

Studying the uniqueness of all living things

Our genetic makeup is fundamentally composed of the same bases, for each individual, but it is the combination of these bases that makes us unique, and uniqueness allows personalized medicine to make medicine unique too.

My name is Greta Immobile, and I am the CEO of the Genomics, Genetics and Biology Innovation Center. The Center is a non-profit consortium that offers next-generation sequencing services and bioinformatics analyses. The idea to transfer this platform to the spaces made available by the Toscana Life Sciences Foundation has a precise objective, which is to contribute to the precision medicine or personalized medicine project that is being promoted by the Foundation.

Sequencing services fundamentally mean reading the genetic code of an individual or an organism, because obviously, this is a technology that is applied to plants, as it is applied to bacteria or animals or humans. Reading the genetic code or the part that is transcribed, the RNA, of an individual allows knowledge of what may be the predispositions to certain pathologies and, in this, personalized medicine aims to understand the particular characteristics of a single individual and adapt the therapy to the genetic code, because not all of us respond in the same manner to treatments or to the different drugs that are administered. Sequencing therefore means reading the genetic makeup and then drawing very important information from this for the life of each individual.

The Center is a partner in the “Target malaria” consortium financed by the Bill and Melinda Gates Foundation. It is the only structure in the world that has genetically modified mosquito confined release laboratories. Our research center is working on creating genetically modified organisms, in this case genetically modified mosquitoes that allow the containment of malaria over time.

The Center, also thanks to its entry into the Foundation, has expanded its network of knowledge and its network of collaborations. This then allows a real application of the technologies. We are effectively and truly carrying forward personalized medicine projects with the identification of specific genes and specific differences within these genes, which will therefore contribute to the better identification of the disease and surely to a better treatment of it.

Each of us has a genetic makeup that is completely different from another individual and medicine must take this diversity into account to be able to adapt the use and also the quantity of pharmaceutical compounds to make treatments unique for the uniqueness of the genetic makeup.