

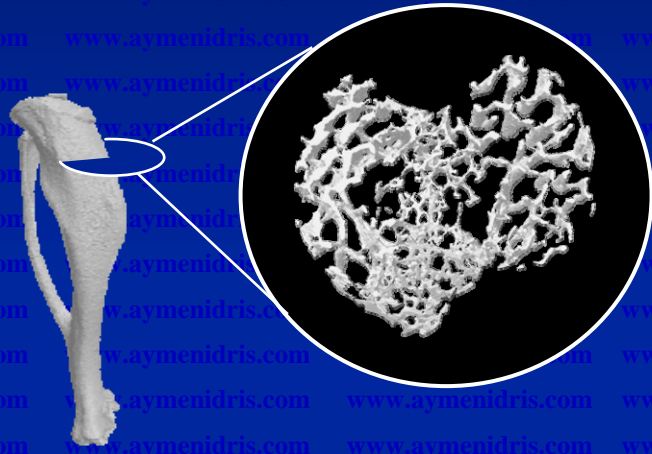
# Cannabinoids and Bone: Friend or Foe?



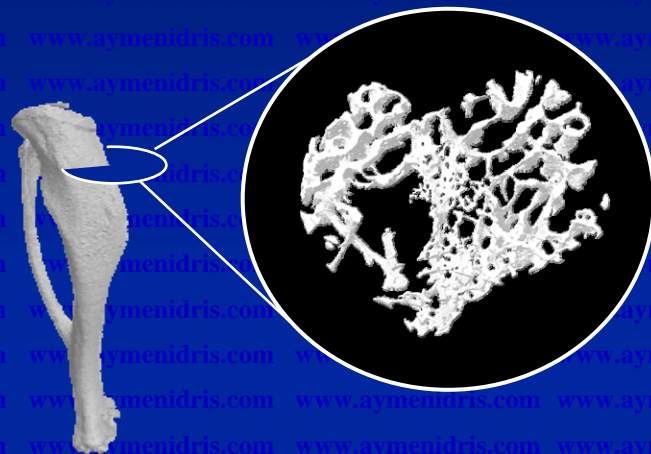
**Aymen Idris MSc. PhD.**

**Institute of Genetics and Molecular Medicine  
University of Edinburgh**

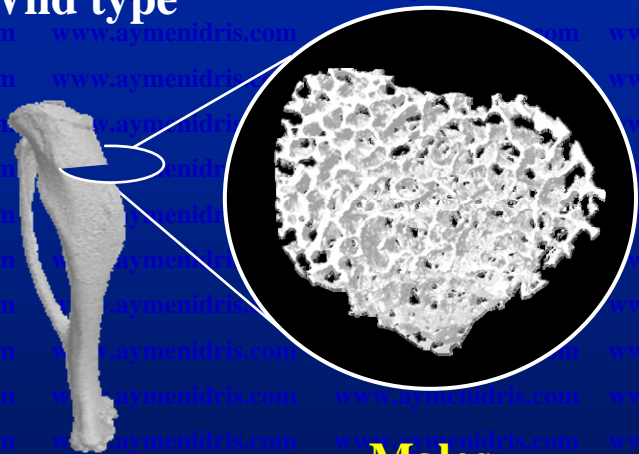
# Adult mice lacking CB1 receptors have high peak trabecular bone mass



