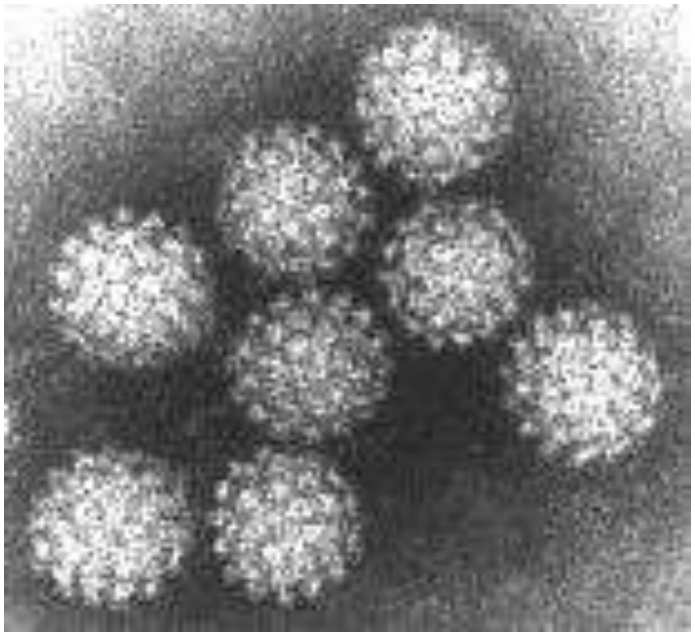


Virus HIV (sida)

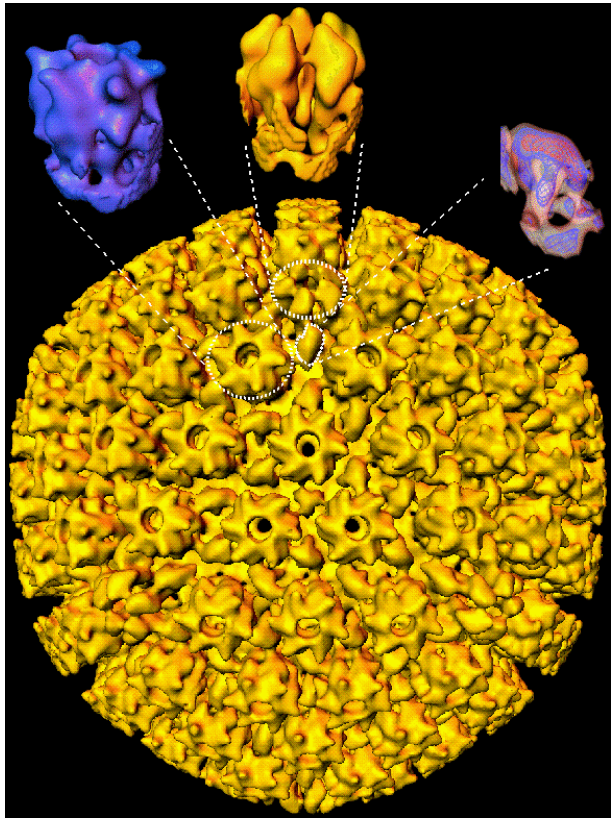


Virus de l'influenza (grippe)

