Product Data Sheet

Product Name: STA-21
Cat. No.: GC17761

Chemical Properties

Cas. No.	111540-00-2,28882-53-3		
Chemical Name	8-hydroxy-3-methyl-3,4-dihydrotetraphene-1,7,12(2H)-trione		
SMILES	O=C1CC(C)CC(C1=C2C3=O)=CC=C2C(C4=C3C=CC=C4O)=O		
Formula	$C_{19}H_{14}O_4$	M.Wt	306.31
Solubility	DMF: 25 mg/ml,DMF:PBS(pH7.2) (1:2): 0.3 mg/ml,DMSO: 16 mg/ml	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	STA-21		

Background

IC50: 12.2 μM for DU145 cells

STA-21 is a STAT3 inhibitor.

STAT-3, a transcription factor encoded by the STAT-3 gene, exists in a latent form in the cytoplasm. STAT-3 will be phosphorylated on tyrosine residues upon receptor activation by cytokines including IL-6, and forms homo- or heterodimers translocating to the cell nucleus. STAT-3 is also the major transcription factor in Th17 cell differentiation, and STAT-3 can be activated in inflamed synovium, which has been demonstrated in a RA animal model.

In vitro: Previous in vitro study showed that, in both mouse and human CD4+ T cells, the treatment with STA-21 could induce the expression of FoxP3 and repressed IL-17 expression. In addition, STA-21 was able to prevent both human monocytes and mouse

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BMM cells from differentiating into osteoclasts [1].

In vivo: In previous animal study, IL-1Ra-KO mice were treated with i.p. injections of STA-21 at 0.5 mg/kg 3 times per week for 3 weeks. Results showed that STA-21 could suppress inflammatory arthritis in IL-1Ra-KO mice. The Th17 cell proportion decreased and the proportion of Treg cells expressing FoxP3 was increased in the spleens of STA-21-treated mice markedly. Moreover, the adoptive transfer of CD4+CD25+ T cells from STA-21-treated IL-1Ra-KO mice suppressed inflammatory arthritis markedly [1].

Clinical trial: The topical efficacy of STA-21on psoriasis has been conducted at 2010, however, this study has been completed [https://clinicaltrials.gov/ct2/show/NCT01047943].

Reference:
[1] Park JS et al. STA-21, a promising STAT-3 inhibitor that reciprocally regulates Th17 and Treg cells, inhibits osteoclastogenesis in mice and humans and alleviates autoimmune inflammation in an experimental model of rheumatoid arthritis. Arthritis Rheumatol.2014 Apr;66(4):918-29.

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