

## **Curriculum vitae • Vânia Palma Roberto**

### **PERSONAL INFORMATION**

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Name	Vânia Cristina Palma Roberto
Birthday	21/11/1979
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### **EDUCATION**

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| 2014 | <b>PhD in Biomedical Sciences</b> from the Department of Biomedical Sciences and Medicine, University of Algarve, Faro, Portugal, under supervision of M. Leonor Cancela (DCBM/CCMAR).<br><i>Specialization:</i> Molecular Biology |
| 2006 | <b>European Master of Science in Aquaculture and Fisheries</b> , University of Algarve, Portugal.  |
| 2002 | <b>Graduation in Animal Biology, Sciences and Technology Faculty, University of Lisbon</b> , Portugal.<br><i>Specialization:</i> Marine Biology  |

### **COURSES**

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| 2012 | <b>COST Action – Training School – Proteomics Course</b> , Porto @ CIIMAR, IPATIMUP and FCUP, Portugal (28 hours)          |
| 2011 | <b>Advance Course in Human Genetics: From Basic Science to Clinics and Genetic Counselling</b> , Faro, Portugal (16 hours) |
| 2010 | <b>The Gulbenkian Training Programme in Bioinformatics</b> (RNA Bioinformatics), Lisbon, Portugal (20 hours)               |
| 2007 | <b>ECTS PhD Training Course @ St Catherine’s College</b> , Oxford, UK (25 hours)   |
| 2005 | <b>Certified Trainer Course</b> (Curso de Formação de Formadores, CAP)   |
| 2003 | <b>Fish Disease Diagnosis Course</b> , Porto @ CIIMAR and ICBAS, FCUP, Portugal (24 hours).                                |

## PREVIOUS ACTIVITIES

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From January 2016 to July 2016	Fellowship (SAFIESTELA) – UALG/CCMAR-SEA8 This is a cooperative project between an aquaculture company and CCMAR aiming to improve skeletal deformities in sole aquaculture through vitamin K supplementation.
From February 2015 to December 2015	Fellowship (KLING 31-03-05-FEP-0073 (PROMAR)) – UALG This project aims to improve semen and offspring quality by understanding the mechanisms of vitamin K in reproduction and skeletal formation.
From June 2012 to December 2013	BI (MARMED - 2011/1-164) - UALG “Development of innovating biomedical products from marine resources valorisation”. We studied the effect of new scaffolds and plant extracts on cell survival, growth and differentiation and <i>in vivo</i> bone formation.
From January 2008 to May 2012	FCT PhD Fellowship (SFRH / BD / 38607 / 2007) - UALG/CCMAR My PhD focused on deciphering miRNAs function, their targets, regulatory pathways and transcriptional regulation, in skeletogenesis.
From May 2006 to December 2007	BTI (INTERREG III A- SP5.P117/03 (PROMAR)) - CCMAR
From May 2005 to April 2006	Master Project - EDGE/CCMAR/UALG
From May 2003 to December 2004	Consultant in Fish Microbiology, Parasitology and Quality Control - TiMar (Culturas em Água, Lda)
From November 2001 to June 2002	Graduation Project – Viveiros Vila Nova S.A. and FCUL, University of Lisbon.

## SCIENTIFIC AREA

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<b>Molecular Biology</b>	Nucleic acid and protein extraction and purification; plasmid preparation; electrophoresis; cloning techniques; RT-PCR and Real Time PCR; Chromatin Immunoprecipitation assays (ChIP); Western blot; Northern blot; microRNA RT-qPCR; comet assay.
<b>Cellular Biology</b>	Routine maintenance of mammalian and fish cell cultures; transcriptional genetic and transfection techniques; mineralization, proliferation and survival assays; enzymatic assays.
<b>Histology/Immunoassays</b>	Sample preparation for paraffin sections, cryosections and plastic; classic staining (Haematoxylin-Eosin, Alizarin Red,

Alcian Blue, Azan, etc); wholemount and sections *in situ* hybridization and immunohistochemistry; bright field and fluorescence microscopy; Enzyme immunoassay.