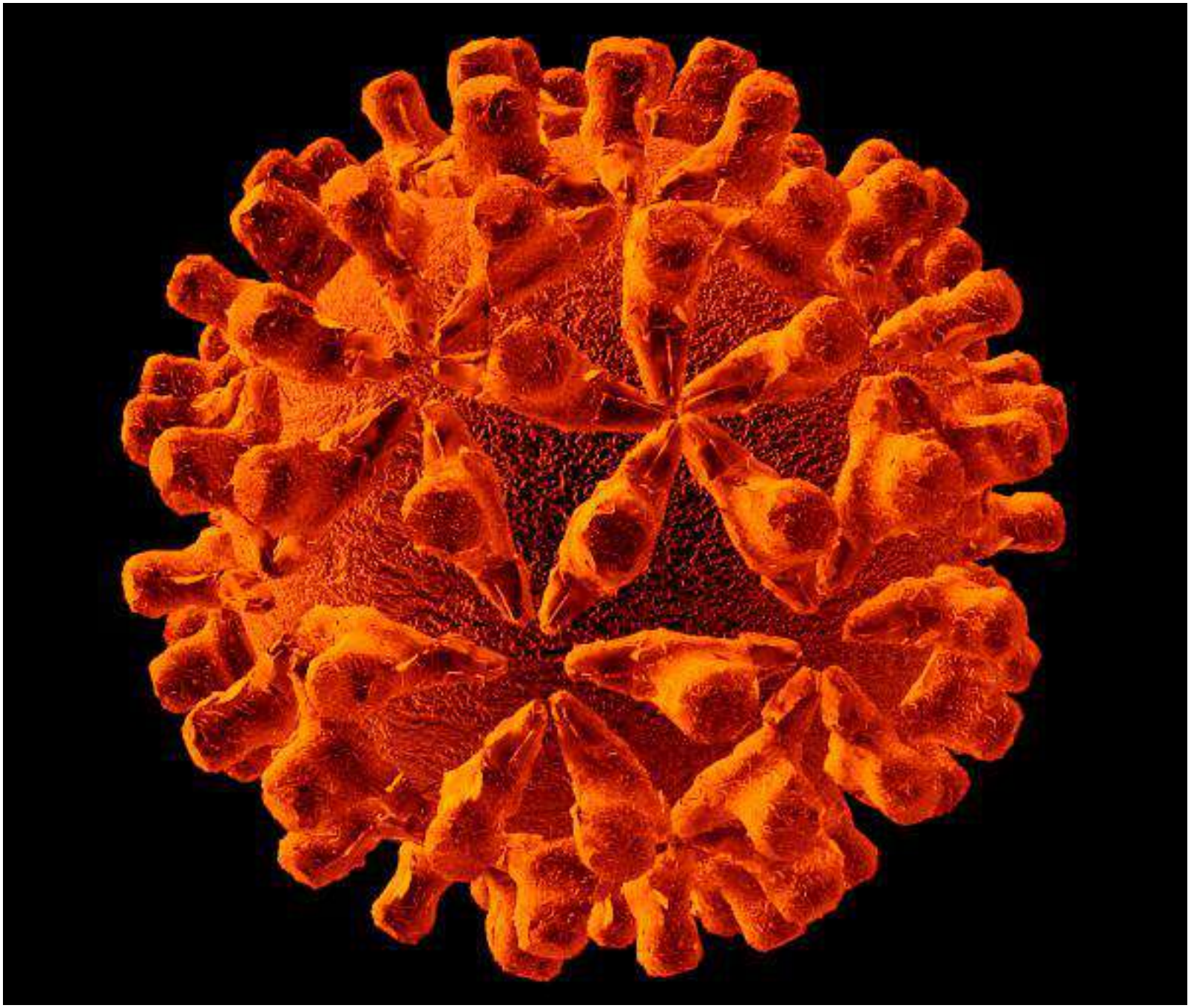




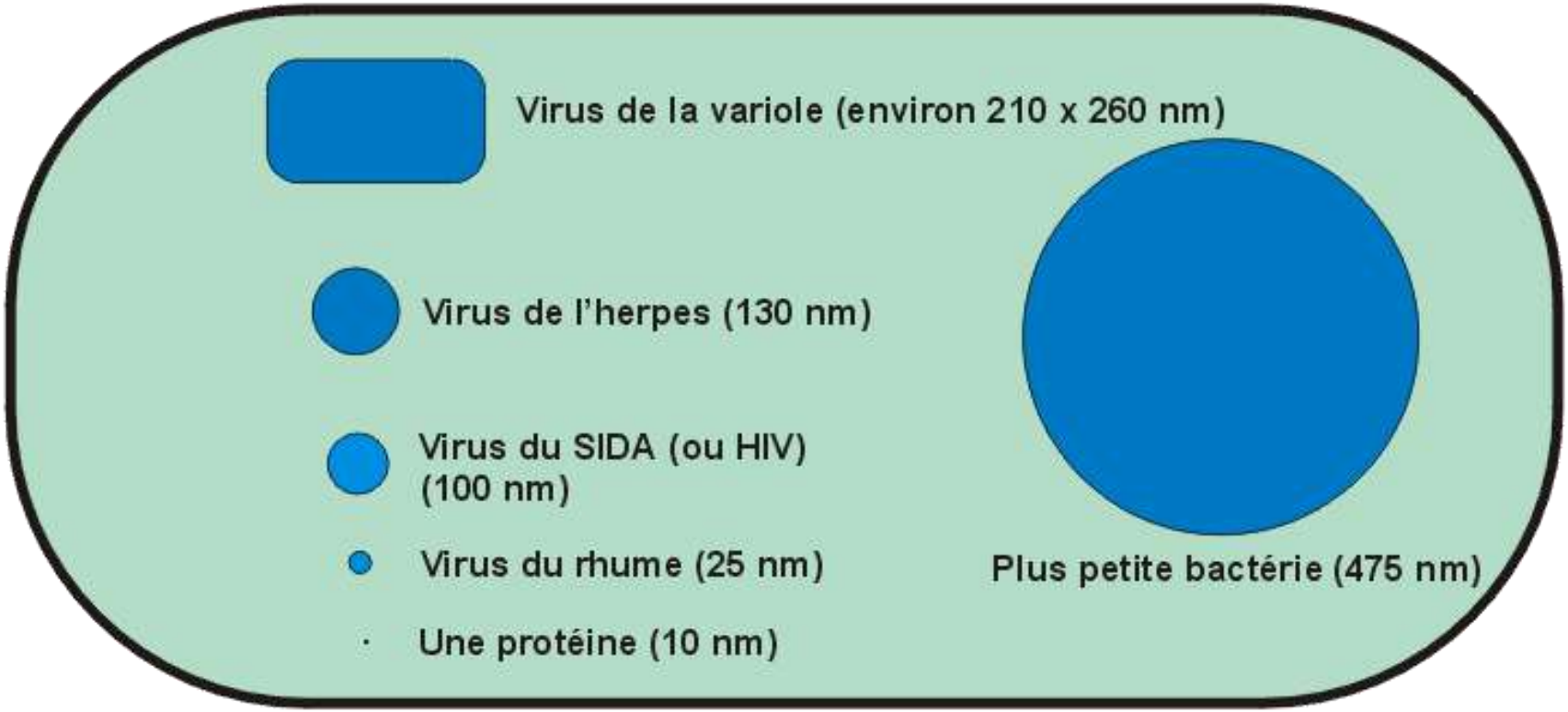
Papillomavirus (virus des condylomes)



