CIC bioGUNE
MEMBER OF BASQUE RESEARCH & TECHNOLOGY ALLIANCE

PRESS RELEASE

A large-scale metabolomics study enables the diagnosis of Metabolic Syndrome by determining a set of metabolites in urine.

The study, conducted by researchers at CIC bioGUNE and published in the journal Cardiovascular Diabetology, analysed the urine metabolome of over 11,000 individuals.

(Bilbao, 17 August 2021). Researchers at CIC bioGUNE, a member of the Basque Research & Technology Alliance (BRTA), have conducted a large-scale metabolomics study which links the onset and progression of Metabolic Syndrome to a small group of metabolites present in urine.

Metabolic Syndrome is a group of conditions that occur simultaneously and increase the risk of heart disease, stroke and type 2 diabetes. These conditions include obesity, high levels of blood glucose, cholesterol or triglycerides, and high blood pressure. Having just one of these conditions does not mean you have Metabolic Syndrome, but it does mean you are at increased risk of developing the disease.

Unfortunately, Metabolic Syndrome is becoming increasingly common and affects a high percentage of the adult population. Despite its importance, there is no consensus definition of Metabolic Syndrome, nor is there a clear diagnostic test based on objective and quantifiable parameters. The study, published in the journal Cardiovascular Diabetology, has developed a mathematical model that enables Metabolic Syndrome to be diagnosed from its earliest to its most advanced stage based solely on measuring the concentration of a set of metabolites in a urine sample. To carry out this study, more than 11,000 urine samples from the general population were analysed using the NMR-based metabolomics technique.

This work, led by Dr. Oscar Millet, principal investigator at CIC bioGUNE, has benefited from the collaboration of OSARTEN, Mondragón Corporation; the Department of Preventive Medicine and Public Health, University of Valencia; the Karsh Division of Gastroenterology and Hepatology, Cedars-Sinai Medical Center, Los Angeles, USA; the Gastroenterology Department, University of Turin, Italy; the Translational & Clinical Research Institute, Faculty of Medical Sciences, Newcastle University, United Kingdom; Bruker Biospin GMBH, Germany; Getxo Kirolak, Getxo, Bizkaia; the Department of Computer Languages and Systems of the University Jaume I; the Biomedical Research Centre Network for Liver and Digestive Diseases

Further information:
MBN Comunicación
Santi Oliván
94.435.63.30

(CIBEREHD); and the Biomedical Research Network for the Pathophysiology of Obesity and Nutrition (CIBEROBN).

“Our results provide a molecular description of Metabolic Syndrome, which contrasts with existing definitions based solely on the detection of compatible symptomatology. Our study also highlights the importance of diabetes and hypertension in an unfavourable prognosis of Metabolic Syndrome,” says Dr Millet.

Publication: https://cardiab.biomedcentral.com/articles/10.1186/s12933-021-01349-9

About CIC bioGUNE

The Centre for Cooperative Research in Biosciences (CIC bioGUNE), located in the Bizkaia Technology Park, is a biomedical research organisation conducting cutting-edge research at the interface between structural, molecular and cell biology, with a particular focus on generating knowledge on the molecular bases of disease, for use in the development of new diagnostic methods and advanced therapies.

About the BRTA

The BRTA is an alliance made up of 4 collaborative research centres (CIC bioGUNE, CIC nanoGUNE, CIC biomaGUNE and CIC energiGUNE) and 12 technology centres (Azterlan, Azti, Ceit, Cidetec, Gaiker, Ideko, Ikerlan, Lortek, Neiker, Tecnalia, Tekniker and Vicometch), with the aim of developing advanced technological solutions for Basque companies.

With the support of the Basque Government, the SPRI Group and the Provincial Councils of the three regional provinces, the alliance seeks to promote collaboration among its centres, to strengthen the conditions to generate and transfer knowledge to companies, contributing to their competitiveness, and to spread Basque scientific and technological capacity.

BRTA has a staff of 3,500 professionals, accounts for 22% of the Basque Country’s R&D investment, generates an annual turnover of over EUR 300 million and files 100 European and international patents per year.

About the CIBEREHD and the CIBEROBN

CIBER (the Biomedical Research Centre Network), co-funded by the European Regional Development Fund (ERDF), is part of the *Instituto de Salud Carlos III*/ Carlos III Health Institute of the Ministry for Science and Innovation. The purpose of the Biomedical Research Centre Network for Liver and Digestive Diseases (CIBEREHD) is to promote and protect health by fostering research. This activity covers both basic research and clinical and translational aspects, and is based on the subject of liver and digestive diseases with the aim of innovating in their prevention and promoting relevant scientific and health advances through the collaboration of leading Spanish groups. The purpose of the Biomedical Research Network for the Pathophysiology of Obesity and

Further information:
MBN Comunicación
Santi Oliván
94.435.63.30

CIC bioGUNE

MEMBER OF BASQUE RESEARCH & TECHNOLOGY ALLIANCE

Nutrition (CIBEROBN) is to promote understanding of the mechanisms that contribute to the development and complications of obesity, with a view to reducing its occurrence and prevalence, and nutrition-related diseases.

Further information:
MBN Comunicación
Santi Oliván
94.435.63.30