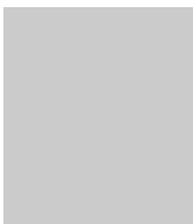


## PERSONAL INFORMATION

Diana Corallo



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## WORK EXPERIENCE

*From april 2015* *Post-doctoral fellowship*

*Professor Gian Paolo Tonini, Istituto di Ricerca Pediatrica, Fondazione Città della Speranza. Corso Stati Uniti 4, 35127 Padova*

*Generation and characterization of new zebrafish models of neuroblastoma. Maintenance, breeding and manipulation of zebrafish lines, microinjection in 1-cell stage embryos and in more developed larvae, in vivo pharmacologic treatments*

*April 2014- march 2015* *Post-doctoral fellowship*

*Professor Paolo Bonaldo. Department of Molecular Medicine, university of Padova, via Ugo Bassi 58/B, 35131, University of Padova*

*Functional analysis of the extracellular matrix Emilin3 in the mouse model. Detailed characterization of the distribution of Emilin3 protein in a specific region of the hair follicle of skin samples.*

*October 2010 – April 2014* *PhD fellowship*

*Professor Paolo Bonaldo. Department of Molecular Medicine, university of Padova, via Ugo Bassi 58/B, 35131, University of Padova*

*Functional analysis of the extracellular matrix glycoprotein Emilin3 during zebrafish embryonic development*

## EDUCATION AND TRAINING

*October 2010 – April 2014* *PhD in genetics and developmental biology*

*Department of Molecular Medicine, University of Padova*

Functional analysis of the extracellular matrix glycoprotein Emilin3 during embryonic development, using zebrafish as a model. How Emilin3 regulates the notochord-derived Hedgehog ligands (Sonic hedgehog, Shh)? *In vitro* and *in vivo* experiments showed that Emilin3 interacts with Scube2, a secreted permissive factor that act non-cell autonomously in the release of lipidated Shh from producing cells. Scube2 is a multi-domain protein, with a signal peptide sequence at the N-terminal end followed by nine EGF repeats, one spacer region, three cysteine-rich motifs and one CUB domain at the C-terminal end. The CUB domain was found to interact with Shh and its presence is required for the activity of Scube2 on Shh release. *In vitro* binding assay analysis with deleted construct of Scube2, indicated that Emilin3 was able to interact with the EGF repeats of Scube2. This finding supported the hypothesis that this region of the protein may be important for targeting Scube2 to the extracellular matrix and fine-tuning its localization and activity in the extracellular milieu. Thus, Emilin3 and Scube2 interaction in the notochord sheath is crucial for the proper notochord patterning activity.

Altogether, these findings indicated that Emilin3 has an essential role in maintaining the correct structure and function of the developing notochord (Corallo et al., 2013).

January 2010 – October 2010

#### Master degree in biotechnology

*Department of Molecular Medicine, University of Padova*

The main focus of my degree thesis was to elucidate the function of the extracellular matrix glycoprotein Emilin3 during embryonic development, using zebrafish as a model organism. The two zebrafish Emilin3 paralog genes, *emilin3a* and *emilin3b*, are dynamically expressed in the tail bud, in the chordoneural hinge, and in the notochord during early zebrafish development. By using a novel specific antibody, I found that Emilin3 is deposited in the notochord sheath, a specialized extracellular matrix structure that surrounds the notochord. I also performed morpholino oligonucleotides injection for the knockdown of both Emilin3 paralogs. These experiments showed a marked distortion of the notochord, as a consequence of structural defects of the notochord sheath. Besides its structural role, the notochord has also an important patterning activity, a process that is mainly mediated by the secretion of Hedgehog (Hh) ligands. Notably, the patterning activity of the notochord is also affected by Emilin3, as revealed by increased Hh signaling in Emilin3 depleted embryos and decreased Hh signaling in embryos overexpressing Emilin3 in notochord cells.

April 2008 - July 2008

#### Bachelor degree in biotechnology

*Department of histology, microbiology and medical biotechnology, university of Padova*

Development of a new recombinant strain of *Mycobacterium bovis* BCG for the development of a vaccine therapy against tuberculosis.