Wild type

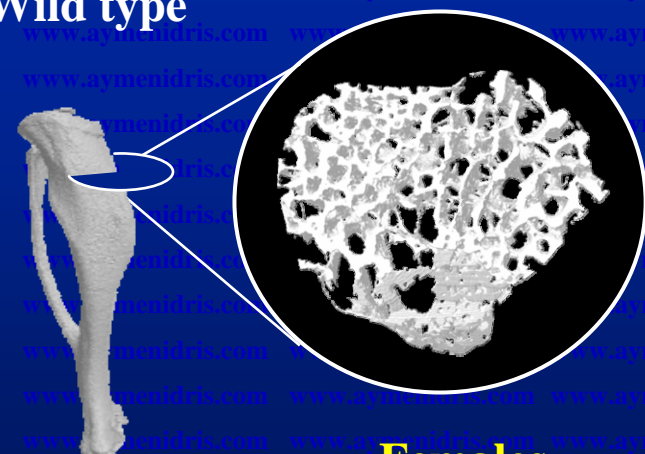


Wild type



CB1 KO

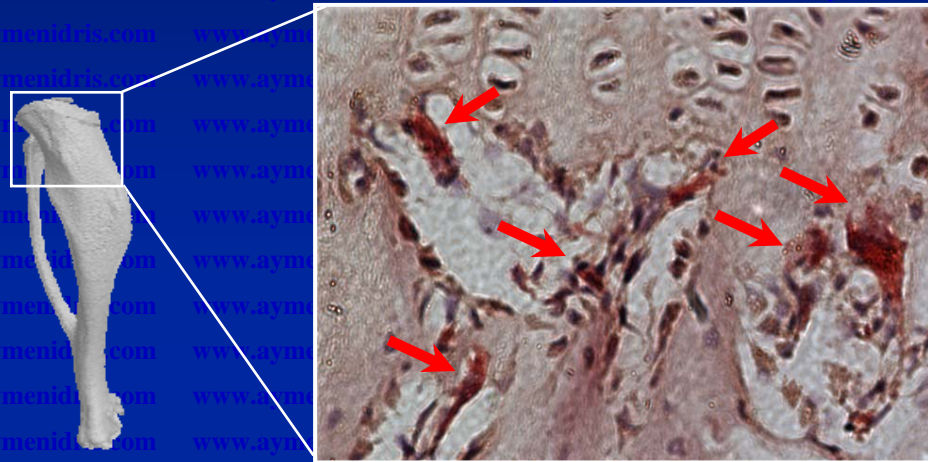
**Males**



CB1 KO

**Females**

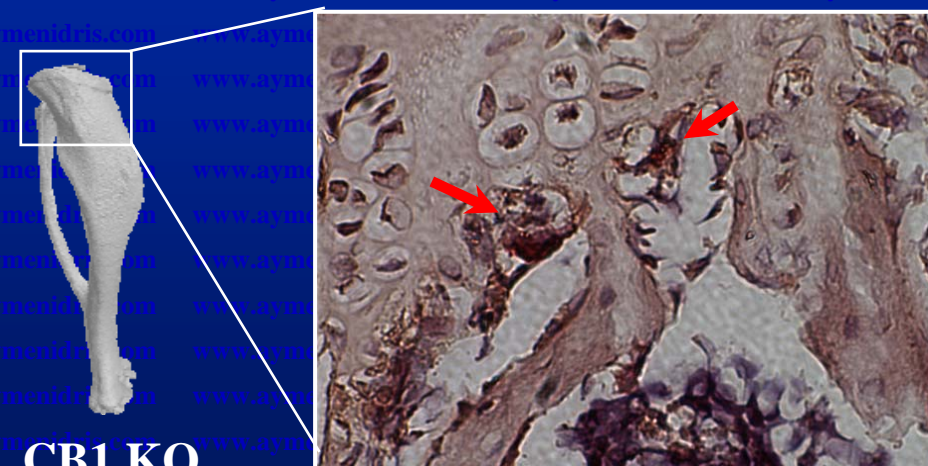
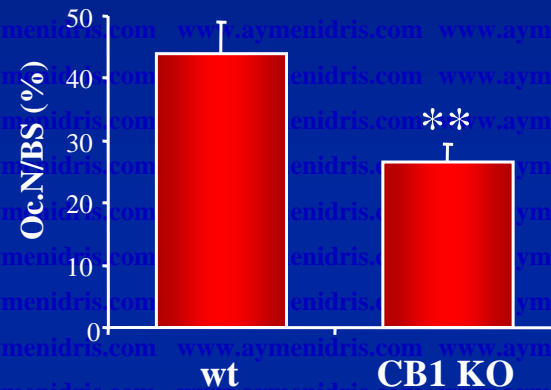
# Adult mice lacking CB1 receptors have low osteoclast number



