



COLLOQUE SCIENTIFIQUE FIRENDO

2^{ème} ÉDITION

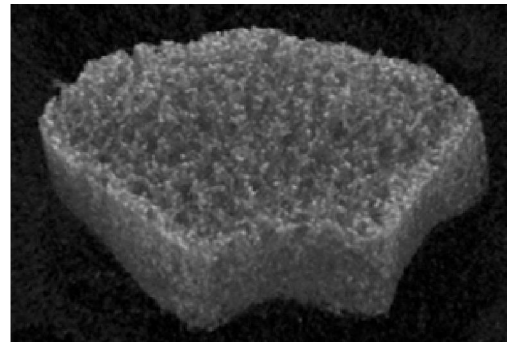
« DIMORPHISME SEXUEL
DANS LES MALADIES RARES
ENDOCRINIENNES »

MARDI
11 DÉCEMBRE
2018



Dimorphisme sexuel du renouvellement osseux

Rôles des récepteurs membranaire et nucléaire des œstrogènes

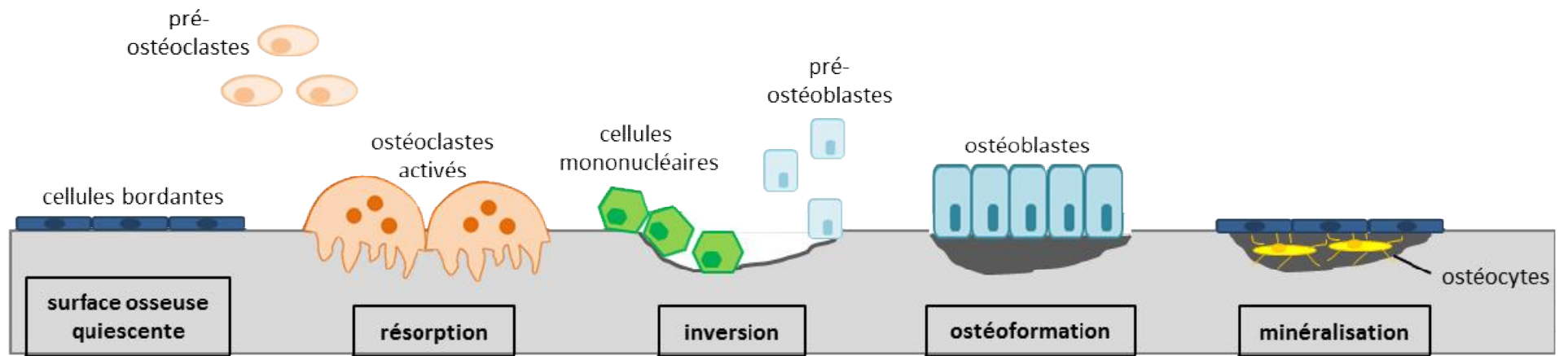


Alexia VINEL

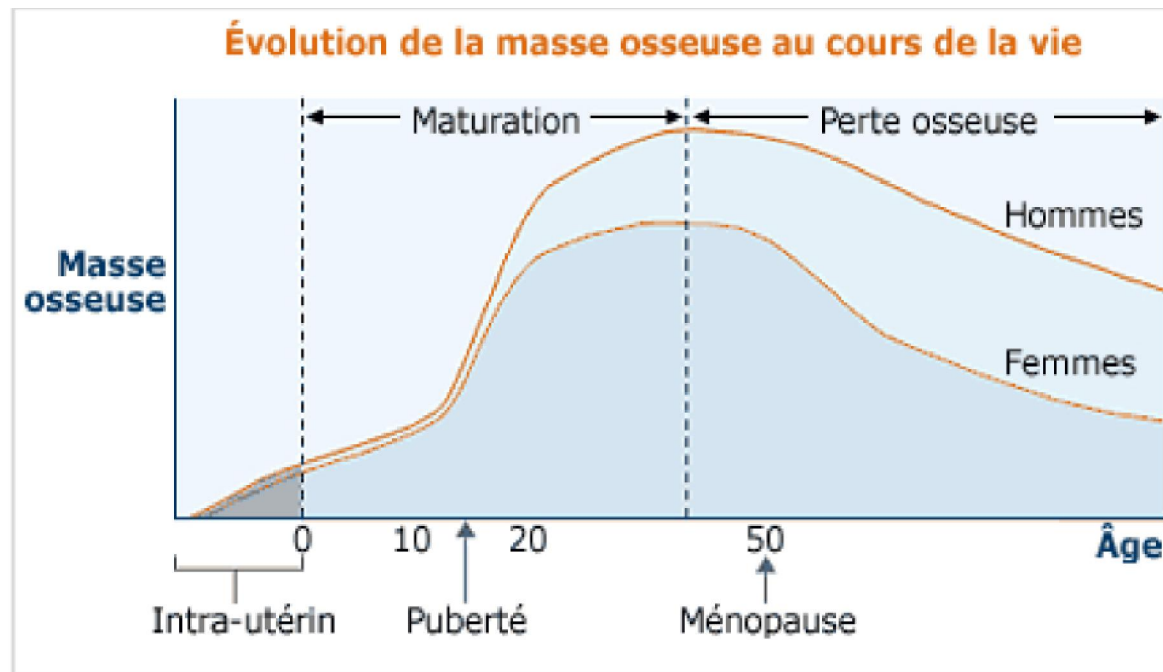
alexia.vinel@inserm.fr



Tissu osseux



- 3 phases :
- augmentation
 - stabilité
 - diminution progressive



Pic de masse osseuse :

Facteurs génétiques

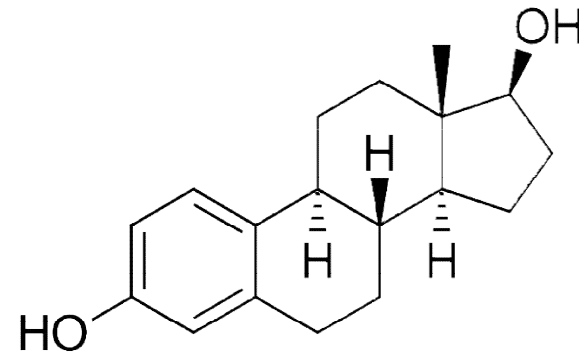
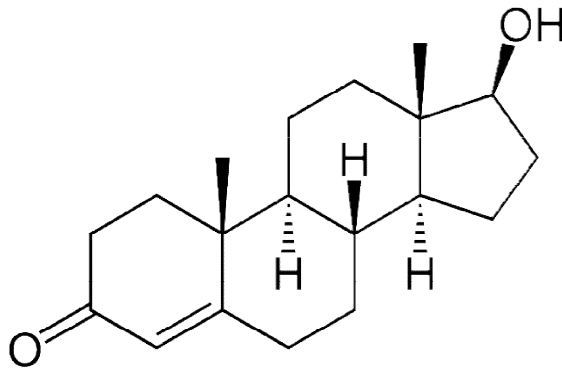
Facteurs modifiables



