

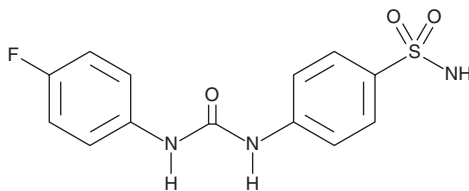
# PRODUCT INFORMATION



## U-104

Item No. 16717

**CAS Registry No.:** 178606-66-1  
**Formal Name:** 4-[[[(4-fluorophenyl)amino]carbonyl]amino]-benzenesulfonamide  
**Synonym:** NSC 213841  
**MF:** C<sub>13</sub>H<sub>12</sub>FN<sub>3</sub>O<sub>3</sub>S  
**FW:** 309.3  
**Purity:** ≥98%  
**UV/Vis.:** λ<sub>max</sub>: 270 nm  
**Supplied as:** A crystalline solid  
**Storage:** -20°C  
**Stability:** ≥4 years



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

### Laboratory Procedures

U-104 is supplied as a crystalline solid. A stock solution may be made by dissolving the U-104 in the solvent of choice, which should be purged with an inert gas. U-104 is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of U-104 in these solvents is approximately 2, 10, and 20 mg/ml, respectively.

U-104 is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, U-104 should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. U-104 has a solubility of approximately 0.5 mg/ml in a 1:1 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

### Description

Carbonic anhydrases are zinc metalloenzymes that catalyze the reversible hydration of carbon dioxide to form bicarbonate ion plus a proton. Carbonic anhydrases IX (CAIX) and CAXII are hypoxia and HIF-1-inducible proteins located in cellular transmembranes that regulate intra- and extracellular pH under hypoxic conditions and promote tumor cell survival and invasion in hypoxic microenvironments. U-104 is a ureido-sulfonamide inhibitor of transmembrane CAIX ( $K_i = 45.1$  nM) and CAXII ( $K_i = 4.5$  nM).<sup>1</sup> It demonstrates reduced affinity for the cytosolic isoforms, CAI and CAII ( $K_i$ s = 5.08 and 9.64 μM, respectively).<sup>1</sup> U-104 associates with CAIX/CAXII only under hypoxic conditions *in vivo*, reducing extracellular acidity and resulting in significant inhibition of tumor growth and metastasis in experimental models.<sup>1</sup>

### Reference

1. Lou, Y., McDonald, P.C., Oloumi, A., *et al.* Targeting tumor hypoxia: Suppression of breast tumor growth and metastasis by novel carbonic anhydrase IX inhibitors. *Cancer Res.* **71(9)**, 3364-3376 (2011).

#### WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

#### SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

#### WARRANTY AND LIMITATION OF REMEDY

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