

Cours 1 et 2 : Introduction à la physique des tissus

J.F. Joanny

Cours 1 et 2 , Collège de France, 03 et 10 février 2020

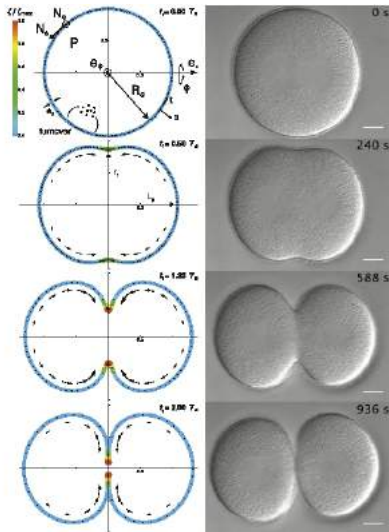


Suzanne Eaton



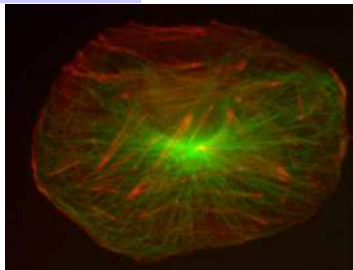
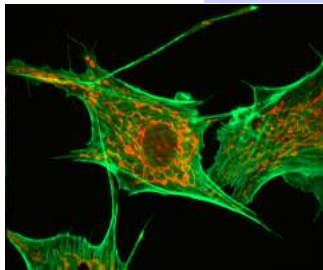
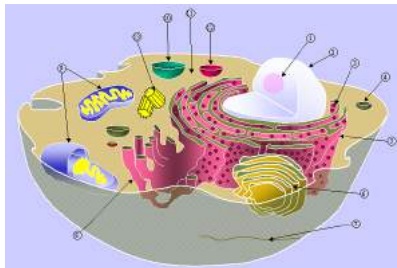
COLLÈGE
DE FRANCE
—1530—

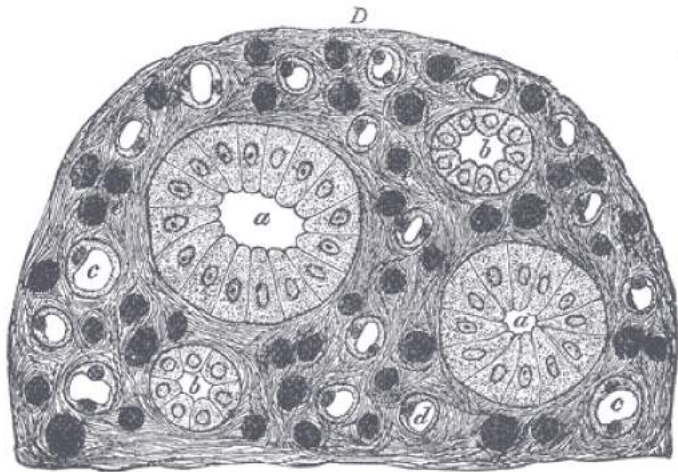
Division cellulaire *G. Von Dassow*



Cytocynèse

Cytosquelette

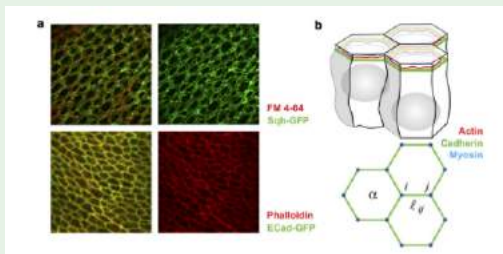




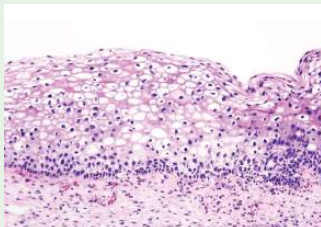
- Coupe de rein de porc
- Dessin Henry VanDyck Parker 1918