Hormones stéroïdiennes

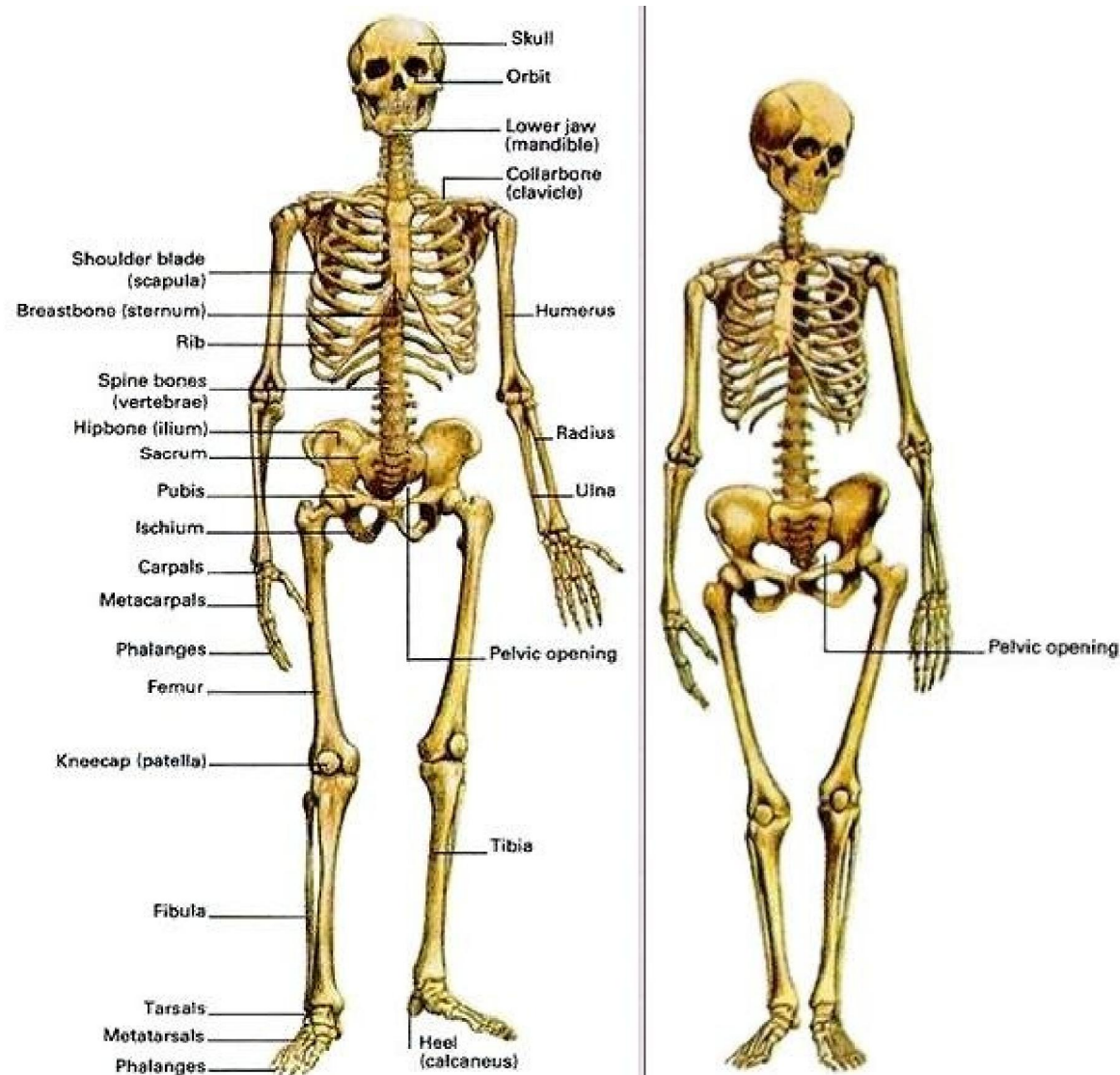
androgènes

oestrogènes



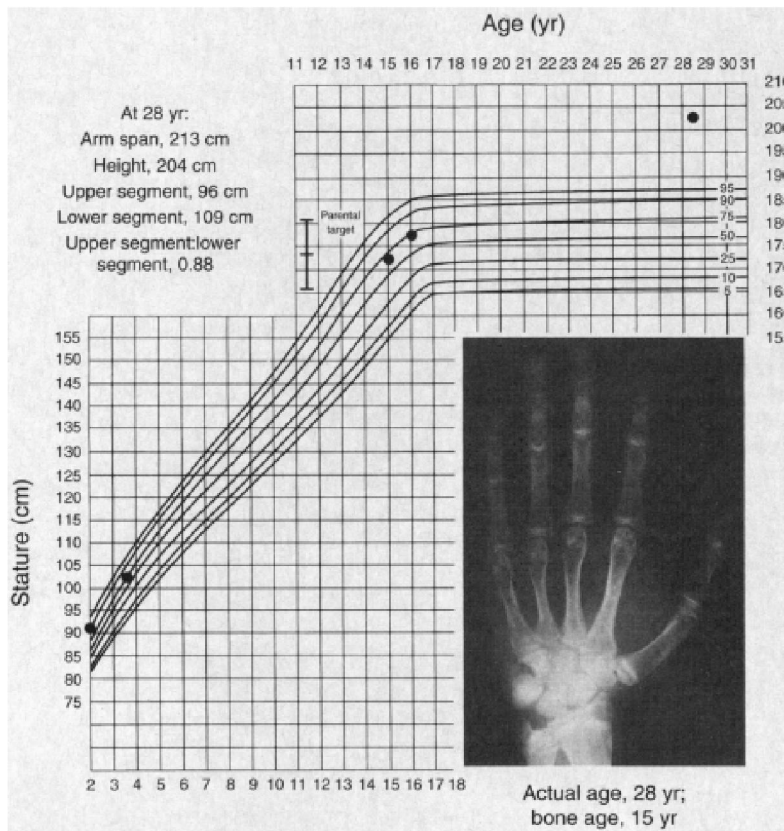
Dimorphisme sexuel

Adulte : capital osseux homme 30% supérieur à celui de la femme



ESTROGEN RESISTANCE CAUSED BY A MUTATION IN THE ESTROGEN-RECEPTOR GENE IN A MAN

ERIC P. SMITH, M.D., JEFF BOYD, PH.D., GRAEME R. FRANK, M.D., HIROYUKI TAKAHASHI, M.D., PH.D.,
ROBERT M. COHEN, M.D., BONNY SPECKER, PH.D., TIMOTHY C. WILLIAMS, M.D., DENNIS B. LUBAHN, PH.D.,
AND KENNETH S. KORACH, PH.D.

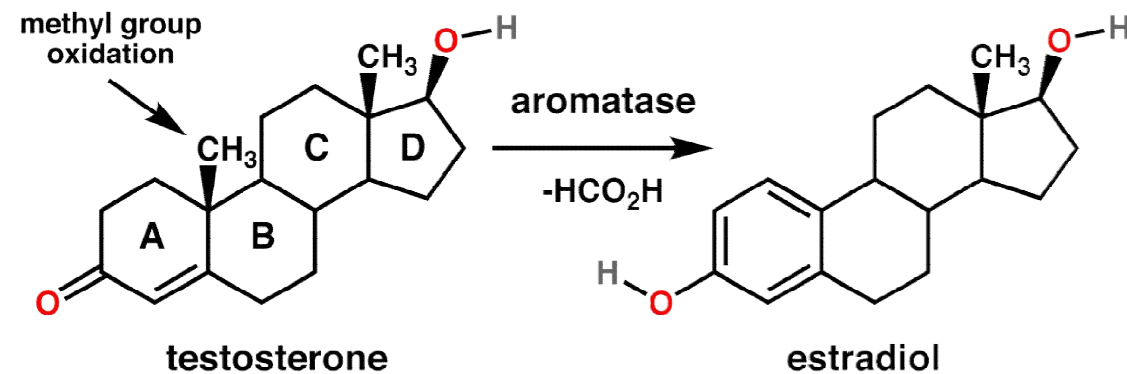


Grande taille

Ostéopénie

Marqueurs de resorption

Taux de testosterone normaux



Brief Report

INCREASED BONE MASS AS A RESULT OF ESTROGEN THERAPY IN A MAN WITH AROMATASE DEFICIENCY

JOHN P. BILEZIKIAN, M.D., AKIRA MORISHIMA, M.D.,
JENNIFER BELL, M.D., AND MELVIN M. GRUMBACH, M.D.

The New England Journal of Medicine

Taille

Ostéoporose

Marqueurs de remodelage osseux

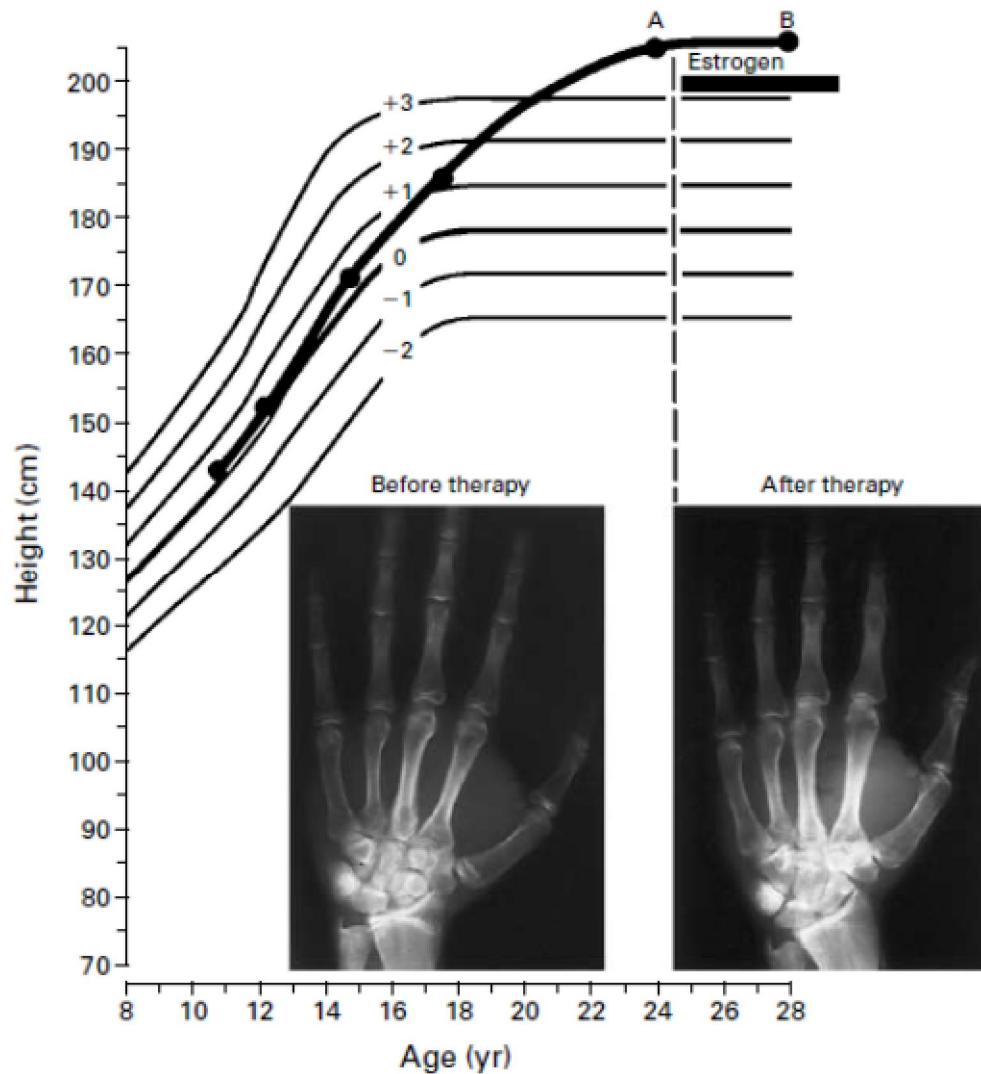


Figure 1. Growth Curve and Bone Age before and after Three Years of Estrogen Therapy.

