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Diagnostik & molekulare Diagnostik



Laborgeräte & Service

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Lieferung & Zahlungsart

siehe unsere [Liefer- und Versandbedingungen](#)

Zuschläge

- Mindermengenzuschlag
- Trockeneiszuschlag
- Gefahrgutzuschlag
- Expressversand

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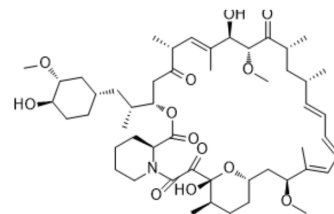
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Rapamycin

| | | | | | | | | | | | | | |
|---------------------------|--|----------|-------|---------|--|-----|---------|------------|-------|----------|--|-------|---------|
| Cat. No.: | HY-10219 | | | | | | | | | | | | |
| CAS No.: | 53123-88-9 | | | | | | | | | | | | |
| Molecular Formula: | C ₅₁ H ₇₉ NO ₁₃ | | | | | | | | | | | | |
| Molecular Weight: | 914.17 | | | | | | | | | | | | |
| Target: | mTOR; FKBP; Autophagy; Endogenous Metabolite; Fungal; Antibiotic; Bacterial | | | | | | | | | | | | |
| Pathway: | PI3K/Akt/mTOR; Apoptosis; Autophagy; Immunology/Inflammation; Metabolic Enzyme/Protease; Anti-infection | | | | | | | | | | | | |
| Storage: | <table border="0"> <tr> <td>Powder</td> <td>-20°C</td> <td>3 years</td> </tr> <tr> <td></td> <td>4°C</td> <td>2 years</td> </tr> <tr> <td>In solvent</td> <td>-80°C</td> <td>6 months</td> </tr> <tr> <td></td> <td>-20°C</td> <td>1 month</td> </tr> </table> | Powder | -20°C | 3 years | | 4°C | 2 years | In solvent | -80°C | 6 months | | -20°C | 1 month |
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| | 4°C | 2 years | | | | | | | | | | | |
| In solvent | -80°C | 6 months | | | | | | | | | | | |
| | -20°C | 1 month | | | | | | | | | | | |



SOLVENT & SOLUBILITY

In Vitro

DMSO : 125 mg/mL (136.74 mM; Need ultrasonic)
 Ethanol : 50 mg/mL (54.69 mM; Need ultrasonic)

| Preparing Stock Solutions | Solvent Concentration | Mass | | |
|---------------------------|-----------------------|-----------|-----------|------------|
| | | 1 mg | 5 mg | 10 mg |
| | 1 mM | 1.0939 mL | 5.4694 mL | 10.9389 mL |
| | 5 mM | 0.2188 mL | 1.0939 mL | 2.1878 mL |
| | 10 mM | 0.1094 mL | 0.5469 mL | 1.0939 mL |

Please refer to the solubility information to select the appropriate solvent.

In Vivo

- Add each solvent one by one: 10% EtOH >> 40% PEG300 >> 5% Tween-80 >> 45% saline
Solubility: ≥ 2.5 mg/mL (2.73 mM); Suspended solution
- Add each solvent one by one: 10% EtOH >> 90% (20% SBE-β-CD in saline)
Solubility: 2.5 mg/mL (2.73 mM); Suspended solution; Need ultrasonic
- Add each solvent one by one: 10% EtOH >> 90% corn oil
Solubility: ≥ 2.5 mg/mL (2.73 mM); Suspended solution
- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
Solubility: ≥ 2.08 mg/mL (2.28 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
Solubility: 2.08 mg/mL (2.28 mM); Suspended solution; Need ultrasonic
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Solubility: ≥ 2.08 mg/mL (2.28 mM); Clear solution

