MSCA Success Stories from Organisations in Widening Countries

Host organisation: University of Latvia
Country: Latvia
Organization role: coordinator, WP leader, Task leader
Project Acronym: NanoSurf
Project start and end date: 1.01.2018 - 31.12.2021
Type of MSC action, H2020: RISE
Your story:

Project objectives and research field:
1. To modify Ti-Zr dental implants with TiO2-HA and ZnO-HA nanocomposites;
2. To fabricate 3D structural topographies on the dental implant surface by Laser and electrospinning methods;
3. To investigate toxicity, biocompatibility, bone cells and fibroblast response to modified and non-modified surfaces;
4. To provide in vivo tests on laboratory animals.

Tell us why the topic is important and/or how it brings to advancement in your research field:
The project aims to solve actual problems in dentistry, related to dental implants:
- improved mechanical and electrochemical properties of dental implants;
- advanced dental surface coatings to stimulate high rate of osseointegration;
- improved biocompatibility of the modified dental implant (minimisation of allergic reactions, cytotoxicity, and carcinogenicity, in order to avoid biological failures);
- increased antimicrobial properties to prevent infection and inflammation.

The project is based on effective collaboration between industrial and academic partners in the field of material science, nano- and biotechnology, experimental biology and medicine. It stimulates generation of new ideas, improvement of existing competences, joint publications and joint projects. Staff exchanges provide knowledge transfer and enhancement of research potential of partners.

What are the benefits of participating in an MSC action?
The research and training benefits are the following:
- forming a ‘critical mass’ of researchers for development of new advanced metal alloy and nanotechnology-based implant surface treatment;
- foreseeing industrial training of early-stage and experienced researchers and career development plan;
- co-supervising of early-stage researchers by industrial and academic partners;
- development of the consortium into the network for participation in future EU-projects, related to applications of nanomaterials in medicine and biology;
- effective knowledge transfer and interaction between experienced and early-stage researchers;
- improved individual skills and CV, increased competitiveness for future job applications of participating staff.

**Did you encounter any challenges during application/ implementation and did you get any help?**

The main challenge is to integrate different expertise into one clearly written proposal. The main challenge in implementation is the lack of staff members and funding to fulfil 6 months full-time continuous recruitment\(^1\). As a result, amendment of the project took place. Project rearrangement required additional time for understanding of the next steps for implementation. The project partners are experienced researchers with a number of contacts and networking activities. Therefore, we didn’t ask for any help from NCPs.

**Would you recommend others to apply? What useful advice/ tips can you give them?**

We recommend applying. The main tip is that you will not win a project if you don’t submit it. It is a permanent process of study and improvement of the applicant’s skills.

**What strategies did your organization use to attract the fellow/s? Are they in line with national strategies supporting the widening EC policy?**

IF-MSCA is a competitive programme. For Latvia, it is hard to compete with big countries, like the UK or Germany. We promote our facilities within face-to-face meetings during networking activities. We have target group countries. The main challenge is to prove the attractiveness of Latvia against other countries. For other projects (ITN, RISE, etc.) we easily participate. Moreover, we invite partners and submit projects as coordinators. We expect to get more instruments within the widening policy to increase the competitiveness of Latvian research organisations.

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\(^1\) This requirement has since been changed to one month.