

Open position for a 4-year salaried full-time researcher towards a PhD degree in Biomedical Sciences of KU Leuven

BIOMAT Biomaterials Research group, Department of Oral Health Sciences, KU Leuven (University of Leuven), Belgium.

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DEVELOPING A NEW GENERATION OF BIOSAFE COMPOSITES FOR TOOTH RESTORATION – FOCUS ON BIOCOMPATIBILITY, TOXICITY AND BIODEGRADATION

Resin composite is currently the most used material in dentistry, enabling minimally invasive and nearly invisible tooth restoration. Besides nano-dust issues, there are also particular safety concerns regarding the potential release of the endocrine disruptor 'bisphenol A' (BPA). BPA can be present in composites as production contaminant and/or degradation product, originating from BPA-based monomers, such as BisGMA. The latter serves as a polymerization 'cross-linker' and is a main monomer matrix ingredient of many of today's commercial dental composites (and other resin-based dental materials). Its bi-aromatic BPA core imparts mechanical strength, rigidity and hydrophobicity to the composite matrix. Thanks to a recent KU Leuven research & development breakthrough, BPA-free bi-aromatic diols have been synthesized from wood and appear very promising to replace BisGMA in dental composite, with even the potential to further improve physico-mechanical properties of composite.

This multidisciplinary project, combining bioengineering technology with dental material science, aims to develop a new generation of biosafe dental composites based on bio-produced BisGMA monomer alternatives. The project involves the production as well as the biocompatibility, physico-mechanical and chemical property testing of experimental BPA-free composite formulations as compared to current dental composite material standards.

BIOMAT's research expertise in dental biomaterials supported by the scientific expertise from existing research collaborations with bioengineers, chemists, environmental health scientists and material scientists, along with the research equipment available at KU Leuven, altogether form the structure needed to successfully run this project and to provide data that can serve as a good basis for future applied research in the research domains involved. In the past years, we have built a vast expertise in material development, physico-mechanical and chemical biomaterial characterization and mechanistic research on biological interactions of biomaterials.

Requirements

The candidate should be a holder of a university degree (such as 'Master in Biomedical Sciences', 'Dentistry', 'Medicine', 'Biology', 'Bio-science Engineering', 'Pharmacy', etc.) and should have a particular interest in biomaterial and cell biology research (biocompatibility, toxicity and biodegradation). The candidate must be able to work in team, as he/she will work in close collaboration with another PhD student, who will focus on biomaterial physico-mechanical and chemical property testing. The candidate is expected to conduct the project towards a PhD degree (4 years) and needs to enroll in the KU Leuven PhD program of the Biomedical Sciences Doctoral School.

Date of entrance: From October 1, 2019 (or later)

Expected date of project end: 4 years later

Offer

- Attractive 4-year full-time employment contract - continuation after the first 6 months/year is dependent upon a positive evaluation.
- Supervision by recognized experts and access to state-of-the-art research infrastructure.
- Highly innovative research project aiming to improve dental composite technology.
- Training in complementary skills via participation at local and network-based events.
- Salaried position according to the KU Leuven salary rates for PhD students.

Selection method

An application requires a written solicitation, extended CV, and two references with contact information. The selection will be based on the comparison of the submitted applications, possibly including an interview with the pre-selected candidates.

Solicitation, CV and two references to be sent before September 15, 2019 to:

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Online vacancy: <https://www.kuleuven.be/personeel/jobsite/jobs/55277385>

Further information with regard to KU Leuven and 'living in Leuven' can be found on '<http://www.kuleuven.be/english/>', with regard to the PhD program of the Biomedical Doctoral school on '<https://gbiomed.kuleuven.be/english/>', and with regard to the KU Leuven - BIOMAT on '<https://gbiomed.kuleuven.be/english/research/50000644/dentistry/research/research-centers/biomat/>'.