



Workshop on craniofacial development

Growth, variation, and structure of the craniofacial complex in human evolution.

28-30 May, 2008

Museo Nacional de Ciencias Naturales (CSIC),
Madrid.

Meeting Room (Biology wing)

Calle José Guitierrez Abascal 2
28006 Madrid

Official name: Bone histology and growth (CSIC) + growth and development of the craniofacial complex (dHAL)

Objectives: This EVAN intensive training course is dedicated to EVAN fellows, consortium staff members and other researchers, who are interested in principles in craniofacial biology (growth and development), evolutionary anatomy and paleoanthropology. The workshop includes methods and tools in histology of bone surfaces, paleohistological image analysis, light and electron microscopy, high resolution cast preparation, standard morphometrics and visualization.



Wednesday, May 28

- 09:30** **Reception, Welcoming regards.** (Antonio Rosas and Demetris Halazonetis-dHAL).
- 10:00** **Morning session.**
- 10:00 -11:00 General principles of craniofacial biology and development (Antonio Rosas-CSIC).
- 11:00 - 11:30 Coffee break
- 11:30 - 12:30 The problem of malocclusion and maxillofacial disharmony in humans. The Orthodontic perspective (Demetris Halazonetis-dHAL).
- Outline: Short history of Orthodontics, Malocclusion:
- What is it? Do other species have malocclusion?
 - Types.
 - Health consequences and natural Progression.
 - Causes
 - Treatment methods-Efficacy of treatment,
 - The problem of retention and relapse,
 - The aesthetic component and socio-cultural / ethical aspects.
- 12:30 - 14:00 Lunch
- 14:00** **Afternoon session.** Histological level (Antonio García-Tabernero, Andrea Sánchez-Meseguer, Almudena Estalrich, Elena Kranioti, Samuel García-Vargas -CSIC).
- 14:00 – 15:00 General bone histology concepts (Elena Kranioti, Samuel García-Vargas).
- 15:00 – 16:00 Methodology.
a. Bone sections
b. Surface histology: remodelling
Practical aspects. Laboratory work
- (Division of participants in three groups and rotation)
Group A: Casts production (Elena Kranioti).
Group B: Reflected Electron Microscopy (Samuel García-Vargas).
Group C: Scanning Electron Microscopy (Almudena Estalrich).

16:00 – 16:30	Coffee break
16:30 - 17:30	Practical aspects. Laboratory work
17:30 - 18:30	Evolution of remodelling patterns (Cayetana Martínez-Maza, Antonio Rosas-CSIC).

Thursday, May 29

09:30	Morning session
09:30 – 11:00	Functionality of the craniofacial complex (Ottmar Kulmer-RISE).
11:00 - 11:30	Coffee break
11:30 – 12:30	Functionality of the craniofacial complex (Paul O’Higgins-YORK).
12:30 - 14:00	Lunch
14:00	Afternoon session.
14:00 – 15:00	Quantification of craniofacial growth and variation. Cephalometric radiography (history, limitations) Conventional cephalometrics (measurements, limitations, growth trends, sexual dimorphism), Superimposition, Structural superimposition, Maturity indicators. <i>Growth rotation of the jaws (Bjork studies etc.)</i> (Demetris Halazonetis-dHAL).
15:00 – 16:00	Morphometric methods and findings. Practical aspects. Denver growth study (Markus Bastir-CSIC).
16:00 – 16:30	Coffee break
16:30 - 17:30	Factors of variation in the human craniofacial system: Allometry, sexual dimorphism, etc.
17:30 - 18:30	Cranial base growth and interactions with the face (Markus Bastir, Antonio Rosas-CSIC).
20:30	Workshop Dinner

Friday, May 30

09:30	Morning session
09:30 – 10:30	Evolutionary perspective of craniofacial structure and its growth. Orbit frontalization, Cranial base flexion (Antonio Rosas-CSIC).
10:30 - 11:00	Airorynkhy and klinorrinkhy (Nandini Singh-MPEA and Sascha Senck-UNVI).
11:00 - 11:30	Coffee break
11:30 - 12:30	Geometric morphometric approaches to Craniofacial Modularity and integration.
12:30 - 14:00	Lunch
14:00	Afternoon session.
14:00 – 16:00	Viewbox software (Demetris Halazonetis-dHAL). Demonstration of digitization of 2D and 3D data. Rendering of CT data. Measurements in 2D and 3D. Computer-assisted landmark placement. Sliding semilandmarks. Basic morphometric routines.
16:00 – 16:30	Coffee break
16: 30 - 18:30	3D morphs EVAN tools for craniofacial growth visualization (Phillip Gunz-MPEA).
Freedom...!!	