Wild type

Wild type

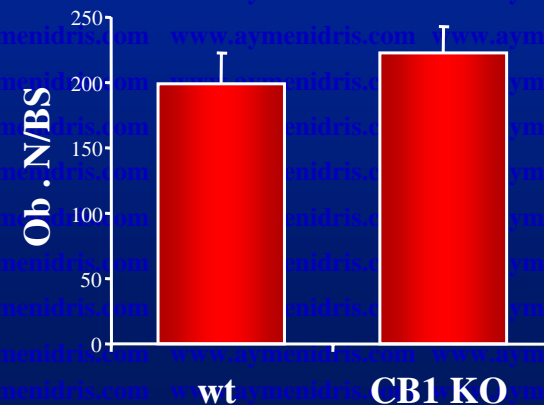
## Osteoclast number



CB1 KO

CB1 KO

## Osteoblast number

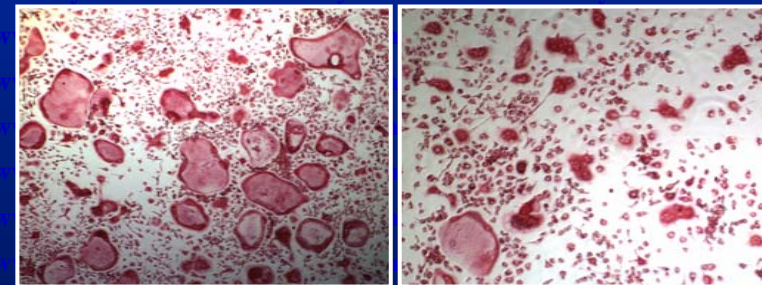
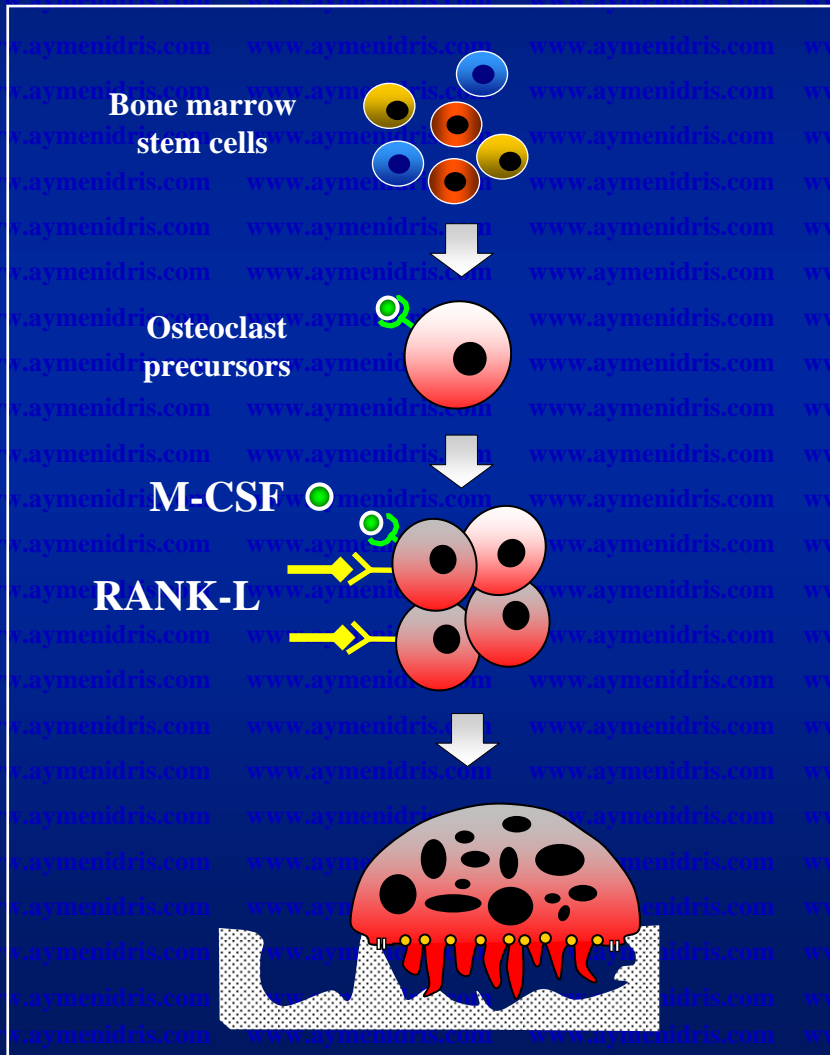
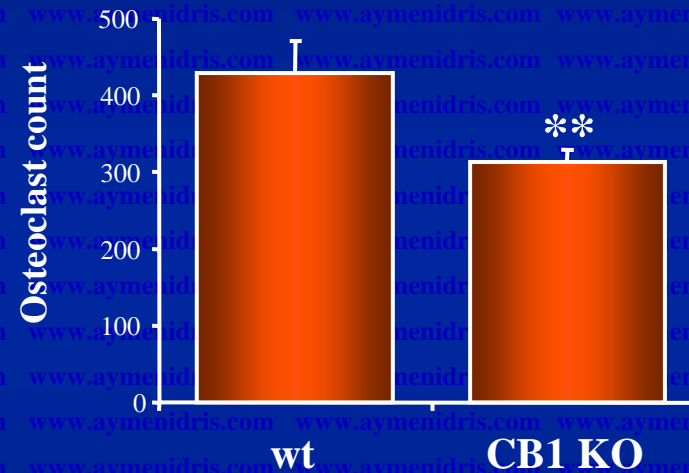