**Bioinformatics**

Primer design; cDNA and genomic DNA sequence reconstruction using public databases; annotation of cDNAs; prediction of protein residues and protein conservation analysis; prediction of RNA secondary structures; analysis of gene expression regulation (promoter analysis and miRNA target prediction); Bioconductor; DAVID; Ingenuity Pathway Analysis – IPA - (biomarker discovery, microRNA research, transcriptomics, network analysis); Progenesis SameSpots.

**Animal models**

Zebrafish, gilthead seabream, seabass and sole maintenance, reproduction and manipulation; production of phyto and zooplankton; quality control in aquaculture; microinjection of zebrafish eggs; blood and tissue collection.

**Microbiology and Disease**

Identification of bacteria, virus and parasites and appropriated treatment, in aquaculture fish.

**PUBLICATIONS**

Thesis

**PhD Thesis** 2014. *Identification and Molecular Characterization of Bone-related microRNAs: Functional Implications.*

**Master Thesis** 2006. *Gla Protein localization and histological characterization of bone structures in relevant aquaculture fish.*

**Graduation Thesis** 2002. *Comparação da eficiência de dois tipos de filtro biológico numa aquacultura de regime intensivo de dourada (*Sparus aurata*) e robalo (*Dicentrarchus labrax*).*

Published articles in  
International reviewed  
.....Journals

**Roberto, VP**, Conceição, N, Nunes, MJ, Rodrigues, E, Cancela, ML and Tiago, DM (2016). *miR-214, a novel regulator of chondrogenesis?* Bone Abstracts vol. 5 P221a.

Surget, G\*, **Roberto\*, VP**, Le Lann, K, Mira\*, S, Guérard, F, Laizé, V, Poupart, N, Cancela, ML, Stiger-Pouvreau, V. (2016). *Marine green macroalgae: a source of natural compounds with mineralogenic and antioxidant activities. Journal of Applied Phycology (DOI 10.1007/s10811-016-0968-3).*

**Roberto, VP**, Tiago, DM, Gautvik, K, Cancela, ML (2015). *Evidence for conservation of miR-223 in zebrafish (*Danio rerio*): implications for function. Gene 566(1): 54-62.*

**Roberto, VP**, Tiago, DM, Silva, I, Cancela, ML (2014). *miR-29a is an enhancer of mineral deposition in bone-derived systems. Archives of Biochemistry and Biophysics 564:173-183.*

Tiago, DM, Marques CL, **Roberto, VP**, Cancela, ML and Laizé, (2014). *Mir-20a regulates in vitro mineralization and BMP signaling pathway by targeting BMP-2 transcript in fish*. Archives of Biochemistry and Biophysics 543: 23-30.

Cavaco, S, Williamson, MK, Rosa, J, **Roberto, V**, Cordeiro, O, Price, PA, Cancela, ML, Laizé, V and Simes, DC (2013). *Teleost fish osteocalcin 1 and 2 share the ability to bind the calcium mineral phase*. Fish Physiol Biochem 40(3):731-8.

**Roberto V**, Cavaco S, Viegas CSB, Simes DC, Ortiz-Delgado JB, Sarasquete MC, Gavaia PJ and Cancela ML (2009). *Matrix Gla protein in turbot (Scophthalmus maximus): Gene expression analysis and identification of sites of protein accumulation*. Aquaculture 294: 202–211.

#### Articles in preparation

**Roberto, VP**, Martins, G, Pereira, A, Rodrigues, S, Grenha, A, Pinto, W, Cancela, ML, Dias, J, Gavaia, PG. *Insights from dietary supplementation with Zinc and Strontium on the skeleton of zebrafish (Danio rerio) larvae: from morphological analysis to osteogenic markers*. Submitted to Journal of Applied Ichthyology

**Roberto, VP**, Conceição, N, Nunes, MJ, Rodrigues, E, Cancela, ML and Tiago, DM (2016). *miR-214 prevents cartilage formation*. In preparation

**Roberto\*, VP**, Silva\*, JC, Cancela, ML, Gavaia, P. *Pathological formation of chondroid bone with differential accumulation of Osteocalcin in vertebral deformities affecting Sparus aurata L*. In preparation.