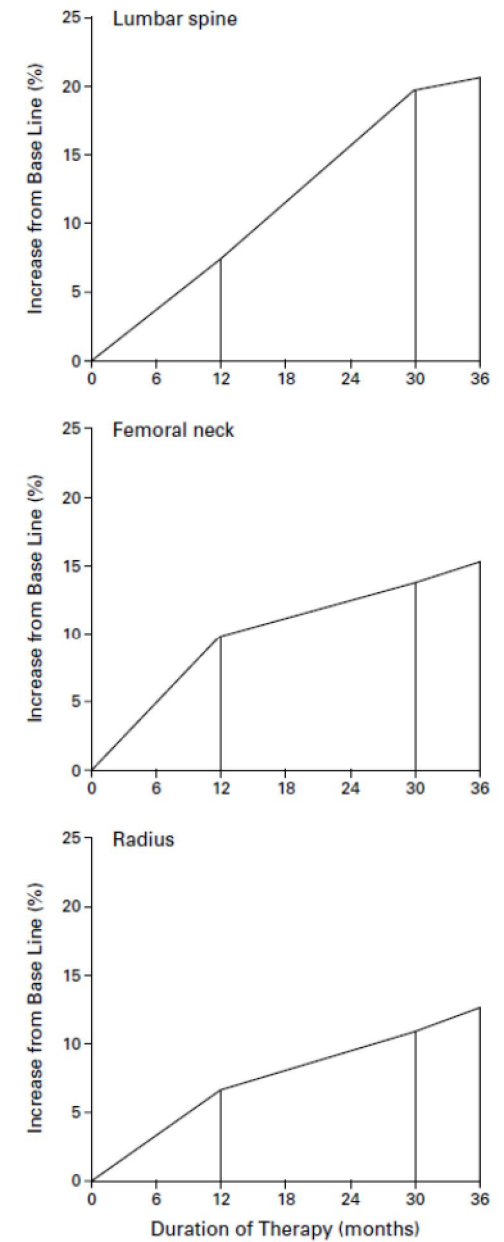
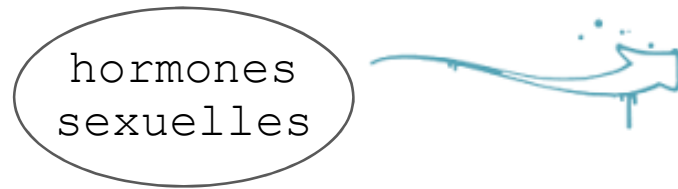


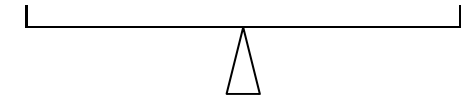
Figure 2. Changes in Bone Density during Estrogen Therapy.

Remodelage



Estrogènes

apposition résorption



Remodelage osseux

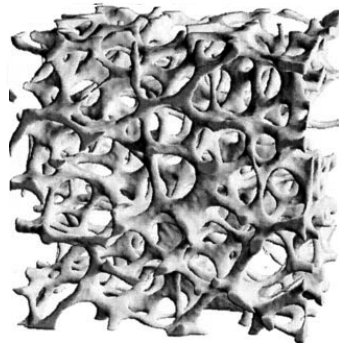
↘ 0 œstrogènes

Remodelage

hormones
sexuelles



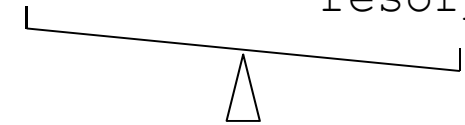
Estrogènes



↘ masse osseuse
altération micro-architecture

aposition

résorption



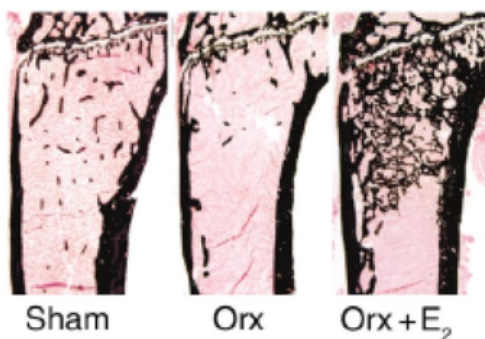
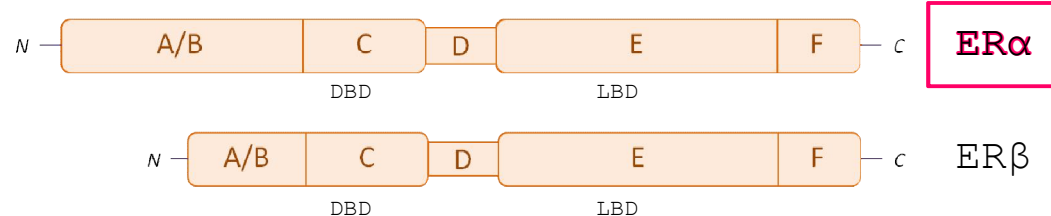
Remodelage osseux

↘ 0 œstrogènes

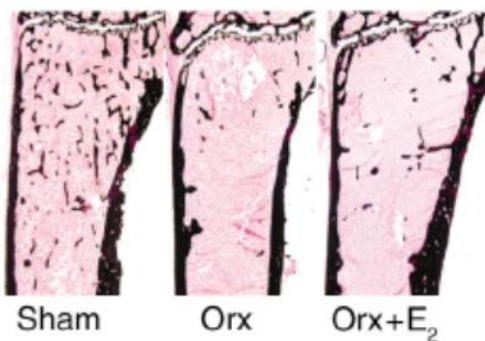


ostéoporose

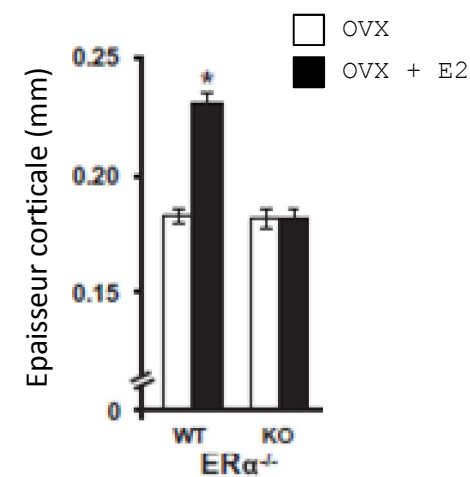
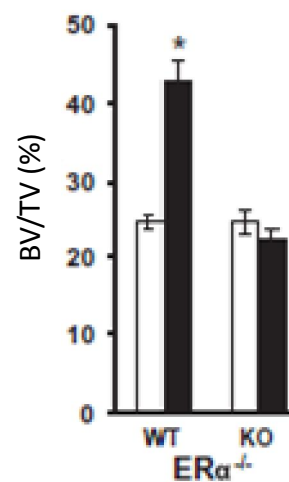
Récepteurs des oestrogènes

