## Chemical Properties

<table>
<thead>
<tr>
<th>Product Name:</th>
<th>Fmoc-Cl</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cas No.:</td>
<td>28920-43-6</td>
</tr>
<tr>
<td>M.Wt:</td>
<td>258.7</td>
</tr>
<tr>
<td>Formula:</td>
<td>C15H11ClO2</td>
</tr>
</tbody>
</table>

**Chemical Name:** 9H-fluoren-9-ylmethyl carbonochloridate  
**Canonical SMILES:** C1=CC=C2(C=C1)C(C3=CC=CC=C32)COC(=O)Cl  
**Solubility:** Soluble in water or 1% acetic acid  
**Storage:** Desiccate at -20°C  
**General tips:** 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.  
**Shopping Condition:** Evaluation sample solution: ship with blue ice  
All other available size: ship with RT, or blue ice upon request

## Biological Activity

**Targets:**  
N-Protecting Reagents  
**Pathways:**  
N-Protecting Reagents  
**Description:**  
IC50: A series of Fmoc-based dipeptides were reported to show cytotoxicity in human cancer cell lines with the IC50 ranges from 0.4 to 1.0 M.  
Fmoc-Cl, a chloroformate ester, is commonly applied to introduce Fmoc group during the formation of Fmoc carbamate. Fmoc-based dipeptides are widely explored as a potential anticancer drug. Fmoc protection also serves as a crucial method in solid phase peptide synthesis because it could be removed by piperidine without disturbing the linker between the peptide and the resin. In addition, due to the fluorescent property of Fmoc group, it could react with certain
UV-undetectable compounds to form Fmoc derivatives which are feasible for HPLC analysis. [1] In vitro: Among thirty studied Fmoc-based dipeptides, there were nine compounds intensively against tumor cell growth in human cancer cell lines including HepG2, Hep3B, MCF-7, MDA-MB-231, A549 and Ca9-22. The most active Fmoc-based dipeptide exhibited the highest sensitivity in Ca9-22 cell lines with an IC50 of 0.4 μM, which was 3-fold more potent than doxorubicin. Moreover, this compound had synergistic effect to enhance the antitumor activity of doxorubicin. [1] In vivo: Peptide derived from Fmoc solid-phase synthesis was reported to have antiestrogenic and anticancer activities. Specifically, intraperitoneal administration of 0.5 μg such peptide had shown to prevent carcinogen-induced mammary cancer in rats and suppress the growth of ER+ human breast cancer xenografts in mice. [2] Clinical trial: So far, no clinical trial has been conducted.

Reference:

Protocol

Cell experiment:

Cell lines: Ca9-22 cells
Preparation method: This compound is soluble in water or 1% acetic acid. 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: 0.4 μM
Applications: Fmoc-based dipeptide significantly inhibited Ca9-22 cells, with an IC50 value of 0.4 μM. Moreover, this compound had synergistic effect to enhance the antitumor activity of Doxorubicin.

Animal experiment [3]:

Animal models: Rats with carcinogen-induced mammary cancer and mice bearing ER+ human breast cancer xenografts
Dosage form: 0.5 μg/mouse; i.p.
Applications
Peptide derived from Fmoc solid-phase synthesis prevented carcinogen-induced mammary cancer in rats and suppressed the growth of ER+ human breast cancer xenografts in mice.

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:

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. Short-term 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.