

Faculté des Sciences & Techniques



Licence Sciences du Vivant

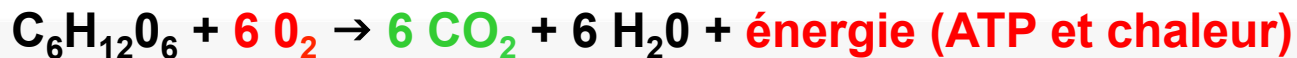
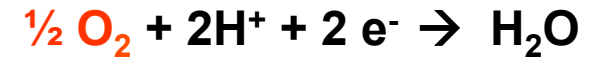
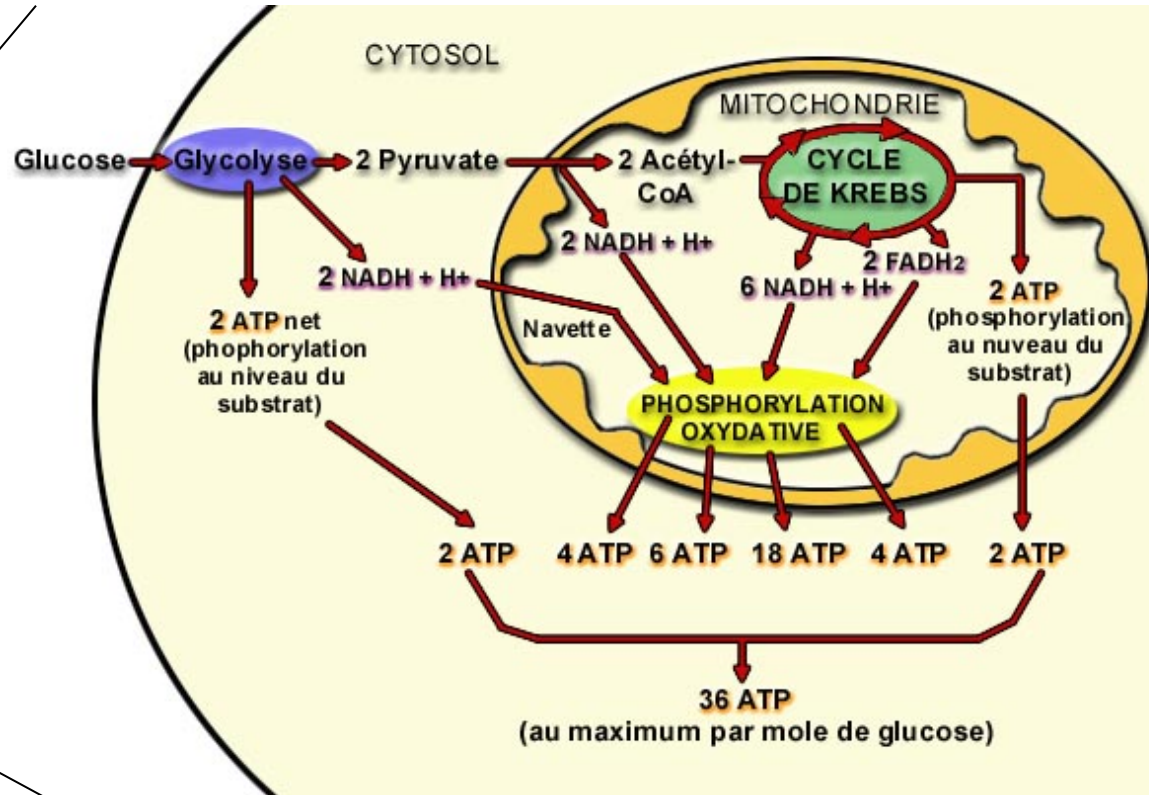
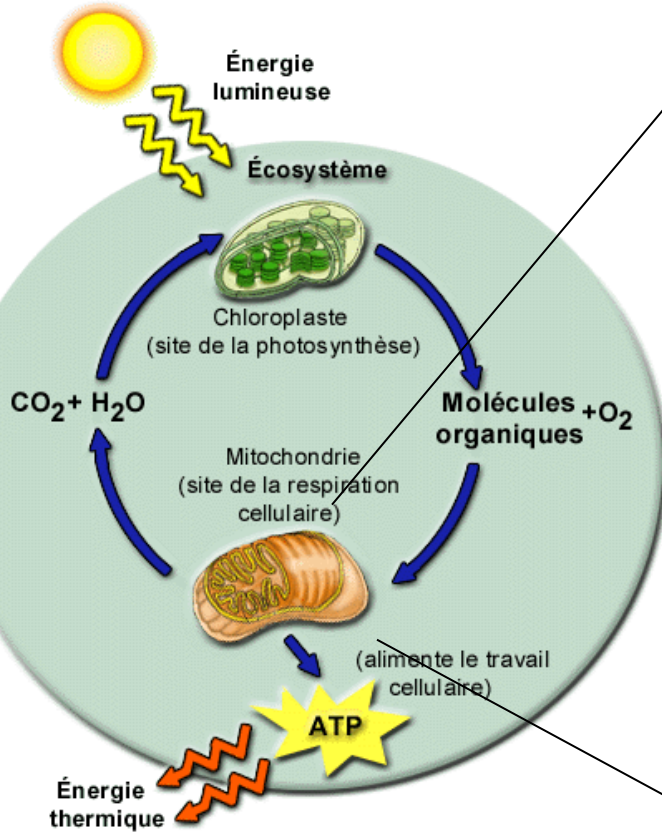
Semestre 2

UE PLAN D'ORGANISATION DES VERTÉBRÉS ET DES PLANTES

Cours F. DUPUY

1. Biodiversité et Plans généraux d'organisation
2. Organisation du squelette
3. **Organisation du système respiratoire**
4. Organisation du système circulatoire
5. Organisation du système digestif (TP)
6. Organisation du système nerveux (TP)
7. Organisation du système uro-génital
8. Organisation du système tégumentaire

