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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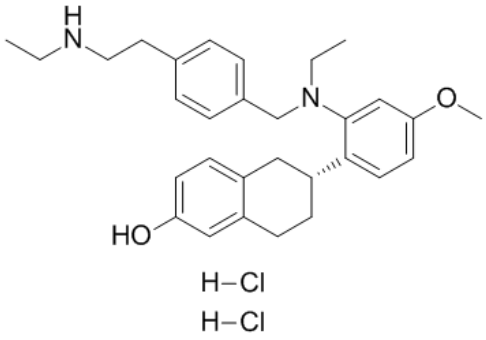
Structure



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 E_2 with either Elacestrant dihydrochloride or additional E_2 at concentrations ranging from 10^{-15} to 10^{-6}M. The medium was removed after 48h of incubation.
Reaction Conditions	10^{-15} to10^{-6}M; 48h
Applications	Treatment of cells with Elacestrant dihydrochloride in the presence of 10pM E_2 resulted in a dose-dependent decrease in proliferation, with an IC_{50} value of 4.2nM. Importantly, Elacestrant dihydrochloride treatment (0.1pM to 1μM) did not stimulate proliferation in the absence of E_2, 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, E_2 (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 IC_{50} of 48nM and 870nM for ERα and ERβ, 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 E_2, with an IC_{50} value of 4.2nM[1]. Elacestrant dihydrochloride (0-1μM; 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 E_2 (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

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 Degrader (SERD), Has Antitumor Activity in Multiple ER+ Breast Cancer Patient-derived Xenograft Models. Clin Cancer Res. 2017;23(16):4793-4804.