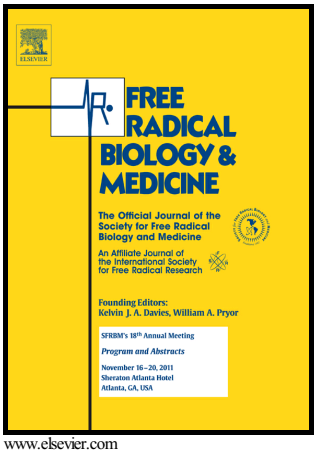
Crosstalk between reactive oxygen species and nitric oxide in plants: key role of *S*-nitrosoglutathione reductase

Christian Lindermayr



www.elsevier.com

PII: S0891-5849(17)31231-5
DOI: https://doi.org/10.1016/j.freeradbiomed.2017.11.027
Reference: FRB13534

To appear in: *Free Radical Biology and Medicine*

Received date: 11 October 2017
Revised date: 22 November 2017
Accepted date: 29 November 2017

Cite this article as: Christian Lindermayr, Crosstalk between reactive oxygen species and nitric oxide in plants: key role of *S*-nitrosoglutathione reductase, *Free Radical Biology and Medicine,* https://doi.org/10.1016/j.freeradbiomed.2017.11.027

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

Christian Lindermayr*

Institute of Biochemical Plant Pathology; Helmholtz Zentrum München – German Research Center for Environmental Health, 85764 München/Neuherberg, Germany

*Corresponding author: Dr. Christian Lindermayr, Institute of Biochemical Plant Pathology, Helmholtz Zentrum München, Ingolstädter Landstrasse 1, 85764 München/Neuherberg.

Email: lindermayr@helmholtz-muenchen.de

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