

Alexander von Humboldt-Stiftung (AvH)
Instituto de Investigaciones Biológicas Clemente Estable (IIBCE)
Agencia Nacional de Investigación e Innovación (ANII)
Programa de Desarrollo de las Ciencias Básicas (PEDECIBA-Biología)



Regional Postgraduate Course

“NUCLEAR ARCHITECTURE, CHROMOSOME TERRITORIES, CHROMATIN DYNAMICS AND GENETIC DAMAGE”

April 4 - 13, 2011, Montevideo - Uruguay

Organizers: Department of Genetics (IIBCE-Uruguay) and Chair of Anthropology and Human Genetics, Ludwig-Maximilians-Universität (LMU-Munich)

Location: Pasteur Institute in Montevideo (IPMONT)

Speakers: Ricardo Benavente (Biozentrum, Würzburg), Marion Cremer (LMU), Thomas Cremer (LMU), Gustavo Folle (IIBCE) and Jens Nagel (LMU)

Invited Speakers: Máximo Drets and Juan Benech (IIBCE)

Lab demos collaborators: Gabriela Cassina, María Vittoria Di Tomaso, Laura Lafon, Pablo Liddle, Beatriz López-Carro and Federico Santiñaque (IIBCE)

Conference subjects

- Functional integration of genetics, epigenetics and nuclear architecture
- Linking the linear DNA sequence organization of metaphase chromosomes with their 3D arrangement in interphase nuclei
- Strategies for the generation and efficient labelling of DNA probes
- Identification of different cell cycle stages by appropriate markers
- Chromosome conformation capture techniques: a biochemical approach to study nuclear architecture
- Chromatin dynamics during the cell cycle and terminal differentiation
- Chromosome territories and the interchromatin compartment: a functional marriage. New insights by high resolution microscopy
- Nuclear architecture, chromatin organization and genetic damage
- Nuclear envelope (NE) and eukaryotic cell compartmentalization
- Molecular architecture and functions of the NE
- Lamins and their function in chromatin organization
- NE and human pathology
- Isolated nuclei as a model to study nuclear signaling
- Structure and function of the subtelomeric/telomeric regions: Implications in human congenital syndromes

Lab demonstrations

- DNA probe generation by (DOP-) PCR or isothermal, multiple displacement amplification (MDA) reaction
- 3D immuno-FISH and evaluation of FISH slides by confocal microscopy
- Scratch labeling of S-phase cells with fluorochrome-labeled dUTPs; monitoring of scratch labeled cells after several cell divisions
- Identification of different cell cycle stages by scratch labeling in combination with immunodetection of cell cycle associated markers
- Quantitation of DNA double strand break induction by immunodetection of nuclear gamma-H2AX foci
- Immunostaining of NE components in cell cultures to ascertain their mitotic redistribution and contribution to nuclear reassembly
- Viewing isolated nuclei with the Atomic Force Microscope

Applications: Should be sent to gustavofolle@gmail.com before **March 16, 2011** including (PDF format): a) short CV (2 pages); b) letter of interest; c) Tutor supporting letter. The organizers will select **16** postgraduate students (local and regional) to participate in laboratory demonstrations. Attendance to conferences is limited to 80 participants. The Course has no fee. Regional postgraduate students are welcomed although travel and per diem expenses must be afforded by their home institutes.