

## H2S Vancouver

H2S Kelowna - Some cells of the mammalian body produce H2S or Hydrogen Sulfide in small amounts. This kind of substance has many biological signaling functions. There are just 2 other such gases that are presently known, carbon monoxide or CO and NO or nitric oxide.

The enzymes cystathionine gamma-lyase and cystathionine beta-synthase make gas from cysteine. This gas acts as a vasodilator and also as a smooth muscle relaxant. It is active within the brain, and facilitates long term potentiation and increases the response of NMDA receptor. This is involved in memory formation.

In the mitochondria, gas is converted to sulfite after some time. The thiosulfate reductase is responsible for this conversion and the sulfite is further oxidized to sulfate and thiosulfate by sulfite oxidase. The body excretes the sulfates in the urine.

### The Effects of H2S

H2S and nitric oxide have similar effects. The main difference is that it does not have its potential to make peroxides by interacting with superoxide. H2S is presently being recognized as potentially protecting against cardiovascular illness. For example, the cardio-protective role effect of garlic is due to the catabolism of the polysulfide group in allicin to hydrogen sulfide. This particular reaction can depend on glutathione to lessen mediation.

Although their action mechanisms are different, both hydrogen sulfide and nitric oxide or NO have been proven to relax blood vessels. For example, H2S activates ATP-sensitive potassium channels found in smooth muscle cells and NO activates the enzyme guanylyl cyclase. Researchers remain uncertain how the responsibilities to relax vessels are shared between Hydrogen Sulfide and nitric oxide. Some evidence exists to suggest that NO or nitric oxide does most of the vessel-relaxing work in large blood vessels and H2S or hydrogen sulfide contributes to most of the vessel-relaxing work in smaller blood vessels.

Some recent findings suggest significant cellular crosstalk of hydrogen sulfide and nitric oxide. The vasodilatory effects of these 2 gases have been demonstrated to be equally dependent. As well, intracellular S-nitrosothiols reacts with H2S or hydrogen sulfide to form the smallest S-nitrosothiol or HSNO. Moreover, it has been suggested that a role of H2S or hydrogen sulfide in controlling the intracellular S-nitrosothiol pool.

Both nitric oxide and hydrogen sulfide are involved in relaxing smooth muscles that is involved in the erection of the penis. This specific piece of information has presented numerous opportunities of new therapy for those who suffer from erectile dysfunction.

It has been discovered that in Down syndrome or trisomy 21, the body makes more hydrogen sulfide, and conversely, in Alzheimer's disease, the brain's H2S concentration is actually severely decreased. H2S is also involved in the disease process of Type 1 Diabetes. It has been discovered that in Type 1 Diabetes, the beta cells in the pancreas produce more gas. This contributes to the death of the beta cells and to a reduced insulin production by those that remain.