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## Frontiers in Comparative Endocrinology: challenges and opportunities of the “Program of Relevant National Interest”, PRIN 2010-2011, prot.2010 ARBLT7, UniNA operative unit

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Comparative endocrinologists have important roles to play in many areas of the life sciences, such as the development of alternative animal model systems for discovery of novel hormones and hormone-signaling pathways; the discovery of new pharmaceuticals to treat human disease; the development of sensitive, representative and high-throughput endocrine-screening assays for EDCs; the analysis of the impact of global climatic change on animal populations; the elucidation of pathways and mechanisms of evolution through the study of endocrine genes and structures; and the development of more efficient means for the production of animal protein to feed the world's growing human population. Recently, the Italian Ministry of Education, University and Research has funded the project “Systems Biology”, aimed to provide a detailed picture of marine ecosystems subjected to high anthropogenic impact. The Project is articulated into two main phases: The study of the effects of toxic contaminants on “sea sentinels” and their strategic conservation; and the development and implementation of preservation and bioremediation strategies for the decontamination of marine water and sediments. Each phase is realized through a synergic collaboration among eight operative units. The unit from Federico II University of Naples (UniNA) assesses the environmental health status through the ecotoxicological impact on tissues involved in the reproductive events. UniNA defines the levels of reactive oxygen species and the antioxidants under steroid control; estimates xenobiotic effects on histones, sperm nuclear basic proteins, DNA damage and repair as well as qualitative and quantitative responses to stress of genes and proteins involved in the endocrine control of spermatogenesis. A full understanding of the capabilities of organisms to respond to environmental variation is necessary for understanding the impact of pollution on the viability of populations.

### Biography

Giulia Guerriero is Associate Professor of Comparative Anatomy and Cytology, professor for the PhD School in Environmental Systems Analysis and the Advisory Board of the Center for Environmental Research (I.R.C.Env.) of the University of Naples Federico II. Her education is due to the PhD program in Evolutionary Biology and Comparative that followed the degree in Biological Sciences at the University Federico II and her research conducted in the United States of America (Thomas Jefferson University and Penn's Philadelphia, Andrology Center of the Michael Reese Hospital in Chicago, Oregon Health Sciences University in Portland, Oregon). She's a member of the Working Group of the Italian Society of Biological Biomarkers Marine Biology; of the Center of Research Bioactive Peptides (CIRPeB) of the University of Naples Federico II; the Young Investigator Awards Judging Annual Meeting of the Society for Free Radical Biology and Medicine, USA and Head of the Laboratory of Comparative Endocrinology (EClab) at the Department of Biology of the University of Naples Federico II. She is Associate Editor and member of the Editorial Board of international journals and member of several scientific societies. She collaborates with Italian and foreign researchers.. She is currently in charge of a scientific research project of national interest (PRIN) on the assessment of the health status of 'marine-coastal environment', and an European applied research project (LIFE) for the development of protocols for the remediation of contaminated soils present in the Domitian-agro Aversa coast.

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