

1- Tema do Projecto:**Do environmental stresses affect plant chromatin dynamics?****2. Identificação do orientador:**

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All genomes are subjected to stresses. The effect of stress on whole genomes is not well known. The large-scale genome organization, including genes, repetitive DNA sequences and the chromatin structure, is dynamic and determinant in genome-restructuring events in response to abiotic stresses. Environmental stresses limit plant growth and seed production. In Portugal, the rice productivity is strongly affected by abiotic stresses e.g. mild salinity and low temperature. The challenge we propose to face is to investigate the functional organization of rice chromatin as part of genomic responses to abiotic stresses. The studies will be focused on a cytogenomic analysis including Fluorescence *In Situ* Hybridization (FISH) on tissue sections followed by confocal analysis and image processing. The global assessment of chromatin changes will be studied by using epigenetic marks of chromatin state such as antibodies to access open states (euchromatin) and packed states of chromatin (heterochromatin). A second approach will include the cytogenomic analysis of rice transgenic plants with improved tolerance to abiotic stresses including studies on 3D transgene organization and disposition preferentially using transgenic lines with a high transgene copy number. This work will contribute to clarify if there is interaction between endogenous genes and transgenes (homologous). If yes, do these interactions imply co-localization and physical gene clustering?

Duração aproximada e carga horária: de 6 meses a 1 ano até um máximo de 60 ECTs.**Local de realização:** Laboratório de Engenharia Genética de Plantas, Instituto de Tecnologia Química e Biológica, Oeiras. Tel: 214469648**Nº de alunos por projecto:** 1