

NANCY MARGARITA AVILA MARTINEZ

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PROFILE

Research and Development (R&D) engineer with a bachelor's and master's degree in Bioprocesses, Biomaterials, and Regenerative Medicine. More than 4 years in laboratory experience managing projects and resources in research of skin and hair follicles involving standardizing new protocols for cell culture and developing biomaterials. Additionally, 8 years of experience in the field of biotechnology, molecular biology, immunology, biopharmaceutics and animal handling.

WORK EXPERIENCE

Research and Development (R&D) Engineer

Dec 2018 – Sep 2019

Kroto Research Institute

Sheffield, UK

- Synthesis and development of polycaprolactone (PCL) scaffolds fabricated by electrospinning.
- Characterization of the fibre orientation and diameter in the scaffold with different polymer concentrations using Scanning Electron Microscopy (SEM). Additionally, evaluation of the water contact angle (WCA).
- Seeding and incubation of the HaCaT cell line onto the scaffolds.
- Biocompatibility analysis and migration evaluation through fluorescence microscopy.
 - Results: 20% waterproof enhancement in the lowest polymer scaffold.
 - 66% and 93% decrease in fibre diameter on the lowest polymer concentration scaffold.

Project leader

Oct 2017 – Sep 2018

Rino-Q, foundation for burned children

SLP, Mexico

- Design of a tissue bank. Development of a business plan, identification of equipment budget and presentation to potential investors.
- Management and writing of the announcement for the first children drawing contest to promote the donation of organs at the state level. Developed in collaboration with the State Transplant Centre of San Luis Potosi (CETRA).
- Organization and support of events for people with burn's sequelae.

Lecture professor

May – Jun 2017

Autonomous University of San Luis Potosi

SLP, Mexico

- Teaching of the course "Tissue engineering" for the bachelor's degree in Bioprocess Engineering in the Department of Chemistry Sciences.
 - Implementation of the use of a virtual lab by GIBCO to practice the course theory.
 - Class planning and evaluation through assignments and practical exams.
 - Syllabus content: Regenerative medicine, tissue engineering, cellular therapy, stems cells, biomaterials and cell culture.

Research technician

Aug – Dec 2016

National Institute of Rehabilitation - National Centre for Research and Care of Burns

CDMX, Mexico

- Development of the project "Standardization of the isolation of keratinocytes and mesenchymal stem cells from hair follicles". Creation and modification of new protocols to evaluate the extraction, matrixes and, cell culture media.
- Processing skin tissue samples to cultivate fibroblast and keratinocytes (isolation, expansion and cryopreservation).
- Handling athymic mice as a model of burns to test different biomaterials with mesenchymal stem cells.

ADDITIONAL EXPERIENCE

Research assistant

Feb 2015 – Mar 2016

Autonomous University of San Luis Potosi - Recombinant Biopharmaceutics Laboratory

SLP, Mexico

- Assisted in the development of projects involved with the production of drugs using plants such as tobacco and carrots.
- Handled and cared laboratory animals such as mice BALB/c (feeding, oral immunization, cleaning) and rats (blood pressure measuring).

EDUCATION

MSc. Biomaterials and Regenerative Medicine

Sep 2018 – Jan 2020

The University of Sheffield – Department of Materials Science and Engineering

GPA: 3.9

- Relevant modules: Polymers materials chemistry, group projects and developing research, biomaterials, tissue structure and function, bio-imaging and bio-spectroscopy and, modelling (ANSYS) and digital skills.
- Dissertation: “Development of polycaprolactone scaffolds using electrospinning for skin repair”.

BEng. Bioprocesses Engineering

Aug 2012 – Dec 2016

Autonomous University of San Luis Potosí – Department of Chemical Sciences

GPA: 3.8

- Relevant modules: Cellular and molecular biology, immunology, biochemistry, instrumental analysis, microbiology, genetics and bioinformatics, instrumentation and control, standardization and quality and, bioproducts engineering.

SKILLS

Equipment: Wide knowledge of laboratory equipment in biotechnology, analytical chemistry and tissue engineering such as Bioreactor, PCR, electrophoresis, fluorescence microscopy, SEM, HPLC, FTIR, spectrophotometer and, electrospinning.

Technical: Genetic engineering, microbiology, proteomic. Cell culture (extraction, proliferation, cryopreservation, isolation and conservation), types: primary, cell line, fibroblasts, keratinocytes, neurons and, MSC. Materials characterisations: tensile test, Vickers hardness and density. Control and quality analyses, health and safety and, Good Laboratory Practice.

Personal: Project management in research, strategic mindset, analytical resolution, leadership and teamwork with laboratory research teams of 8-12 members, responsibility, assertiveness, commitment, proactive, self-taught and willingness to learn.

Software: Matlab, IHT, PolyMath, MS Office, ANSYS, CES, ImageJ, GraphPad, Uniprot, NCBI, PDB, KEGG and ExPASy.

Languages: Spanish: Native, English: Advance (IELTS Certified), French: Basic and, German: Basic (Current course).

CONFERENCES AND COURSES

- **Bioprinting Workshop for Tissue Engineering and Regenerative Medicine** Oct 2020
Industry innovation, Bioprinting of Organoids and Tissues and, Clinical perspectives Australia
- **BITEG ‘21st Annual White Rose work in progress meeting’** Dec 2019
Poster ‘Analysis and characterization of keratinocytes behaviour onto PCL scaffolds for skin repair’ York, UK
- **Chevening conference ‘Pushing boundaries and shaping the future’** Apr 2019
Scholar presenter of the poster ‘Use of regenerative medicine for lacking organ donation’ Manchester, UK
- **Sheff WHO simulation ‘Non-communicable diseases’** Mar 2019
Pharmaceutical representator (GSK) Sheffield, UK
- **7TH Meeting of the Tissue Engineering Society in Mexico** Sep 2016
Attendance. Hosted by the INR Mexico City, MX
- **1st International course on Regenerative Medicine and Stem Cells** Mar 2016
Attendance. Hosted by the CIATEJ Guadalajara, MX

AWARDS AND HONOURS

- **2nd place at the VII International Congress of the RedBiot A.C – 3D Tissue engineering category** Oct 2020
- **100 Young Leaders on Biotechnology in Latino America – Allbiotech** Sep 2020
- **Chevening scholarship – UK government’s international awards for global leaders** Sep 2018
- **State Youth Award – Science and Technology category** Dec 2017
- **2nd place at national level in the IV Congress for Young Researchers – Biotechnology category** Nov 2017
- **1st place at state level in the V Meeting for Young Researchers – Health Sciences category** Sep 2017

REFERENCES

- Available on request