Systeme respiratoire: Introduction



Systeme respiratoire: Introduction

Le rendement

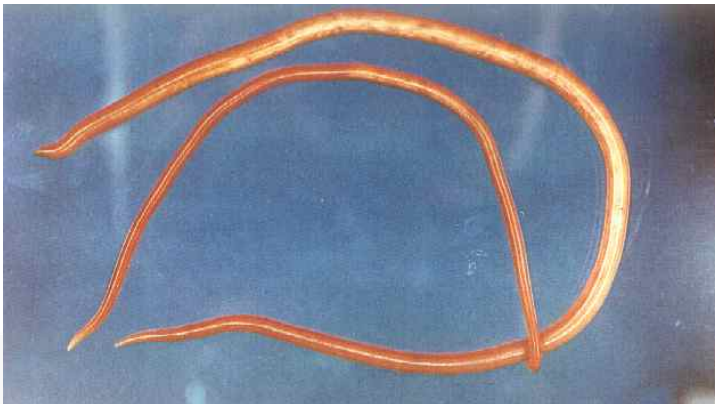
Respiration aérobie : 36 ATP

Fermentation anaérobie : 2 ATP

Organismes aérobie → Besoin en glucose en anaérobiose $\approx 20x$ supérieur

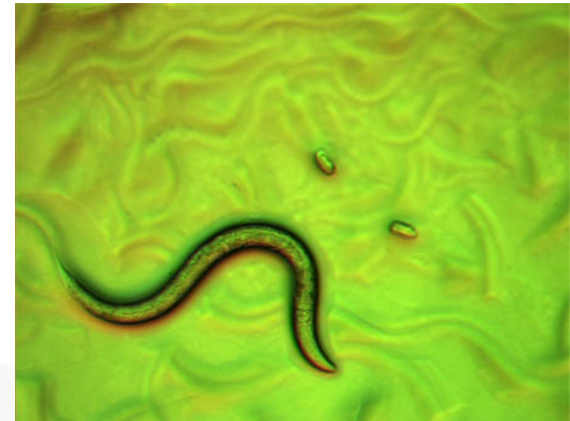
Les animaux en anaérobiose

Anaérobie stricte



Ascaris lumbricoides

Anaérobie facultative



Caenorhabditis elegans |||

Systeme respiratoire: Les échanges gazeux

Principes :

- ✓ Par diffusion
- ✓ Selon un gradient de concentration
- ✓ Grâce à une convection

Les Problèmes :

- *L'augmentation de taille et d'activité*
- *Les gaz en solution*



Les systemes respiratoires

→ *evaginations (branchies) et invaginations (poumons)*

- ✓ une surface respiratoire de dimensions adequates
- ✓ des systemes de convection
- ✓ des systemes de protection
- ✓ le moyen de garder cette surface humide

Systeme respiratoire: La respiration branchiale

Les branchies externes:

Stade larvaire de certains vertébrés



Larve d'Anoure

Systeme respiratoire: La respiration branchiale

Les branchies externes et la Néoténie



Axolotl (Ambystome)
Urodèle

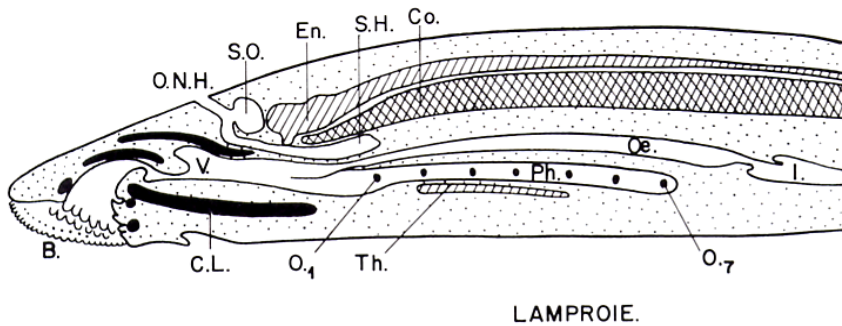
Les branchies internes

- ***Structure semblable chez tous les Vertébrés aquatiques***
- ***Poches branchiales pharyngiennes***
- ***Nombre variable***
- ***Structure : double série de lames branchiales qui portent des lamelles branchiales vascularisées***

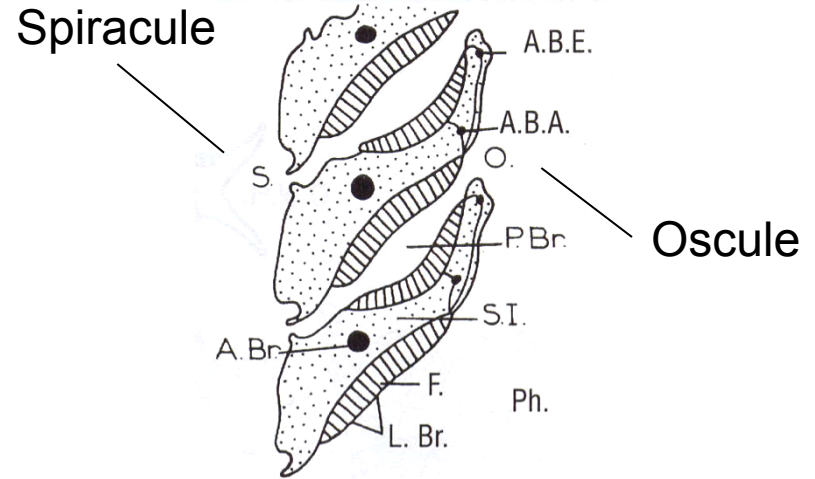
Systeme respiratoire: La respiration branchiale