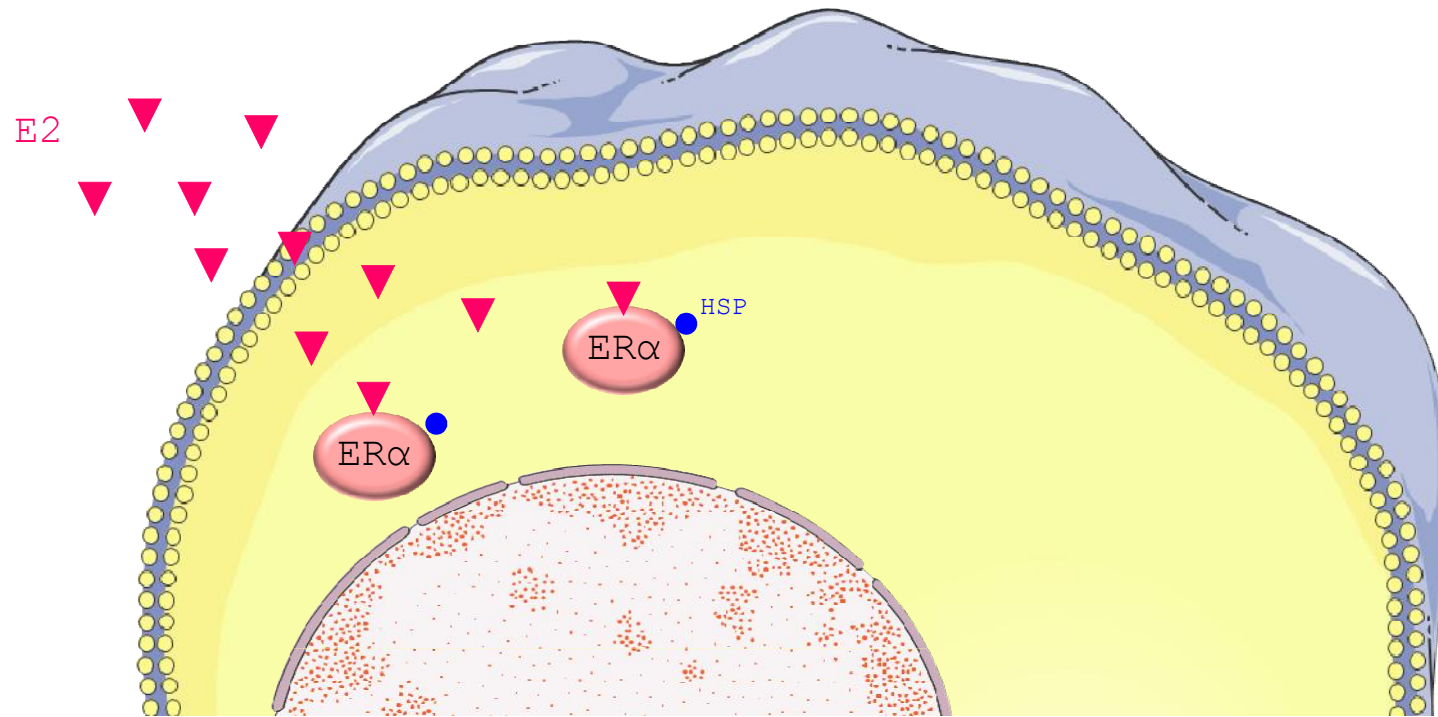


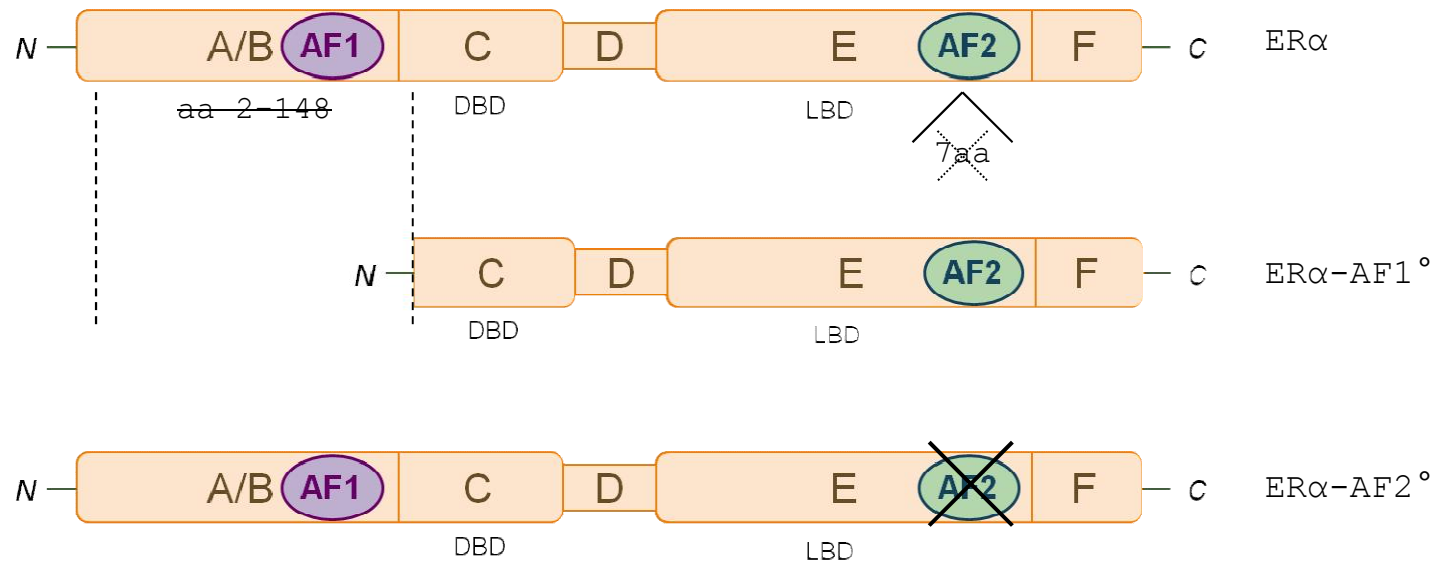
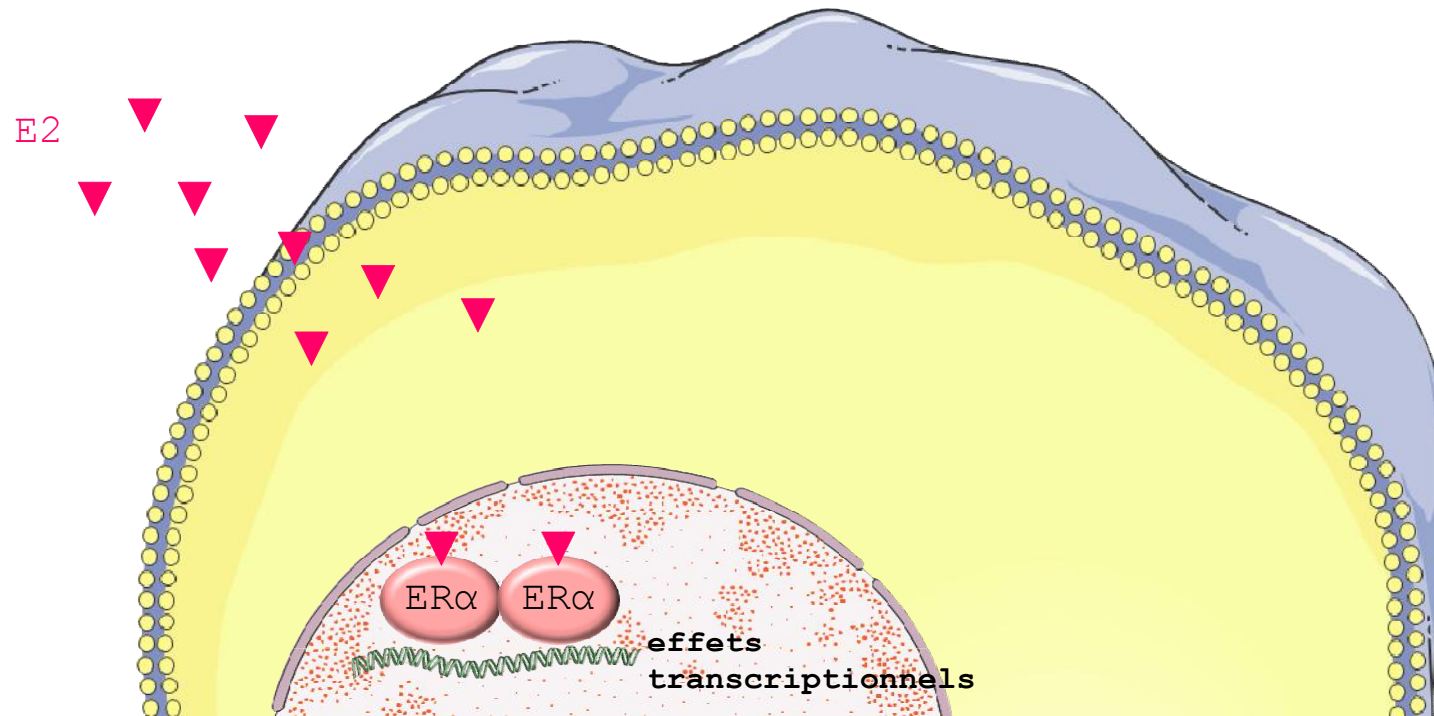
WT