The genome of *Mycobacterium tuberculosis* encodes approximately 170 members of the unique mycobacterial PE and PPE gene families. Previous evidences suggested that members of these families are surface-associated cell wall proteins that may provide a diverse antigenic profile and affect immunity. My degree project was focused on the characterization of the localization pattern of the PPE-17 protein in recombinant strains of *M. bovis* BCG and *M. smegmatis*. Overexpression experiments performed on these cell lines suggested that PPE-17 was not secreted in the cell medium, but Proteinase K assay demonstrated that this protein was associated to the cell surface. This localization was further validated by generating a PPE-17 phused with the Mpt64 antigen, and observing the localization of this epitope to the cell surface. These preliminary data suggested the interesting possibility to drive the expression of a specific antigen to the pathogen surface, through the generation of a recombinant PPE17 construct. This may contribute to the generation of a new vaccine, selective against tuberculosis.

## PERSONAL SKILLS

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Mother tongue(s) Italian

Other language(s)	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	B2	B2	B2	B2	B2

**Communication skills** Ability to handle extreme situations acquired as a volleyball and athletics coach.  
 Ability to communicate, gained through teaching to the undergraduate and graduate students and through the work experience of a restaurant waitress.  
 Good ability to work in team and to offer personal knowledge and skills to get the best results and to solve problems.

**Organisational / managerial skills** Ability to organize team work of small or large groups of people, acquired as a sport coach of volleyball and athletics, and during the past work experience.  
 Organizational capacity, acquired and developed during the education within scientific laboratories.  
 Experience in business management developed as a member of the athletics managing board.

**Job-related skills** Animals: Good expertise in manipulating zebrafish animals, maintenance and breeding of zebrafish lines, microinjection of oligonucleotide morpholinos and mRNA into 1-cell oocytes, microinjection of 1-day old embryos, xenotransplantation of human cell lines, drug treatments. Maintenance and breeding of wild-type and knockout mouse colony. Capacity of manipulating mice: injections of pharmacological compound, surgical dissection of different tissues.

Molecular biology: genomic DNA isolation from zebrafish and mouse tails, RNA isolation, real time PCR and RT-PCR, plasmids construction and isolation from bacteria cultures. DNA sequencing using capillary-based Sanger sequencer.

Biochemistry: SDS-PAGE gels under reducing and non-reducing conditions, western blotting, immunoprecipitation, preparation of whole cell extracts, protein extraction and purification from zebrafish, mouse embryos and adult mice, preparation of whole proteins extract from organs, cell cultures and cell media.

Tissue culture: isolation of primary fibroblasts from skin. Cell culture of primary fibroblasts. Maintenance and transfection of cell lines.

Histology and light microscopy: in situ hybridization on zebrafish embryos, immunohistochemistry, immunofluorescence on cells, zebrafish embryos and mouse tissue. Expertise in using optical and confocal microscopes. Haematoxylin/eosin and other histological stainings on mouse tissues.

**Digital competence**

SELF-ASSESSMENT				
Information processing	Communication	Content creation	Safety	Problem solving
Independent user	Independent user	Independent user	Independent user	Independent user

Good knowledge of PC-Windows and Macintosh platforms.  
 Good knowledge of MS Office (Word, Excel, PowerPoint) and ImageJ/Fiji/GIMP and Adobe Photoshop softwares.  
 Good ability in Internet research.

Driving licence B

ADDITIONAL INFORMATION

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## Publications

- Schiavinato A, Becker AK, Zanetti M, Corallo D, Milanetto M, Bizzotto D, Bressan G, Guljelmovic M, Paulsson M, Wagener R, Braghetta P, and Bonaldo P (2012). EMILIN-3, a peculiar member of the EMILIN/Multimerin protein family, has a distinct expression pattern, forms oligomer assemblies and serves as a pro TGF- $\beta$  antagonist. *J. Biol. Chem.* 287, 11498-11515.
- Corallo D, Schiavinato S, Trapani V, Moro E, Argenton F, Bonaldo P (2013). Emilin3 is required for notochord sheath integrity and interacts with Scube2 to regulate notochord-derived Hedgehog signals. *Development* 140(22):4594-601. doi: 10.1242/dev.094078.
- Corallo D, Trapani V, Bonaldo P (2015). The notochord: structure and functions. doi: 10.1007/s00018-015-1897-z. Epub 2015 Apr 2. Review. PMID: 25833128.
- Schiavinato A, Keene DR, Wohl AP, Corallo D, Colombatti A, Wagener R, Paulsson M, Bonaldo P, Sengle G. (2016). Targeting of EMILIN-1 and EMILIN-2 to fibrillin microfibrils facilitates their incorporation into the extracellular matrix. *J Invest Dermatol.* 2016 Mar 2. pii: S0022-202X(16)30071-9. doi: 10.1016/j.jid.2016.02.021. PMID: 26945878