Capside du virus de l'herpes



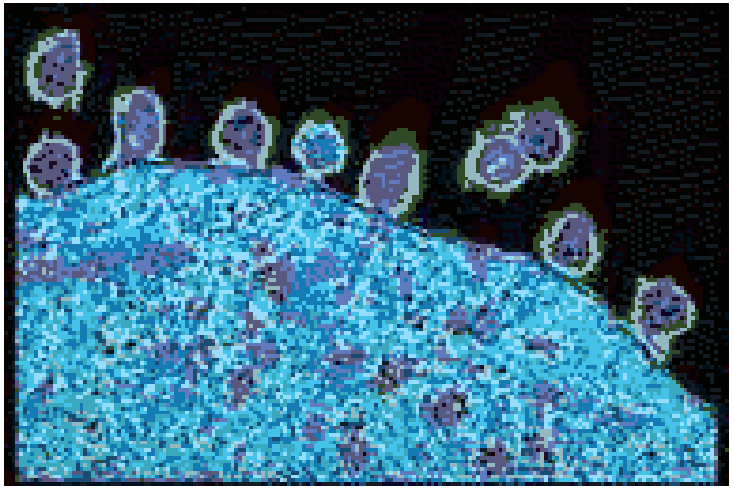
Taille des virus

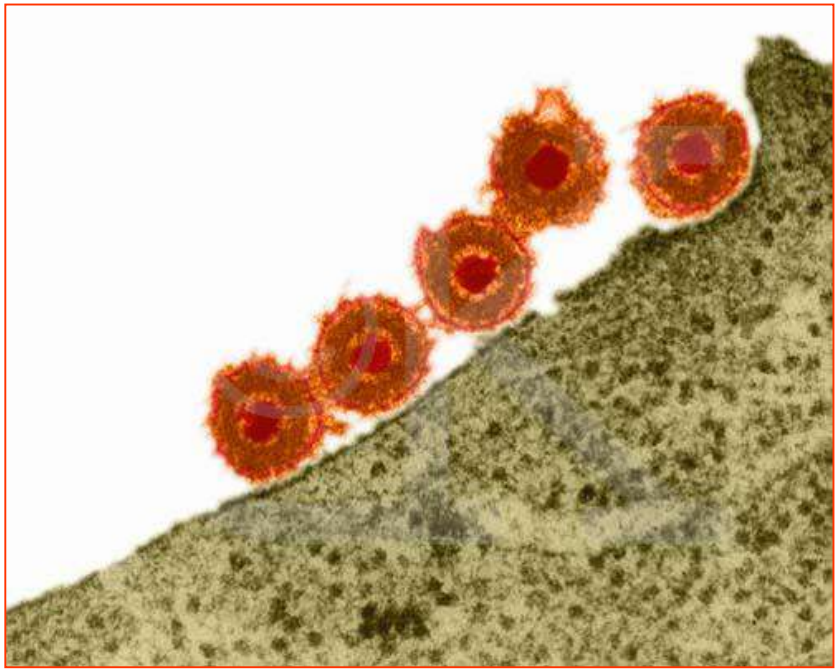


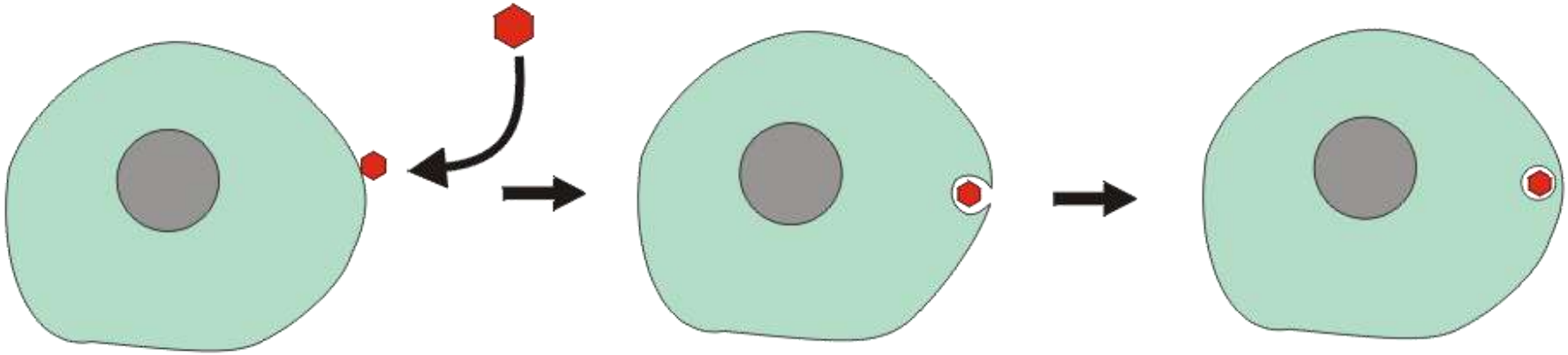
Bactérie de taille moyenne (1 µm par 3µm)

Mode de reproduction

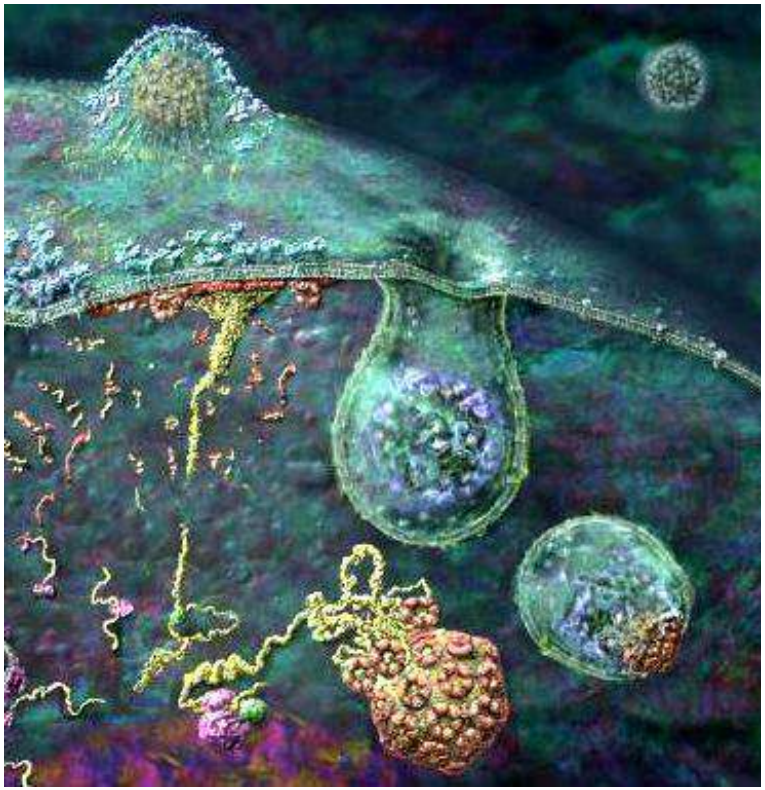
- Le virus se fixe à la membrane de la cellule:

