

Product Data Sheet

Product Name: Elacestrant dihydrochloride (RAD1901 dihydrochloride)

Cat. No.: GC32696

Chemical Properties

Cas. No. 1349723-93-8

SMILES OC1=CC=C2C[C@H](C3=CC=C(OC)C=C3N(CC)CC4=CC=C(CCNCC)C=C4)CCC2=C1.[H]Cl.[H]Cl

Formula $C_{30}H_{40}Cl_2N_2O_2$ M.Wt 531.56

Solubility DMSO : 17.6 mg/mL (33.11 mM) Storage Store 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.

Shipping Condition Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.

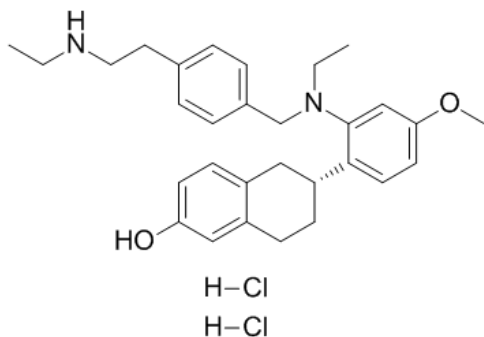
Caution: Product has not been fully validated for medical applications. For research use only.

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Structure



Protocol

Cell experiment [1]:

Cell lines MCF-7

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Preparation Method MCF-7 cells were plated at 10000 cells/well in 96-well culture plates in MEM with 10% fetal bovine serum, and they were allowed to adhere for 48h. Thereafter, the cultures were washed with serum-free MEM and incubated in 100µl serum-free MEM. After 72h, the medium was removed and replaced with 2% charcoal-stripped FBS–MEM containing 10pM E₂ with either Elacestrant dihydrochloride or additional E₂ at concentrations ranging from 10^{−15} to 10^{−6}M. The medium was removed after 48h of incubation.

Reaction Conditions 10^{−15} to 10^{−6}M; 48h

Applications Treatment of cells with Elacestrant dihydrochloride in the presence of 10pM E₂ resulted in a dose-dependent decrease in proliferation, with an IC₅₀ value of 4.2nM. Importantly, Elacestrant dihydrochloride treatment (0.1pM to 1µM) did not stimulate proliferation in the absence of E₂, and resulted in significant inhibition of basal cell proliferation, which was observed at doses of 10nM and above.

Animal experiment [1]:

Animal models Female Sprague–Dawley rats

Preparation Method Elacestrant dihydrochloride was stored as a dry powder, formulated for use as a homogenous suspension in 0.5% (w/v) methylcellulose in deionized water. Ovariectomy was performed on anesthetized adult female Sprague–Dawley rats, with sham surgery as a control. Following surgery, ovariectomized rats were treated once daily for 4 weeks with vehicle, E₂ (0.01mg/kg), or Elacestrant dihydrochloride (0.1, 0.3, 1, and 3mg/kg), administered by oral gavage. Animals in the sham surgery group were vehicle treated. All animals were killed by carbon dioxide inhalation 24h after the final dose.

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Dosage form 0.1, 0.3, 1, and 3mg/kg/d; p.o.; 4w

Applications Following ovariectomy, untreated (vehicle control) rats experienced a decrease in bone mineral density both in the entire femur and in the lumbar spine compared with baseline. Treatment with Elacestrant dihydrochloride resulted in a dose-dependent and statistically significant suppression of ovariectomy-induced bone loss.

References:

[1] Garner F, Shomali M, Paquin D, Lyttle CR, Hattersley G. RAD1901: a novel, orally bioavailable selective estrogen receptor degrader that demonstrates antitumor activity in breast cancer xenograft models. *Anticancer Drugs*. 2015;26(9):948-956.

Background

Elacestrant dihydrochloride (RAD1901 dihydrochloride) is a novel, orally bioavailable selective estrogen receptor (ER) degrader with IC₅₀ of 48nM and 870nM for ER α and ER β , respectively. Estrogen and estrogen receptor (ER) are important drivers of breast tumorigenesis and breast cancer progression. Elacestrant dihydrochloride can specifically bind to and degrade estrogen receptors, making it a potent antagonist of estrogen receptor-positive breast cancer cell proliferation^[1].

In vitro, treatment with Elacestrant dihydrochloride (10^{-15} – 10^{-6} M; 48h) dose-dependently inhibited MCF-7 cell proliferation in the presence of 10pM E₂, with an IC₅₀ value of 4.2nM^[1]. Elacestrant dihydrochloride (0–1 μ M; 24 or 48h) dose-dependently induced estrogen receptor (ER) degradation and inhibited estrogen-mediated signaling and growth in multiple ER⁺ cell lines, including MCF-7 and T47D^[2].

In vivo, oral administration of Elacestrant dihydrochloride (0.1, 0.3, 1, and 3mg/kg/d; 4 weeks) produced a dose-dependent and statistically significant suppression of ovariectomy-induced bone loss in female SD rats^[1]. Elacestrant dihydrochloride (0.01–10mg/kg/d; p.o.; 3 days) dose-dependently reversed E₂ (0.01mg/kg)-induced uterine stimulation, including increases in uterine wet weight and endometrial epithelial thickness^[1]. Elacestrant dihydrochloride (0.3, 1, 3, 10, 30, and

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120mg/kg/day; p.o.; 40 days) dose-dependently inhibited tumor growth in the MCF-7 xenograft model, with no adverse effect on body weight^[1]. Elacestrant dihydrochloride (120mg/kg/d; p.o.; 54 days) effectively crossed the blood-brain barrier and significantly prolonged survival in the MCF-7 intracranial xenograft mouse model^[1].

References:

- [1] Garner F, Shomali M, Paquin D, Lyttle CR, Hattersley G. RAD1901: a novel, orally bioavailable selective estrogen receptor degrader that demonstrates antitumor activity in breast cancer xenograft models. *Anticancer Drugs*. 2015;26(9):948-956.
- [2] Bihani T, Patel HK, Arlt H, et al. Elacestrant (RAD1901), a Selective Estrogen Receptor Degradar (SERD), Has Antitumor Activity in Multiple ER+ Breast Cancer Patient-derived Xenograft Models. *Clin Cancer Res*. 2017;23(16):4793-4804.

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