Proceedings of the Joint Meeting AGI-SIBV-SIGA
Assisi, Italy – 19/22 September, 2011
ISBN **978-88-904570-2-9**

Poster Communication Abstract – 4.14

DIFFERENTIAL GENE EXPRESSION OF POLYAMINE OXIDASES IN *ARABIDOPSIS THALIANA*

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Polyamine oxidase, GUS, guard cells, pollen, roots

Polyamine oxidases (PAOs) are FAD-dependent enzymes involved in polyamine catabolism. In *Arabidopsis thaliana*, five PAOs (AtPAO1-5) are present with cytosolic or peroxisomal localization. Here, we present a detailed study on the expression pattern of *AtPAO1*, *AtPAO2, AtPAO3* and *AtPAO5* during seedling growth and flower development through analysis of promoter activity in *AtPAO*::*GUS* transgenic *Arabidopsis* plants. Characterization of these plants showed distinct expression patterns for each one of the *AtPAOs* studied, such as in the transition region between the meristematic and the elongation zone of roots and anther tapetum for *AtPAO1*, in the quiescent center, columella initials and pollen for *AtPAO2*, in columella, guard cells and pollen for *AtPAO3* and in the vascular system of roots and hypocotyls for *AtPAO5*. Furthermore, treatment with the plant hormone abscisic acid increased *AtPAO1*-related GUS staining in the root tip and *AtPAO2*-related GUS staining in the guard cells. These data suggest distinct physiological roles for the various *AtPAOs*. Studies are in progress to determine *AtPAO* involvement in gravity response and stomata closure.