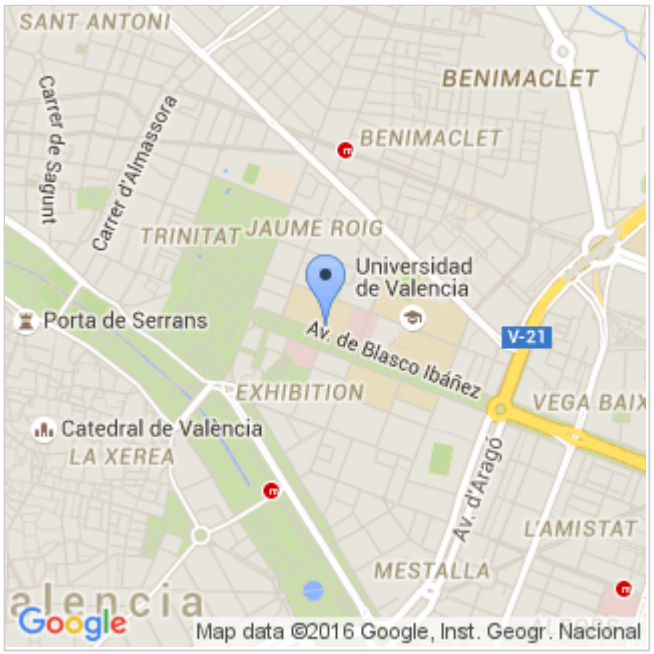
Expression of Interest



Contact Person/Scientist in Charge

- **Name and surname:** Federico Pallardó
- **Email:** Federico.V.Pallardo@uv.es

Centro de Investigación Biomédica en Red (CIBER)

Department / Institute / Centre

- **Name:** Department of Phisiology/Faculty of Medicine and Odontology/University of Valencia/CIBERER
- **Address:** Av. Blasco Ibáñez, 15. 46010 Valencia
- **Province:** Valencia

Research Area

- Life Sciences (LIF)

Brief description of the institution:

The Centro de Investigación Biomédica en Red (CIBER) is a Public Research Consortium created in 2006 under the leadership of the Instituto de Salud Carlos III (ISCIII, the main Public Research Entity responsible of funding, managing and carrying out biomedical research in Spain), to promote research excellence and build a critical mass of researchers in the field of Biomedicine and Health Sciences. Organized in 8 research areas including Bioengineering, Biomaterials and Nanomedicine (CIBERBBN), Mental Health (CIBERSAM), Hepatic Diseases (CIBEREHD), Diabetes and Metabolic Diseases (CIBERDEM), Rare Diseases (CIBERER), Respiratory Diseases (CIBERES), Public Health and Epidemiology (CIBERESP) and, Obesity and Metabolic Diseases (CIBEROBN), CIBER is the largest Research Network in Spain.
CIBER counts with more than 830 dedicated employees and 4,000 associated researchers integrated in 399 leading-edge research groups. Thanks to its network structure, CIBER is capable of bringing together more than 92 different associated institutions including Hospitals, Research Centers, Technology Centers, Private Institutions and Universities selected to join CIBER consortium on the basis of their excellence.

Brief description of the Centre/Research Group (including URL if applicable):

Dr. Pallardo´s group belongs to the CIBER on Rare diseases (CIBERER) a research center from the Spanish National Institute of Health ISCIII, the Department of Physiology at the School of Medicine and Dentistry (Univ. of Valencia, and INCLIVA, Spain). Dr. Pallardo's group has published more than 150 scientific contributions in international journals focusing his research on the physiopathology of oxidative stress, epigenetics and rare diseases. Our research has been funded by 26 national and international grants; both form public and private sources. Five PhD researchers, 3 PhD students, 3 Master's students and 2 technicians currently form the group. Our group has patented a method to detect carbonylated histones and their variants (ES2396387 (B1) PCT/ES2012/070406 1) and a method for the diagnosis and prognosis of idiopathic scoliosis (EP 15382319.0). We also funded a spin-off company (EpiDisease S.L.) awarded by the Spanish Institute of Health and the Regional Government of Valencia. The laboratory is equipped with all necessary technologies required to perform the study proposed. In addition, all members of the research team have access to the technological platforms of the Core facilities in the School of Medicine and Dentistry (Central Research Unit). Furthermore, it is a multidisciplinary research team, which integrates expertise, in medicine, chemistry, biochemistry, biotechnology, microbiology, cell physiology, molecular biology, genetics and epigenetics, covering the main axes of the project

Project description:

The levels of physiological nuclear reducing agents, such as nuclear glutathione (GSH) and proteins with oxidoreductase activity are protective towards oxidative damage related to DNA replication, and besides, they regulate genetic expression by means of processes such as chromatin remodeling, histone posttranslational modifications and expression of non-coding RNA. The aim of the present project is to dissect the nuclear control mechanisms of the redox environment, which mediate between epigenetic regulation and control of cell division, cell cycle and DNA damage. Detailed analysis of these processes and of the interactions between proteins and RNA molecules involved, will let us establish new relationships to develop new therapeutic targets, helping to define the etiology of complex pathologies in which redox state and proliferation impairment are severely affected.

To fulfill this goal, we will use molecular approaches together with RNA-sequencing strategies, applied to diverse cellular models, including HeLa cells silenced for different components of the telomerase complex, and fibroblasts from patients of progeroid syndromes where alterations in chromatin structure have been observed (Werner syndrome and Dyskeratosis Congenita). These models will permit the integration of the results gathered using the different methodologies, setting the bases for the development of progression and severity biomarkers for these rare diseases with high phenotypic heterogeneity.

Applications

- Brief introductory cover letter

- Curriculum Vitae

- Names and contact details of three academic referees

Description of past research activities, technical skills and main accomplishments (up to 2 pages)