

COST Action B23 ORAL FACIAL DEVELOPMENT AND REGENERATION
Joint Meeting of the Working Group 1–4 and the Management Committee
GROWTH FACTORS IN CRANIOFACIAL DEVELOPMENT AND REPAIR
4–7 May 2006, Scandic Grand Marina, Marina Congress Center, Helsinki Finland



European Cooperation in the field of
Scientific and Technical Research

GROWTH FACTORS IN CRANIOFACIAL DEVELOPMENT AND REPAIR

4–7 May 2006
Scandic Grand Marina
Marina Congress Center
Helsinki Finland

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Program

Thursday 4 May

- 13.00–18.00 Registration

- • 13.00–15.00 Coffee

- 15.00

Opening of the congress

Welcome address: Eero Vuorio (Turku)

Music: Aaro Turunen & Jenni Koskinen (Turku)

- 15.30

Working Group 1: Evolution and Development Part 1

Chairpersons: Ralf J. Radlanski and P. Eckhard Witten

15.30 Keynote Lecture: Jukka Jernvall (Helsinki): Growth factors as regulators of tooth shape during evolution

16.15 New insights in the function of BARX1 during multicuspid tooth development
Miletich I, Kai Y, Sharpe PT

16.35 Ectodermal dysplasia gene (Eda) antagonizes BMP activity and upregulates expression of Shh

Fliniaux I, Mikkola M, Pummila M, Laurikkala J, Schneider P, Thesleff I

16.55 The expression of RUNX2, MYF5 and SOX9 during prenatal morphogenesis of the mandible of the quail

Radlanski RJ, Renz H, Schneider RA

- • 18.00 Reception at the City Hall
- • 19.30 Dinner at FishMarket (optional)

Friday 5 May

- 08.15–16.00 Registration

- 08.30

Working Group 1: Evolution and Development Part 2

Chairpersons: Ralf J. Radlanski and P. Eckhard Witten

08.30 Keynote Lecture: Ophir Klein (San Francisco): Sproutying new teeth: regulation of FGF signaling in dental development

09.15 Expression of the *dlx* gene family during formation of the cranial bones in the zebrafish (*Danio Rerio*): Differential involvement in the visceral skeleton and braincase

Verreijdt L, Debiais-Thibaud M, Borday-Birraux V, Van der Heyden C, Sire J-Y, Huysseune A

09.35 Gene expression for tooth renewal in osteichthyan fish: Developmental and evolutionary origins of a dental lamina

Smith MM, Hulseley CD, Streelman JT, Fraser GJ

09.55 Bony fish as "models" for bone and cartilage development: cribs, challenges and changes

Witten PE, Baeverfjord G

- • 10.15 Coffee

- 10.45

Working Group 2: Stem Cells and Hard Tissue Formation

Chairpersons: ALJJ Bronckers and Kaj Fried

10.45 Keynote Lecture: Christine Hartmann (Vienna): A Wnt canon orchestrating skeletal development

11.30 Late molar and bone phenotype in homozygous MSX2 Ki mice

Berdal A, Aioub M, Descroix V, Robert B, Lézot F, Néfussi JR

11.50 Bone marrow cells can differentiate into ameloblast- and odontoblast-like cells without cell fusion

Hu B, Unda F, Bopp-Kucler S, Jimenez L, Wang XJ, Wang SL, Lesot H

12.10 Pericytes of dental pulp: A new model to study reparative dentinogenesis
Alliot-Licht B, Bluteau G, Lopez-Cazaux S, Guicheux J

• • 12.30 Lunch

13.30 Keynote Lecture: Kalervo Väänänen (Turku): Regulation of bone remodelling

14.15 Coexpression of Rgs5 and Notch3 mRNA in the pericyte-vSMC axis after pulp injury

Løvschall H, Mitsiadis T, Jensen KH, Kjeldsen AL, Poulsen K

14.35 FGF and TGF β 1 signaling in normal and mutated osteoprogenitors

Ferretti P, Santos-Ruiz L

14.55 Extracellular matrix mineralization in osteoblast cultures is dually inhibited by both pyrophosphate and its upregulation of osteopontin

Addison WN, Azari F, Kaartinen MT, McKee MD

• • 15.15 Coffee

15.30–17.30

• **Poster sessions**

15.30–16.30 Even numbers

16.30–17.30 Uneven numbers

• Poster session **WG 1**

1. Drozd: Pharyngeal dentition in asp: a new model for early stages of pharyngeal teeth development?

2. Horacek, Frantisek S, Vrabcová S: Why tribosphenic?

3. Horacek, Suvova Z, Krejcová Debora, Copkova H: Structure of dental phenotype in arvicolid rodents: adaptive variation and constraints.

