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Name & Surname of the presenting author: Mario Fenech Torres

E-mail: mfenech@uma.es

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GENETIC DETERMINANTS OF VITAMIN C CONTENT IN HIGHER PLANTS.

Mario¹ Fenech-Torres¹, Vitor¹ Amorim-Silva¹, Nicholas² Smirnov², Victoriano¹
Valpuesta¹, Miguel Ángel¹ Botella¹

¹Laboratorio de Bioquímica y Biotecnología Vegetal, Instituto de Hortofruticultura Subtropical y Mediterránea (IHSM), Universidad de Málaga-Consejo Superior de Investigaciones Científicas. Departamento de Biología Molecular y Bioquímica, Facultad de Ciencias, UMA, Málaga, Spain, ²Biosciences, College of Life and Environmental Sciences, University of Exeter, United Kingdom.

Corresponding author: Miguel Ángel Botella (mabotella@uma.es)

Ascorbic acid (AsA, VitC) is the most abundant water-soluble antioxidant in plants and it plays a plethora of biological roles including resistance to abiotic stress. Hence, including VitC as a trait to improve in breeding programs is not only a way to enhance food quality but also to increase resistance to expected environmental alterations due to global change like drought, salinity or heat. Although all components of the Smirnov-Wheeler pathway of AsA in plants are known, little information is available about how their regulation at the biochemical and cellular levels is. We have generated a number of molecular tools such as tagged constructs, stable transgenics and mutant lines with the aim of getting detailed information about how this pathway operate in plants. We will present data on protein localization, interaction among different components and their role in affecting VitC levels using a heterologous system such as *Nicotiana bethamiana*.

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