

NANOSCIENCE AND NANOTECHNOLOGY PROGRAM

Juan Pedro Luna-Arias, PhD



Research Interests

- Molecular mechanisms involved in gene expression in the protozoan parasite *Entamoeba histolytica*, the pathogen fungus *Candida albicans*, and Breast Cancer cell lines.
- Molecular mechanisms that govern the process of ageing.
- Identification of molecular biomarkers for diagnosis and prognosis of Breast Cancer.
- Biology of Cancer.
- Mechanisms involved in the biosynthesis of the fungal cell wall
- Development of nanoparticles to be used as drug delivery systems.

Dr. Juan Pedro Luna-Arias is Full Professor in the Department of Cell Biology. He earned a Bachelor's degree in Pharmacological and Biological Chemistry in the University of Guanajuato, Mexico in 1983, a MSc degree in Experimental Biology at the University of Guanajuato and a PhD degree in Sciences (Biochemistry and Molecular Biology) at the University of Extremadura in Badajoz, Spain in 1993. He joined the Multidisciplinary Program in Molecular Biomedicine in 1994, and he moved to the Department of Cell Biology in 2003. Dr. Luna-Arias also joined the PhD program in Nanoscience and Nanotechnology from its starting. He has published 52 research articles, co-edited one book in two volumes, and 11 book chapters. He has graduated 38 students, 11 PhD, 15 MSc, and 12 BSc. Currently, he is adviser of 8 PhD, 2 MSc and 6 BSc students. He has participated in more than 250 lectures in postgraduate programs in several national institutions, including the Center for Research and Advanced Studies of the National Polytechnic Institute (Cinvestav-IPN), the National School of Biological Sciences (IPN), National School of Medicine and Homeopathy (IPN), Autonomous University of Mexico City (UACM), Iztacala Faculty of Superior Studies of the National Autonomous University of Mexico (UNAM), University of Guanajuato, Juarez Autonomous University of Tabasco, among others. He has been reviewer of research articles for a number of international journals, including Journal of Alzheimer's Disease, Journal of Proteomics, Journal of Proteome Research, and Acta Neuropathologica. He has been associated editor of the Journal of Alzheimer's Disease. He is member of the Human Proteome Organization (HUPO) and the American Society for Biochemistry and Molecular Biology (ASBMB).

Currently, he is a member of the National Research System of Mexico (Level II) and Dean of Students in the Department of Cell Biology.

Current research:

1. Identification of molecules of the transcription initiation complex in *Entamoeba histolytica*. TAFs.
2. Identification of molecular biomarkers for prognosis and diagnosis of breast cancer by quantitative proteomics.
3. Development of diagnostic methods using nanotechnology. Currently, we are using hydroxyapatite, colloidal gold and indium phosphide nanoparticles.
4. Production of recombinant proteins of biological interest in prokaryote and eukaryote expression systems.
5. Characterization of the proteome of breast cancer cell lines from different stages and with different molecular classification: Proteome and bioenergetics of mitochondria.
6. Isolation of null mutants of exoglucanases and endoglucanases in *Candida albicans*.