

a) Project Title: A Proteomic analysis of the underlying signal pathways operating during the wound response in *Medicago*.

b) Location of Project:

The project will take place in the Plant Cell Wall lab. at ITQB, under the supervision of Dr. Phil A. Jackson (Phil@itqb.unl.pt)

Further details concerning the Plant Cell Wall Lab. @ Itqb can be found at:

www.itqb.unl.pt/research/plant-sciences/plant-cell-wall

c) Project Plan

The response to plant wounding requires a tight co-ordination by inter-playing signal pathways leading to the differential regulation of thousands of genes. A major site for the expression of these genes is the cell wall, which must undergo rapid alterations in composition and structure to limit pathogen ingress and to regain control of gaseous exchange and solute dynamics.

The Plant Cell Wall lab. @ ITQB has been developing plant proteomic studies of the apoplast for several years. We are now beginning to characterise the regulatory signal pathways involved in the coordination of changes in the proteome of *Medicago*, using a wide range of techniques, including 2DE, MALDI-TOF/TOF, immunolocalisation and histochemical approaches and several molecular biological techniques.

The successful candidate will undertake comparative proteomic analyses of the *Arabidopsis* leaf apoplast using wild-type plants and known pharmacological inhibitors of signal pathways. Further comparisons will be made with *Arabidopsis* mutants which are deficient in known signal transduction pathways. Emphasis will be placed on identifying and characterising differentially activated kinase and 2C phosphatase components of the signal pathways involved.