ERα^{-/-}

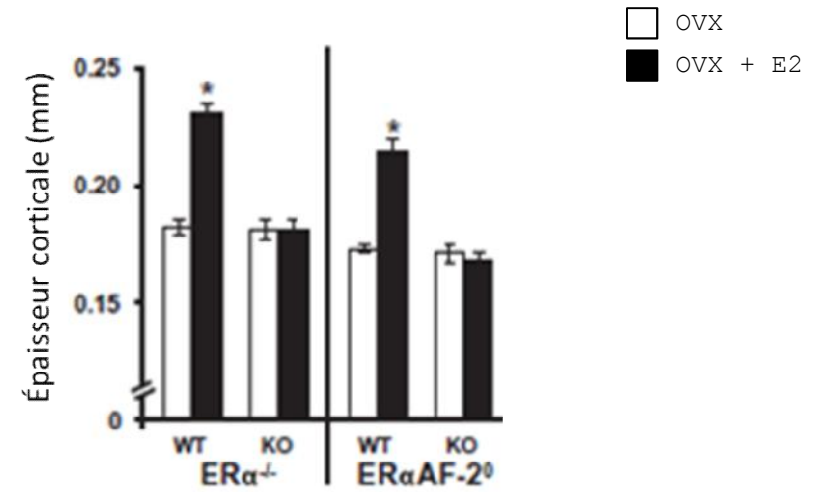
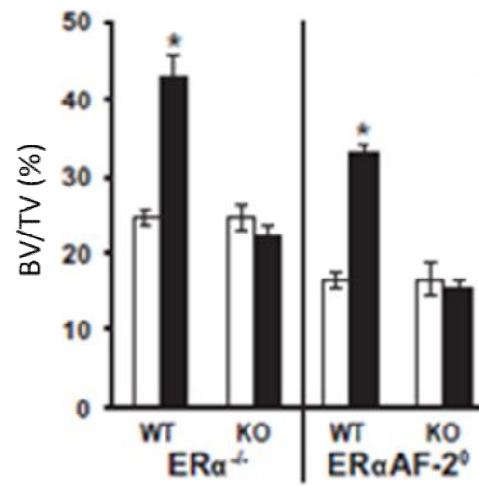




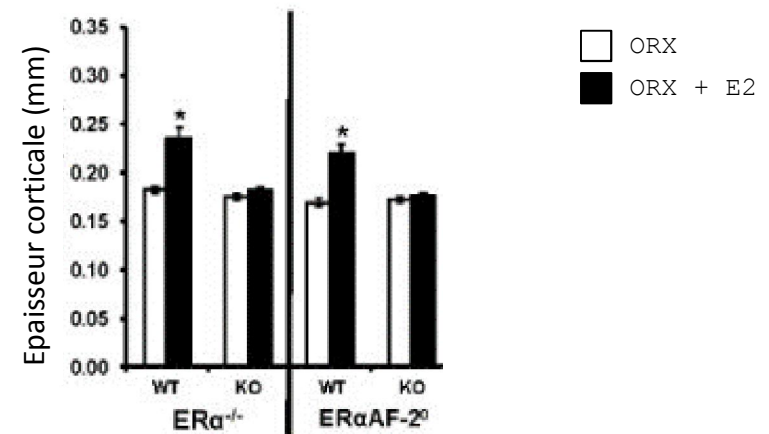
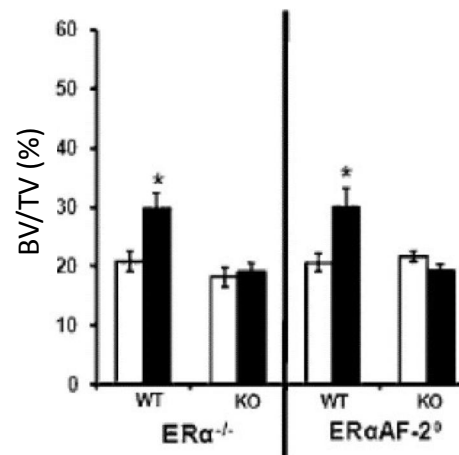


Fonction AF2

♀

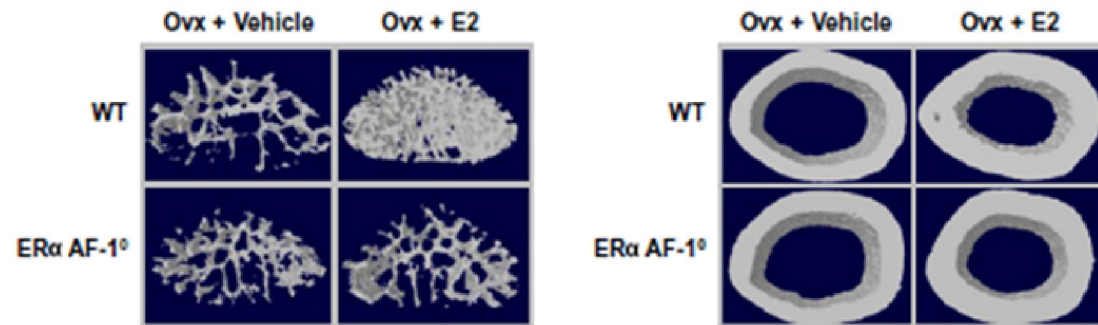
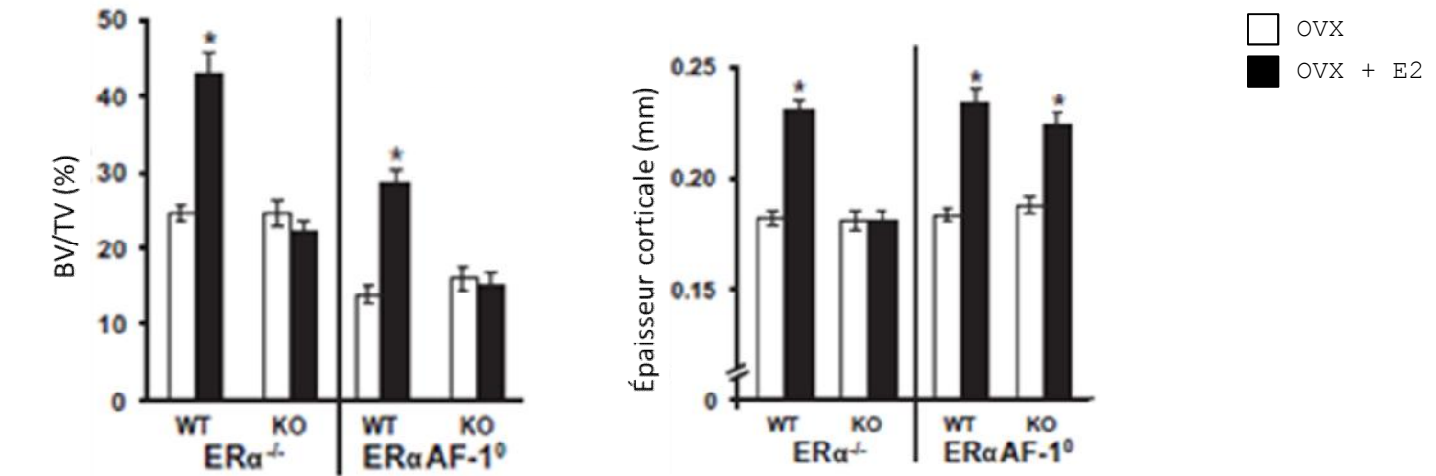