4. Järvinen E, Jernvall J, Thesleff I: *Sorex araneus* as a model for tooth development.

5. Lohi M, Sharpe PT: NF- κ B-WNT interactions in tooth development.

6. Munne P, Jernvall J: The importance of ectodin in development of dentition.

7. Närhi K, Thesleff I: The role of ectodin in the development of ectodermal organs.

8. Ericsson R, Joss J, Olsson L: Cranial muscle morphogenesis in lungfishes and amphibians – a comparative perspective.
9. Osmundsen H, Landin M, Risnes S: Time-course of gene expression in murine tooth germs as measured using microarray analysis.
10. Penttilä E: Using three-dimensional reconstruction to study tooth morphology and gene expression patterns.
11. Hovorakova M, Lesot H, Peterkova R, Peterka M: The complex origin of a tooth can cause its developmental vulnerability and explain the formation of supernumeraries.
12. Peterkova R, Klein O, Lesot H, Churava S, Peterka M, Martin G: 3D morphogenesis of the supernumerary cheek tooth in sprouty embryos.
13. Salma I, Stamers K, Skagers A, Pilmane M: Morphology of trigeminal ganglions (TG) and different salivary glands after unilateral long-lasting ligation of arteria carotis communis.
14. Seppälä M, Fan C-M, Sharpe P, Cobourne M: The role of GAS1 during early craniofacial development.
15. Setkova J, Matalova E, Dubska L, Misek I: Microdissection as a tool for cell signalling analysis in teeth.
16. Suomalainen M, Wang XP, Felszeghy S, James MJ, Lioubinski O, Zelarayan LC, Pilkus MV, Chuong CH, Schimmang T, Thesleff I: Balance between activin, follistatin and BMP4 regulates the function of FGF3 and proliferation of stem cells in mouse incisors.
17. Varjosalo M, Li S-P, Taipale J: Divergence of Hedgehog signal transduction mechanism between Drosophila and mammals.
18. Zahradnicek O: Dental morphogenesis in a gecko, *Paroedura pictus*: origin of fissent teeth.
19. Zoupa M, Seppälä Maisa, Mitsiadis T, Cobourne M: Tbx1 is expressed at multiple sites of epithelial-mesenchymal interaction during early development of the facial complex.

• Poster session **WG 2**

20. Barrandon O, Tucker AS, Mitsiadis T: Localization of epithelial stem cells in the mouse incisor.
21. Descroix V, Hotton D, Asselin A, Kato S, Lezot F, Berdal A: Partial rescue of dental phenotype of vitamin D receptor-ablated mice by calcium and phosphate normalization.
22. Fernandez I, Nadra R, Pibouin L, Berdal A, Menuelle P: Regulation by glucocorticoids of calvaria differentiation and mineralization in rat fetus.
23. Christersson C, Lind T, Ohlsson M-L, Wendel EM, Fried K: Dynamic expression of HMGB1 during tooth development.

24. Al-Jallad HF, Nakano Y, Kaartinen MT: Transglutaminase activity and fibronectin crosslinking is required for matrix mineralization and MC3T3-E1 osteoblast differentiation.
25. Karlström E, Rehn A, Christensson C, Wendel M, Lind T: Adamts-1 metalloproteinase activity influence collagen type 1 processing in osteoblastic cells.
26. Klinge RE, Risnes S, Li CF, Skogedal N, Storhaug K: Microscopic structure of deciduous teeth from patients with hypophosphatemic x-linked rickets.
27. Kärner E, Sugars R, Gertow K, Wendel M: In vitro differentiation of osteogenic lineage cells from human embryonic stem cells.
28. Popova SN, Barczyk M, van der Bos T, Beertsen W, Gullberg D: Integrin $\alpha 11\beta 1$ plays an important role in mouse incisor-development.
29. Pääkkönen V, Vuoristo J, Salo T, Tjäderhane L: Gene expression differences between native human pulp and odontoblasts.
30. Rehn A, Chalk A, Wendel M: Regulation of small leucine-rich proteoglycan osteoadherin by transforming growth factor (beta)-family cytokines.
31. Vág J, Szlávik V, Kádár K, Varga G: Interactions of DPSC and HSG cells: a model for epithelial-mesenchymal communication.

• Poster session **WG 3**

32. Axelsson S, Westvik J, Storhaug K: Cervical vertebral body shape and morphology in persons with Williams syndrome.
33. Brett PM, Nibali L, D'Aiuto F, Griffiths GS: The role of IL-6 polymorphisms in the predisposition to and pathogenesis of periodontal disease.
34. Jee KJ, Heikinheimo K, DiPalma S, Mäkitie A, Knuutila S, Leivo I: Array and conventional comparative genomic hybridization reveal genomic copy number changes and are closely linked to outcome of salivary gland carcinomas.
35. Mostowska A, Hozyasz KK, Dabrowski M, Jagodzinski PP: Maternal MTR genotype contributes to the risk of nonsyndromic cleft lip and palate in the Polish population.
36. Pilmane M, Krivicka B, Akota I, Barkane B, Rone B, Kundzina R: Growth factors (GF) and matrix metalloproteinases (MMP) in tissue of children with facial clefts.
37. Tallón-Walton V, Manzanares-Céspedes MC, Carvalho-Lobato P, Ventura-Pujol F, Arte S, Nieminen P: A novel mutation in Pax9 causes familiar oligodontia associated with systemic affections.
38. Veistinen L, Arte S, Thesleff I, Kreiborg S, Nieminen P: Genetic mapping of the novel syndrome with supernumerary teeth and craniosynostosis (Kreiborg-Pakistan Syndrome).