#### Oral Communications

**Roberto VP**, Conceição N, Nunes MJ, Rodrigues E, Cancela ML and Tiago DM: "miR-214, a novel regulator of chondrogenesis?" 43rd Annual European Calcified Tissue Society Congress, ECTS2016, 14-17 May 2016, Rome, Italy.

**Roberto, VP** "“Shelf life” de alimentos enriquecidos em vitamina K1”. Workshop Projeto KLING - Estudo piloto para melhoramento do status nutricional em vitamina K: otimização da reprodução e demonstração da melhoria na qualidade larvar de linguado. 18<sup>th</sup> December 2015, Faro, Portugal.

Klervi Le Lann, Gwladys Le Diouron, **Vânia Roberto**, Sara Mira, Valérie Stiger-Pouvreau, Nathalie Poupart, Vincent Laizé, M Leonor Cancela, Fabienne Guérard “*Marine macrophytes: a source of natural compounds with proliferative, mineralogenic antioxidant and antibacterial activities*”. 5<sup>th</sup> European Symposium on Health Molecules & Ingredients congress (MIS), 21-22 May 2014, Quimper, France.

**Roberto VP**, Mira S, Le Diouron G, Laizé V, Parameswaran V, Le Lann K, Stiger-Pouvreau V, Poupart N, Guérard F, Cancela ML

*“Proliferative and mineralogenic activities of seaweeds and marine plants extracts in a fish in vitro cell system”*. Portuguese Congress of Microbiology and Biotechnology MicroBiotec’13, 6-8 December 2013, Aveiro, Portugal.

**Roberto VP**, Tiago DM, Gautvik K, Cancela ML (2011) *“Identification and characterization of microRNAs involved in skeletogenesis”*, Jornada Anual dos Doutorandos, *Department of Biomedical Sciences and Medicine*, November 18<sup>th</sup>, University of Algarve, Faro, Portugal.

**Roberto VP**, Tiago DM, Gautvik K, Cancela ML (2010) *“Identification and characterization of microRNAs involved in bone metabolism”*, Seminários do Mar e Ambiente, December 17<sup>th</sup>, University of Algarve, Portugal.

Tiago DM\*, **Roberto VP**, Laizé V, Cancela ML (2010) *“New insights into regulatory role of microRNAs in bone formation: bone morphogenetic protein 2 transcript is targeted by microRNA-20a”*, XVII Congresso Nacional de Bioquímica, 15-17 December, Porto, Portugal.

**Roberto VP**, Gautvik K, Cancela ML (2007) *“Zebrafish as a transgenic in vivo model to analyse bone-related gene function and regulation of expression”*, ECTS European Calcified Tissue Society Training Course, 4-6 September, Oxford, United Kingdom

Class assistance and Thesis coordination

Seminar for the Classes of Tecnologia de Cultura de Células Animais and Biotecnologia de Células Animais *“Culturas de células derivadas de peixe e suas utilizações”*, 21<sup>st</sup> of April 2016, University of Algarve.

Supervisor of Mariana Cabral Monteiro Matos dos Santos experimental work (2016) *“Chronological analysis of the regenerative performance of zebrafish (Danio rerio) caudal fin bone)”*. University of Algarve, Portugal.

Seminar for the Classes of Biomedical and Pharmaceutical Sciences *“microRNAs, from biogenesis to function”*, 19<sup>th</sup> May 2014, University of Algarve.

Seminar for the Classes of Biology and Marine Biology *“microRNAs, from biogenesis to function”*, 13<sup>th</sup> May 2014, University of Algarve.

