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Hydrogen Sulfide: Metabolism, Biological and Medical Role

Guest Editor:

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Message from the Guest Editor

Hydrogen sulfide (H2S) is a gaseous signaling molecule which modulates a wide range of mammalian physiological processes. H2S elicits an effect on neuronal activity, vascular tone, inflammation, and energy metabolism under both normal and pathological conditions. H2S is produced by enzymes of sulfur metabolic pathway viz. cystathionine β-synthase (CBS), γ-cystathionase (CSE), and mercaptopyruvate sulfurtransferase (MST) utilizing cysteine, homocysteine, and mercaptopyruvate as the substrate. In addition to its beneficial effect, H2S is well known for causing cell toxicity at higher concentration. Mammalian cells are equipped with the mitochondrial H2S clearing system which comprises multiple enzymes, i.e., sulfide quinone oxidoreductase (SQR), sulfur dioxygenase (ETHE1 or persulfide dioxygenase), rhodanese, and sulfite oxidase. All these enzymes jointly work and metabolize the extra toxic H2S to nontoxic thiosulfate and sulfate and play an important role in maintaining the steady-state level of cellular H2S needed for signaling, which is important for cellular homeostasis.

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Message from the Editor-in-Chief

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