NACIONĀLAIS ATTĪSTĪBAS PLĀNS 2020

EIROPAS SAVIENĪBA
Eiropas Reģionālās attīstības fonds

IEGULDĪJUMS TAVĀ NĀKOTNĒ

LATVIJAS UNIVERSITĀTE
ANNO 1919

1862
RĪGAS TEHNISKĀ UNIVERSITĀTE

# Results of the ERDF project "Portable Device for Non-contact Early Diagnostics of Skin Cancer"
## (Project No. 1.1.1.1/16/A/197)

I.Kuzmina[1], A.Lihacovs[1], D. Bliznuks[2]

[1]*Biophotonics Lab., Institute of Atomic Physics and Spectroscopy, University of Latvia, Riga, Latvia*
[2]*Faculty of Computer Science and Information Technology, Riga Technical University, Riga, Latvia*
**ilona.kuzmina@lu.lv**

**The project aims** at development and clinical validation of a novel portable device and cloud computing service for early diagnostics of melanoma and other skin cancers (basal and squamous cell carcinomas), post-surgical scar follow-up and timely detection of tumor recurrence.

**Leading partner:** University of Latvia
**Project scientific advisers:**
Aleksejs Lihacovs (March – December, 2017 )
Ilona Kuzmina (January, 2018 – February, 2019)
**Project manager:** Liga Zeltina

**Cooperation partner:** Riga Technical University
**Coordinator:** Dmitrijs Bliznuks

**Project costs:** 648 586. 73 EUR,
ERDF funding : 551 298. 72 EUR

**Implementation time:** 24 months,
March 1, 2017 – February 28, 2019

**Staff:** 12 scientific staff (UL – 7; RTU – 5)
2 technical staff (RTU)
Young scientists - 9
PhD students – 3

## Main activities

### 1. Design and development of the portable device

March, 2017 – November ,2018

*Progress*

- One prototype of the portable device module has been tested and three prototypes are being developed.
- Developed image processing scripts perform automatic borders' demarcation of skin malformations, automatic calculation and mapping of a melanoma diagnostics criterion, calculation and mapping of the autofluorescence parameters in LED's continuous illumination at excitation wavelength 405nm.
- The cloudservice has been developed with the possibility to perform automatic processing of the images: www.checkyourskin.eu

### 2. Clinical validation of the prototype device and preparation of a technology rights

August, 2017 – February, 2019

*Progress*

- RGB and fluorescence images of **340 skin lesions** have been collected at Oncology centre of Latvia (LOC) from October, 2017 to January, 2018. Overall 550 skin lesions are planned to be measured.
- The processing and analysis of the images collected at the clinic is still being performed.

Fig.1. The prototype of device module

## Main expected results

4 prototypes of the portable device for skin cancer non-contact diagnostics (new product),
9 original scientific papers (including 2 in journals with high impact factor),
Intellectual property (know-how) of the developed product and license agreement (to be concluded after the project implementation).

## Results at the project's mid - point

4 prototypes of the portable device modules will be developed,
3 original scientific papers are published in SPIE proceedings,
1 original scientific paper is submitted in *Biomedical Optics Express* (IF – 3.337).