wt CB1 KO



# Bone marrow cultures from CB1 knockout mice have low number of osteoclasts

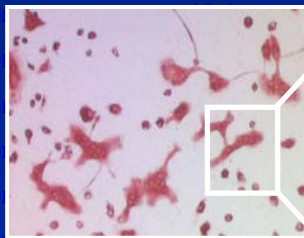
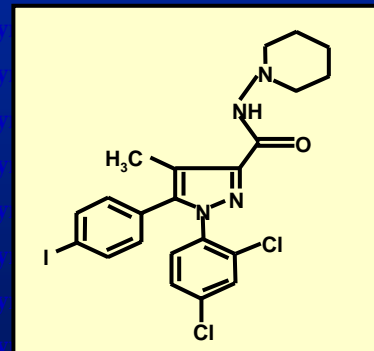
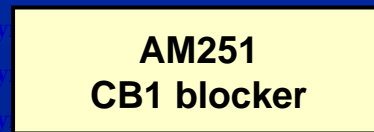
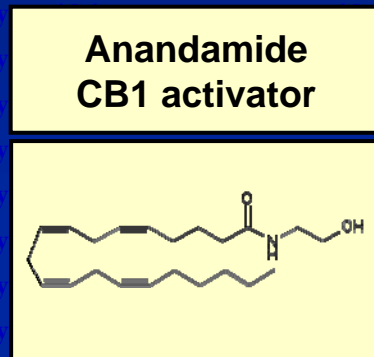
## Osteoclast Number



