Sulfasalazine is a mesalazine derivative sulfa drug that exhibits anti-inflammatory, immunomodulatory, analgesic, antioxidative, neuromodulatory, and anti-fibrotic activities. Sulfasalazine is clinically used to treat rheumatoid arthritis, inflammatory bowel disease, and Crohn’s disease; in vivo, it is metabolized into 5-aminosalicylic acid. Sulfasalazine inhibits sepiapterin reductase and decreases tetrahydrobiopterin (BH4) levels in vivo. Additionally, sulfasalazine scavenges ROS and RNS in vitro and inhibits NMDA receptors, inducing receptor desensitization and decreasing channel open probability. This compound also induces apoptosis in hepatic stellate cells, decreasing levels of procollagen I and TIMP1, suppressing activation of NF-κB, increasing levels of matrix metalloproteinase 2 (MMP2), and preventing fibrosis in vivo.

References