The Framework Programme RESTART 2016-2020 for Research, Technological Development and Innovation is co-funded by the Republic of Cyprus and the European Regional Development Fund.

DIACTMOND NEWSLETTER 2

JANUARY 2021

DIACTMOND
COLLABORATION FOR THE DEVELOPMENT OF A DISEASE ACTIVITY MONITORING DEVICE

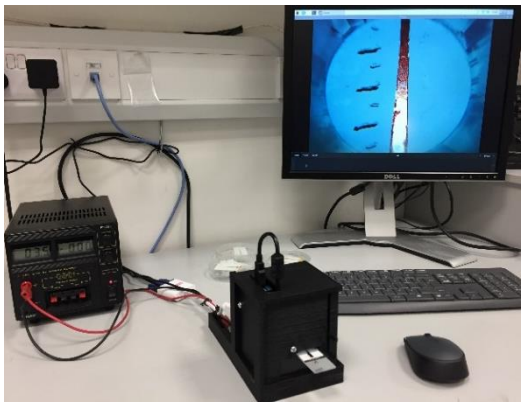
Dear DIACTMOND Colleagues and Friends,

The project have reached the 12th month of its life and intense engineering activity has taken place. Specifically we have news for the microfluidic cartridge (the test-chip), the development of the hardware of the system and the preliminary testing.

- **The device-version of the microfluidic test-chip.**
  The first functional microfluidics cartridge (part of WP4) has been completed and it will be used as the Device test-chip. The test-chip is described in the manuscript prepared for publication by Pasias etal:

  1. Pasias D., Passos A., G. Constantinides, L. Koytsokeras, Balabani S. and Kaliviotis E. (2021). Effects of erythrocyte aggregation, haematocrit and deformability in the flow characteristics of blood, flowing in a TiO2 coated microfluidic channel. In preparation for submission.

- **The first compacted hardware of the system.**
  The first functional hardware of the device (part of WP4), has been tested for various aspects of its performance. It is based on a camera/microprocessor/illumination setup (shown in the Figure bellow).



The hardware was subsequently integrated in various versions of the first pre-industrial prototype (see Figure).

- **Testing of the system**.

In vitro tests (part of the WP5) have been performed on treated and finger-prick blood samples. Results have been obtained from a series of tests. Preliminary results of blood inflammation and coagulation have been obtained.

The methodology and the developed indices are explained in detail in the manuscript under revision:

1. Marinos Louka and Efstathios Kaliviotis. Development of an optical method for whole blood coagulation evaluation in a drop of blood. Sensors. To be submitted January 2021.

Erythrocyte sedimentation tests have also been performed and the results are promising.

That is all for now. We will keep you updated with more news soon.

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