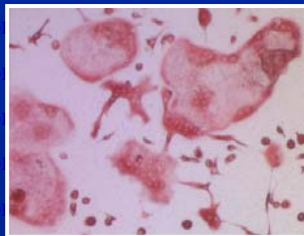
wt

CB1 KO

# Cannabinoid receptor blockers inhibit osteoclast formation, polarization and bone resorption



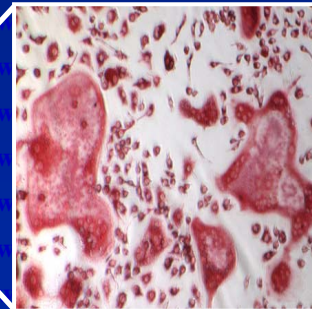
control



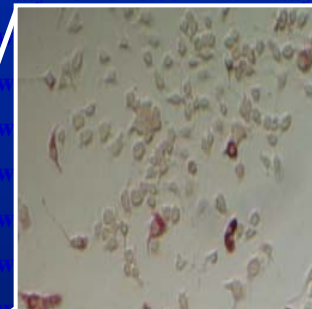
vehicle



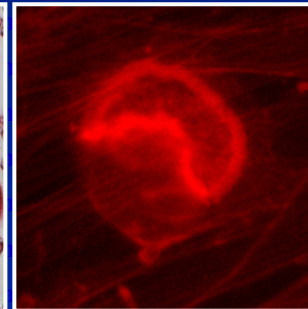
Anandamide  
CB1 activator



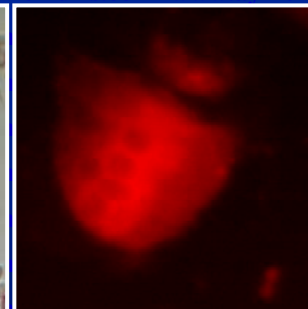
TRAcP



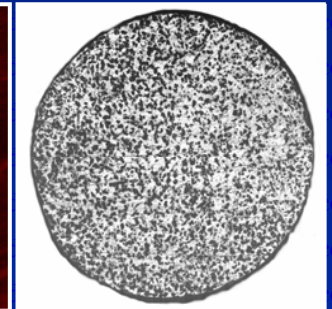
AM251  
CB1 blocker



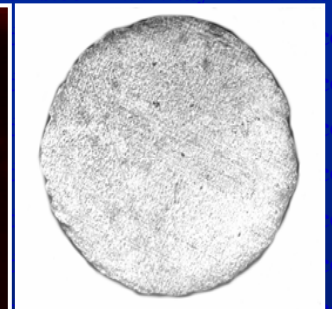
Actin-rings



AM251  
CB1 blocker



Resorption

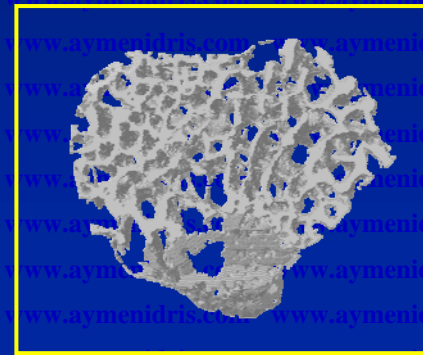


AM251  
CB1 blocker

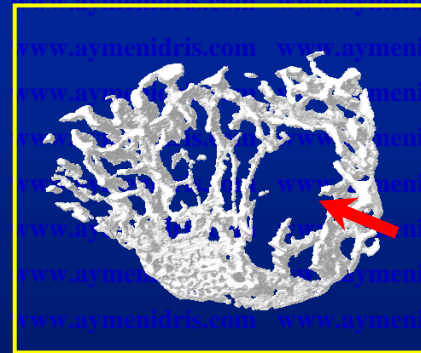
# CB1 knockout mice from CD1 backgrounds are protected against ovariectomy-induced bone loss