Les branchies internes

Cyclostomes



Coupes frontales du pharynx



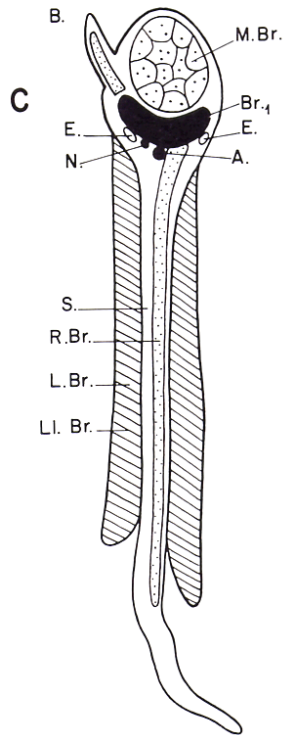
Portion de branchies



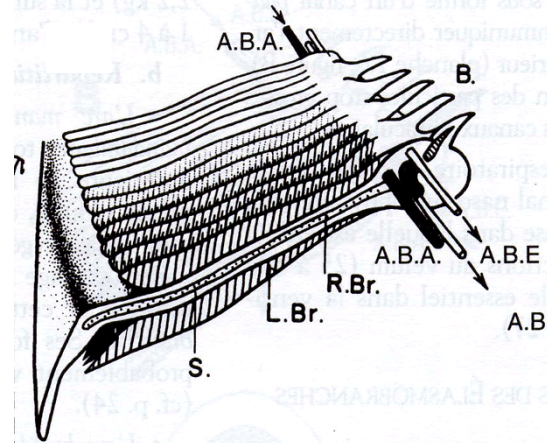
Systeme respiratoire: La respiration branchiale

Les branchies internes

Chondrichthyens

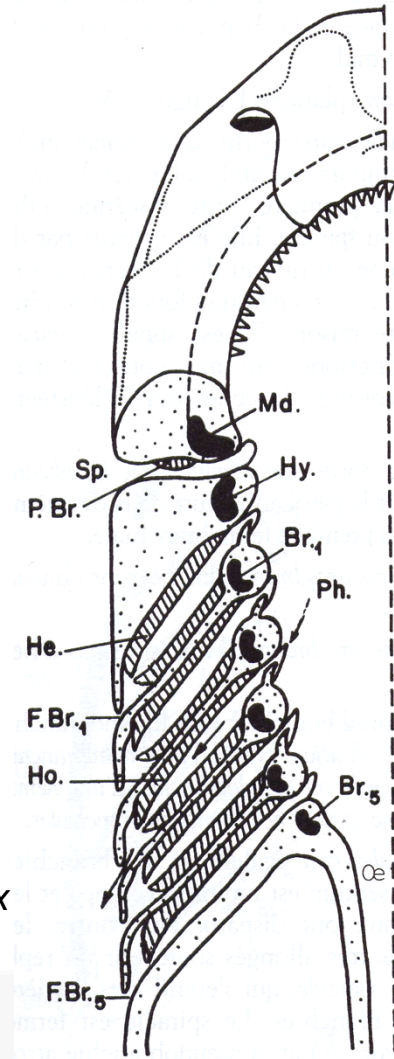


holobranchie



Portion de branchies

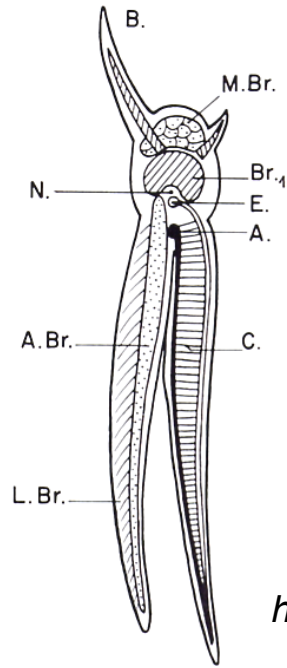
Coupe frontale du pharynx



Systeme respiratoire: La respiration branchiale

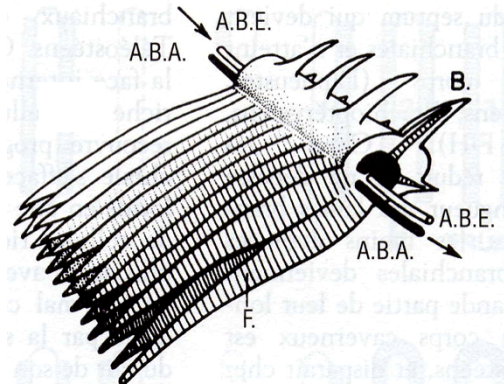
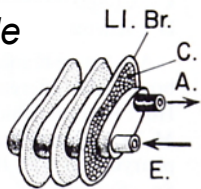
Les branchies internes