♂

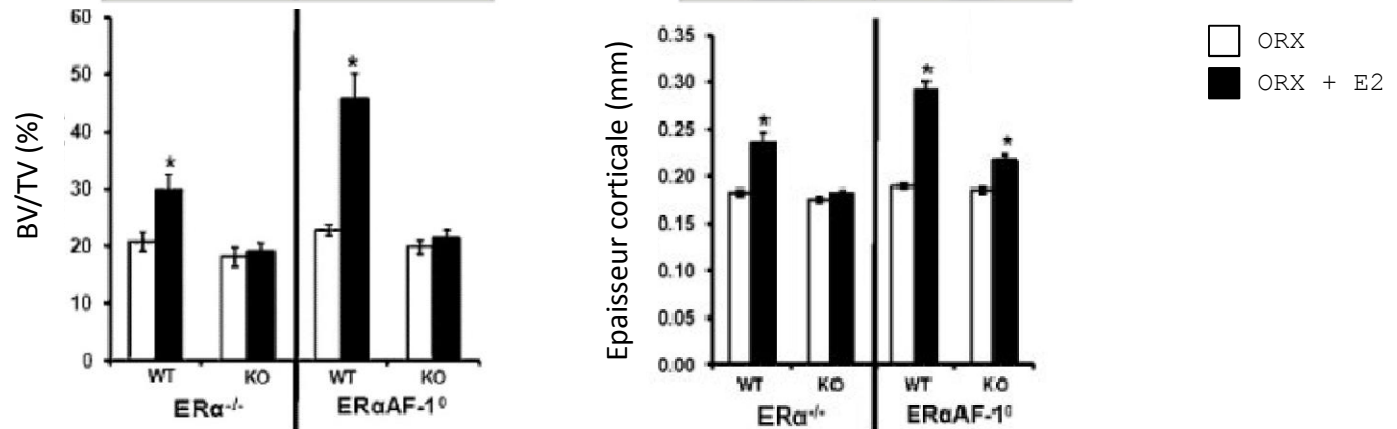


Fonction AF1

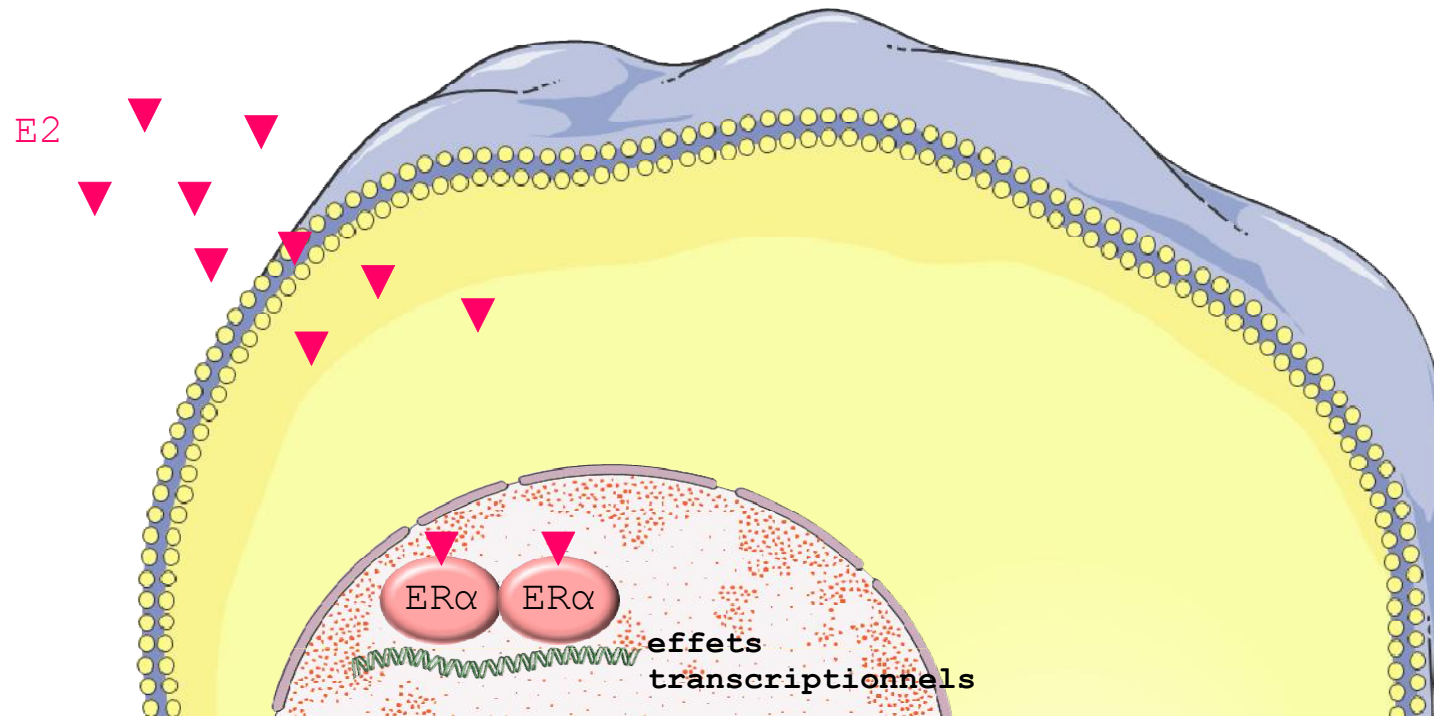
♀



♂



Effets nucléaires



♀ ♂

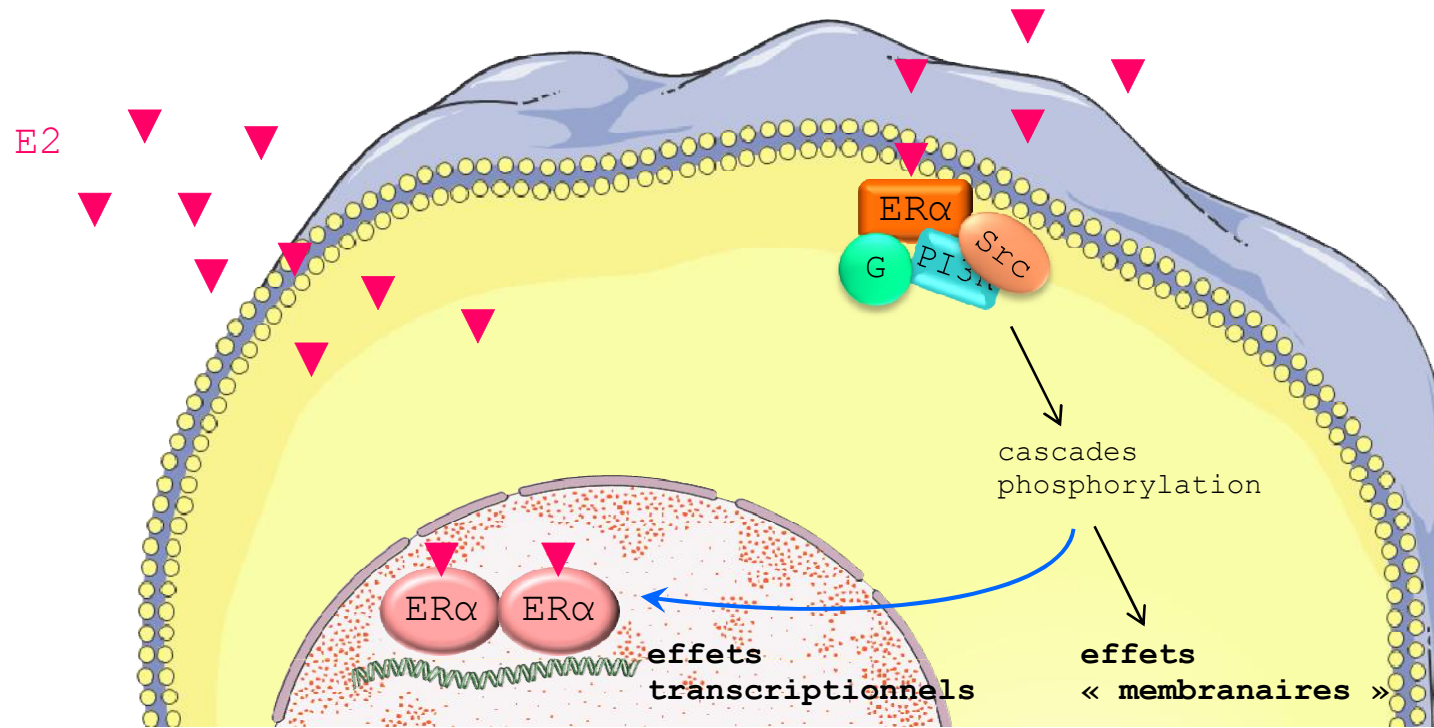
AF2



AF1



Effets membranaires



♀ ♂

AF2



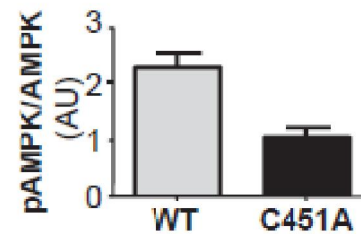
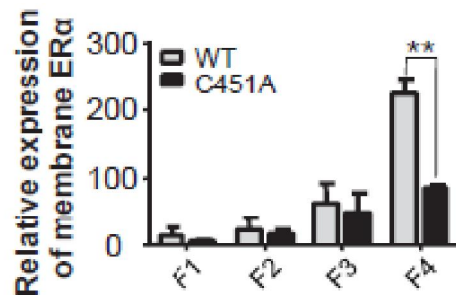
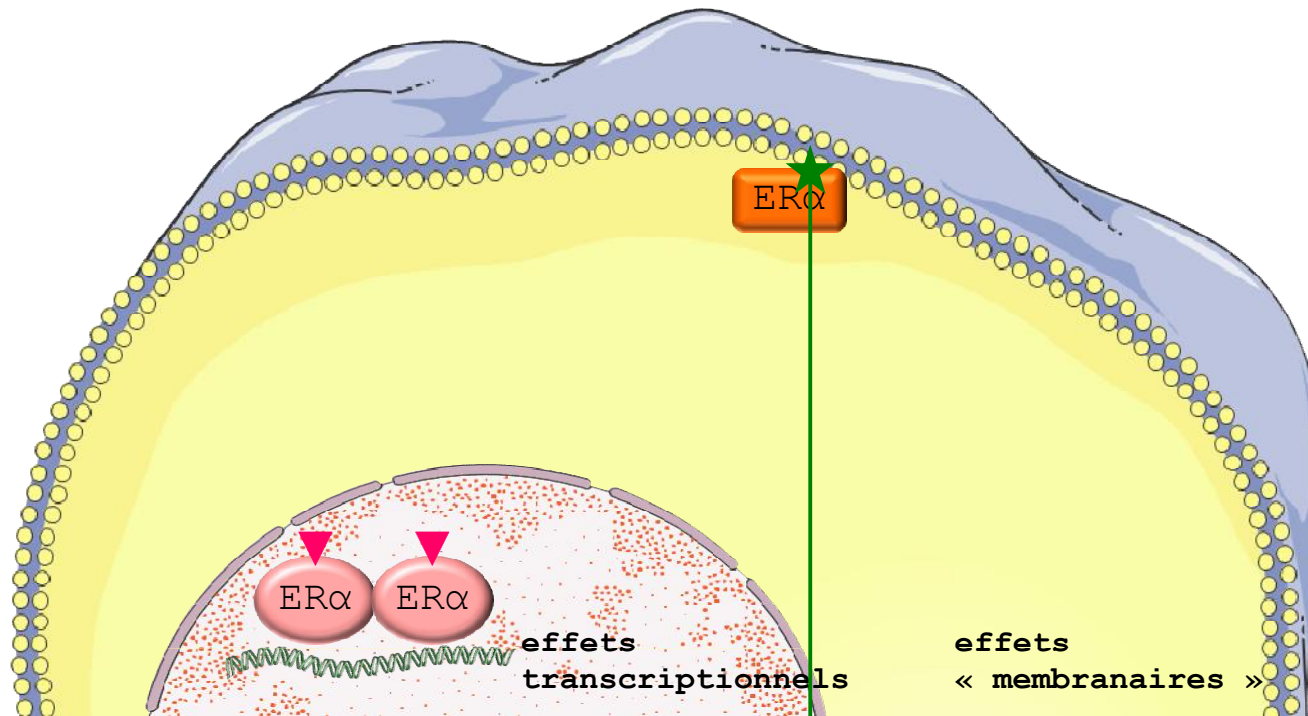
AF1



