



1. Research activity

This project aims to carry out a histomorphometric and volumetric survey on fossil, archaeological and contemporary human teeth to study the variability of the relationship between growth rates and tissue volumes in *Homo*. For the first time, this investigation will be carried out on a large sample (N = 150), including different geographical and chronological contexts to add an important piece to the knowledge of the natural history of *Homo* and to contribute to the valorization of human odontoskeletal remains as cultural heritage, taking advantage of the most modern microimaging techniques with synchrotron light (SR- μ CT) and the emerging new perspectives offered by high magnetic field NMR microimaging in the fossil sample.

The processing of enamel microstructure data will allow the calculation of fundamental parameters for the reconstruction of tooth formation and growth patterns in *Homo*, such as crown formation time, daily secretion rates and enamel extension. Furthermore, the availability of elements related to the deciduous dentition of subadults will allow us to estimate the timing of tooth eruption, offering information for understanding the stages of human life history. In parallel, we expect as a spin-off of this research project the development of new MRI protocols for the analysis of fossil teeth, which will be validated by SR- μ CT microtomography and conventional histology.

2. Research products

- a) Publications (ISI journals)
- b) Publications (NON ISI journals)
- c) Manuscripts (submitted, in press)
- d) Abstracts