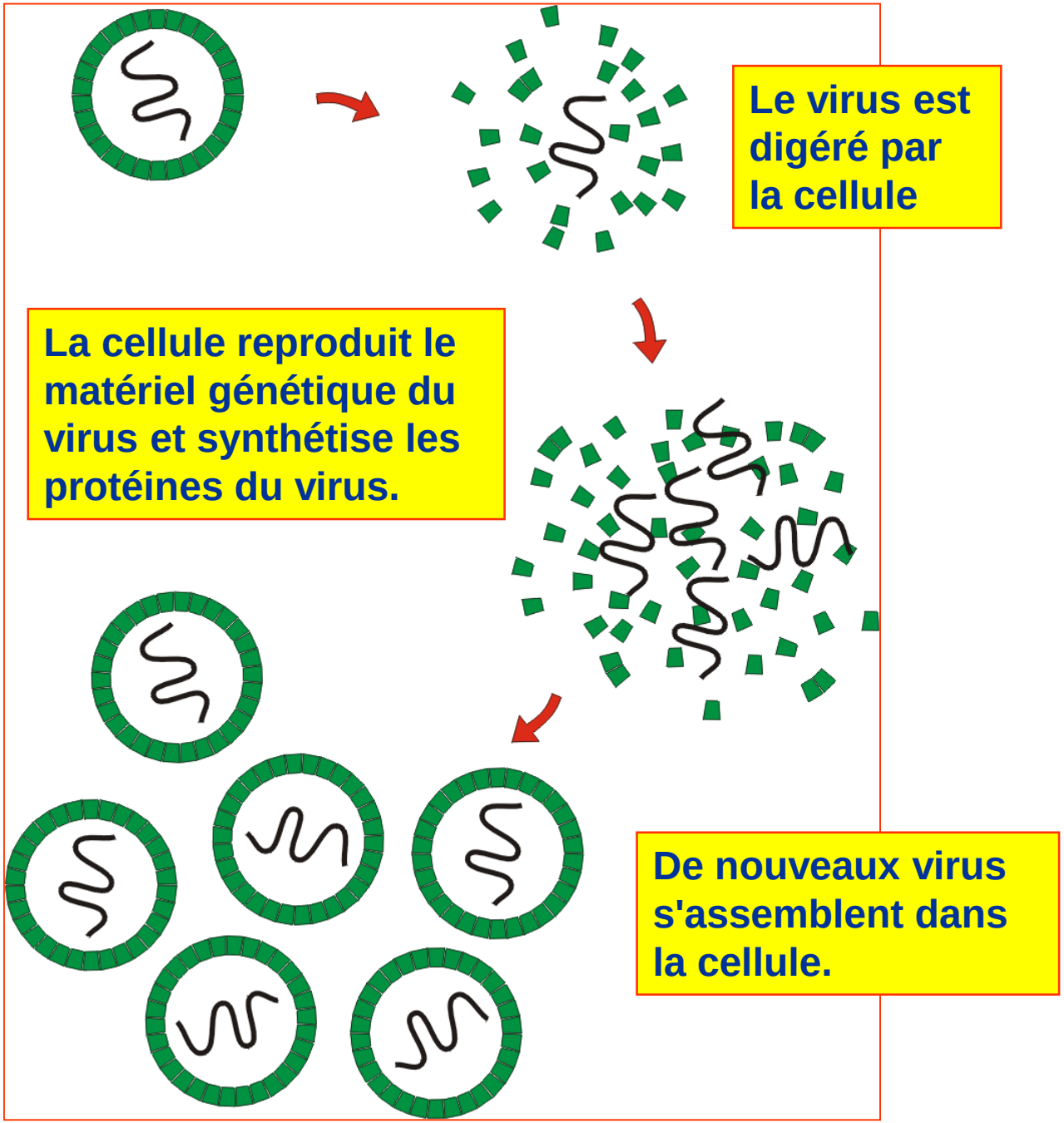




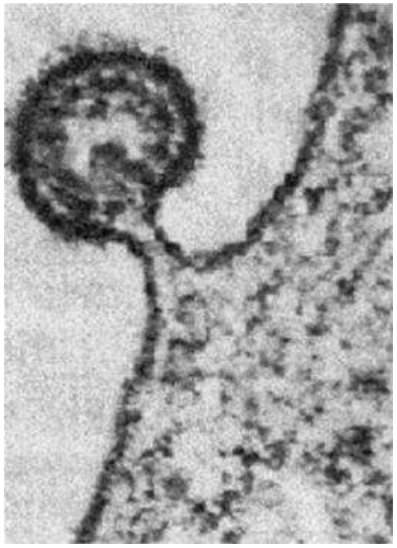


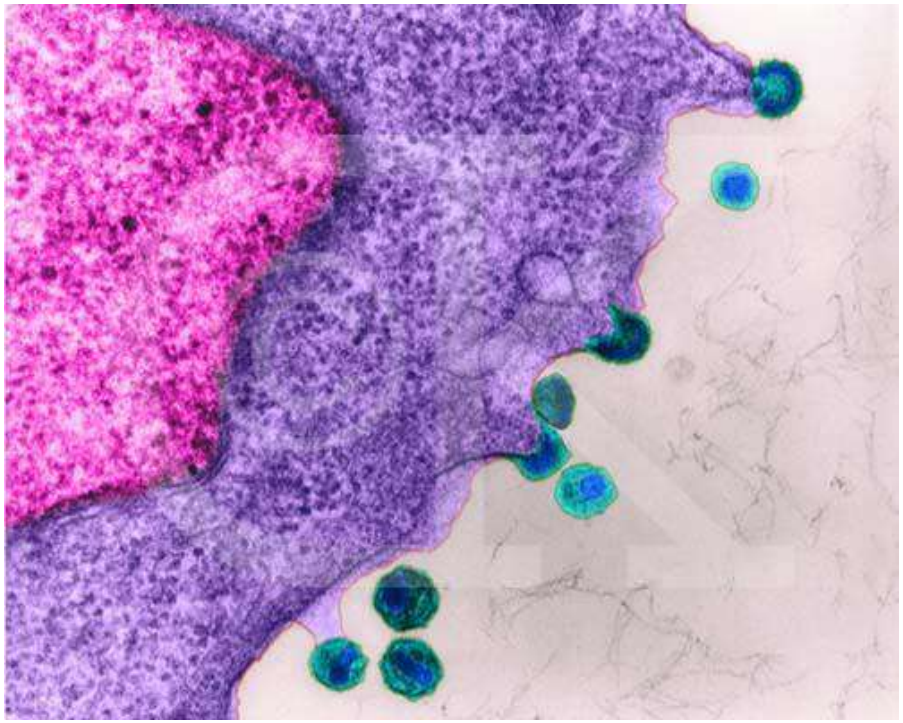
Le virus pénètre dans la cellule.