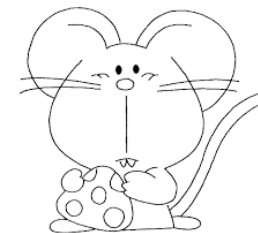
cross-talk

voie « nucléaire » ↔ voie « membranaire »

Effets membranaires



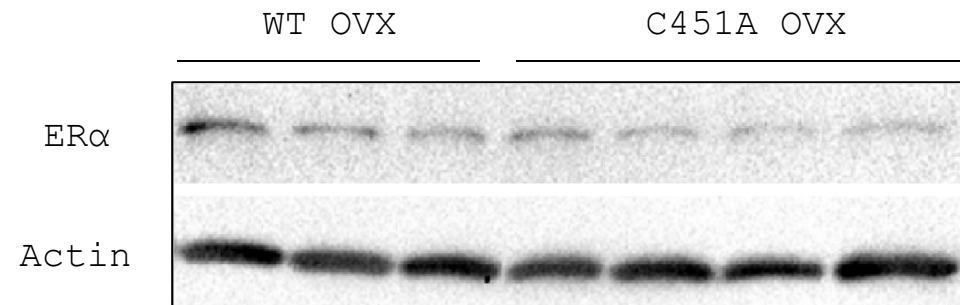
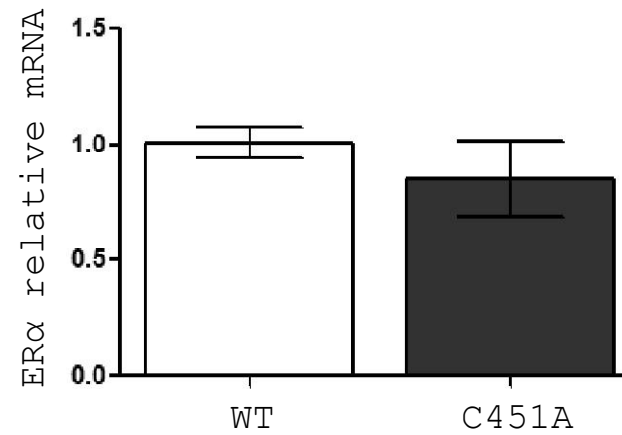
adressesse membranaire



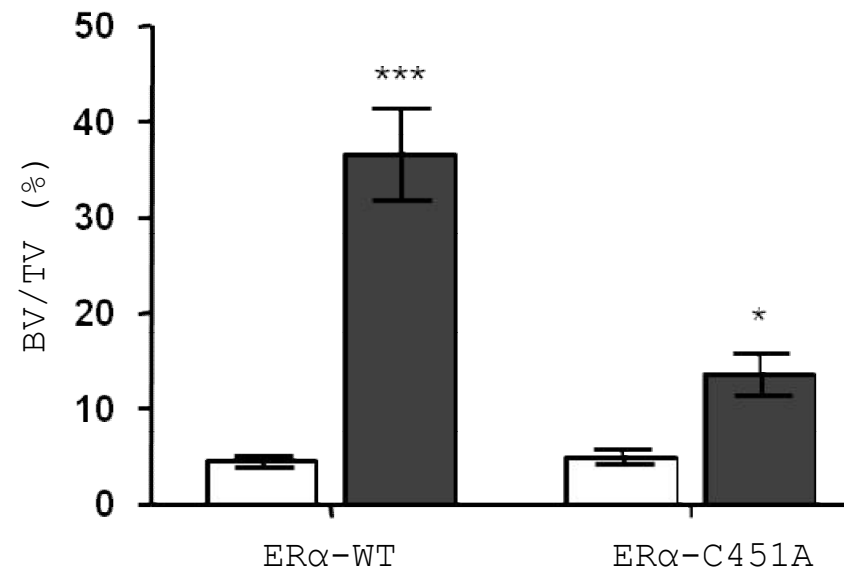
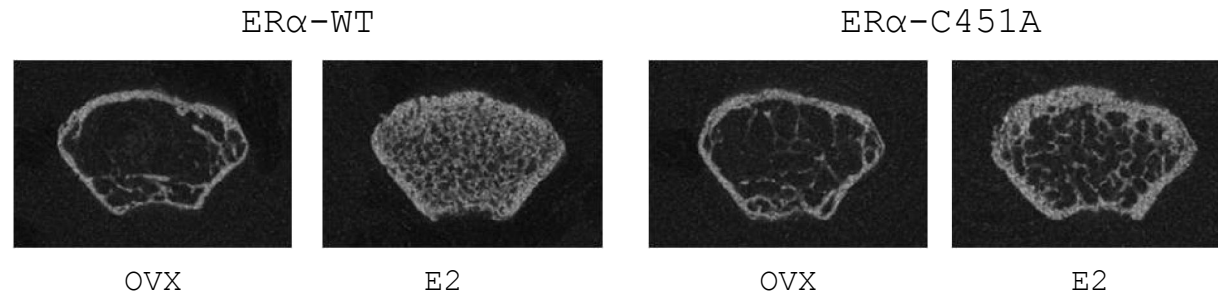
ERα-C451A

Perte effets endothéliaux de l'E2
Maintien du phénotype utérin

♀



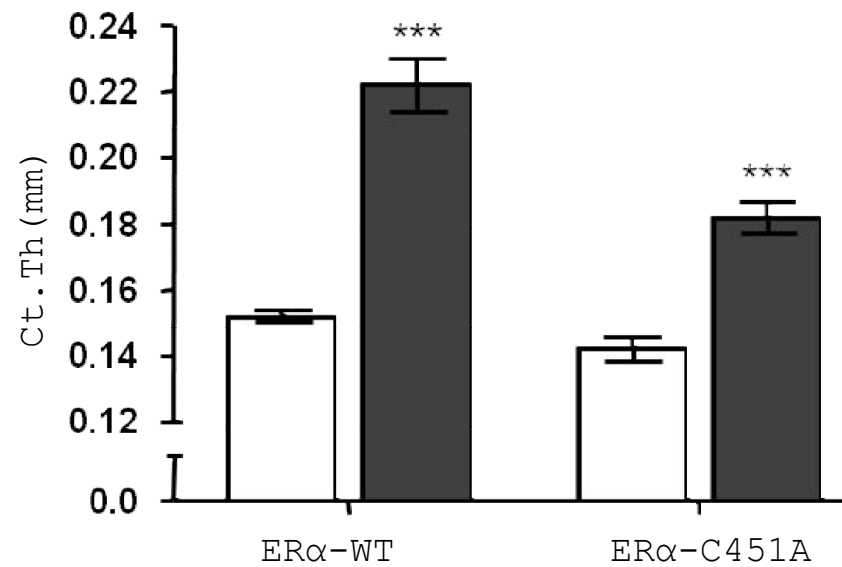
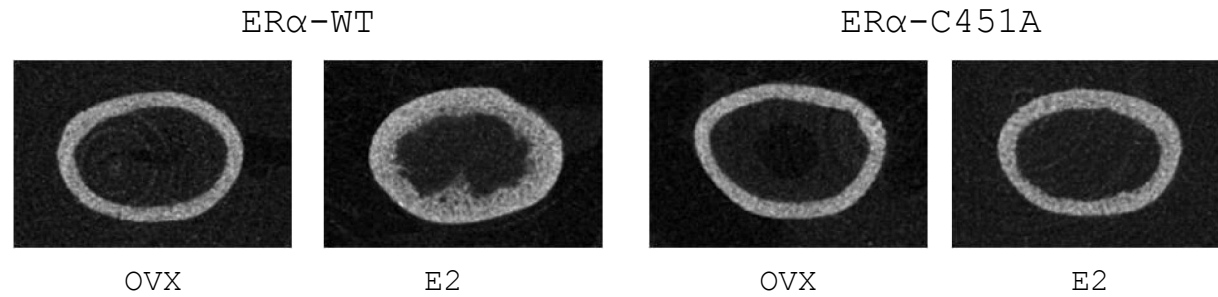
♀



