

**Name of the MSC Fellow:** Serhat Tozburun

**Nationality:** Turkish

**Host organization:** İzmir Biomedicine and Genome Center – Dokuz Eylül University

**Country of the Host:** Turkey

**Project Acronym:** CLEAN

**Project start and end date:** 01 April 2019 – 31 March 2021

**Type of MSC action, H2020:** IF



### **Your story:**

#### **Project objectives and research field:**

This research action is an interdisciplinary effort including biomedical optics, mechanical and material engineering, tissue mechanics, modelling, biology, and cancer. The objective of the CLEAN project is to develop a novel endoscopic capsule design and to build a prototype endoscopy system using this capsule, which provides local ablation to the superficial layer of target mucosal tissue with sufficient depth to remove abnormal tissue.

#### **Tell us why your topic is important and/ or how it brings to advancement in your research field:**

Although endoscopic therapy interventions attempt, cost-effectively, to reverse Barrett's esophagus, and relatively reduce mortality from esophageal cancer, the complete absence of precancerous mucosal lesions still remains highly controversial because of the presence of Barrett's glandular mucosa concealed under the regenerated normal squamous after therapy sessions. This therapeutic failure is mainly the result of inadequate depth of therapeutic effect in some areas leading to

a persistence of the glandular. Thus, there is a need for an endoscopy device that removes abnormal mucosal tissue layer in safe, efficient, single-session, and reliable manner over large areas. The project is to configure an endoscopy device that combines three key pillars: a novel endoscopic capsule design; the well-known photothermal ablation technique; and an original approach that enables the therapy over large areas by sliding the capsule across the esophagus surface.

### **What are the benefits of participating in a MSC action?**

The flexible financial support (MSCA) is key in accelerating full integration into the European Research Area, especially for scientists who have returned to a country where research, materials and central facility support can reach an excellent level over the years. For this reason, the impact of the MSCA support far exceeds its monetary value in enabling the transition of young, bright scientists coming from the USA. Besides, in my case, MSCA support will be an effective tool in establishing my connections to the European Research Area, of which I know very few researchers.

Within the scope of this project, it will contribute to the formation of human resources to be involved in R & D studies that produce new technologies in the field of medical diagnosis and treatment at the international level. More interestingly, with our technology, it will be possible to extend the same concept to other endoscopy therapy applications such as colon polyps. This is a feature of the project that will bring diversity to the public health benefit.

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

The MSCA application process is a challenging process that requires great attention to detail. This is a process where you must tell the evaluators that not only is the project proposal perfectly planned but that the applicant is the right person for this highly competitive fellowship. Therefore, professional assistance will always be needed. And NCPs are the right people for this purpose. I thank the Turkish NCP team for their invaluable support.

### **Why did you choose a widening country as a Host? What was the reason that convinced you? What is making you professionally happy here?**

I will be one of the few scientists bringing external expertise and cutting-edge research ideas to Turkey, particularly in the field of optical science and engineering for diagnosis and therapeutic applications. Also, as part of the European Research Area and the widening countries, I consider that Turkey can provide professional career opportunities.

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

I recommend everyone to apply for this internationally recognized fellowship. My advice is to combine your career goals well with your project and host organization and build your application on it.