BIOLOGICAL ACTIVITY

| | | | | | | | | | | | | | | | | | | | | |
|-------------------------------------|--|----------------------|-----------|-----------------------------|---------------|---|----------------|-------------------------------|------------------|---|---------|---|------------|-----------|----------------|-----------------|------------------|----------|---------|---|
| Description | Rapamycin (Sirolimus; AY 22989) is a potent and specific mTOR inhibitor with an IC ₅₀ of 0.1 nM in HEK293 cells. Rapamycin binds to FKBP12 and specifically acts as an allosteric inhibitor of mTORC1 ^[1] . Rapamycin is an autophagy activator, an immunosuppressant ^[2] . | | | | | | | | | | | | | | | | | | | |
| IC₅₀ & Target | mTOR 0.1 nM (IC ₅₀ , in HEK293 cells) | Microbial Metabolite | Autophagy | Human Endogenous Metabolite | | | | | | | | | | | | | | | | |
| In Vitro | <p>Rapamycin (12.5-100 nM; 24 hours) treatment exerts modest inhibitory effect on lung cancer cell proliferation in a dose-dependent manner in all cell lines (A549, SPC-A-1, 95D and NCI-H446 cells) tested, achieving about 30-40% reduction in cell proliferation at 100 nM vs. ~10% reduction at 12.5 nM^[3].</p> <p>Lung cancer cell line 95D cells are exposed to Rapamycin (10 nM, 20 nM) and RP-56976 (1 nM, 10 nM) alone or in combination (Rapamycin 20 nM+ RP-56976 10 nM). After 24 hours exposure to Rapamycin or RP-56976 alone does not significantly alter the level of expression or phosphorylation of ERK1/2, whereas cells treated with the combination of Rapamycin with RP-56976 exhibit a marked reduction in the phosphorylation levels of ERK1/2^[3].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> <p>Cell Viability Assay^[3]</p> <table border="1"> <tr> <td>Cell Line:</td> <td>Lung cancer cell lines A549, SPC-A-1, 95D and NCI-H446</td> </tr> <tr> <td>Concentration:</td> <td>12.5 nM, 25 nM, 50 nM, 100 nM</td> </tr> <tr> <td>Incubation Time:</td> <td>24 hours</td> </tr> <tr> <td>Result:</td> <td>Treatment exerted modest inhibitory effect on lung cancer cell proliferation in a dose-dependent manner in all cell lines.</td> </tr> </table> <p>Western Blot Analysis^[3]</p> <table border="1"> <tr> <td>Cell Line:</td> <td>95D cells</td> </tr> <tr> <td>Concentration:</td> <td>10 nM and 20 nM</td> </tr> <tr> <td>Incubation Time:</td> <td>24 hours</td> </tr> <tr> <td>Result:</td> <td>Combination treatment with RP-56976 decreased phosphorylation of ERK.</td> </tr> </table> | | | | Cell Line: | Lung cancer cell lines A549, SPC-A-1, 95D and NCI-H446 | Concentration: | 12.5 nM, 25 nM, 50 nM, 100 nM | Incubation Time: | 24 hours | Result: | Treatment exerted modest inhibitory effect on lung cancer cell proliferation in a dose-dependent manner in all cell lines. | Cell Line: | 95D cells | Concentration: | 10 nM and 20 nM | Incubation Time: | 24 hours | Result: | Combination treatment with RP-56976 decreased phosphorylation of ERK. |
| Cell Line: | Lung cancer cell lines A549, SPC-A-1, 95D and NCI-H446 | | | | | | | | | | | | | | | | | | | |
| Concentration: | 12.5 nM, 25 nM, 50 nM, 100 nM | | | | | | | | | | | | | | | | | | | |
| Incubation Time: | 24 hours | | | | | | | | | | | | | | | | | | | |
| Result: | Treatment exerted modest inhibitory effect on lung cancer cell proliferation in a dose-dependent manner in all cell lines. | | | | | | | | | | | | | | | | | | | |
| Cell Line: | 95D cells | | | | | | | | | | | | | | | | | | | |
| Concentration: | 10 nM and 20 nM | | | | | | | | | | | | | | | | | | | |
| Incubation Time: | 24 hours | | | | | | | | | | | | | | | | | | | |
| Result: | Combination treatment with RP-56976 decreased phosphorylation of ERK. | | | | | | | | | | | | | | | | | | | |
| In Vivo | <p>Rapamycin (2.0 mg/kg; intraperitoneal injection; every other day; 28 days) alone has a moderate inhibitory effect. However, the combination of Metformin and Rapamycin exerts a significantly increased inhibition of tumor growth compared with the control group, the Rapamycin monotherapy group and the Metformin monotherapy group^[4].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> <table border="1"> <tr> <td>Animal Model:</td> <td>24 male nu/nu mice aged 4-5 week old (15-20 g)^[4]</td> </tr> <tr> <td>Dosage:</td> <td>2.0 mg/kg</td> </tr> <tr> <td>Administration:</td> <td>Intraperitoneal injection; every other day; 28 days</td> </tr> <tr> <td>Result:</td> <td>Had a moderate inhibitory effect in monotherapy group. The combination with Metformin exerted a significantly increased inhibition of tumor growth.</td> </tr> </table> | | | | Animal Model: | 24 male nu/nu mice aged 4-5 week old (15-20 g) ^[4] | Dosage: | 2.0 mg/kg | Administration: | Intraperitoneal injection; every other day; 28 days | Result: | Had a moderate inhibitory effect in monotherapy group. The combination with Metformin exerted a significantly increased inhibition of tumor growth. | | | | | | | | |
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- Nature. 2016 Dec 1;540(7631):119-123.
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