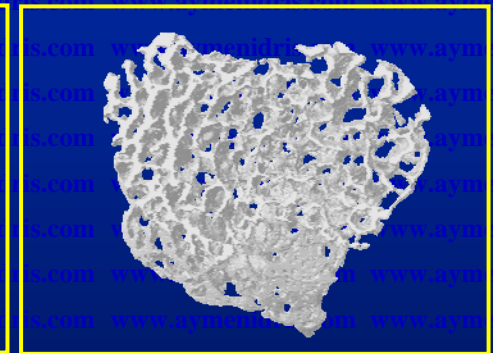
mouse  
3 month old



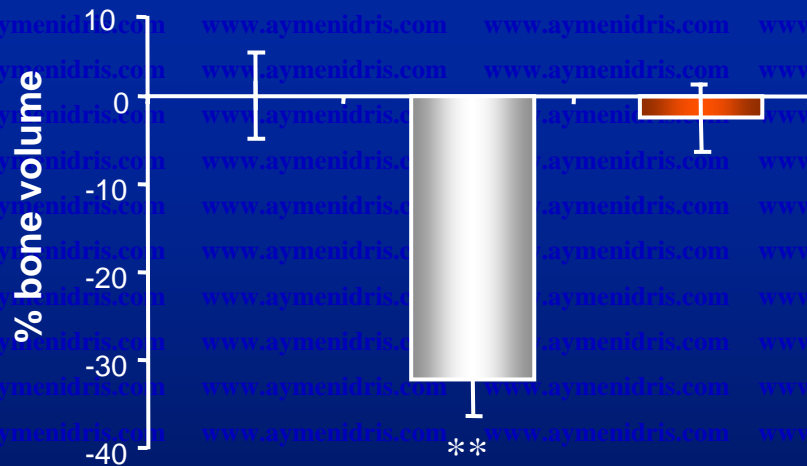
Sham  
Wild type



Ovariectomy  
Wild type



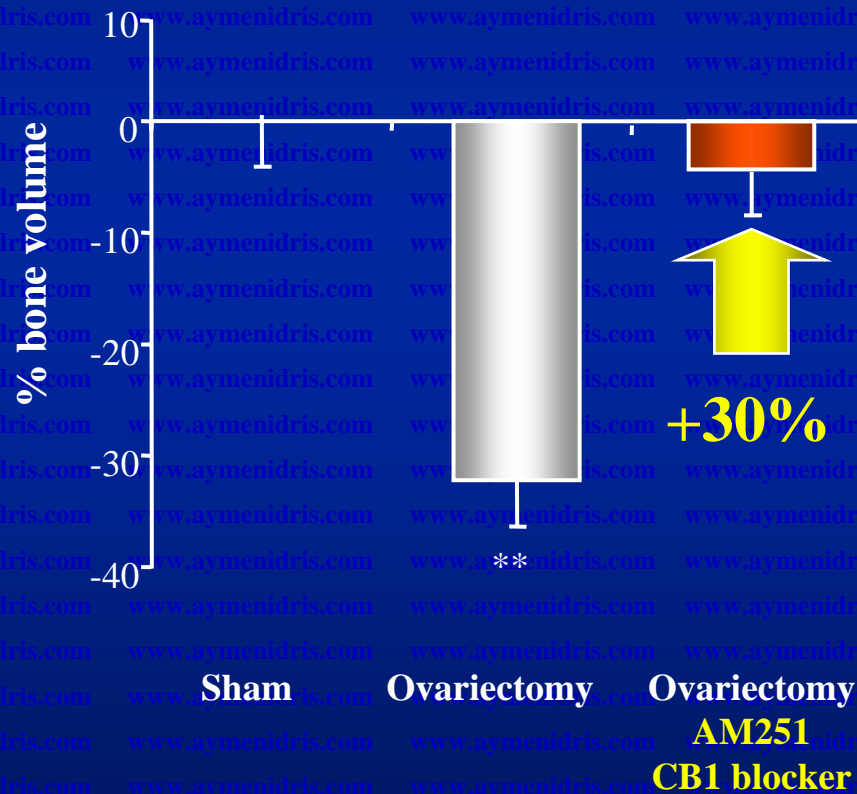
Ovariectomy  
CB1 KO



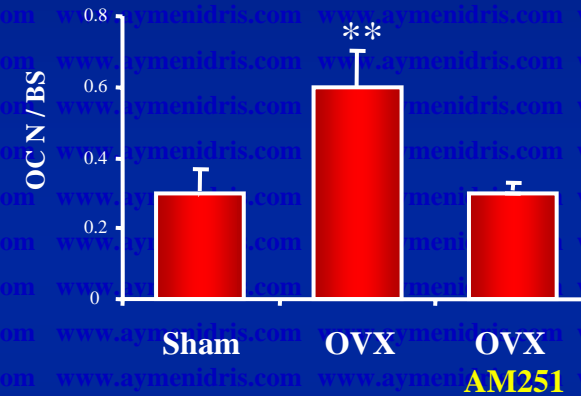
Sham Ovariectomy Ovariectomy  
WT CB1 KO

# Cannabinoid receptor blockers prevent bone loss following ovariectomy in mice

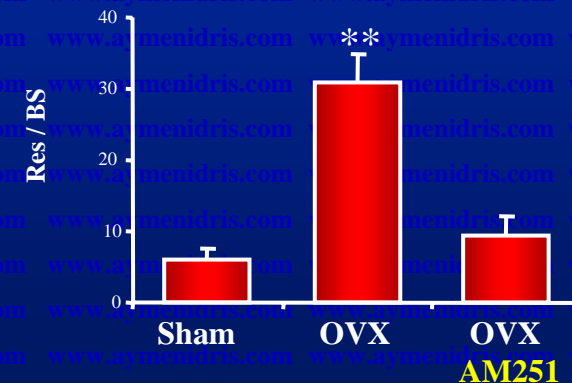
## Bone volume



## Osteoclast number



## Resorption area





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# **Blocking cannabinoid receptors on the skeleton:**

*less osteoclast*

*less bone destruction*

*High bone mass & protection from bone loss*

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