## Posters

- Alvise Schiavinato, Carlotta Caprara, Martina Milanetto, Diana Corallo, Enrico Moro, Natasha Tiso, Francesco Argenton, Paola Braghetta, Paolo Bonaldo. Unveiling the function of Emilin3. Ph. D. & Post Doc day 2010, Padova.
- Diana Corallo, Alvise Schiavinato, Enrico Moro, Francesco Argenton and Paolo Bonaldo. Essential role of EMILIN-3 during notochord development. 7<sup>th</sup> European Zebrafish Meeting 2011, Edinburgh.
- Diana Corallo, Alvise Schiavinato, Enrico Moro, Francesco Argenton and Paolo Bonaldo. EMILIN-3 is required for proper notochord development. Ph. D. & Post Doc day 2011, Padova.
- Diana Corallo, Alvise Schiavinato, Enrico Moro, Francesco Argenton and Paolo Bonaldo. EMILIN-3 is required for proper notochord development. XXIIIrd FECTS and ISMB joint meeting 2012, Katowice.
- Diana Corallo, Alvise Schiavinato, Valeria Trapani, Enrico Moro, Francesco Argenton and Paolo Bonaldo. EMILIN-3 has an essential role in notochord patterning activity and interacts with Scube2 to regulate hedgehog signals. 8<sup>th</sup> European Zebrafish Meeting 2013, Barcellona.
- Diana Corallo, Alvise Schiavinato, Valeria Trapani, Enrico Moro, Francesco Argenton and Paolo Bonaldo. EMILIN-3 is required for notochord sheath integrity and interacts with Scube2 to regulate notochord-derived hedgehog signals. Ph. D. & Post Doc day 2013, Padova.
- Valeria Trapani, Diana Corallo, Alvise Schiavinato and Paolo Bonaldo. Structure and expression of Collegen VI chains during zebrafish development Ph. D. & Post Doc day 2013.
- Valeria Trapani, Diana Corallo, Alvise Schiavinato and Paolo Bonaldo. Structure and expression of collagen VI chains during zebrafish development. 1st MBE (Matrix Biology Europe) conference (XXIVth FECTS meeting) 2014, Rotterdam.

## Speaker to conferences

- Diana Corallo, Alvise Schiavinato, Enrico Moro, Francesco Argenton and Paolo Bonaldo. EMILIN-3 is required for proper notochord development. XXIIIrd FECTS and ISMB joint meeting 2012, Katowice. Selected speaker.
- Diana Corallo, Alvise Schiavinato, Valeria Trapani, Enrico Moro, Francesco Argenton and Paolo Bonaldo. EMILIN-3 is required for notochord sheath integrity and interacts with Scube2 to regulate notochord-derived hedgehog signals. Ph. D. & Post Doc day 2013, Padova. Selected speaker.

## Honours and awards

Poster and oral presentation award for the work entitled: EMILIN-3 is required for proper notochord development. XXIIIrd FECTS and ISMB joint meeting 2012, Katowice.

## Teaching Assistantship

- Academic year 2012/2013: tutoring for Laboratory of Biotechnology. Course title: Plant and animal biotechnology (Modulo A), to Biotechnology students, university of Padova.
- Assistantship in final examinations under the supervision of Prof. Paolo Bonaldo, university of Padova.
- Academic year 2015/2016: assistant professor. Course title: functional genomics, to biotechnology students, university of Padova.

## Assistant supervisor

- Francesca Mattarello, bachelor degree in Biotechnology. Experimental thesis titled "Role of EMILIN-3 in the regulation of hedgehog signaling in *Danio rerio*". Academic year 2010/2011. Supervisor: professor Paolo Bonaldo.
- Valeria Trapani, master degree in Medical Biotechnology. Experimental thesis titled "The extracellular matrix protein Emilin3 has a key role in notochord development"; Academic year 2011/2012. Supervisor: professor Paolo Bonaldo.
- Andrea Favero, master degree in Medical Biotechnology. Experimental thesis titled "Preliminary characterization of Emilin3, a peculiar extracellular matrix protein"; Academic year 2013/2014. Supervisor: professor Paolo Bonaldo.