Ostéichthyens



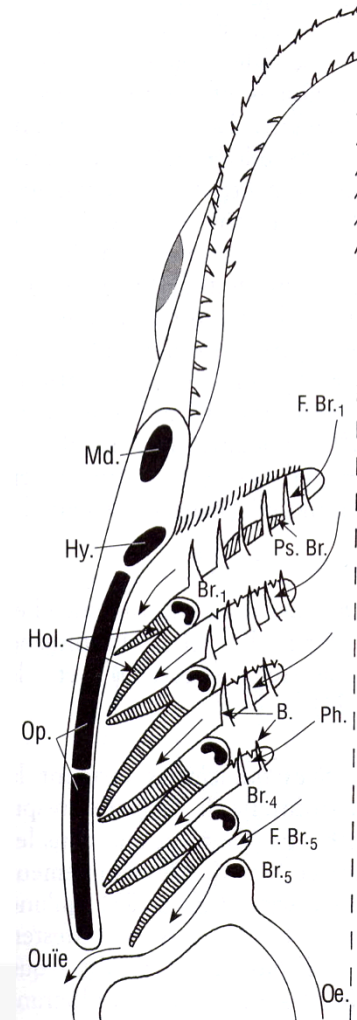
holobranchie

Lame branchiale



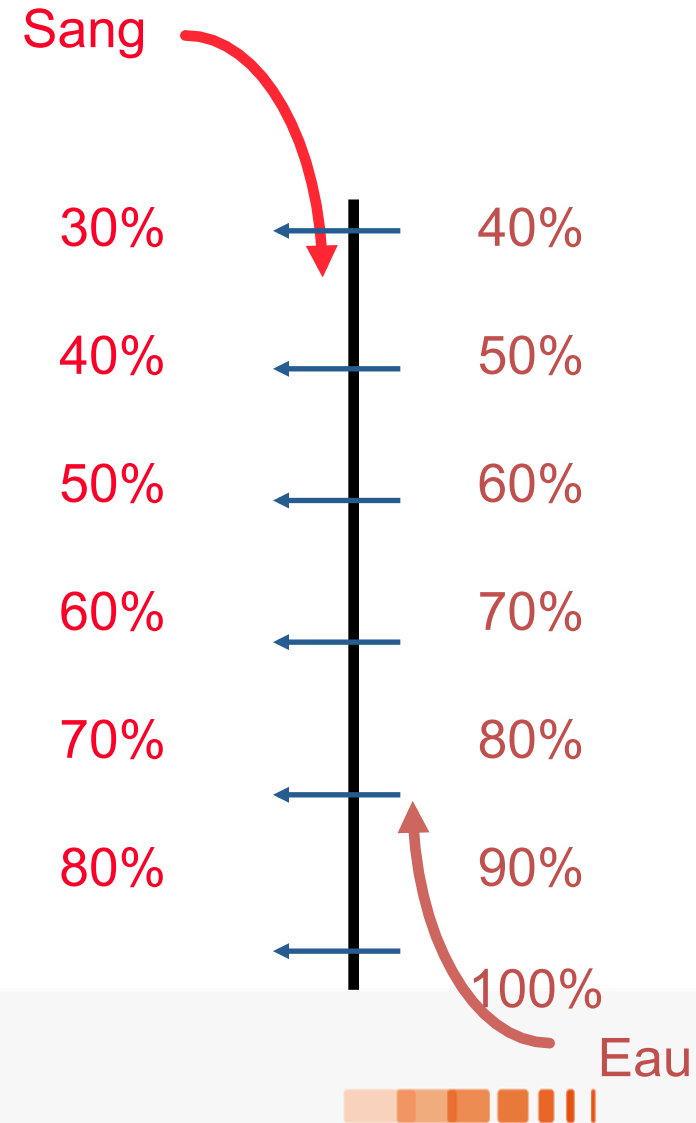
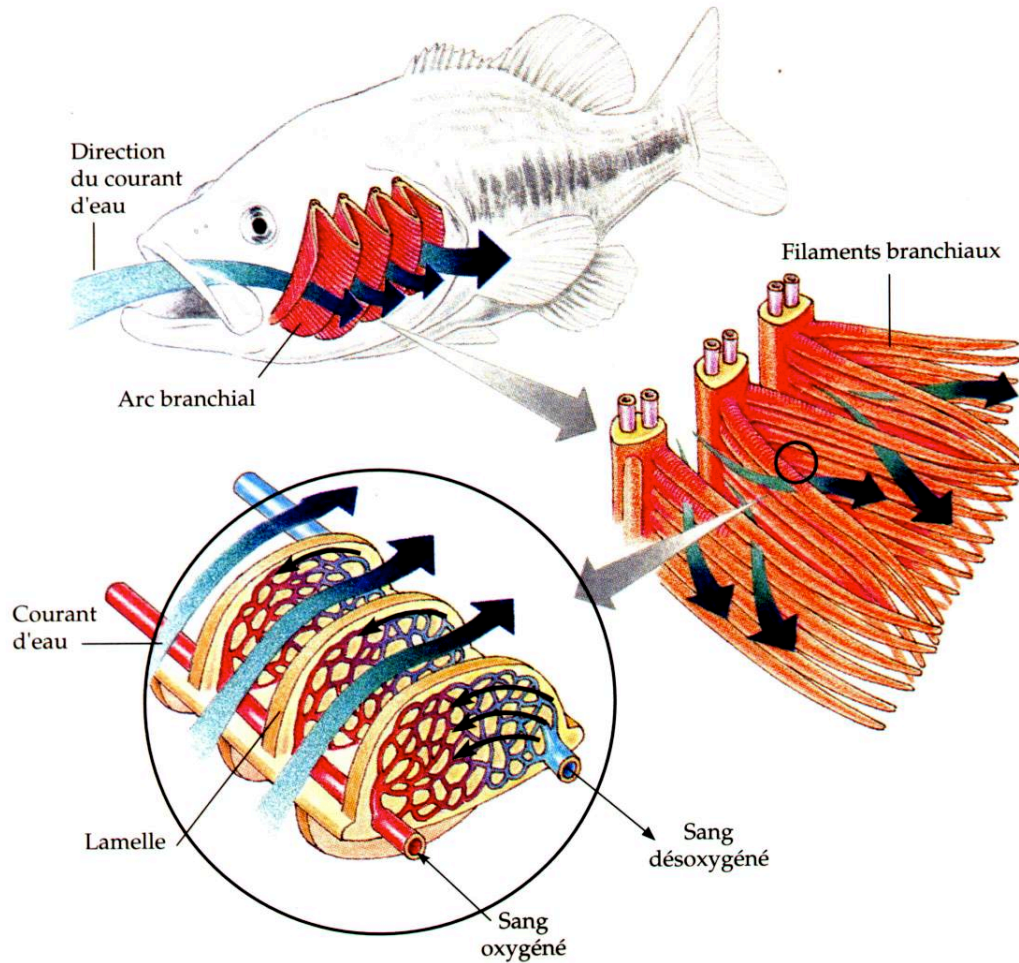
Portion de branchies

