

## INTERACTION OF HYDROGEN SULFIDE WITH SELENITE

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Hydrogen sulfide (H<sub>2</sub>S) belongs together with nitric oxide and carbon monoxide to the group of gaseous signaling molecules. It is enzymatically produced in almost all mammalian tissues and affects numerous physiological processes, including e.g. blood pressure regulations. Besides this endogenous generation, it is also a product of gut microbiota metabolism, and even at much higher concentration. Selenium is a chalcogen element which atom is present in the active sites of 25 mammalian selenoproteins involved in the regulation of key cellular processes and diseases, as cancer, inflammation, immunity or liver diseases. Its oxidized form selenite (SeO<sub>3</sub><sup>2-</sup>) is used as a micronutrient supplement. Therefore in our study we decided to investigate the chemical-biological interaction of H<sub>2</sub>S with SeO<sub>3</sub><sup>2-</sup>. UV-VIS absorption spectroscopy revealed a formation of transient reactive species having antioxidant properties and mixed selenosulfide final products. High reactivity of transient species was confirmed by electron paramagnetic resonance spectroscopy with focus on their ability to produce and/or scavenge free radicals. H<sub>2</sub>S/SeO<sub>3</sub><sup>2-</sup> interaction products influenced stability of plasmid DNA. These results imply possible biological effects of products of H<sub>2</sub>S/SeO<sub>3</sub><sup>2-</sup> interaction.

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