Interaction : $P=0.0004$

□ OVX ■ E2

♀



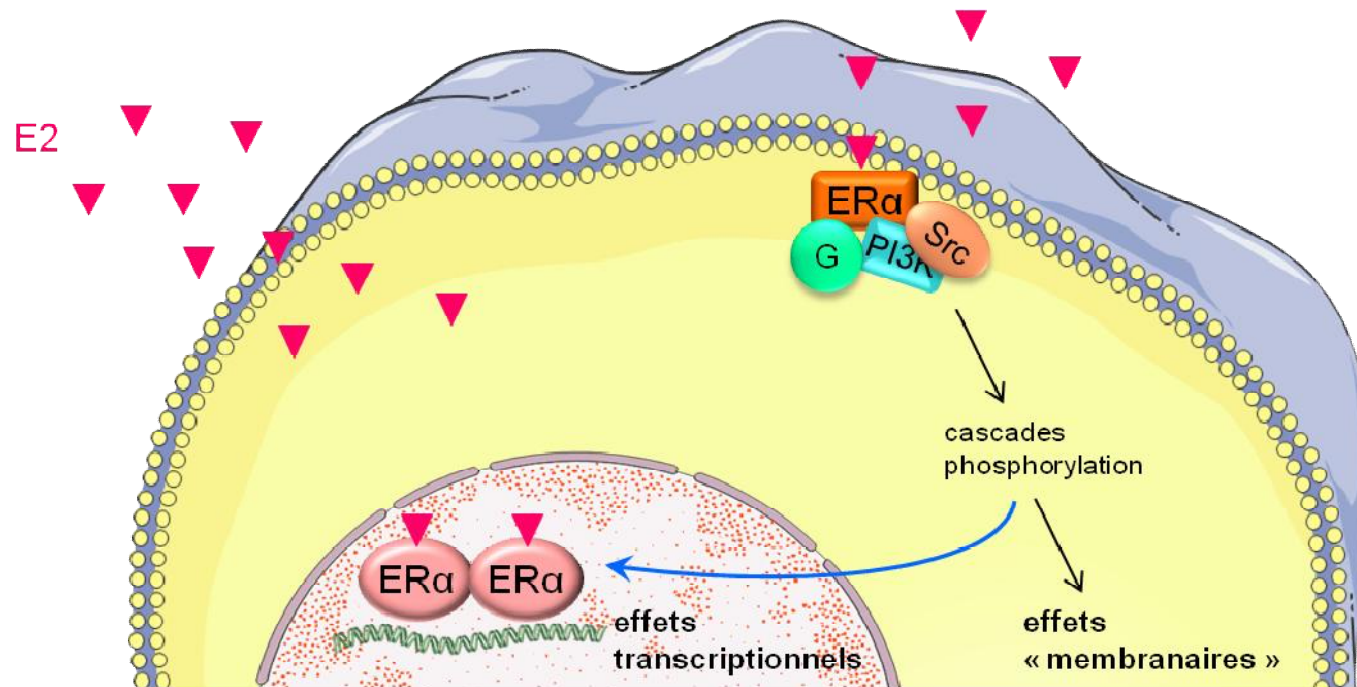
Interaction : $P=0.01$

♂

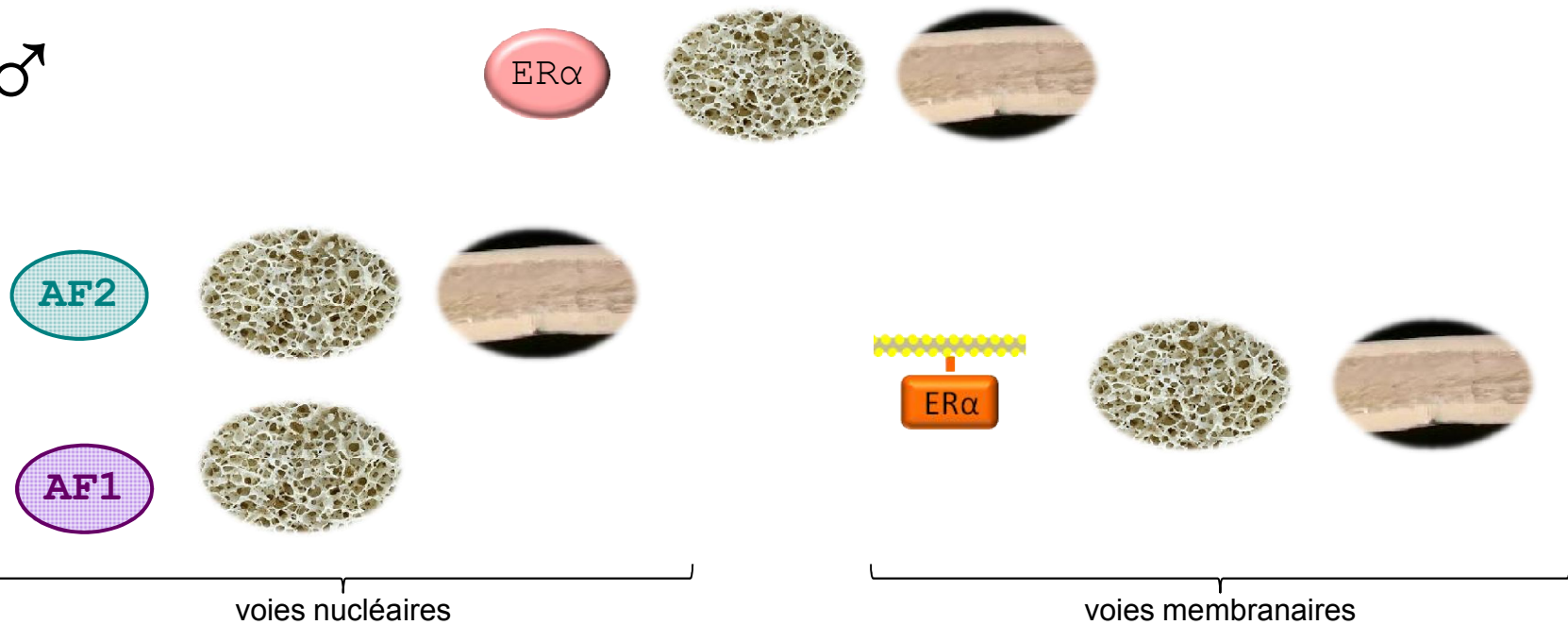
Farman et al., J Endocrinol 2018

□ OVX

■ E2



♀ ♂





ménopause



arrêt permanent des menstruations
~~production œstrogènes par les ovaires~~



troubles du climatère
ostéoporose
↗ risque maladies métaboliques
↗ risque cardio-vasculaire



Traitement Hormonal
Substitutif



cancer du sein
thrombo-embolisme

œstrogènes
progestatif

lésions
hyperplasiques
utérines



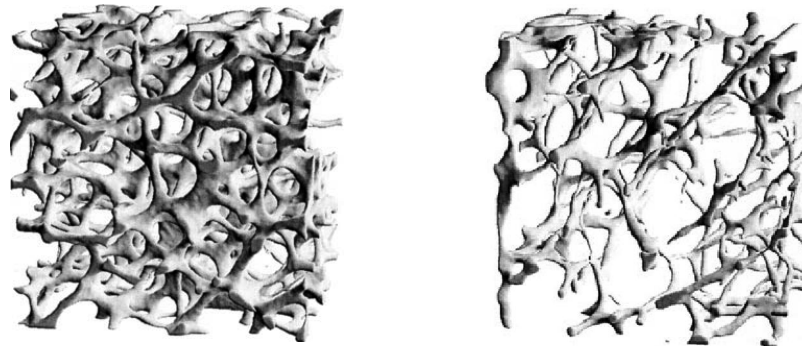


~~Andropause~~

↗ SHBG

↘ T et E2

ostéoporose



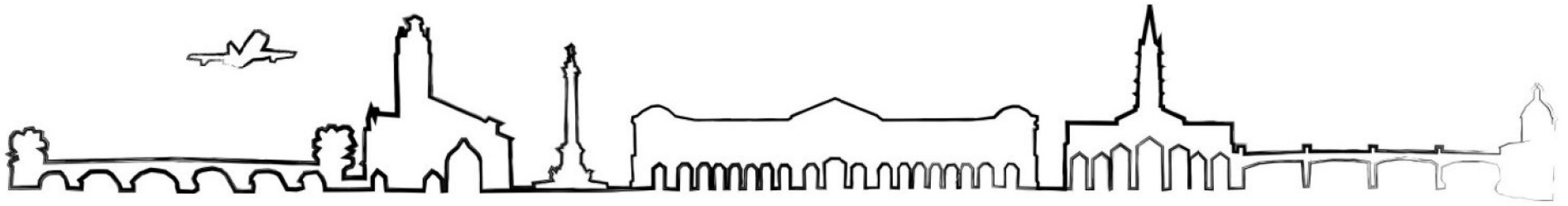
2 sexes : deficit oestrogènes > ostéoporose

Acquisition masse osseuse : oestrogènes + androgènes
→ dimorphisme sexuel du squelette

Fin de croissance : oestrogènes

Maintien de la masse osseuse : oestrogènes

Vieillissement : oestrogènes



merci de votre attention....