Coupe frontale du pharynx



Systeme respiratoire: La respiration branchiale

L'échange gazeux à contre-courant

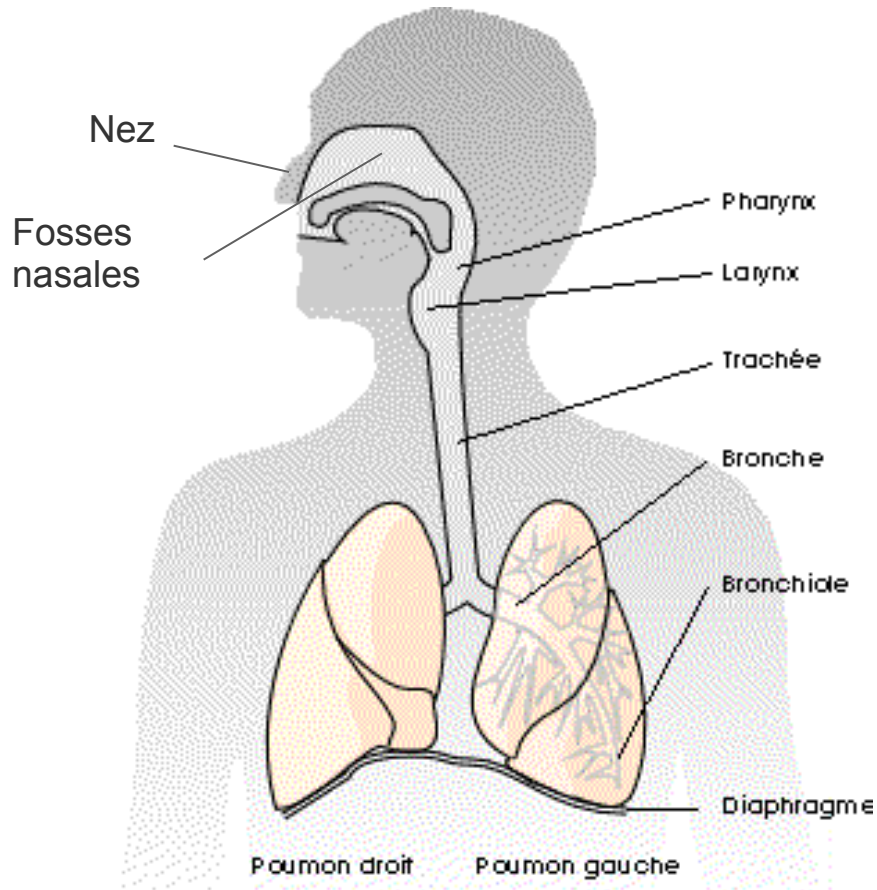


La ventilation

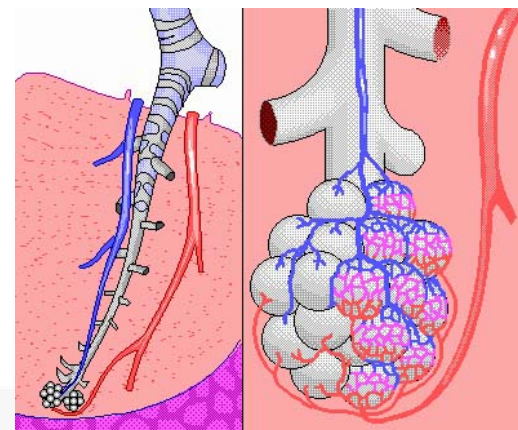
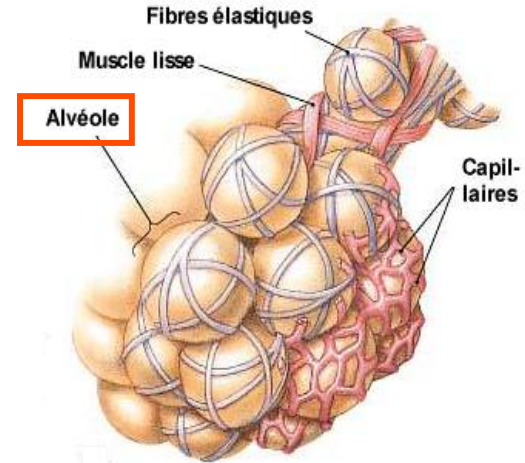
- ✓ **mécanisme de succion et de pression**
- ✓ **déplacement**

Systeme respiratoire: La respiration pulmonaire

L'appareil de conduction

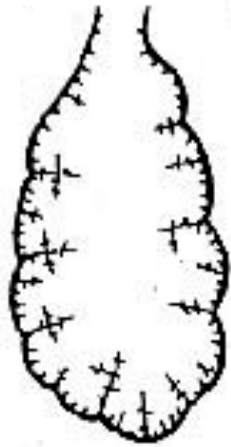


Les lobules

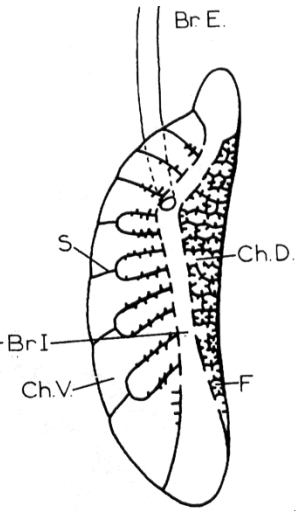
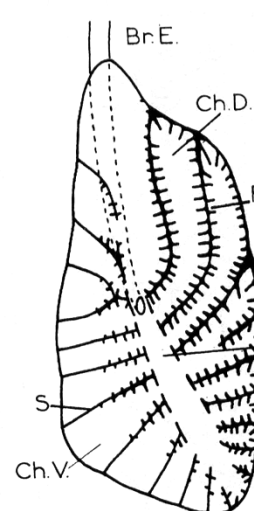
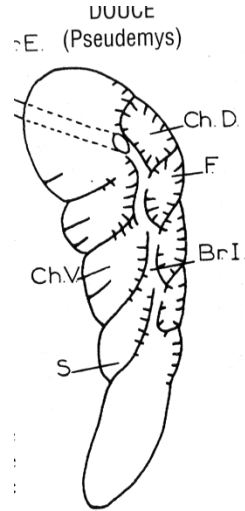


