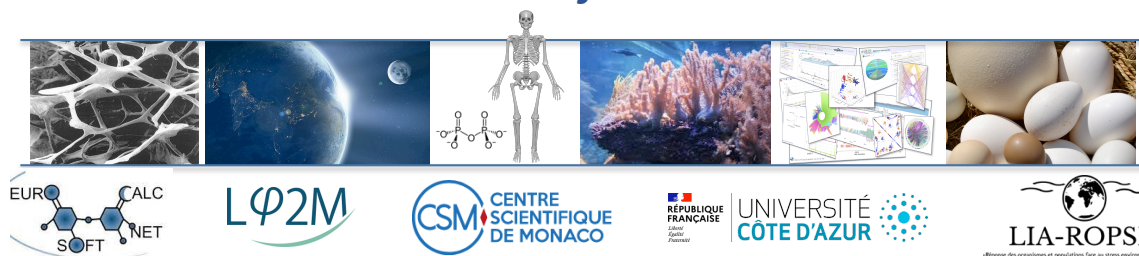


Digital summer school, 7- 9 July 2021
*From Bones to Oceans and Space:
the untold stories of Biomineralization*



PROGRAM

Wednesday July 7

9h45-10.00- Welcome and introduction of the virtual course

10.00-12.00: Fundamental aspects of Biomineralization

Part 1

10.00-10.05 : Presentation of speakers by the chairs David Magne and Alexander Venn

10.05-10.25: *Biomineralization and Evolution: Biomineral diversity and functions*: Frederic Marin, France

10.25-10.45: *Fundamentals of calcium-carbonate mineralization: the coral example*, Sylvie Tambutté, Monaco

10.45-11.00: Live discussion

Part 2

11.00-11.05: Presentation of speakers by the chairs Cristina Sobacchi and Frederic Marin

11.05-11.25: *Fundamentals of calcium-phosphate mineralization*: David Magne, France

11.25-11.45: *Fundamentals of demineralization: bone resorption*, Teun de Vries, Netherlands

11.45-12.00: Live discussion

12.00-14.00: Break

14.00-15.00: Workshop 1

In vivo cell imaging by confocal microscopy with pH measurements.

Contributors: Alexander Venn, Philippe Ganot, Sylvie Tambutté

15.00- 15.45: Round Table Discussion 1

Original models in mineralization (coral, egg, sponge, mollusk, fish...)

Contributors: Alexander Venn, Joël Gautron, Leonor Cancela, Frédéric Marin

15.45- 16.00: Break

16.00- 17.15: Student's presentations group 1

Chairs: David Magne, Joël Gautron, Leonor Cancela, Teun de Vries

16.00-16.06: *Bone Beyond Borders – Monetite-Based Calcium Phosphate Induces Bone Formation Outside the Skeletal Envelope in Ovis aries Occipital Bone Model*, Martina Jolic, Sweden

Followed by 5 min Discussion

16.11-16.17: *Role of the Matrix Gla Protein (MGP) in skeletal development*, Alexandre Marano, France

Followed by 5 min Discussion

16.22-16.28: *Novel Hierarchical Structures in Bone: Mineral-Rich Ellipsoids*, Chiara Micheletti, Sweden

Followed by 5 min Discussion

16.33-16.39: *Ammonium transporters and coral calcification*, Laura Capasso, Monaco

Followed by 5 min Discussion

16.44-16.50: *Elastic fibre calcification in Pseudoxanthoma elasticum*, Francesco Demetrio Lofaro, Italy

Followed by 5 min Discussion

16.55-17.01: *Micro-computed tomography (μ CT) analysis of dental enamel in Cldn16 knock-in mice*, Elis Lira Dos Santos, France

Followed by 5 min Discussion

17.01-17.15: general discussion

17.15-17.45: Informal discussion, meet the mentor

Panelists: David Magne, Joël Gautron, Teun de Vries, Frédéric Marin, Sylvie Tambutté, Alexander Venn

Thursday July 8

10.00-12.00: Clinical aspects of Biomineralization

Part 1

10.00-10.05 : Presentation of speakers by the chairs Teun de Vries and Didier Zoccola

10.05-10.25- *X-linked hypophosphatemia: from pathophysiological mechanisms to therapeutic strategies*, Claire Bardet, Paris, France

