**Project 3.6. Leukaemia cells under controlled shear flow in microfluidic channels**

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**ICP PAS Group**: Microfluidics and Complex Fluids Research Group

**www:** http://ichf.pong.pl/en/

**Background**:

Leukemias are malignancies originating from hematopoietic or lymphoid precursors. They are caused by genetic lesions leading to biochemical, proteomic and metabolomics abnormalities. Current leukaemia diagnostics is based on genetic and phenotypic characterization of these changes. The RApID project aims to develop the first Stimulated Raman Scattering (SRS) microscopic-microfluidic system for non-invasive imaging of live cells and apply it to rapid leukaemia cell imaging, diagnostic cs and sorting. By integrating the multidisciplinary expertise from a broad range of fields, consortium partners will characterize Raman spectra of leukemic cells and link them to clinico-biological features of the disease. Our team at the Group of Microfluidics and Complex Fluids will be responsible for fabricating an innovative microfluidic device for sorting sub-clones of leukaemic cells and testing their chemoresistance in the RApID system.

**Aim:**

The goal of the PhD project is to study the behaviour of healthy and cancerous white blood cells under controlled shear flow in microfluidic channels and understand their physicochemical, morphological and/or biochemical response to changed flow conditions crucial for detection, differentiation and analysis. The PhD candidate will join a multidisciplinary team and in close collaboration with physicists and engineers will also help to optimize the experimental procedures for data acquisition of the SRS spectroscope.

**Requirements:**

- MSc diploma in microbiology, bioengineering, biotechnology, chemistry, or similar
- creativity and enthusiasm measured by the quality and number of projects, study record, internships, authorship in peer-reviewed publications and patents in which the Candidate participated and contributed.
- analytical thinking and critical problem solving skills.
- excellent communications, organization and time management skills
- fluent in spoken and written English
- flexibility and ability to work in a multidisciplinary and multicultural research team
- direct experience with microfluidics is an asset