

## Certificate of Analysis

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**Product Name:** SA 4503 dihydrochloride

**Catalog No.:** 4951

**Batch No.:** 2

CAS Number: 165377-44-6

IUPAC Name: 1-[2-(3,4-Dimethoxyphenyl)ethyl]-4-(3-phenylpropyl)-piperazine dihydrochloride

### 1. PHYSICAL AND CHEMICAL PROPERTIES

**Batch Molecular Formula:** C<sub>23</sub>H<sub>32</sub>N<sub>2</sub>O<sub>2</sub>·2HCl·¼H<sub>2</sub>O

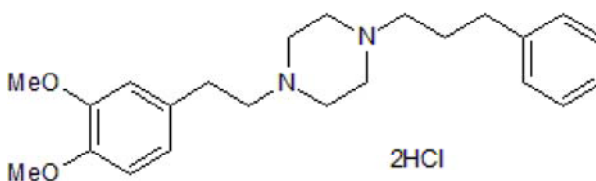
**Batch Molecular Weight:** 445.93

**Physical Appearance:** White solid

**Solubility:** water to 100 mM  
DMSO to 20 mM

**Storage:** Desiccate at RT

**Batch Molecular Structure:**



### 2. ANALYTICAL DATA

**HPLC:** Shows 99.1% purity

**<sup>1</sup>H NMR:** Consistent with structure

**Mass Spectrum:** Consistent with structure

**Microanalysis:**

|             | Carbon | Hydrogen | Nitrogen |
|-------------|--------|----------|----------|
| Theoretical | 61.95  | 7.8      | 6.28     |
| Found       | 62.08  | 7.82     | 6.14     |

Caution - Not Fully Tested • Research Use Only • Not For Human or Veterinary Use

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IUPAC Name: 1-[2-(3,4-Dimethoxyphenyl)ethyl]-4-(3-phenylpropyl)-piperazine dihydrochloride

**Description:**

Selective  $\sigma_1$  receptor agonist ( $IC_{50}$  = 17.4 nM). Exhibits selectivity for  $\sigma_1$  over  $\sigma_2$  receptors. Inhibits angiotensin II-induced cardiomyocyte hypertrophy in vitro and attenuates myocardial hypertrophy in vivo. Enhances brain plasticity and sensorimotor function in a rat model of experimental stroke.

**Physical and Chemical Properties:**

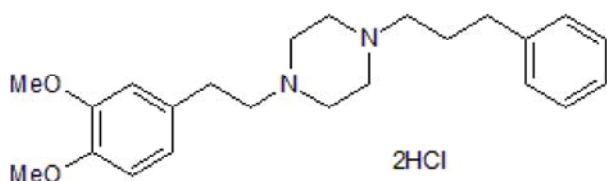
Batch Molecular Formula:  $C_{23}H_{32}N_2O_2 \cdot 2HCl \cdot \frac{1}{4}H_2O$

Batch Molecular Weight: 445.93

Physical Appearance: White solid

**Minimum Purity:** >98%

**Batch Molecular Structure:**



**Storage:** Desiccate at RT

**Solubility & Usage Info:**

water to 100 mM

DMSO to 20 mM

**Stability and Solubility Advice:**

Some solutions can be difficult to obtain and can be encouraged by rapid stirring, sonication or gentle warming (in a 45-60°C water bath).

Information concerning product stability, particularly in solution, has rarely been reported and in most cases we can only offer a general guide. Our standard recommendations are:

**SOLIDS:** Provided storage is as stated on the product label and the vial is kept tightly sealed, the product can be stored for up to 6 months from date of receipt.

**SOLUTIONS:** We recommend that stock solutions, once prepared, are stored aliquoted in tightly sealed vials at -20°C or below and used within 1 month. Wherever possible solutions should be made up and used on the same day.

**References:**

**Tagashira et al** (2013) Stimulation of  $\sigma_1$ -receptor restores abnormal mitochondrial  $Ca^{2+}$  mobilization and ATP production following cardiac hypertrophy. *Biochim.Biophys.Acta* **1830** 3082. PMID: 23298811.

**Ruscher et al** (2011) The sigma-1 receptor enhances brain plasticity and functional recovery after experimental stroke. *Brain* **134** 732. PMID: 21278085.

**Lever et al** (2006)  $\sigma_1$  and  $\sigma_2$  receptor binding affinity and selectivity of SA4503 and fluoroethyl SA4503. *Synapse* **59** 350. PMID: 16463398.

**Matsuno et al** (1996) Binding properties of SA4503, a novel and selective sigma 1 receptor agonist. *Eur.J.Pharmacol.* **306** 271. PMID: 8813641.

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