

Personal Information

BONAVENTURA PAOLA

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Italian

01/02/1987



Professional Experience

10/2005 - 04/2009

Bachelor in Biological Sciences - Università del Piemonte Orientale, Alessandria

Virology Lab. Service immunohematology and transfusion medicine – Cardinal Massaia hospital, Asti-

Screening and II level technics for transfusion medicine security.

10/2009-03/2012

Master in Medical Biotechnology - Università di Torino, facoltà di Medicina e Chirurgia, Torino

Immunology lab. CeRMS ,Ospedale San Giovanni Battista, Torino.

Phenotypical and functional characterization of T helper 22 cells in multiple Sclerosis Patients

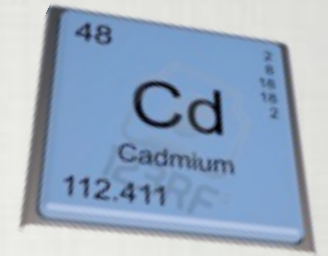
11/2012- PhD student for EUTRAIN project - Université Claude Bernard Lyon

Immunogenomics and Inflammation lab. - Pr. MIOSSEC - Hôpital Edouard Herriot, Lyon



Toxic effect of Cadmium (Cd) on synoviocytes in Rheumatoid Arthritis (RA)

The project has 3 major objectives: in vitro, co-cultures, animal model



Year 1- Cd toxic effect on synoviocytes in a RA in vitro model

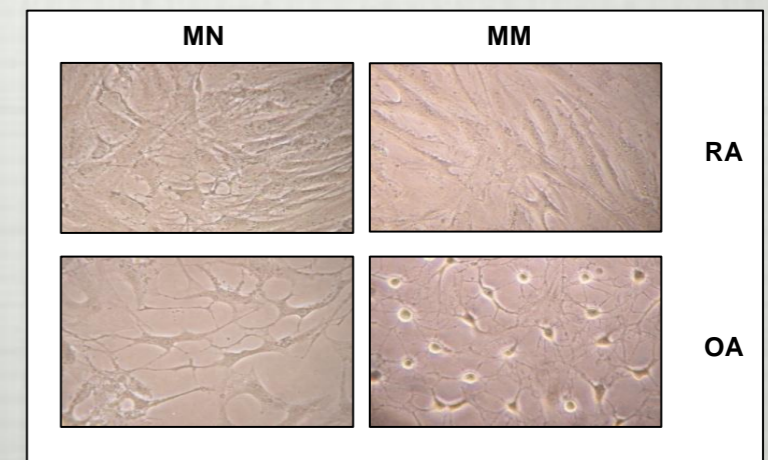
-Effects of **Zinc (Zn)** and **Cd**, a **Zn family member**, on synoviocytes from **different clinical settings (Healthy, Osteoarthritis, Rheumatoid Arthritis)**

-Synoviocytes exposed to pro-inflammatory cytokines (**IL-17** and **TNF**) in the presence of metal cocktails (**Modified Medium, MM**) or absence of metals (**Normal Medium, NM**).

-Focus on the **genes** that control **Zn and Cd trafficking** and **Cd-induced Apoptosis**

FIRST RESULTS:

- **Cd enters synoviocytes more efficiently than Zn** regardless its toxicity and the amount of Zn added (ICP-MS)
- **Cd uses Zn transporters** to enter cells, but increased Cd entry doesn't depend on changes in transporters gene expression (q-RT-PCR)
- **Oxidative stress increases in a Cd-enriched medium** and persists after two weeks (q-RT-PCR) in RA and OA cells
- **RA synoviocytes seem to be more resistant than OA synoviocytes to Cd-induced apoptosis (Annexin V staining)**

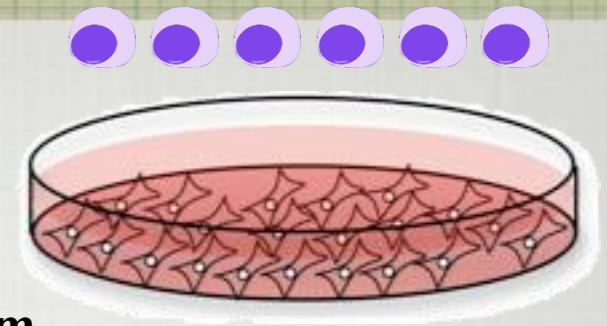


Year 2: Co-cultures

Test effects of Zn and Cd on synoviocytes interacting with immune cells

- Better define how cell interactions modulate metal metabolism.

- Increasing concentrations of Cd: if and how Cd administration could control local inflammation and target synoviocytes



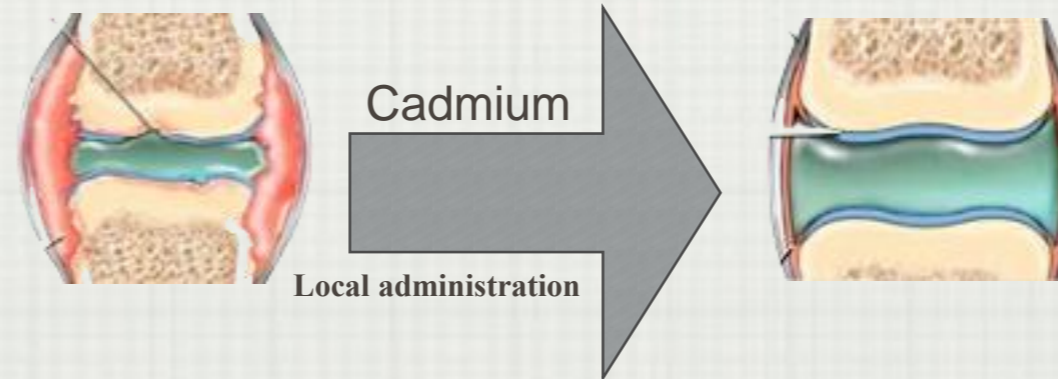
Year 3: In vivo

Test the effects of Zn and Cd *in vivo* on rat and mouse models of RA

Training: Animal Models and Experimentation - Université Claude Bernard, Lyon



Increased sensitivity of RA synoviocytes to Cd toxicity in inflammatory context



Local administration of Cd could induce synoviocytes death in the inflammatory context with a reduction of hyperplastic joints in patients affected by RA

EUTRAIN NETWORK: about meeting different backgrounds

- EUTRAIN could give new useful knowledge on imaging and mouse models

- My work can be useful for other ESR interested in inflammatory process and cytokine network in RA

- Working on metals: a new point of view and new techniques