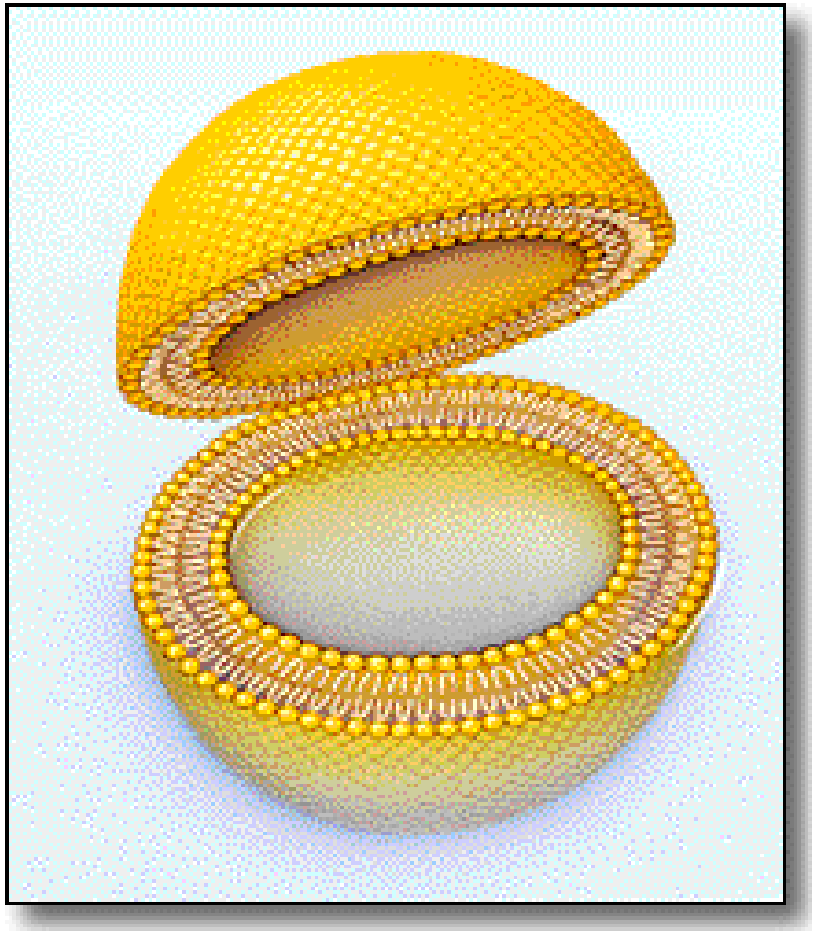

Le virus est digéré par la cellule
La cellule reproduit le matériel génétique du virus et synthétise les protéines du virus.
De nouveaux virus s'assemblent dans la cellule.

Les virus quittent la cellule par exocytose (ou la cellule se brise et libère ses virus).

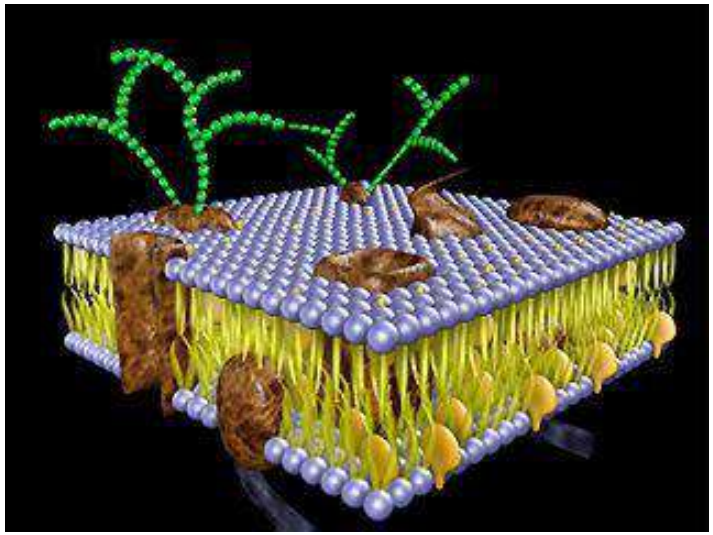




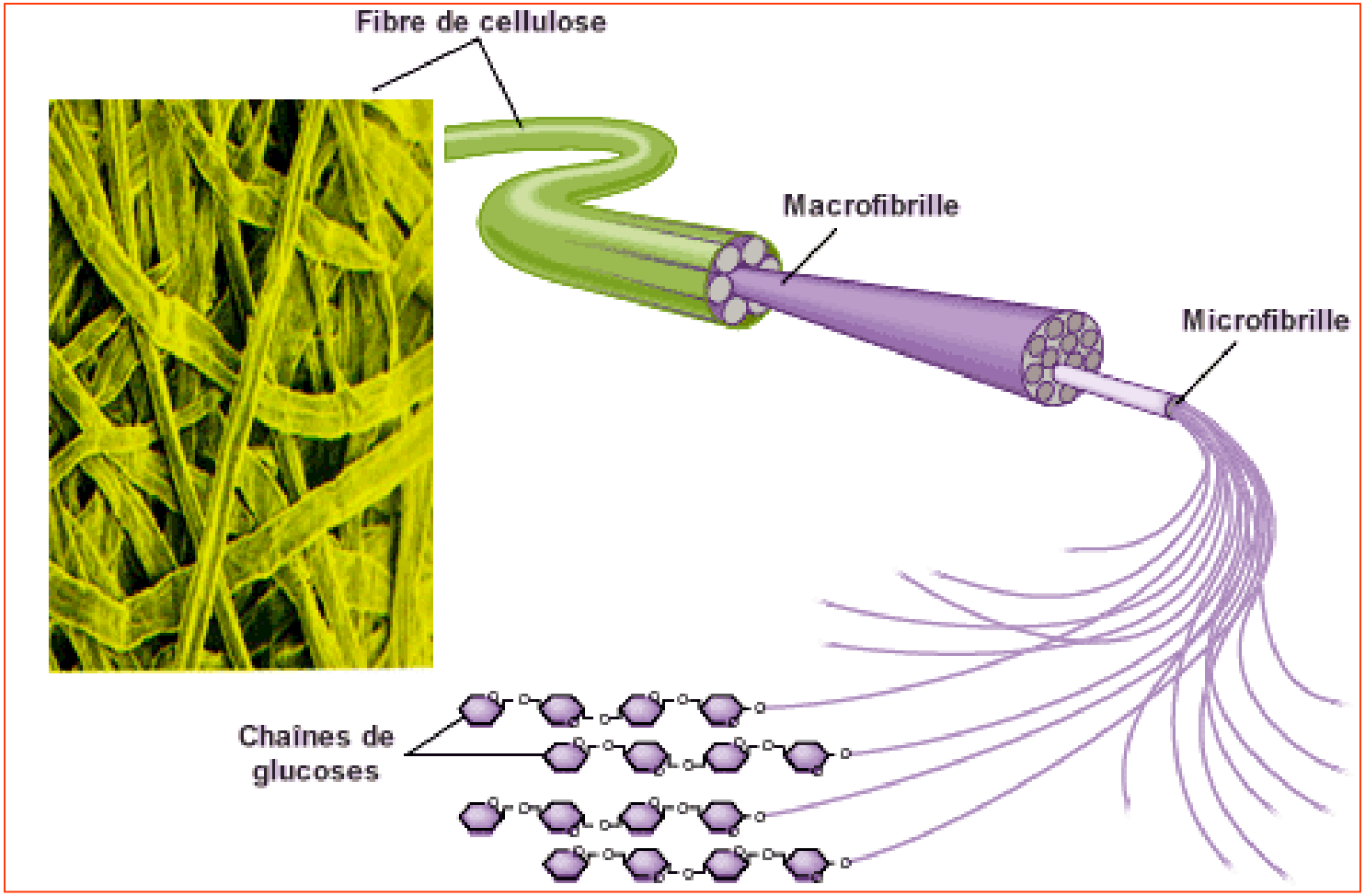
Les phospholipides dans l'eau peuvent s'assembler en une double membrane et former de petites sphères (*liposomes*)



La membrane des cellules est formée d'une double couche de phosphoglycérolipides associés à d'autres molécules.

