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Crosstalk between reactive oxygen species and nitric oxide in plants: key role of S-nitrosoglutathione reductase

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Abstract

Nitric oxide (NO) acts as signaling molecule in plants being involved in diverse physiological processes such as germination, root growth, stomata closing and response to biotic and abiotic stress. S-Nitrosoglutathione (GSNO) is the storage and transport form of NO and has a very important function in NO signaling since it can transfer its NO moiety to other proteins (trans-nitrosylation). The level of GSNO and thus the level of S-nitrosylated proteins are regulated by GSNO-reductase (GSNOR). In this way, this enzyme regulates the S-nitrosothiol levels and plays a balancing role in fine-tuning NO signaling. Interestingly, oxidative post-translationally modification of GSNOR inhibited the activity of this enzyme suggesting a direct crosstalk between ROS- and RNS-signaling. In this review article the

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