

Master thesis - 2010 / 2011

“ Chromosome cohesion and DNA double strand break damage repair “

Contact details

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Goals:

To further characterise Arabidopsis cohesins.

Cohesins are required for chromosome cohesion and DNA double strand break damage repair.

MSc thesis:

- Chromosome cohesion and DNA damage repair -

Cohesins are critical for the maintenance of genome integrity due to their role in chromosome segregation during cell division. Cohesins are also involved in DNA double strand break (dsb) damage repair. Chromosome mis-segregation and DNA dsb damage faulty repair, can lead to chromosome rearrangements, chromosome fragmentation, as well as other genome aberrations which can trigger cancer, cell death, etc.

In Arabidopsis there are four cohesin genes, one of which has been shown to be responsive and required to DNA double strand break damage repair (da Costa Nunes *et al.*, 2006).

During this project, the expression of some cohesion genes in wild type and mutant background plants will be monitored. Their response to different DNA damaging agents will be characterised. Yeast may also be used to further characterise Arabidopsis cohesins protein functions.

The student will get training on plant handling, genetic analysis and molecular biology techniques. The facilities and equipment required to carry out the experiments are available in ITQB.

References: da Costa Nunes *et al.*, 2006

(<http://jxb.oxfordjournals.org/cgi/reprint/erj083v1>)

The **student** should be familiar with molecular biology techniques and genetics, and preferably have good knowledge of the English language.

Thesis will be carried out in: Instituto de Tecnologia Química e Biológica (ITQB),
Universidade Nova de Lisboa