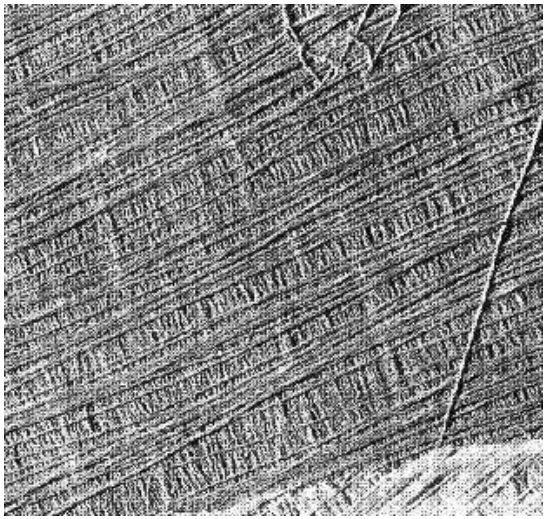


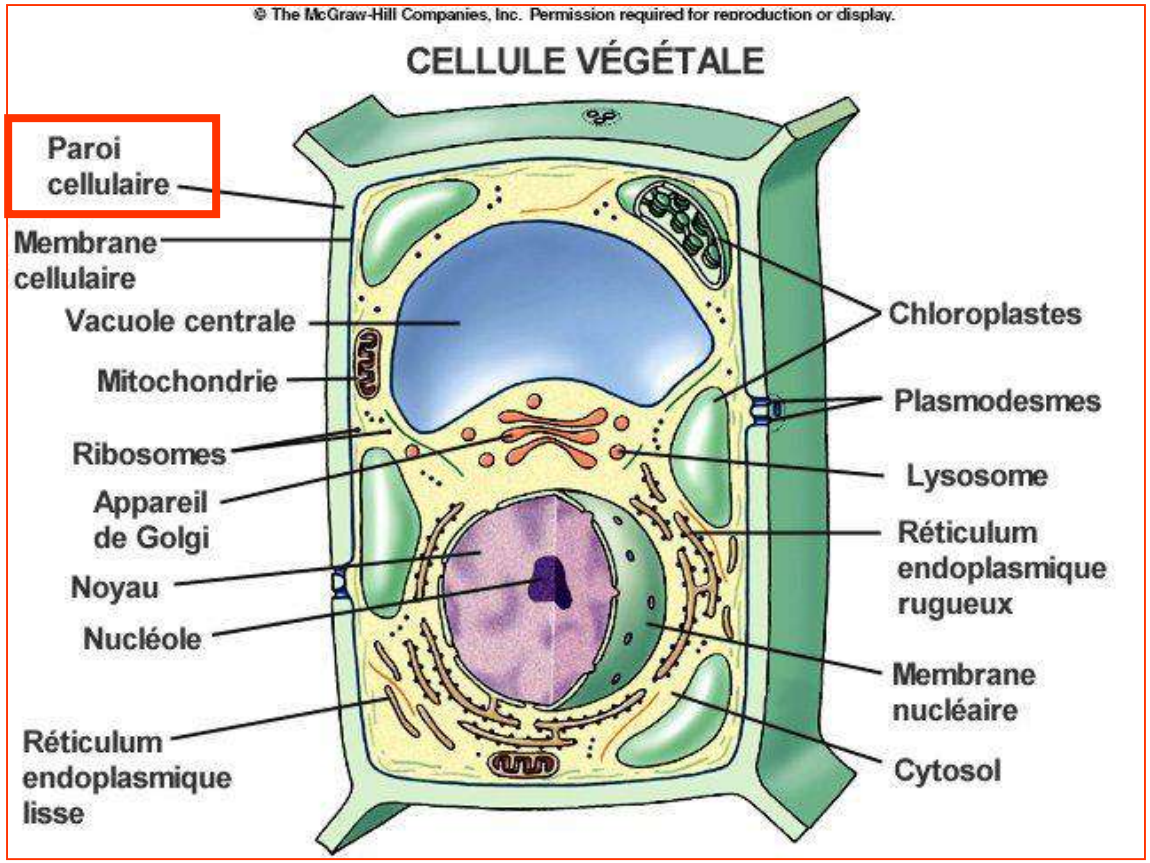
Forme des fibres. Ces fibres se collent ensemble pour former les tissus durs des végétaux.



Chaque cellule végétale est entourée d'une paroi riche en cellulose.

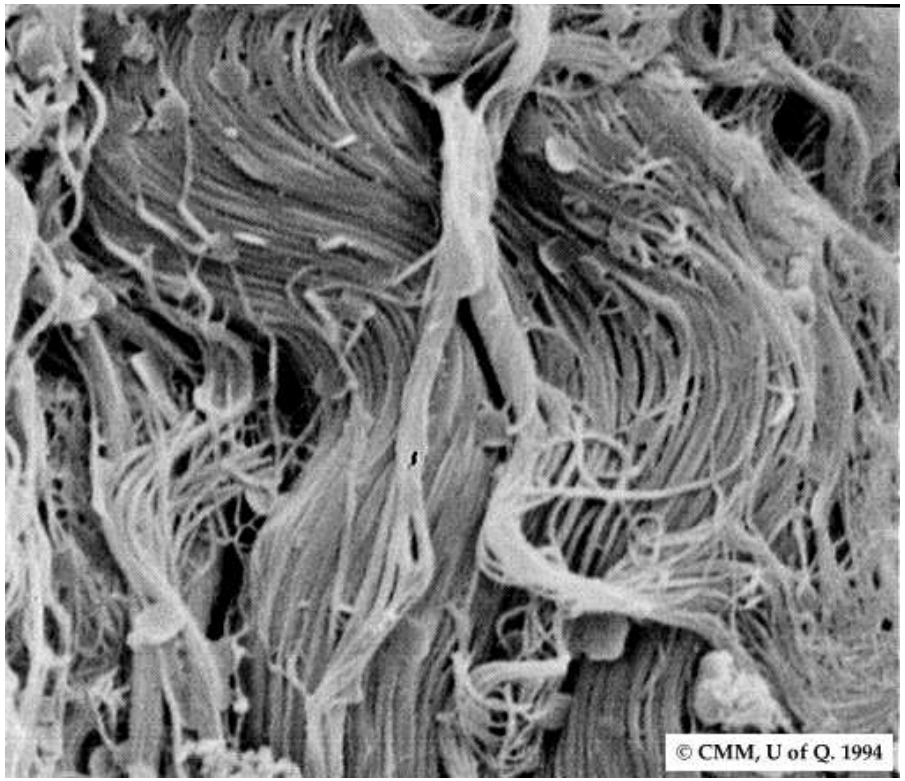
Papier, bois, coton = cellulose





Les animaux ne peuvent pas digérer la cellulose: ne peuvent pas briser les liaisons β

Cellulose = composante importante des fibres alimentaires



Collagène = protéine la plus abondante de l'organisme.

