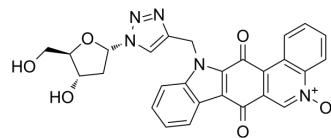


## Topoisomerase I/II inhibitor 4

<b>Cat. No.:</b>	HY-149002
<b>CAS No.:</b>	3031403-77-4
<b>Molecular Formula:</b>	C <sub>27</sub> H <sub>21</sub> N <sub>5</sub> O <sub>6</sub>
<b>Molecular Weight:</b>	511.49
<b>Target:</b>	Topoisomerase; Apoptosis
<b>Pathway:</b>	Cell Cycle/DNA Damage; Apoptosis
<b>Storage:</b>	Please store the product under the recommended conditions in the Certificate of Analysis.



### BIOLOGICAL ACTIVITY

**Description** Topoisomerase I/II inhibitor 4 (compound F16) is a potent topoisomerase I (Topo I) and II (Topo II) dual inhibitor. Topoisomerase I/II inhibitor 4 inhibits cell proliferation, invasion and migration and induces apoptosis. Topoisomerase I/II inhibitor 4 can be used for liver cancer research<sup>[1]</sup>.

**In Vitro** Topoisomerase I/II inhibitor 4 (compound F16) (0-100 μM) could intercalate into DNA to inhibit enzymatic activity and inhibit Topo I and II activities in a dose-dependent manner<sup>[1]</sup>. Topoisomerase I/II inhibitor 4 (compound F16) shows a high-expression level of Topo I and II enzymes in A375 and HCT116 cells and exhibits potent anti-proliferative activity with IC<sub>50</sub> values of 20 and 50 nM, respectively, 10-fold lower than L02<sup>[1]</sup>. Topoisomerase I/II inhibitor 4 (compound F16) (0-40 nM, A375 cell) inhibits cancer cell colony formation, invasion, migration and induces cell apoptosis<sup>[1]</sup>.

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

#### Cell Cycle Analysis<sup>[1]</sup>

Cell Line:	A375 cells
Concentration:	20, 40 and 80 nM
Incubation Time:	24 hours
Result:	The cell cycle blocked at the S phase in a dose-dependent manner.

#### Apoptosis Analysis<sup>[1]</sup>

Cell Line:	A375 cells
Concentration:	40, 80 and 120 nM
Incubation Time:	8, 16 and 24 hours
Result:	Induced apoptosis rates for 8, 16 and 24 h were 7.14, 23.78 and 36.21%, respectively. Induced apoptosis rates for 40, 80 and 120 nM were 23.26, 36.21 and 55.94%, respectively.

#### Western Blot Analysis<sup>[1]</sup>

Cell Line:	A375 cells
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Concentration:	40, 80 and 120 nM
Incubation Time:	24 hours
Result:	The expression levels of Ccaspase-3, C-caspase-8, C-caspase-9, Bad and Bax increased in a dose-dependent manner, the Bcl-2 expression was obviously decreased.

### In Vivo

Topoisomerase I/II inhibitor 4 (compound F16) (10-50 mg/kg; i.v.; per 2 days, for 7 days) suppresses tumor growth in the A375 Xenograft Model<sup>[1]</sup>.  
 Topoisomerase I/II inhibitor 4 (compound F16) of the plasma clearance rate (CL) was 7-fold lower than that of VP-16(0.007 L/min/kg). Topoisomerase I/II inhibitor 4 has a delayed elimination half-life of 151 min<sup>[1]</sup>.  
 MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Female BALB/c nude mice (5–6 weeks) <sup>[1]</sup>
Dosage:	10 and 20 mg/kg
Administration:	Intravenous injection; Per 2 days, for 14 days.
Result:	Inhibited tumor growth in a melanoma xenograft mouse model and no apparent loss in body weight.

Animal Model:	Kunming male mice <sup>[1]</sup>
Dosage:	10 mg/kg
Administration:	Intravenous injection; for 5 , 15 , 30 , 60 , 120 , 240 and 360 min.

#### Result:

Parameter	F16	VP-16
Dose (i.v.) mg/kg	10	10
C <sub>max</sub> (ng/mL)	26952	17712
T <sub>max</sub> (min)	5	5
AUC <sub>plasma</sub> (min*ng/mL)	2878363	409528
T <sub>1/2</sub> (min)	151	45
Vd (L/Kg)	0.2341	0.432
CL (L/min/kg)	0.001	0.007

## REFERENCES

[1]. Yang X, et al. Optimization of the Natural Product Calothrixin A to Discover Novel Dual Topoisomerase I and II Inhibitors with Improved Anticancer Activity. J Med Chem.

**Caution: Product has not been fully validated for medical applications. For research use only.**

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