1. PHYSICAL AND CHEMICAL PROPERTIES

Batch Molecular Formula: \( \text{C}_{21}\text{H}_{25}\text{N}_{3}.2\text{HCl}.2\frac{1}{2}\text{H}_{2}\text{O} \)

Batch Molecular Weight: 437.41

Physical Appearance: Off-white solid

Solubility: water to 100 mM
DMSO to 100 mM
ethanol to 25 mM

Storage: Desiccate at RT

2. ANALYTICAL DATA

\(^1\text{H NMR:}\) Consistent with structure

Mass Spectrum: Consistent with structure

Microanalysis:

<table>
<thead>
<tr>
<th>Element</th>
<th>Theoretical</th>
<th>Found</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon</td>
<td>57.66</td>
<td>57.43</td>
</tr>
<tr>
<td>Hydrogen</td>
<td>7.37</td>
<td>7.04</td>
</tr>
<tr>
<td>Nitrogen</td>
<td>9.61</td>
<td>9.5</td>
</tr>
</tbody>
</table>

Caution - Not Fully Tested • Research Use Only • Not For Human or Veterinary Use
**Product Name:** Dimebon dihydrochloride  
**Catalog No.:** 3201  
**Batch No.:** 2

**CAS Number:** 97657-92-6  
**IUPAC Name:** 2,3,4,5-Tetrahydro-2,8-dimethyl-5-[2-(6-methyl-3-pyridinyl)ethyl]-1H-pyrido[4,3-b]indole dihydrochloride

**Description:**
Non-selective antihistamine that displays cognitive enhancing abilities. Also displays high affinity for 5-HT (particularly 5-HT6 and 5-HT2), α-adrenergic, dopaminergic, AMPA and NMDA receptors, and L-type calcium channels. Does not inhibit acetylcholinesterase activity. Exhibits neuroprotective activity in cellular models of Alzheimer’s and Huntington’s disease and preserves cognitive function following administration to AF64A lesioned rats. Protects neurons against the neurotoxic action of β-amyloid fragment; shown to enhance autophagy in yeast and reduce intracellular Aβ42 levels.

**Physical and Chemical Properties:**
- **Batch Molecular Formula:** C21H28N2·2HCl·2½H2O  
- **Batch Molecular Weight:** 437.41  
- **Physical Appearance:** Off-white solid  
- **Minimum Purity:** >98%

**Storage:** Desiccate at RT

**Solubility & Usage Info:**
- water to 100 mM  
- DMSO to 100 mM  
- ethanol to 25 mM

**CAUTION** - This product is hygroscopic and we recommend that it is desiccated upon arrival.

**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:**
- Giorgetti et al (2010) Cognition-enhancing properties of dimebon in a rat novel object recognition task are unlikely to be associated with acetylcholinesterase inhibition or N-methyl-D-aspartate receptor antagonism J.Pharm.Exp.Ther. 333 748.  