# LYN-1604 dihydrochloride

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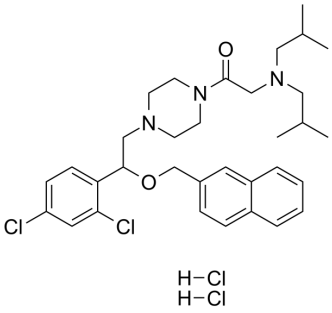
| **Cat. No.:** | HY-101923B |
| **CAS No.:** | 2310109-38-5 |
| **Molecular Formula:** | $C_{33}H_{45}Cl_4N_3O_2$ |
| **Molecular Weight:** | 657.54 |
| **Target:** | ULK; Autophagy; Apoptosis |
| **Pathway:** | Autophagy; Apoptosis |
| **Storage:** | 4°C, sealed storage, away from moisture<br>* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture) |




## SOLVENT & SOLUBILITY

**In Vitro**

DMSO : 50 mg/mL (76.04 mM; Need ultrasonic)
$H_2O$ : 50 mg/mL (76.04 mM; Need ultrasonic)

**Preparing Stock Solutions**

| Concentration \ Solvent \ Mass | 1 mg | 5 mg | 10 mg |
|---|---|---|---|
| 1 mM | 1.5208 mL | 7.6041 mL | 15.2082 mL |
| 5 mM | 0.3042 mL | 1.5208 mL | 3.0416 mL |
| 10 mM | 0.1521 mL | 0.7604 mL | 1.5208 mL |

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

**In Vivo**

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (3.80 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (3.80 mM); Clear solution

## BIOLOGICAL ACTIVITY

**Description**

LYN-1604 dihydrochloride is a potent UNC-51-like kinase 1 (ULK1) activator ($EC_{50}$=18.94 nM) for the research of triple negative breast cancer (TNBC)[1].

**$IC_{50}$ & Target**

ULK1
18.94 nM (EC50)

**In Vitro**

LYN-1604 is a potential ULK1 agonist (enzymatic activity=195.7% at 100 nM and $IC_{50}$=1.66 μM against MDA-MB-231 cells) [1].
LYN-1604 binds to wild-type ULK1 with a binding affinity in the nanomole range ($K_D$=291.4 nM) [1].
LYN-1604 (0.5, 1.0 and 2.0 μM) induces cell death via the ULK complex in MDA-MB-231 cells[1].
LYN-1604 (0.5-2 μM, 24 hours) induces remarkable up-regulation of Beclin-1 and degradation of p62, as well as

transformation of LC3-I to LC3-II in MDA-MB-231 cells[1].
LYN-1604 induces ATG5-dependent autophagy via the ULK complex[1].
LYN-1604 can also increase cleavage of caspase3 and induce apoptosis[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[1]

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| Cell Line: | MDA-MB-231 cells |
| Concentration: | 0.5, 1.0 and 2.0 μM |
| Incubation Time: | |
| Result: | Induced cell death. Autophagy ratio was increased in a dose-dependent manner. |

Western Blot Analysis[1]

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| Cell Line: | MDA-MB-231 cells |
| Concentration: | 0, 0.5, 1, and 2 μM |
| Incubation Time: | 24 hours |
| Result: | Induced remarkable up-regulation of Beclin-1 and degradation of p62, as well as transformation of LC3-I to LC3-II. |

**In Vivo**

LYN-1604 (low dose, 25 mg/kg; median dose, 50 mg/kg; high dose, 100 mg/kg; intragastric administration once a day for 14 days) inhibits the growth of xenograft TNBC by targeting ULK1-modulated cell death[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

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| Animal Model: | 24 female nude mice (BALB/c, 6-8 weeks, 20-22 g)[1] |
| Dosage: | Low dose, 25 mg/kg; median dose, 50 mg/kg; high dose, 100 mg/kg |
| Administration: | Intragastric administration; once a day for 14 days |
| Result: | Significantly inhibited the growth of xenograft MDA-MB-231 cells. The body weights of mice were stable. By the end of the experiment, the liver and spleen weight indexes of mice were slightly increased in parts of the groups, while the kidney weight index was not affected in all dose groups. |

## CUSTOMER VALIDATION

- Oxid Med Cell Longev. 15 Nov 2021.
- Biochem J. 2019 Mar 12;476(5):875-887.

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## REFERENCES

[1]. Zhang L, et al. Discovery of a small molecule targeting ULK1-modulated cell death of triple negative breast cancer in vitro and in vivo. Chem Sci. 2017 Apr 1;8(4):2687-2701.

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

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