# Product Data Sheet

## Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product Name:</strong></td>
<td>Daptomycin</td>
</tr>
<tr>
<td><strong>Cas No.:</strong></td>
<td>103060-53-3</td>
</tr>
<tr>
<td><strong>M.Wt:</strong></td>
<td>1620.67</td>
</tr>
<tr>
<td><strong>Formula:</strong></td>
<td>C72H101N17O26</td>
</tr>
<tr>
<td><strong>Synonyms:</strong></td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Chemical Name:</strong></td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Canonical SMILES:</strong></td>
<td>CCCCCCCCCC(=O)NC(CC1=CNC2=CC=CC=C21)C(=O)NC(CC(=O)N)C(=O)NC(=O)NC3C(OC(=O)C(NC(=O)C(=O)NC(=O)C(=O)C(C=O)C(C=O)C(C=O)C(C=O)C(C=O)C(C=O)CCCC)CC(=O)O)C4=CC=CC=C4N)C</td>
</tr>
<tr>
<td><strong>Solubility:</strong></td>
<td>$\geq 81.05\text{mg/mL}$ in DMSO or H$_2$O</td>
</tr>
<tr>
<td><strong>Storage:</strong></td>
<td>Store at -20°C</td>
</tr>
<tr>
<td><strong>General tips:</strong></td>
<td>For obtaining a higher solubility, please warm the tube at 37° C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20° C for several months.</td>
</tr>
<tr>
<td><strong>Shopping Condition:</strong></td>
<td>Evaluation sample solution: ship with blue ice</td>
</tr>
<tr>
<td></td>
<td>All other available size: ship with RT, or blue ice upon request</td>
</tr>
</tbody>
</table>

## Biological Activity

### Targets:
DNA Damage/DNA Repair

### Pathways:
DNA Synthesis

### Description:
Daptomycin is a bactericidal antibiotic which works against a broad spectrum of Gram-positive bacteria and it can work both in-vitro and in-vivo. It is a cyclic lipopeptide and many antibiotic resistant strains can be inhibited by daptomycin, such as meticillin-resistant S. aureus (MRSA), vancomycin-intermediate S. aureus (VISA) and vancomycin-resistant S. aureus (VRSA).[1, 2]
The mode of action of Daptomycin would be through a calcium-dependent interaction with the cytoplasmic membrane, thus leading to the cell membrane depolarisation, ion loss and cell death.[2] Daptomycin can bind to the lipid tail of cell membrane of Gram-positive cells, then the following Ca2+ dependent insertion of daptomycin and oligomerization can cause a damage to the bacterial membrane potential, thus kills the cell very fast.[3]

Reference:

Protocol

Cell experiment:

Cell lines
Methicillin susceptible S. aureus (ATCC #29213)

Preparation method
The solubility of this compound in DMSO is >81.1mg/mL. General tips for obtaining a higher concentration: Please warm the tube at 37°C for 10 minutes and/or shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Reacting conditions

Applications
In methicillin susceptible S. aureus (ATCC #29213), Daptomycin (DAP) maintained good antibacterial activities against S. aeurus in Mueller-Hinton Broth supplemented with 50 mg/L calcium (MHBc).

Animal experiment [3]:

Animal models
murine model of enterococcal experimental peritonitis

Dosage form
50 mg/kg; q24h, intravenous (i.v.); 2 h after enterococcal inoculation for 48 h

Applications
In mice injected intraperitoneally with 4 × 1010 colony-forming units of Enterococcus faecium, Daptomycin (DAP) significantly prolonged the mean time until death. DAP or DAP plus AMP significantly
decreased the viable bacteria counts of the peritoneal fluid 6 h after inoculation.

Other notes
Please test the solubility of all compounds indoor, and the actual solubility may slightly differ with the theoretical value. This is caused by an experimental system error and it is normal.

Reference:


Product Citations


Caution

FOR RESEARCH PURPOSES ONLY.

NOT FOR HUMAN, VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

Specific storage and handling information for each product is indicated on the product datasheet. Most ApexBio products are stable under the recommended conditions. Products are sometimes shipped at a temperature that differs from the recommended storage temperature. Shortterm storage of many products are stable in the short-term at temperatures that differ from that required for long-term storage. We ensure that the product is shipped under conditions that will maintain the quality of the reagents. Upon receipt of the product, follow the storage recommendations on the product data sheet.