Seminar for the Course in Biology of Bone and Cartilage of the Masters in Biomedical Sciences *“Uncovering microRNAs regulating bone and cartilage formation”*, 26<sup>th</sup> March 2012, University of Algarve, Portugal.

Assistant professor of the *“Laboratórios de Engenharia Genética”* classes, integrated in the graduation in Biomedical Sciences. May – June 2012 (12 classes: 36 hours), DCBM, University of Algarve, Portugal.

Coordinator of graduation thesis in biochemistry of Mónica Gomes (2011) “*Estudo da Regulação Transcricional do cluster miR-199/miR-214 pelo Factor de Transcrição TFAP2α, em peixe zebra (Danio rerio)*”. University of Algarve, Portugal.

Seminar for the classes of Sistemas Orgânicos Funcionais of the Graduation in Biomedical Sciences “*Mecanismos moleculares, endócrinos e genéticos de Calcificação Arterial*”, 19th March 2007, University of Algarve, Portugal.

#### Panel Communications

**Roberto, VP**, Conceição, N, Nunes, MJ, Rodrigues, E, Cancela, ML and Tiago, DM. *miR-214, a novel regulator of chondrogenesis?* Bone Abstracts vol. 5 P221a. 43rd Annual European Calcified Tissue Society Congress, ECTS2016, 14-17 May 2016, Rome, Italy.

**Roberto VP**, Mira S, Le Diouon G, Laizé V, Gavaia P, Le Lann K, Stiger-Pouvreau V, Poupart N, Guérard F, Cancela ML. Identification of mineralogenic properties of seaweeds and halophytes extracts using zebrafish as model organism. 4th Interdisciplinary Approaches in Fish Skeletal Biology, 27-30 April 2015, Tavira, Portugal.

Le Diouon G\*, **Roberto VP**, Mira S, Stiger-Pouvreau V, Poupart N, Le Lann, K, Laizé V, Cancela ML, Guérard F. “*Original bioactivities of Codium fragile and Cladophora rupestris: proliferative, mineralogenic and antioxidant activities*”. Journées de la Société Phycologique de France, 17-18 December 2013, Roscoff, France.

**Roberto VP**, Mira S, Le Diouon G, Laizé V, Parameswaran V, Le Lann K, Stiger-Pouvreau V, Poupart N, Guérard F, Cancela ML “*Proliferative and mineralogenic activities of seaweeds and marine plants extracts in a fish in vitro cell system*”. Portuguese Congress of Microbiology and Biotechnology MicroBiotec’13, 6-8 December 2013, Aveiro, Portugal.

**Roberto VP**, Tiago DM, Gautvik K, Cancela, ML “Molecular cloning, gene characterization and expression analysis of zebrafish miR-223”. 3rd Interdisciplinary Approaches in Fish Skeletal Biology, 22-24 April 2013, Tavira, Portugal.

**Roberto VP**, Tiago DM, Cancela ML “*Uncovering the regulatory role of miR-214 in bone formation*”. FEBS, RNA Satellite Meeting, 1-4 September 2012, Tavira, Portugal.

**Roberto VP**, Tiago DM, Cancela ML “MicroRNA-214 function in skeletogenesis”. Portuguese RNA meeting, 26-27 January 2012, Lisbon, Portugal.

**Roberto VP**, Tiago DM, Cancela ML “MicroRNAs as regulators of skeletogenesis and mineralization in fish”, Interdisciplinary Approaches in Fish Skeletal Biology, 26 – 28 April, 2011 Tavira, Portugal.

Tiago DM\*, **Roberto VP**, Laizé V, Cancela ML “Fish models to unveil microRNA-20a role in bone formation”, Interdisciplinary

Approaches in Fish Skeletal Biology, 26 – 28 April, 2011 Tavira, Portugal.

