Aspirin
Item No. 70260

CAS Registry No.: 50-78-2
Formal Name: 2-(acetyloxy)-benzoic acid
Synonyms: Acetylsalicylic Acid, NSC 27223, NSC 406186
MF: C9H8O4
FW: 180.2
Purity: ≥90%
UV/Vis.: λmax: 226, 275 nm
Supplied as: A crystalline solid
Storage: Room temperature
Stability: ≥4 years

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Aspirin is supplied as a crystalline solid. A stock solution may be made by dissolving the aspirin in the solvent of choice, which should be purged with an inert gas. Aspirin is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of aspirin in these solvents is approximately 80, 41, and 30 mg/ml, respectively.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of aspirin can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of aspirin in PBS, pH 7.2, is approximately 2.7 mg/ml. Avoid adding aspirin to basic solutions (pH > 7.4), since base treatment will hydrolyze aspirin to salicylic acid. Store aqueous solutions of aspirin on ice and use within 30 minutes of preparation.

Description

Aspirin is a non-steroidal anti-inflammatory drug (NSAID) and a covalent inhibitor of COX-1 and COX-2 (IC50s = 4.45 and 13.88 µM, respectively, for the human enzymes). It is also an inhibitor of hematopoietic prostaglandin D synthase (H-PGDS; IC50 = 750 µM for the ovine enzyme). Aspirin (6 µg/ml) inhibits epinephrine- and ADP-induced platelet aggregation. In vivo, aspirin (30 mg/kg) reduces infarct volume and microglial infiltration in a rat model of ischemia-reperfusion injury induced by middle cerebral artery occlusion (MCAO). It decreases macrophage infiltration into, increases the number of smooth muscle cells and levels of collagen in, and reduces the area of, atherosclerotic lesions in LDL receptor-deficient mice fed a high-fat diet when administered in the drinking water at 30 mg/L. Formulations containing aspirin have been used in the treatment of pain, fever, and in stroke prevention.

References