H2S - ácido hidrosulfúrico– em alta concentração é antitumoral (acidifica o intracelular) e em baixa concentração é promotor tumoral

Hydrogen sulfide in cancer: Friend or foe?

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Abstract

Hydrogen sulfide (H_2S) is the third gaseous signaling molecule that plays important roles in cancer biological processes. Recent studies indicate that H_2S has both pro-cancer and anti-cancer effects. Endogenous H_2S can exert pro-cancer functions through induction of angiogenesis regulation of mitochondrial bioenergetics, acceleration of cell cycle progression, and anti-apoptosis mechanisms. Thus, the inhibition of the production of H_2S in cancer cells may be a new cancer treatment strategy. In contrast to the pro-cancer effect of H_2S, relatively high concentrations of exogenous H_2S could suppress the growth of cancer cells by inducing uncontrolled intracellular acidification, inducing cell cycle arrest, and promoting apoptosis. Therefore, H_2S donors and H_2S-releasing hybrids could be designed and developed as novel anti-cancer drugs. In this review, the production and metabolism of H_2S in cancer cells are summarized and the role and mechanism of H_2S in cancer development and progression are further discussed.

KEYWORDS:

Anti-cancer; Apoptosis; Cell cycle; Hydrogen sulfide; Pro-cancer

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