Hydrogen sulfide releasing anti-inflammatory drugs

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Hydrogen sulfide have been recognized, it’s (H2S) is a gaseous meditator that has various physiological and pathophysiological roles in the body. It has been shown to be an important mediator of gastrointestinal (GI) mucosal defense and contributes significantly to repair of damage and resolution of inflammation.

Synthesis of H2S increases markedly after mucosal injury, and inhibition of H2S in such circumstances leads to delayed healing and exacerbated inflammation. The beneficial effects of H2S may be attributable to its ability to elevate mucosal blood flow, prevent leukocyte-endothelial adhesion, reduce oxidative stress, and stimulate angiogenesis.

The use of H2S-donating agents and inhibitors of the key enzymes contributing to H2S synthesis have provided strong evidence for the importance of H2S in enhancing mucosal resistance to damage, as well as modulating inflammation and repair. In recent years, significant evidence has been generated to support the notion that these positive aspects of H2S can be exploited in drug design, particularly for arthritis, inflammatory bowel disease, and colon cancer chemoprevention. Thus novel H2S-based therapies have been shown to be effective anti-inflammatories that can promote the resolution of inflammation and accelerate the healing of GI ulcers.