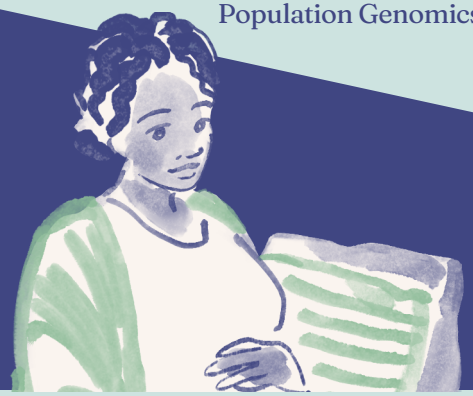
REASEARCH

The Carvajal-Carmona laboratory uses a systems approach by applying several methods to studying human disease, including linkage analysis, candidate gene and genome-wide association studies, admixture mapping, germline and tumor sequencing, and a number of “omics” technologies. The lab also carries out functional genomics and pre-clinical studies of targeted therapies in patient-derived cancer models. Our research studies are highly collaborative and draw expertise from numerous fields including genetics, statistics, epidemiology, bioinformatics, functional genomics, and drug efficacy testing. The lab collaborates with the UC Davis Comprehensive Cancer Center in addition to various groups throughout the United States, Europe, and the Americas.

Research areas

- Gastric Cancer
- Breast Cancer
- Thyroid Cancer
- Drug Efficacy Testing
- Functional Genomics
- Population Genomics



LOCATION

451 Health Sciences Dr., Davis
95616 , Room 4617-A , Davis CA

CONTACT

Luis Carvajal-Carmona
Lab (530) 754-9653
GBSF - UC Davis

http://carvajal.genomecenter.ucdavis.edu/homepage/research/

THE HEALTH EQUITY LEADERSHIP, SCIENCE AND COMMUNITY LAB

Department of Biochemistry and Molecular Medicine and Genome Center

Community and Cancer Research

RESEARCH AREAS

Gastric Cancer genetics and genomics

Focusing on minority patients, on identifying new familial forms of gastric cancer and characterizing the somatic mutations on tumors. Our study on germline gastric cancer genetics, involves an international collaboration carrying out whole exome sequencing of >500 patients with gastric cancer who have been diagnosed with malignancy at early age (<50y) or who report first-degree relatives with cancer.

Breast Cancer

Our studies aimed at identifying novel causes of breast cancer using genetic analyses. Our breast cancer genetic studies involve collaborations with Latin America and with scientists and clinicians from UCSF, UC Davis and City of Hope.

Unraveling the genetics of thyroid cancer

Our thyroid cancer studies involve: i) Identification of susceptibility variants using targeted sequencing, ii) Investigation of associations between genetic ancestry and cancer risk in Latinos, iii) Identification of new high and moderate penetrance loci using exome sequencing in familial cases, and iv) the characterization of somatic mutations in tumors from Latino patients.

Developing effective therapies using minority patient derived cancer models

Funded by our minority patient-derived xenograft (PDX) center , this project concentrates on developing a body of genomic, pre-clinical and mechanistic data that will help address cancer health disparities in minorities.

A functional genomics platform for elucidating mechanisms of cancer risk

Currently, we have a number of on-going studies that are applying this pipeline to address cancer health disparities in gastric cancer, liver cancer, colorectal cancer and multiple myeloma. We are developing new cellular models derived from minority populations in which we can assess risk variant function on ethnicity-specific backgrounds.

COMMUNITY AND CANCER RESEARCH

Cancer and Population genetics in Latinos

We are interested in the characterization of the Latino population by using standardized interviews and estimating the ancestry by using mtDNA, Y-chromosome haplotypes, AIMs, and genome-wide genotyping data. Thanks to the collaboration with research groups in Latin America, we have access to more than 3000 healthy controls from Colombia and Mexico and more than 7000 cancer cases from Colombia, Mexico, Argentina, Chile, and Uruguay