Product Data Sheet

Product Name: OABK hydrochloride
Cat. No.: GC33543

Chemical Properties

Cas. No.	1984862-48-7		
SMILES	N[C@@H](CCCCNC(OCC1=CC=CC=C1N=[N+]=[N-])=O)C(O)=O.[H]Cl		
Formula	$C_{14}H_{20}ClN_5O_4$	M.Wt	357.79
Solubility	DMSO : 25 mg/mL (69.87 mM; Need ultrasonic)	Storage	Store at -20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 ℃ and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20℃ for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		
Structure	OABK hydrochloride		

Protocol

Cell experiment:

HEK293T cells are plated at 100,000 cells per well (400 µL) into a poly-D-lysine-coated eight-well chamber slide. At 75% confluency, cells are co-transfected with pEGFP-K85TAG-mCherry or pEGFP-K29TAG-SatB1-mCherry and pOABKRS-4PylT (200 ng of each plasmid) using linear PEI (3 µL, 0.323 mg/mL). After 20 hours of incubation at 37°C and 5% CO2 in DMEM with 10% FBS in the presence of OABK (0.25 mM), the cells are washed three times with phenol-red-free DMEM (200 µL), followed by three hours of incubation to remove any non-incorporated OABK. Before small-molecule activation, the cells are focused using the Texas Red channel, and imaged with a Nikon A1 confocal microscope (×40 oil objective, ×2 zoom, fluorescein isothiocyanate (ex=488 nm) and Texas Red (ex=560 nm) channels)[1].

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References:

[1]. Luo J, et al. Small-molecule control of protein function through Staudinger reduction. Nat Chem. 2016 Nov;8(11):1027-1034.

Background

OABK hydrochloride is a small-molecule switch that can be used to control protein activity.

A small-molecule switch for the activation of protein function through the site-specific incorporation of an ortho-azidobenzyloxycarbonyl lysine (OABK). The amino acid OABK is synthesized readily in three steps from 2-azidobenzyl alcohol via a succinimidyl carbonate. Deprotection results in the formation of lysine and, when OABK is incorporated into a protein, the formation of active wild-type protein. Genetically encoded OABK in conjunction with small-molecule activation allows for the conditional regulation of intracellular protein maturation. Incorporation of OABK (0.5 mM) at position K85 of EGFP inhibits fluorophore formation until the native lysine is generated through small-molecule activation (the model is based on Protein Data Bank (PDB). Introducing OABK at position K206 inhibits FLuc enzymatic activity by restricting the access of adenosine triphosphate (ATP) to the active site, until the enzyme is deprotected and activated through phosphine treatment. The incorporation of OABK into FLuc blocks the luciferase activity in the absence of small-molecule activation, as determined by a Bright-Glo luciferase assay[1].

[1]. Luo J, et al. Small-molecule control of protein function through Staudinger reduction. Nat Chem. 2016 Nov;8(11):1027-1034.

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