## RESEARCH TEAM

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# IMPACT STORIES

## Precision Medicine Network in Complex Diseases

***University of the Basque Country (UPV/EHU)***

By combining an individualized health system based on precision medicine and digital public health research we should achieve more sustainable societies. For that reason, this research team is focused on transferring the achieved advances in diseases molecular data, Artificial Intelligence, and other technologies to the clinic. The objective is to implement more effective treatments adapted to the risk of each patient, which in turn would lead to better survival, better quality of life for the survivors and lower costs for the health system. At the basis of this objective lies the collaborative effort between the University of the Basque Country (UPV/EHU) and the four University Hospitals with the highest volume of patients in the Basque Country (Cruces, Basurto, Donostia and Araba), several national and international organizations conducting clinical trials, and patient associations.

Specifically, the research team has identified biomarkers of diffuse large B-cell lymphoma (an aggressive solid tumor) from patients' blood (liquid biopsy). This means that patients have less invasive diagnostic tools, which is determinant for patients' well-being and allows monitoring of the disease. Additionally, the team has introduced in clinics new survival molecular markers in pediatric acute lymphoblastic leukemia and medulloblastoma. Finally, algorithms were developed to predict molecular subtypes of pediatric acute lymphoblastic leukemia and medulloblastoma, which will support decision-making, achieving less side effects and more precise diagnosis. Steps are being undertaken to converge the information obtained in the digitization of the care flow around decision-making and the execution of the treatment. The project findings will allow the development of artificial intelligence algorithms that will help an interdisciplinary team to decide the optimal care in terms of benefits for the patient.

> ***"By sharing knowledge and bioinformatic expertise, as well as promoting the exchange of students and researchers, we are building a bioinformatic hub using the computational resources of the UPV/EHU to help the local research community, society and our health care system to face the current challenges in digitalization and big data analysis."***

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