Proceedings of the XLIX Italian Society of Agricultural Genetics Annual Congress
Potenza, Italy – 12/15 September, 2005
ISBN **88-900622-6-6**

Oral Communication Abstract – 1.05

FUNCTIONAL INVOLVEMENT OF THE TRANSCRIPTION FACTOR ANAC102 IN PATHOGENESIS-RELATED PROTEIN EXPRESSION

E. ROSSIGNOLI, G. MALACARNE, E. MICA, E. ZAGO, M. POLESANI, A. POLVERARI

Scientific-Technologic Department - University of Verona, Ca' Vignal 1, Strada Le Grazie 15, 37134 Verona, Italy – annalisa.polverari@univr.it

plant resistance, PR-proteins, NAC transcription factors, T-DNA insertion

A functional genomic approach was undertaken to investigate the role of ANAC102 in resistance to pathogens in *Arabidopsis thaliana*. The gene product belongs to the NAC protein family, which contains a number of transcription factors unique to plants, associated with development and stress response. No experimental research has been carried on until now on ANAC102.

Previous work at our laboratory indicates that ANAC102 expression is induced by nitric oxide (NO) treatment and in the hypersensitive reaction (HR) of *A. thaliana* to avirulent *Pseudomonas syringae* pv. *tomato* and to *Alternaria brassicicola.*

Arabidopsis Col-0 insertional mutants carrying a single, homozygous T-DNA insertion in the coding region of ANAC102 have been obtained. The T-DNA insertion mutants produce undetectable levels of ANAC102 transcript as assessed by Real-Time RT-PCR, even in strongly inducing conditions (treatment with NO donors). These plants were studied in order to understand whether, and to what extent, resistance could be compromised by the loss-of-function of ANAC102.

Experiments performed included observation of macroscopic and microscopic cell death, measurements of bacterial growth in plants, and Northern analysis of the expression of Pathogenesis Related Protein-1 (PR-1) and defensin PFD1.2, both in wild type and mutant plants.

Results suggest that resistance against *P.s.* pv. *tomato* and *A. brassicicola* in the mutants is not compromised, but also indicate that ANAC102 is an important positive regulator of PR-1 gene expression.

Plants overexpressing ANAC102 have also been produced and will also be analysed in relation to resistance and hypersensitive cell death.