Bronchiole Sac alvéolaire

Systeme respiratoire: La respiration pulmonaire



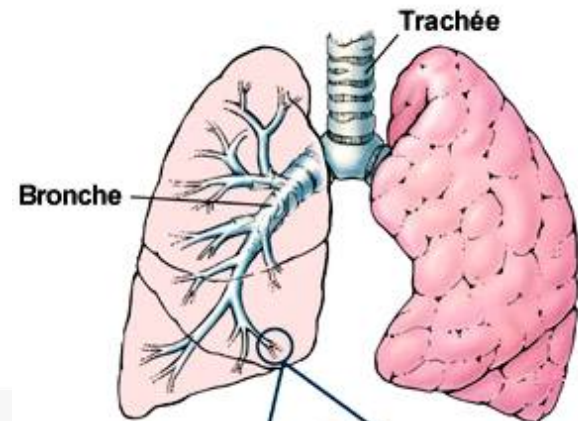
Amphibien



Reptiles

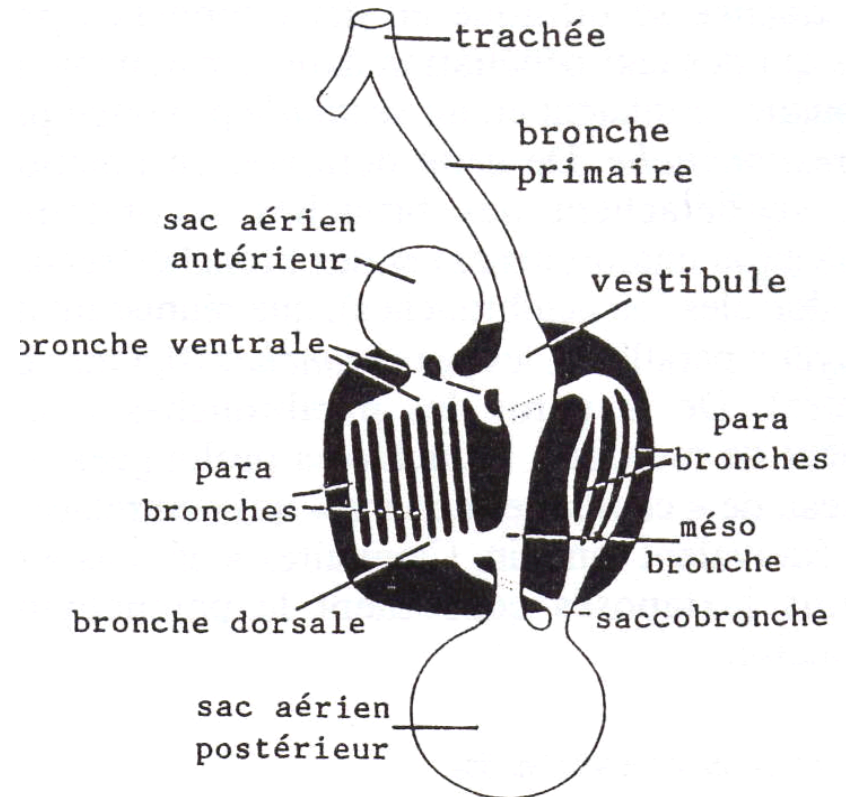
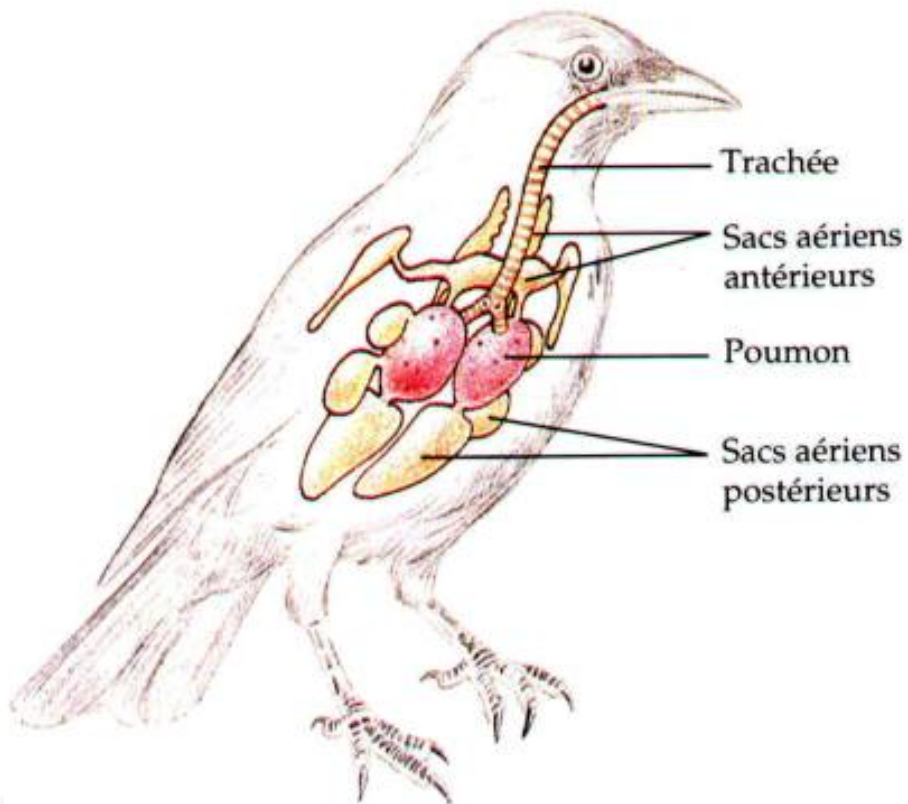
Évolution de la structure pulmonaire