10.25-10.45- *Lessons from rare bone diseases to understand the pathophysiology of common bone diseases*, Cristina Sobacchi, Italy

10.45-11.00: Live discussion

Part 2

11.00-11.05 : Presentation of speakers by the chairs Leonor Cancela and Georges Leftheriotis

11.05-11.25: *Metabolic diseases and cardiovascular calcifications*, Said Kamel, France

11.25-11.45: *Ectopic calcifications and their impact on the cardiovascular function*, Magnus Bäck, Sweden

11.45-12.00: Live discussion

12.00-14.00: Break

14.00-15.00: Workshop 2

Cytometry for the characterization of cells from bone and mineralized tissues

Contributors: Julie Cazareth, Matthieu Rouleau, Didier Zoccola, Claudine Blin

15.00- 15.45: Round Table Discussion 2

Is there a link between bone and ectopic calcifying diseases? From gene to therapeutic issues"

Contributors: Georges Leftheriotis, Magnus Back, Said Kamel

15.45-16.00: Break

16.00- 17.00: Workshop 3

How to quantify biomineralization by imaging techniques in preclinical and clinical models

Contributors: Georges Leftheriotis, Didier Pisani

17.00-17.45: Informal discussion, meet the mentor

Panelists: Cristina Sobacchi, Didier Zoccola, Georges Leftheriotis, Said Kamel,

Friday July 9

10.00-12.00: Societal/environmental aspects

Part 1

10.00-10.05 : Presentation of speakers by the chairs Sylvie Tambutté et Claudine Blin

10.05-10.25: *Societal impact of biomineralization in eggshells*, Joel Gautron, France

10.25-10.45: *Fish as a model to study biomineralization*, Leonor Cancela, Portugal

10.45-11.00: Live discussion

Part 2

11.00-11.05: Presentation of speakers by the chairs Joël Gautron et Philippe Ganot

11.05-11.25: *Ocean acidification and its impact on biomineralizing organisms*, Alex Venn, Monaco

11.25-11.45: *Impact of space travels on bones*, Laurence Vico, France

11.45-12.00: Live discussion

12.00-14.00: Break

14.00-15.00: Debriefing by the students

Interactive discussion and feedback from the attendees on the workshops

Contributors: Cristina Sobacchi, Didier Zoccola, Leonor Cancela, Sylvie Tambutté, Claudine Blin, Alexander Venn, David Magne, Joël Gautron, Georges Leftheriotis

15.00-15.45: Round Table Discussion

From ideas to drugs - A startup's story

Piero Mendez, Georges Leftheriotis

15.45-16.00: Break

16.00-17.15: Student's presentations group 2

Chairs: Cristina Sobacchi, Magnus Back, Claire Bardet, Piero Mendez

16.00-16.06: *Minocycline attenuates excessive DNA damage response and reduces ectopic calcification in pseudoxanthoma elasticum*, Lukas Nolle, Belgium

[Followed by 5 min Discussion](#)

16.11-16.17: *Longitudinal study on the geometrical, structural and material properties of Type-2 diabetic bone using a Zucker diabetic fatty (ZDF) rat model*, Genna Monahan, Ireland

[Followed by 5 min Discussion](#)

16.22-16.28: *Characterization and impact on osteoblastogenesis of the extracellular matrix produced in vitro by bone marrow adipocytes in hyperglycemic condition*, Laura Entz, France

[Followed by 5 min Discussion](#)

16.33-16.39: *Osteoblast populations and bone extracellular matrix proteins during skeletal development in zebrafish*, Ratish Raman, Belgium

[Followed by 5 min Discussion](#)

16.44-16.50: *Super-enhancer induced genes as molecular targets to stimulate osteoformation in osteodegenerative diseases*, Robel Tesfaye, France

[Followed by 5 min Discussion](#)

16.55-17.01: *Glucose directly effects the calcification process in smooth muscle cells*, Marina Heuschkel, Germany

[Followed by 5 min Discussion](#)

17.01-17.15: general discussion

17.15-18.00: Informal discussion, meet the mentor and close of the course

Panelists: Joël Gautron, Alexander Venn, Leonor Cancela, Laurence Vico, Magnus Back, Piero Mendez

Close of the course Georges Leftheriotis, Sylvie Tambutté, Claudine Blin