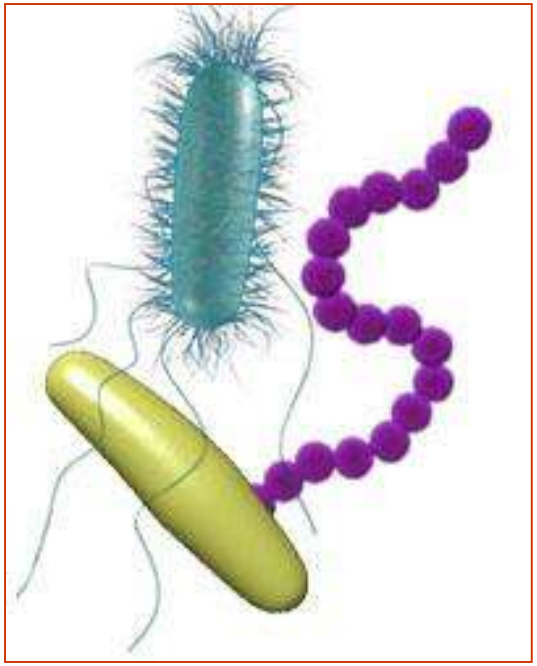
Collagène forme la peau (derme), les tendons, les ligaments, l'armature des os, etc.

On reconnaît deux grands types de cellules:

- Cellules **procaryotes** (= bactéries)
- Cellules **eucaryotes** (= toutes les autres cellules)

Cellules procaryotes:

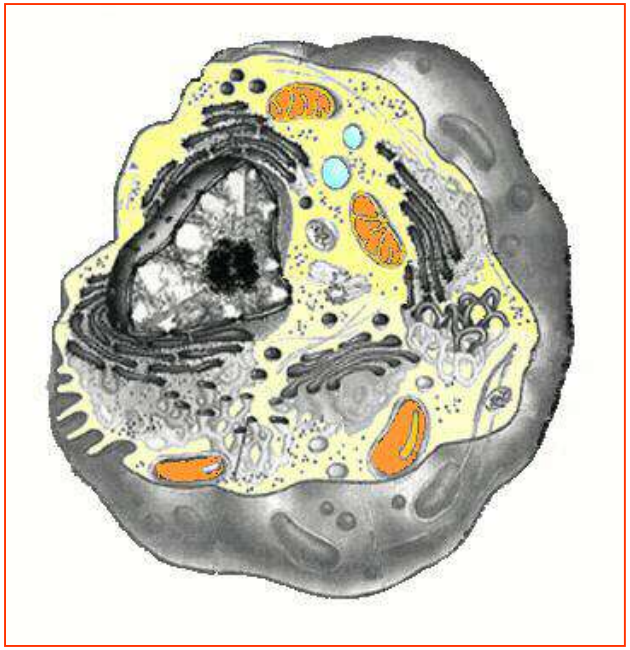
- 1 à 3 µm en général
- pas d'organites présents (sauf *ribosomes*)
- matériel génétique non enfermé dans un noyau délimité



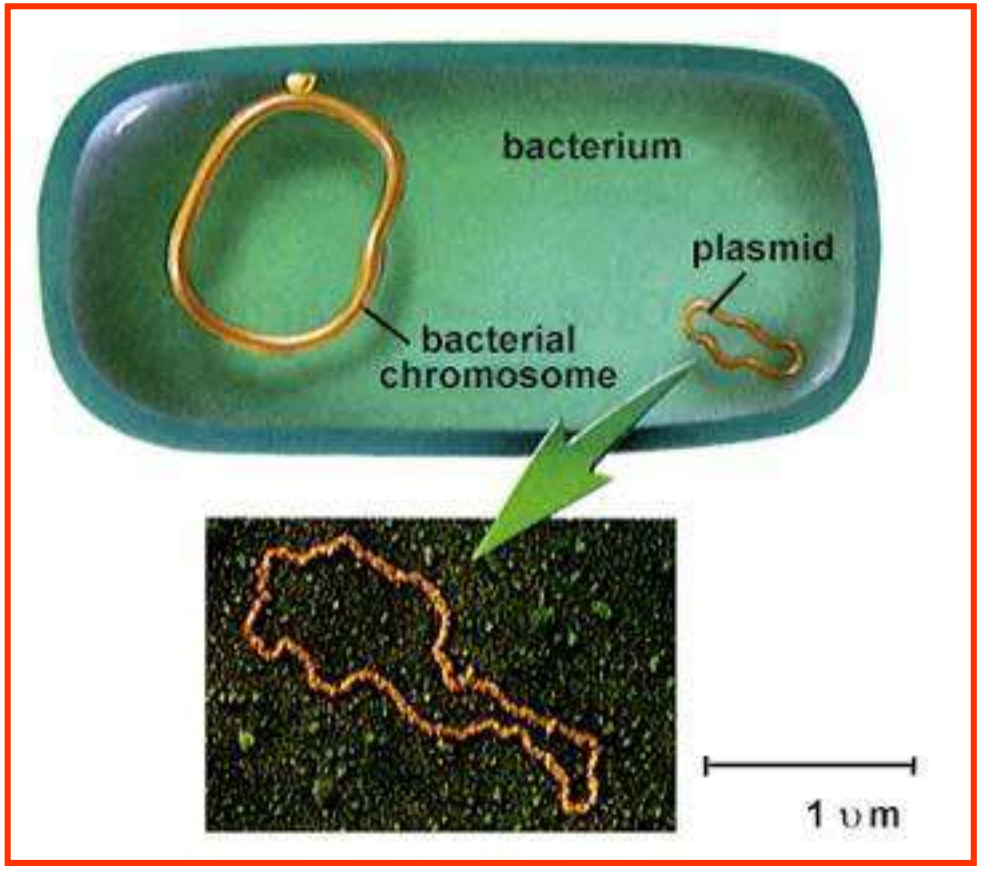
1 µm = 1/1000 mm

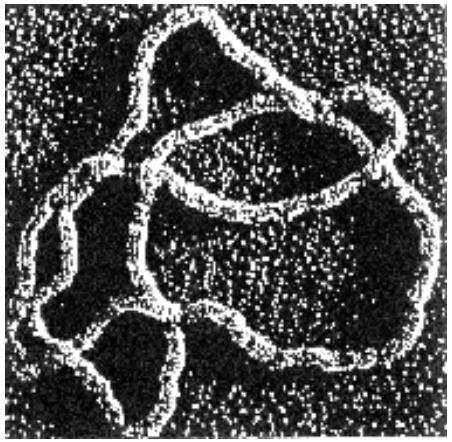
Cellules eucaryotes:

- 10 à 100 µm en général (20 µm en moyenne)
- Nombreux organites internes faits de membranes.
- Matériel génétique délimité par une membrane = noyau

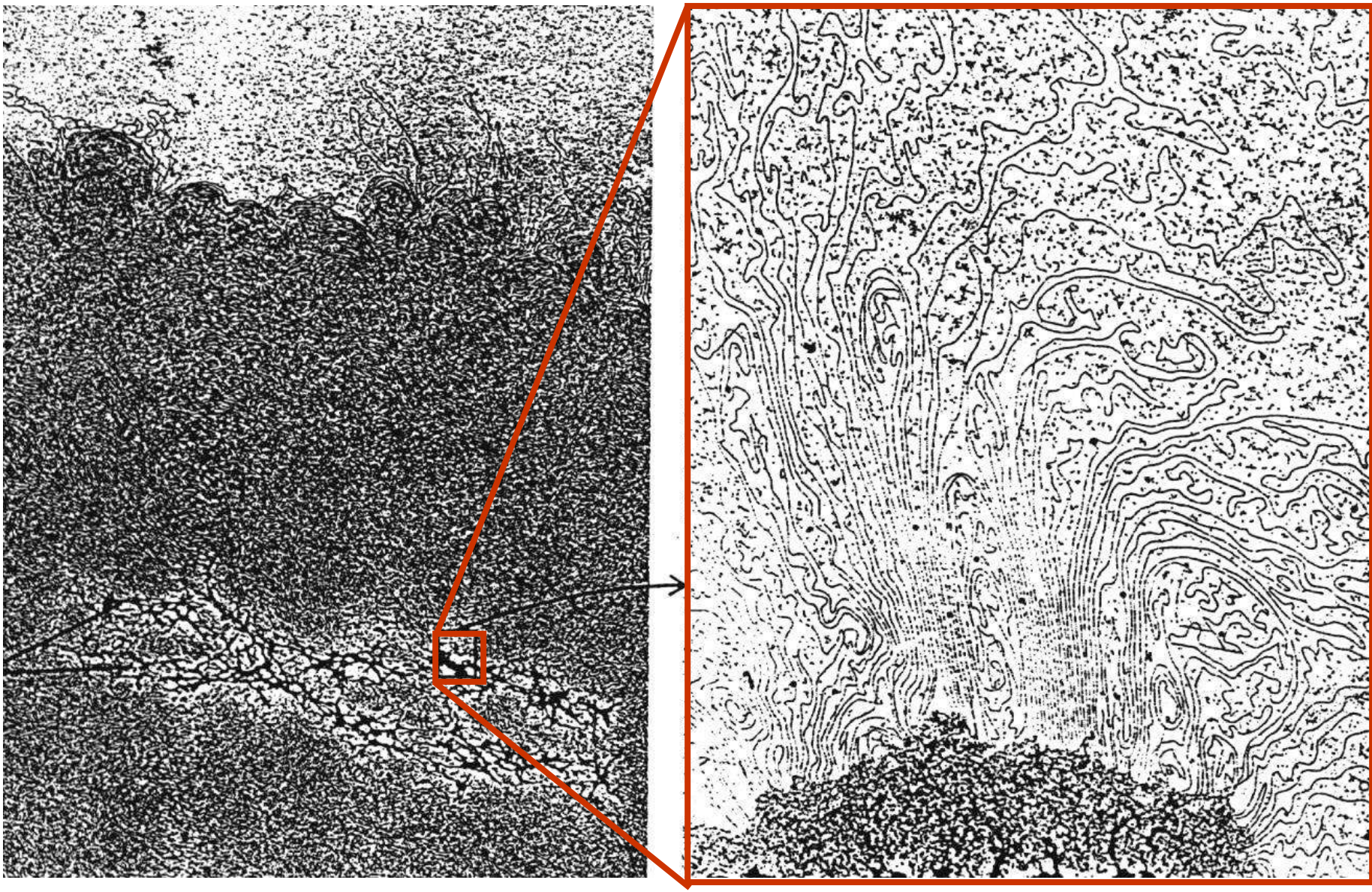


On prélève le gène de l'insuline humaine et on l'introduit dans le plasmide d'une bactérie.





Petite portion d'un chromosome humain



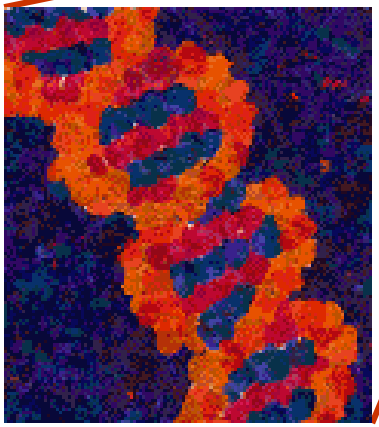
50 000 X

150 000 X

Dans une bactérie: 1 seule molécule d'ADN

5 millions de paires de base.

Longueur totale ~ 1,5 mm



Bactérie *E. coli* "éclatée".

L'ADN s'est répandu autour de la bactérie.

Bon courage

LIENS UTILES ☝

Visiter :

1. https://biologie-maroc.com
   - Télécharger des cours, TD, TP et examens résolus (PDF Gratuit)

2. https://biologie-maroc.com/shop/
   - Acheter des cahiers personnalisés + Lexiques et notions.
   - Trouver des cadeaux et accessoires pour biologistes et géologues.
   - Trouver des bourses et des écoles privées

3. https://biologie-maroc.com/emploi/
   - Télécharger des exemples des CV, lettres de motivation, demandes de ...
   - Trouver des offres d'emploi et de stage