Mammifère



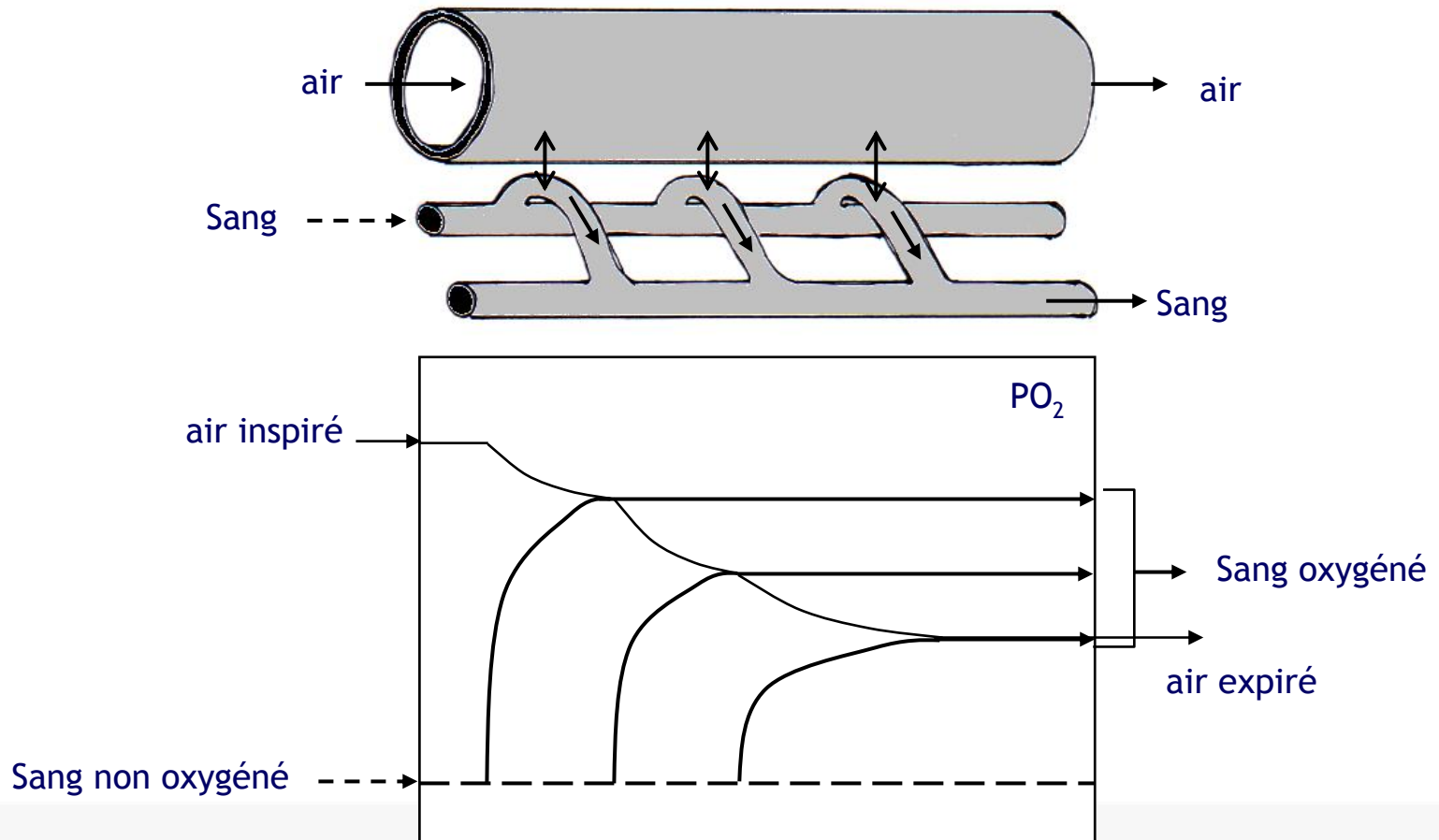
Systeme respiratoire: La respiration pulmonaire

Systeme respiratoire avien



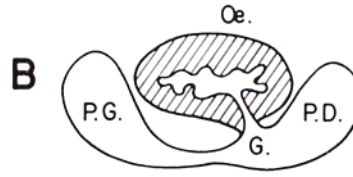
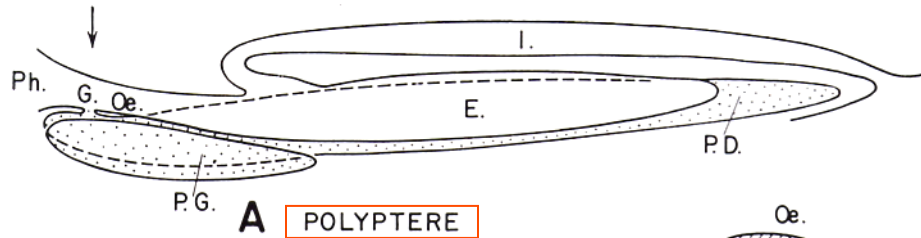
Systeme respiratoire: La respiration pulmonaire

