

Dunia M. Garcia Cruz, Ph.D.

44 Avonwood Road Avon CT 06001 ♣ (860) 371 7578 ♣ dugarcru@gmail.com

SUMMARY

* High potential researcher with strong foundation in the design of bio-interfaces to engineer tissue repair and regeneration.

* Relevant expertise in characterization/differentiation and culturing various primary cells and commercialized cell lines.

* 8 years of postdoctoral research experience in the following:

- Mammalian cell culture. Isolation, purification and maintenance.
- Protein expression and quantification. Qualitative and quantitative evaluation of cell response.
- Three-dimensional organotypic cell culture. Chondrogenesis and osteogenic stem cell differentiation.
- Synthesis, fabrication and characterization of nano-/micro-particles for drug/protein/cell delivery. Skin drug delivery.
- Cell adhesion, extracellular matrix remodeling and stem cells differentiation at material interface. Neural tissue engineering.
- Dynamic cell seeding, Bioreactors, *In vitro* cell culture studies using various adherent and suspension cell lines (MC3T3, L929, shwann cells, astrocytes, neurospheres, DRGs, Ramos Blue cells, HEK cells, neural stem cells, etc.) .
- Animal handling, specifically rodents.
- *In vivo* experiments and biological characterization of tissue-engineered constructs in Stroke model (rats), Spinal cord injury (mice) and osteoarticular pathologies (rabbits and dogs).

VISA STATUS: authorized to work for any employer without sponsorship

RESEARCH EXPERTISE

Research field of interest and knowledge

Cell biology, Biochemistry, Biotechnology, Cell therapies, Regenerative implants and multifunctional platforms. Pharmaceutical research, Bioengineering, Biomaterials, Translational medicine, processing, and characterization of medically relevant polymers, Medical devices manufacture.

Scientific proficiency

Biological techniques and methods: Cell surface marker analysis using flow cytometry and FACS based cell sorting, DNA and protein expression and quantification, RT-qPCR, Primary cell isolation and purification, mammalian cell culture, stem cell proliferation and differentiation, immunohistochemistry, immunofluorescence, Western Blot, ELISA, UV spectrophotometer, protein immunostaining, BCA assay, enzyme assay, cytotoxicity, viability and apoptosis measurements, biochemical assays, *in vivo* experimentation, etc.

Image analysis: SEM, AFM, μ -CT, Confocal and fluorescence microscopy and Time-lapse microscopy.

Capacity to work under GMP conditions and cleanroom environment

Analytical techniques: FTIR, NMR, DSC, DMA, XRD, GPC, HPLC, GC, MS, nano-drop, mastersizer, spray drying, DLS, micromanipulation, SAXS, rheometry, elemental analysis, electrospinning, microfluidic techniques, etc.

Softwares: ChemDraw, MestReC (NMR), Bruker (MS), NIST MS, AMDIS analysis, Chemstation (GC/MS), SpectraManager (UV/CD), Empower (HPLC/DAD/ELSD), ImageJ, Photoshop, CorelDRAW, Illustrator, EndNote, SciFinder Scholar, Microsoft Office, Window, etc.

EDUCATION

2006-2008: Ph.D. in Biomedical Engineering, Technical University of Valencia, Spain (with highest distinction).

2004-2006: Master Degree in Polymer Material Science, Centre for Biomaterial and Tissue Engineering, Technical University of Valencia, Spain.

1996-2001: Bachelor Degree in Chemistry, University of Havana, Cuba.

PROFESSIONAL EXPERIENCE

2013-2015: Postdoctoral position in the Helmholtz-Zentrum Geesthacht, Institute of Biomaterial Science, Berlin, Germany (industry sector).

2012: Postdoctoral position, Center for Biomaterials and Tissue Engineering, Technical University of Valencia, Spain.

2011 (for 3 months): Postdoctoral fellowship, Fraunhofer Institute for Cell Therapy and Immunology, Germany.

2010: Postdoctoral position, Prince Felipe Research Centre, Spain.

2009: Postdoctoral position, Center for Biomaterials and Tissue Engineering, Spain.

2008: Ph.D fellowship, Center for Biomaterials and Tissue Engineering, Technical University of Valencia, Spain

2007 (for 6 months): Short term Pre-doctoral fellowship, 3B's Research Group (Biomaterials, Biodegradables and Biomimetics), University of Minho, Portugal.

2004-2005: Predoctoral scholarship, Center for Biomaterials and Tissue Engineering.

2003-2004: Short term fellowship in the Ocean University of China, Chingdao, China

2002-2003: Associate professor, Chemistry Faculty, University of Havana.

2001-2003: Researcher of Macromolecular Department, Center for Biomaterials.

1999-2001: Associate student of the Macromolecular Department, Center for Biomaterials.

PUBLICATIONS/PATENTS/CONFERENCES & SYMPOSIUMS

Published 26+ peer-reviewed scientific papers, 2 chapters of book, 2 patents in the fields of drug delivery and biomaterials for biomedical applications and 20+ presentations in national and international scientific conferences and symposiums.

LAB MENTORING, LEADERSHIP & MANAGEMENT

* Established and set up a Biomaterials lab in the Prince Felipe Research Centre, Spain (2010-2012).

* Mentorship of 15+ undergraduates, 2 Master's and 2 Ph.D. students.

* 9 courses related with Biomaterials, Cell therapy and Regenerative medicine and 3 lectures as invited professor.

* Managed and coordinated multiple research projects entailing: design and characterization of biomaterial-based formulations for pre-clinical studies.

REVIEWER OF INTERNATIONAL SCIENTIFIC JOURNALS

- Acta Biomaterialia
- Journal of Pharmaceutical Research
- Journal of Biomedical Nanotechnology

COLLABORATIONS WITH INDUSTRY

2005: INNORUBBER: Intelligent and multifunctional rubber compounds/adhesives for the shoe industry. European Consortium.

2010: Founding partner of Metis Biomaterials SL spinoff

2011: Development of autologous corneal prosthesis. VISSUM S.L. Alicante, Spain.

2012: Design, manufacture and characterization of tendon prosthesis. AITEX, Spain

2013-2015: Preparation of immunoengineering microparticles for cell delivery and synthesis of smart nanoparticles for skin drug delivery. Institute of Biomaterial Science, Berlin, Germany.