Tiago DM, **Roberto VP**, Laizé V, Cancela ML “New insights into regulatory role of microRNAs in bone formation: bone morphogenetic protein 2 transcript is targeted by microRNA-20a”. XVII Congresso Nacional de Bioquímica, 15-17 December 2010, Porto, Portugal.

**Roberto VP**, Tiago DM, Gautvik K, Cancela ML “Zebrafish as an *in vivo* and *in vitro* model to study microRNAs in bone”, EMBO/EMBL Symposium: “The Non-Coding Genome”, 13-16 October 2010, Heidelberg, Germany.

Tiago DM, **Roberto VP**, Laizé V, Cancela ML “miR-20a regulates BMP-2 gene expression during differentiation of fish bone-derived cells”, EMBO/EMBL Symposium: “The Non-Coding Genome”, 13-16 October 2010, Heidelberg, Germany.

**Roberto VP**, Cavaco S, Simes DC, Gavaia PJ, Cancela ML “Mgp Expression and Accumulation in Heart and Kidney of Turbot (*Scophthalmus maximus*)”, Interdisciplinary Approaches in Fish Skeletal Biology, 27-29 April 2009, Tavira, Portugal.

**Roberto VP**, Tiago DM, Gautvik K, Cancela ML “Zebrafish as an *in vivo* and *in vitro* model to analyse miR-223 target genes”, V National RNA Meeting, 5-6 November 2009, Carcavelos, Portugal.

**Roberto VP**, Gavaia PJ\*, Cancela ML, “Histological characterization of vertebral deformities in *Sparus aurata*: Pathological formation of chondroid bone”, Aquaculture Europe 07, 24-27 October 2007, Istanbul, Turkey.

**Roberto VP**, Gavaia PJ, Cancela ML, “Gla Proteins in skeletal Deformed Fish”, XV National Congress of Biochemistry, 8-10 December 2006, Aveiro, Portugal.

**Roberto VP**, Gavaia PJ, Cancela ML, “Vertebral deformities and local accumulation of Gla proteins in *Sparus aurata*”, Aquaculture Europe (AQUA2006), 9-13 May 2006, Florence, Italy.

#### Research Projects

**KLING** (31-03-05-FEP-0073) – Title: Estudo piloto para melhoramento do status nutricional em vitamina K: optimização da reprodução e demonstração da melhoria na qualidade larvar de linguado. Funding entity: Programa Operacional Pesca 2007-2013 (PROMAR) Apoio a Projetos Piloto e Transformação de Embarcações de Pesca Duration- 11/2014 – 06/2015.

**MARMED** (2011/1-164) Title: Development of innovating biomedical products from marine resources valorisation. Atlantic Area Transnational Cooperation Programme (05/2012-03/2014).

**XENOFISH** (POCI/MAR/60883/2004) Title: Effects of xenobiotics in skeleton development and fin regeneration in fish. (01/2006-12/2008).

**PROMAR** (INTERREG III A- SP5.P117/03) Title: Cooperación Algarve-Andalucía para la Promoción de recursos acuícolas marinos en el litoral suratlántico. (01/2006-12/2007).

**SPARUGENES** (MICYT/AGL2003-03558) Title: Skeletal development, alterations and malformations during larval ontogeny of species with interest for aquaculture. Molecular, cellular and biochemical approaches. Ministerio de Ciencia y Tecnología (MICYT) Spain (12/2003-11/2006).

**FISHDEV** (POCTI/CVT/42098/2001) Title: Mineralization processes in marine and fresh water teleosts: function of Gla proteins (Matrix Gla and osteocalcin) (06/2003-2006).

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***PRIZES AND FELLOWSHIPS***

- 2012** **Financial Aid** for the Training School (Proteomics Course), COST Action FA1002
- 2010** **Financial Aid** for the EMBO/EMBL Symposium, Non Coding Genome
- 2006** **Winner of the ImaGene photo contest** – Category: **Cell**, Marine Genomics Europe.
- 2006** **Financial Aid** for the XV National Congress of Biochemistry for Young Researchers