Systeme respiratoire avien



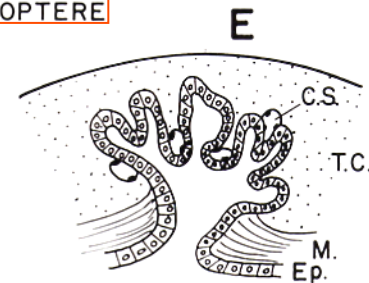
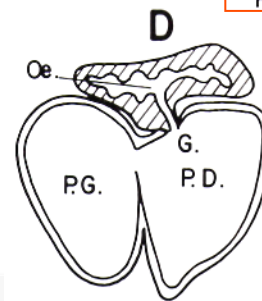
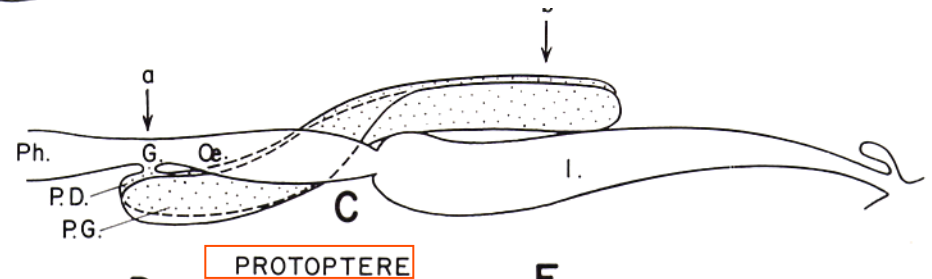
Systeme respiratoire: La respiration pulmonaire

Les poumons des poissons



Actinoptérygiens

- Cladistiens (Brachioptérygiens)



Néoptérygiens

- Chondrostéens
- Ginglymodes
- Halécomorphes
- Téléostéens (Eutélostéens)

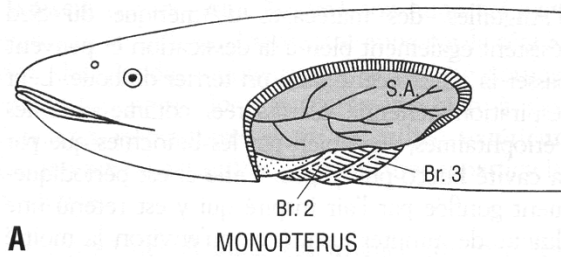


Systeme respiratoire: La respiration pulmonaire

Respiration bucco-pharyngée

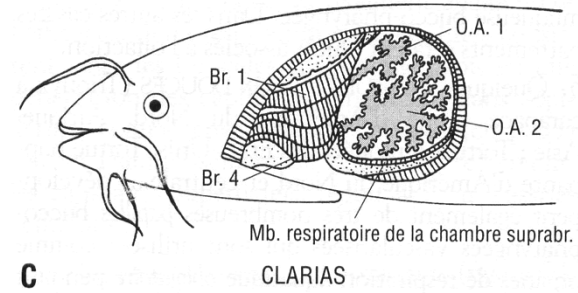


Periophtalme



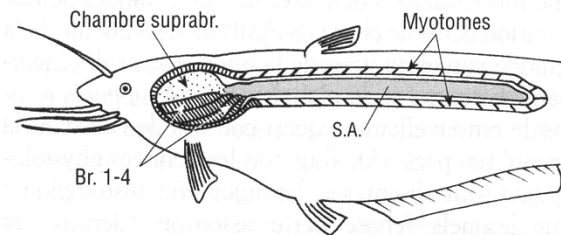
A

MONOPTERUS



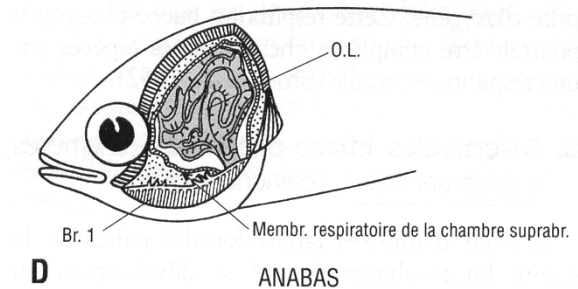
C

CLARIAS



B

HETEROPNEUSTES



D

ANABAS

Diverticules bucco-pharyngés



Systeme respiratoire: La respiration pulmonaire

Respiration Gastro-intestinale



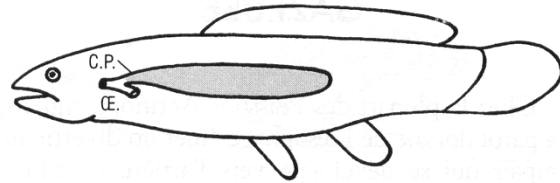
Segelfens pleco



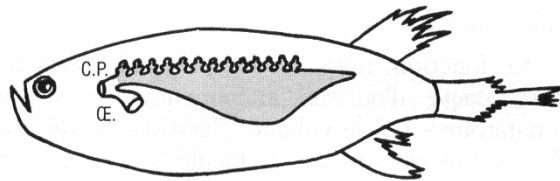
Hoplosternum thoracatum

Systeme respiratoire: La respiration pulmonaire

Respiration par la vessie gazeuse



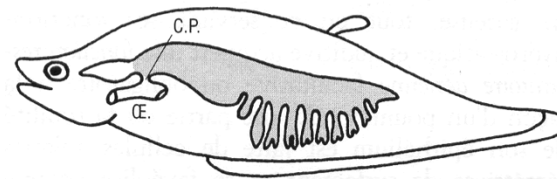
A AMIA



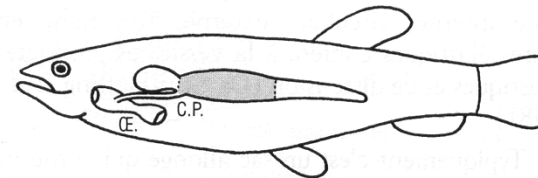
B PANTODON



C GYMNOTUS



D NOTOPTERUS



E ERYTHRINIUS

Vessies gazeuses à fonction respiratoire