- Poster session **WG 4**

39. Mathieu S, Téclès O, Tran-Hung L, Laurent P, About I: Pulp fibroblasts – endothelial cells interrelationships are essential for pulp healing.
40. Berendsen AD, Bronckers ALJJ, Smith TH, Walboomers XF, Everts V: Collagen type V enhances matrix contraction by human periodontal ligament fibroblasts seeded in 3D collagen gels.
41. Chaussain-Miller C, Veyrune JL, Czernichow S, Godolewski AE, Dubois C, Nicolas E, Buch D, Basdevant A, Hennequin M: Descriptive study of the chewing function in patients with obesity.
42. Götz W, Lossdörfer S, Kunert D, Jäger A: The periodontal ligament in root resorption repair: in vivo and in vitro studies.
43. Jenca A, Danko J, Jencova J, Jencova V, Orencak M, Kizek P, Hanusinova V: Osteointegration and osteoconduction in orofacial region.
44. Jenca A, Jencova J, Jencova V, Orencak M, Danko J: Introduction of Slovakia as a new member of COST and our research department.
45. Simon S, Ifi-Naulin C, Machtou P, Berdal A: Implementation of a laboratory model for studying pulp response in the mouse.
46. Tcacencu I, Carlsöö B, Stierna P, Hultenby K: Local treatment of cricoid cartilage defects with rhBMP-2 induces growth plate-like morphology of chondrogenesis.
47. Amer DAM, Jones E, Yang X: The effect of cytomodulin-1 on the proliferation and differentiation of human bone marrow mesenchymal stem cells.

- • 18.15 Boat-trip to Suomenlinna Sea Fortress (optional)

Saturday 6 May

08.30

• **Working Group 3: Genetic Anomalies**

Chairpersons: Agnés Bloch-Zupan and Cristina Manzanares-Céspedes

08.30 Keynote lecture: Aarno Palotie (Helsinki): New opportunities provided by the genome project for the characterization of complex diseases

09.15 Keynote lecture: Pekka Nieminen (Helsinki): Signalling pathways and tooth agenesis

• • 10.00 Coffee

10.30 Tooth phenotype in DiGeorge syndrome, the role of TBX1 on tooth development and enamel formation

Catón J, Mitsiadis TA

10.50 Odontological and craniofacial manifestations in a molecular screened population with Gorlin syndrome

Gorry P, Viguier PA, Peycru L, Marteau JM

11.10 Dental findings in healthy female carriers of a splicing mutation in the NEMO gene

Nordgarden H, Storhaug K

11.30

• Working Group 4: **Tissue Regeneration and Clinical Application**

Chair: Michel Goldberg

11.30 Keynote lecture: Misako Nakashima (Aichi): The application of tissue engineering to regeneration of dentin and pulp in endodontics

• • 12.15 Lunch

13.15 Characterization of adrenomedullin in dental tissues and cells

Graham L, Smith AJ, Sloan AJ, Kapas S, Nor J, Cooper PR

13.35 Activation of toll-like receptor 2 by lipoteichoic acid induces CCL2, CCL7, CXCL2, and CXCL10 chemokine expression in human odontoblasts, while decreasing type 1 collagen, DSPP and TGF- β 1

Durand SH, Flacher V, Roméas A, Carrouel F, Colomb E, Vincent C, Magloire H, Couble M-L, Bleicher F, Staquet M-J, Lebecque S, Farges J-C

13.55 Odontoblast and mesenchymal progenitors implanted in the pulp of mouse incisors induce reparative dentin formation

Lacerda S, Goldberg M, Kellerman O, Poliard A

• • 14.15 Coffee

14.45 Keynote lecture: Hannu Aro (Turku): Clinical experience of randomized trials of rhBMP-2 therapy in enhancement of long-bone fracture healing

15.30 Formation of new bone during vertical distraction osteogenesis of the human mandible is related to the presence of blood vessels

Amir LR, Becking AG, Jovanovic A, Perdijk FBT, Everts V, Bronckers ALJJ

15.50 The bone regenerative potential of matrix-bound parathyroid hormone
Jung RE, Cochran DL, Domken O, Seibl R, Dard M, Jones A, Hammerle CHF

16.10 Individual craniofacial reconstruction with new composite materials

Peltola MJ, Tuusa SM-R, Tirri T, Vallittu PK, Aitasalo K

Program of the MC meeting

Sunday May 7

09.00–12.00

- **Management Committee Meeting COST Action B23**

1. Welcome
2. Adoption of the agenda
3. Approval of the Minutes of the 5th MC meeting in Athens (Nov 4-6 2005)
4. COST Office news
5. Chairman's greetings
6. STSMs: Analysis of 2006 missions
7. Dissemination of the results
8. Preparation of the Annual Report
9. Proposal and discussion for a new COST Action
10. Organisation of 7th MC meeting (Brussels)
11. Web-site of the COST Action B23
12. Organization of future meetings (time and place)
13. Any other business