



**H.F.R.I.**  
Hellenic Foundation for  
Research & Innovation

**Description of the funded research project**  
**2nd Call for H.F.R.I. Research Projects**  
**to Support Post-Doctoral Researchers**

**Title of the research project:** Innovative approach for personalized prediction and health assessment in chronic lymphocytic leukemia

**Principal Investigator:** Theodoros Moysiadis

**Reader-friendly title:** personaCLLized

**Scientific Area:** Life Sciences [ΕΠ3]

**Institution and Country:** Democritus University of Thrace, Greece

**Host Institution:** Department of Medicine

**Collaborating Institution(s):** -

**Project webpage  
(if applicable):** not yet



**Budget:** 179820 €

**Duration:** 7/4/2021-6/4/2024

## Research Project Synopsis

This project aims to contribute towards personalized medicine in chronic lymphocytic leukemia (CLL). CLL is the most common adult leukemia in the West. It is currently incurable, with remarkable clinical heterogeneity ranging from extremely indolent to extremely aggressive, and a plethora of available therapeutic choices. These characteristics render CLL a paradigmatic chronic disease, and a most prolific ground for promoting and advancing personalized medicine, namely the customization of healthcare with medical decisions and practices tailored to the individual characteristics of a patient. In a multidisciplinary effort, *personaCLLized* will employ medical and statistical expertise, to concretely address critical aspects of CLL management, and to take the next step towards personalized prediction for the individual patient. The main focus to promote personalized prediction in CLL will be implemented via a robust and original methodological scheme, including standard and novel statistical tools that will be applied for the first time in this context.

## Project originality

The clinical outcome of chronic lymphocytic leukemia (CLL) patients is currently estimated via standard clinical staging systems, that stratify patients in risk groups for disease progression. These systems are routinely used in disease evaluation, yet they have a limited ability to predict the clinical course at diagnosis for patients with low tumor burden, namely at an early clinical stage of the disease. The fact that most patients (~75-80%) are diagnosed at early clinical stages highlights the need for alternative methodological schemes. Even more, it urges to introduce more sophisticated personalized medicine approaches, and to take the next step towards personalized prediction for the individual patient. The main originality in *personaCLLized* is the introduction of a novel methodological approach that uses a feedback mechanism with the individual patient in an innovative fashion, to predict disease progression at an individual level. This is highly relevant in the context of CLL, and could be used as an example for other chronic diseases as well.

## Expected results & Research Project Impact

The expected results of *personaCLLized* are relevant to elevating personalized prediction for the individual chronic lymphocytic leukemia (CLL) patient, and personalized medicine in general, within different aspects of management in CLL. Freely available computational and statistical tools will be developed to support the proposed methodology.

The potential impact of *personaCLLized* for science, and society at large is multidimensional. From the healthcare professional's perspective, *personaCLLized* will both guide him/her to assess personalized information relevant to the individual patient, and efficiently design the follow-up strategy. It will also assist the patient and his/her family to find answers to questions about the disease and make the best decisions. Scientifically, it will lead to the development of novel statistical tools for managing aspects of CLL, including a paradigmatic predictive algorithm for the individual patient. By freely providing the computational and statistical tools to implement this approach, *personaCLLized* could set an example to promote personalized medicine in both CLL and other disease contexts as well.

## The importance of this funding

The H.F.R.I. funding is the ideal stepping stone to foster my research aims. Working for the last decade in the field of theoretical and applied statistics, particularly in the field of chronic lymphocytic leukemia (CLL), this funding will provide the opportunity to build upon my research expertise and experience, and to address critical aspects in CLL management, promoting personalized medicine. The opportunity to independently coordinate a large-scale research Project, and a multidisciplinary research team, that will bring together experts from different scientific fields, is definitely a major challenge. At the same time it constitutes a unique opportunity to reinforce my research independence, to improve my managerial skills, and to efficiently and consistently pursue my research goals.



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