

## □ **What do we mean by “hominin”?**

- More closely related to us (*Homo sapiens*) than chimpanzees (*P. troglodytes*)
- Groups of early hominins
  - Basal hominins (7-4 mya)
    - Found at the base of hominin lineage, the earliest, furthest back in time
    - *Sahelanthropus tchadensis*
      - Found in Chad
      - Look at words for clues
      - Oldest one
      - Found in upper Miocene of Chad, Central Africa
      - Incredible completeness for how old it is
      - Earliest possible hominin: 7 mya
      - Identified by the spinal hole
      - Not fully convinced that it's a hominin, still some debate
      - An interesting mix of traits
        - Hominoid-like, ancestral features
          - chimp-sized brain (about the size of an orange)
        - Hominin-like, derived features
          - Foramen magnum (spinal hole)
          - Smaller canines, with apical wear

- o Wear on teeth may hold information about social behavior
- Some argue that *tchadensis* was a biped, other researchers are not convinced
- Habitat = wet, closed woodlands
- *Orrorin tugenensis*
  - Tugen hill area
  - Found in highlands of Kenya in 2001
  - ~ 6 mya (K-Ar & paleomag. Dating)
  - habitat = closed woodland & savanna (mix of grasslands and forests)
  - ancestral features
    - small body size
    - arms and (long, curved) finger bones seem adapted for climbing
  - derived features
    - thick tooth enamel
    - long femoral neck like bipedal hominins
    - argued that this was a biped, also that aspects of the femur looked more like our genus than other fossil findings
    - was Orrorin a biped?
      - o Distribution of cortical bone in femoral neck supports bipedalism
      - o Revealed by femur
      - o Yes
    - Does Orrorin look more like homo than other early hominins?
      - o Looking at all aspects of the femur

- o A: Analysis of proximal femur shape distinguishes modern humans, great apes, and early hominins
  - o B: Cluster analysis reveals three distinct clusters: a great ape cluster, a cluster of modern and fossil Homo, and a cluster of early hominins (including Orrorin)
  - o **NO**
- *Ardipithecus ramidus*
  - 4.4 mya
  - Ethiopia
  - paleoenvironment = forest
  - 2009 "Breakthrough of the year" in *Science*
  - fossils very fragile, bad preservation
  - study took 17 years due to preservation issues
  - "Ardi"
    - in upper limbs, does not show either evidence for knuckle walking or hanging off of limbs, maybe walk on top of limbs
    - splayed big toe unlike any monkey or human
  - ancestral features
    - prognathic (sloping) face
    - thin tooth enamel
    - bigger canines than in later hominins
    - small brain, ape-like skull
  - shared derived features with humans
    - Bipedal (foramen magnum, toe bones, pelvis)
    - Upper canines not sharpened by lower premolar