

## CONTRATOS PREDOCTORALES 2022 SEVERO OCHOA

### PROJECT TITLE / JOB POSITION TITLE:

Bioactive breast patch to treat intensive radiation therapy related injuries

### JOB POSITION RESEARCH LINE:

RL5-BIOACTIVE MATERIALS FOR THERAPY AND DIAGNOSIS

### RESEARCH PROJECT / RESEARCH GROUP DESCRIPTION:

Biobased polymers for tissue engineering, life-saving devices, delivery agents, and cellular platforms are grounding the most innovative areas of biomaterials. Biobased composites are promising alternatives to allografts, autografts, synthetic polymers and metals. Cellulose from microbial sources, known as bacterial cellulose, is a promising natural polymer of high purity, lack of toxins, biocompatible with great processing versatility that has shown excellent results in the context of wound healing and burns.

The PhD project will explore a novel use of bacterial cellulose patches combined with essential oils and hyaluronic acid in the healing process of breast skin injuries after intensive oncological radiation protocols which is a major side effect of radiation breast cancer treatments.

Group's recent publications on bacterial cellulose for healthcare applications:

1. Anton-Sales I., Christopher D'Antin J., Fernández-Engroba J., Charoenrook, V., Laromaine, A., Roig A. & Ralph Michael. Bacterial nanocellulose as a corneal bandage material: A comparison with amniotic membrane. *Biomater. Sci.* 8, 2921 (2020). Collaboration with Barraquer Clinic.
2. Anton-Sales, I., Koivusalo, L., Skottman, H., Laromaine, A. & Roig, A. Limbal stem cells on bacterial nanocellulose carriers for ocular surface regeneration. *Small*, 2021, 17, e2003937. Collaboration with Tampere Univ.
3. Anton-Sales, I., Roig-Sanchez, S., Sánchez-Guisado, M. J., Laromaine, A. & Roig, A. Bacterial nanocellulose and titania hybrids: cytocompatible and cryopreservable cell carriers. *ACS Biomaterials Science & Engineering* 6, 4893 (2020).
4. Anton-Sales, I., Beekmann, U., Laromaine, A., Roig, A. & Kralisch, D. Opportunities of Bacterial Cellulose to Treat Epithelial Tissues. *Curr. Drug Targets* 20, 808 (2019). Collaboration with Jena University.
5. Anton-Sales et al., In vivo soft tissue reinforcement with bacterial nanocellulose, *Biomaterials Science*, 2021, 9, 3040. Collaboration with B.Braun Surgical.

#### JOB POSITION DESCRIPTION:

We are seeking for an enthusiastic PhD candidate graduated in chemistry, nanoscience, materials science, biochemistry or biomedicine and an MSc on similar fields.

Other requirement

- A high level of English.
- Highly motivated toward experimental research in a chemistry lab
- Working aptitudes in a collaborative group and self-initiative to reach out for final uses
- Good communicator

The candidate will join a great interdisciplinary and multicultural team!

Please visit the Nanoparticles and Nanocomposites Group web ([nn.icmab.es](http://nn.icmab.es)) and twitter (@NNgroupICMAB) to know more about us.

The candidate will be a team member of the recently awarded grant from the Spanish Ministry of University of Science and Innovation entitled:  
BIOBASED SOFT FUNCTIONAL NANOCOMPOSITES FOR TISSUE REGENERATION (BIOSOFT-REGE) PID2021-122645OB-I00.

#### GROUP LEADER:

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