



DFG Graduiertenkolleg/ Research Training Group 1947

Biochemical, Biophysical, and Biomedical Effects of Reactive  
Oxygen and Nitrogen Species on Biological Membranes

Montag, den 29.05.2017, 16:00 Uhr c.t.  
Hörsaal I, Institut für Biochemie

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**“Nox4: emerging role of a NADPH oxidase”**

Reactive oxygen species are important signal transduction molecules and second messengers. The controlled and localized production of those is performed by the family of NADPH oxidases.

In fact the sole function of NADPH oxidases is to produce ROS. In order to ensure specificity of the ROS signal the 7 members of the family have a cell and subcellular specific expression. Out of the 7 members of the NADPH oxidase family Nox4 is the only one that is constitutively active and directly produces small amounts of H<sub>2</sub>O<sub>2</sub>. As H<sub>2</sub>O<sub>2</sub> is capable to directly interact with target molecules, Nox4 is involved in long lasting maintenance of the cellular redox homeostasis state.

In line with this we found, that Nox4 mediates differentiation, contributes to cellular homeostasis, and prevents inflammation. In case of an absence of Nox4 all those functions are not fulfilled properly which may result in dramatic consequences, such as the development of atherosclerosis or cancer. The talk will mainly focus on physiological functions of Nox4.

Further reading:

Schürmann, C., Rezende F., Kruse C., Yasar Y., Löwe O., Fork C., van de Sluis B., Bremer R., Weissmann N., Shah A.M., Jo H., Brandes R.P., Schröder K. The NADPH oxidase Nox4 has anti-atherosclerotic functions, *Eur Heart J.* Dec 2015; 36(48): 3447-56.

**All interested are cordially invited!**



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