

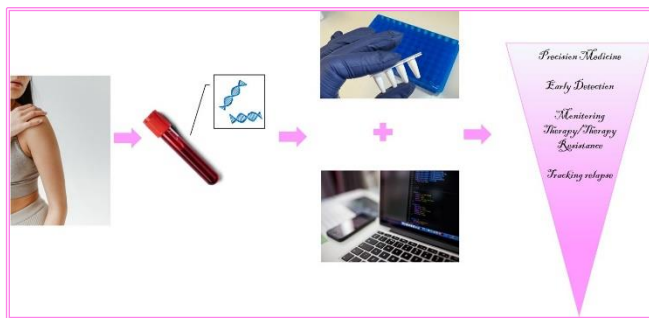


A story for Maria

By Maria-Christina Cheimonidi

“This story is about Maria. Maria is a cosmopolitan woman living in New York, Los Angeles, Dubai. Maria is a mom in Athens, Johannesburg, Seoul, working crazy hours, feeling guilty that she doesn’t spend enough time with her children. Maria is a farmer in a remote village in Greece, Brazil, China that does not have access to proper medical care. Maria is every woman living today that deserves a fighting chance against breast cancer. Unfortunately, not all women get accurately and timely diagnosed. What if they could get a simple and accurate test that could immediately detect breast cancer? They would fight it equally, seek treatment, have time to explore their options and save themselves precious time to cure.

The amazing thing about this test, is how simple it is; a single blood draw is all it takes! It can be performed in any hospital, institute, medical diagnostic center and does not require expensive equipment, or a lot of experience. The blood is collected and separated to its basic ingredients in



order to get the most important element of life-DNA! Specifically, circulating cell-free DNA that all our organs shed in the blood, giving us important information from each and every corner of our body; even from parts that we cannot easily access! This will then be further analyzed for specific cancer molecular traits to unravel precious

information, in order to track the existence of a tumor in the body. These data will be combined with the traits of Maria such as her age, her working environment, her habits etc. For the final part, the new and amazing AI comes to the rescue, by analyzing all these elements together and predicting effectively the chances of breast cancer. It could also help Maria’s doctor to select the right drug for her, to save her time and money. This can be done remotely, online, using an algorithm; So, what is actually necessary to reach a result is a simple lab and an internet connection.

These results can help distinguish if Maria needs further testing, urgent biopsies or treatments. It reduces the need for operations, the need for extensive and expensive medical equipment, unnecessary or unsuitable treatments and the time to take decisions. It can help diagnosing instead of testing and travelling in cases of remote access. And of course, if all goes well and Maria beats cancer, she can use the test again for relapse, therapy effectiveness and monitoring”.



Maria Christina Cheimonidi is a post-doctoral fellow at IMBB in the lab of Ekaterini Chatzaki, in collaboration with George Garinis. Her research is about liquid biopsy i.e looking for disease biomarkers in biomaterial released in the blood from an organ in pathology. More specifically, she studies circulating cell-free DNA epigenetic patterns, pathways and biology that can help with prognosis of disease, diagnosis and treatment effectiveness. Her research also involves the use of AI in exploiting experimental findings to be translated to solutions addressing significant medical gaps and unraveling novel biomarkers and therapeutic targets.

This research is important for clinical applications promoting Precision Medicine, via early diagnosis, prevention, personalized pharmacotherapy and response monitoring, bringing benefit to the patient, the medical practitioner and the health care system.