Description microscopique et macroscopique des tissus

Modèle de vertex des tissus épithéiaux

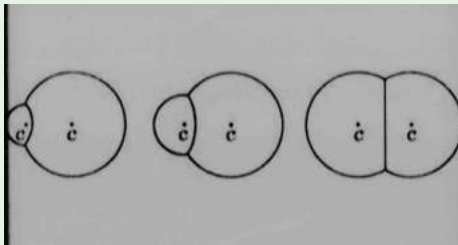


Des matériaux vivants

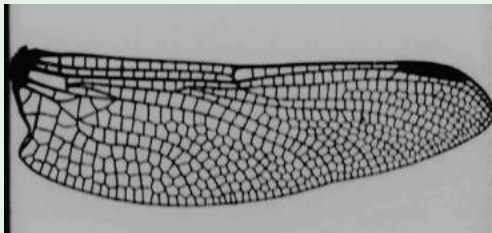


On growth and form *D'Arcy Thompson*

Partition des cellules

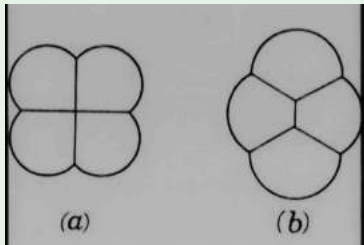


Aile de la mouche Dragon

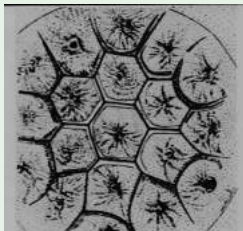


On growth and form *D'Arcy Thompson*

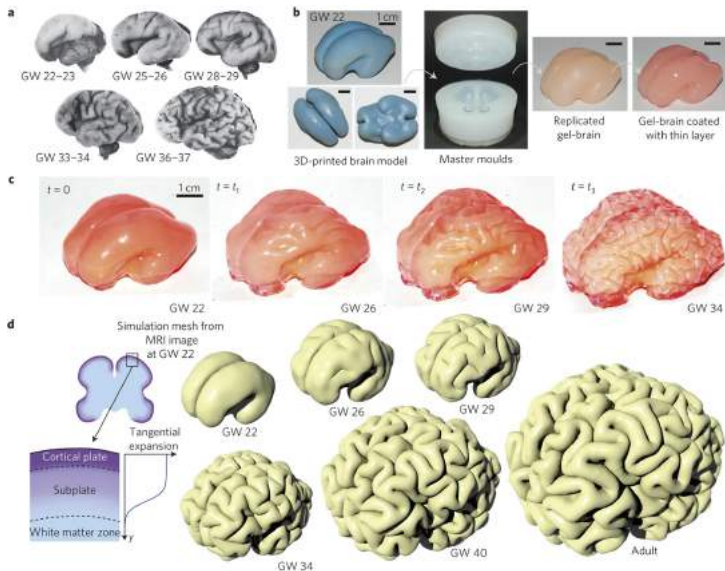
Arrangement de cellules



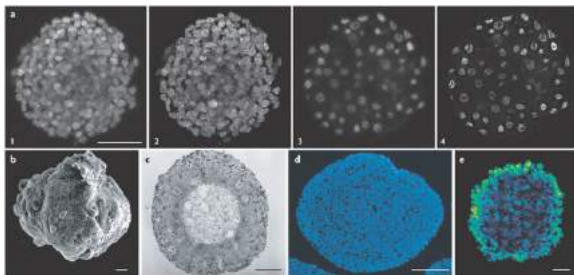
Tissu artificiel



Gyrification du cerveau *Tullinen et al.*



Multicellular spheroids



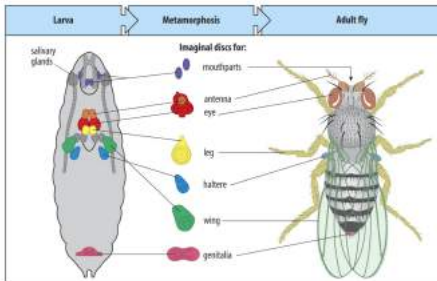
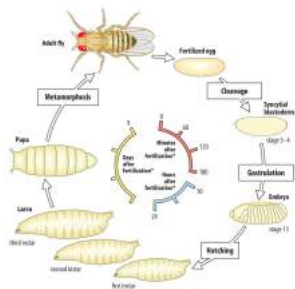
Nature Reviews | Molecular Cell Biology

Stelzer

Brochard



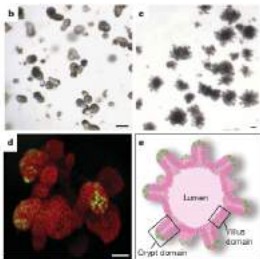
Développement de la Drosophile



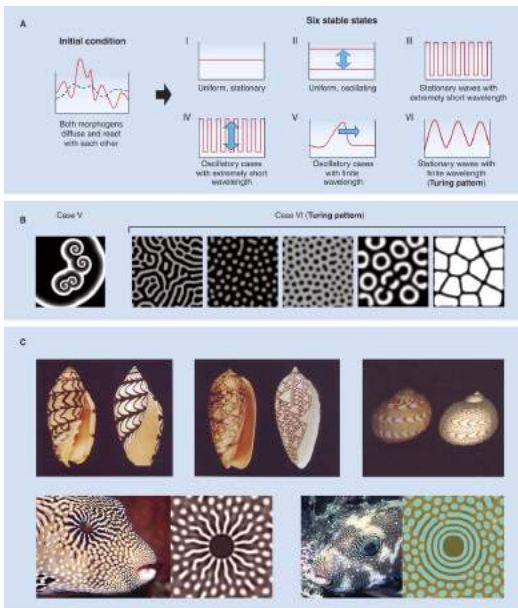
Intestin *Clevers*



Stages from a normal intestinal architecture to an adenoma →

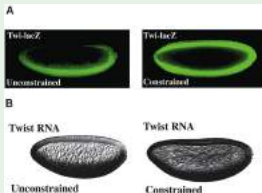


Instabilité de Turing *Kondo*

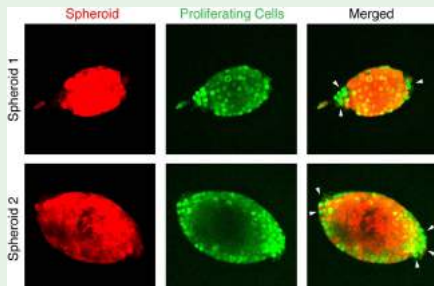


Régulation mécanique

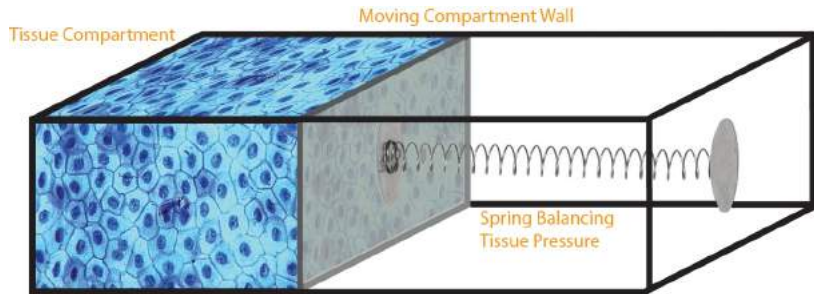
Expression des gènes *E. Farge*



Division cellulaire *Helmlinger*



Pression homéostatique *Basan*



- Compartiments perméables
- Fluctuations dues aux divisions cellulaires