

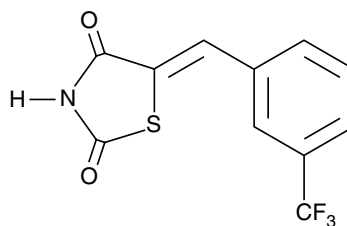
# Product Information



## SMI-4a

Item No. 11029

**CAS Registry No.:** 438190-29-5  
**Formal Name:** 5Z-[[3-(trifluoromethyl)phenyl]methylene]-2,4-thiazolidinedione  
**MF:** C<sub>11</sub>H<sub>6</sub>F<sub>3</sub>NO<sub>2</sub>S  
**FW:** 273.2  
**Purity:** ≥98%  
**Stability:** ≥2 years at -20°C  
**Supplied as:** A crystalline solid  
**UV/Vis.:** λ<sub>max</sub>: 230, 320 nm



### Laboratory Procedures

For long term storage, we suggest that SMI-4a be stored as supplied at -20°C. It should be stable for at least two years. SMI-4a is supplied as a crystalline solid. A stock solution may be made by dissolving the SMI-4a in the solvent of choice. SMI-4a is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF), which should be purged with an inert gas. The solubility of SMI-4a in these solvents is approximately 30 mg/ml.

SMI-4a is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, SMI-4a should first be dissolved in ethanol and then diluted with the aqueous buffer of choice. SMI-4a has a solubility of approximately 0.5 mg/ml in a 1:1 solution of ethanol:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

The serine/threonine Pim kinases have been suggested to promote the activity of the rapamycin-sensitive mammalian target of rapamycin (mTORC1), which regulates cell growth and survival.<sup>1</sup> Pim kinases are overexpressed in solid cancers and hematologic malignancies, and as such have become targets of small molecule inhibitors to prevent the progression of various cancers. SMI-4a is a Pim kinase inhibitor that blocks mTORC1 activity *via* activation of AMPK.<sup>1</sup> SMI-4a kills a wide range of both myeloid and lymphoid cell lines (with IC<sub>50</sub> values ranging from 0.8 to 40 μM).<sup>2</sup> Incubation of precursor T-cell lymphoblastic leukemia/lymphoma cells with 10 μM SMI-4a induces G<sub>1</sub> phase cell-cycle arrest, dose-dependent induction of p27<sup>Kip1</sup>, apoptosis through the mitochondrial pathway, and inhibition of the mTORC1 pathway.<sup>2</sup> In immunodeficient mice carrying subcutaneous pre-T-LBL tumors, treatment twice daily with 60 mg/kg SMI-4a causes a significant delay in the tumor growth.<sup>2</sup>

### References

- Beharry, Z., Mahajan, S., Zemskova, M., *et al.* The Pim protein kinases regulate energy metabolism and cell growth. *Proc. Natl. Acad. Sci. USA* **108**(2), 528-533 (2011).
- Lin, Y.-W., Beharry, Z.M., Hill, E.G., *et al.* A small molecule inhibitor of Pim protein kinases blocks the growth of precursor T-cell lymphoblastic leukemia/lymphoma. *Blood* **115**(4), 824-833 (2010).

### Related Products

For a list of related products please visit: [www.caymanchem.com/catalog/11029](http://www.caymanchem.com/catalog/11029)

**WARNING: THIS PRODUCT IS FOR LABORATORY RESEARCH ONLY: NOT FOR ADMINISTRATION TO HUMANS. NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.**

#### SAFETY DATA

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### Cayman Chemical

#### Mailing address

1180 E. Ellsworth Road  
Ann Arbor, MI  
48108 USA

#### Phone

(800) 364-9897  
(734) 971-3335

#### Fax

(734) 971-3640

#### E-Mail

[custserv@caymanchem.com](mailto:custserv@caymanchem.com)

#### Web

[www.caymanchem.com](http://www.caymanchem.com)