

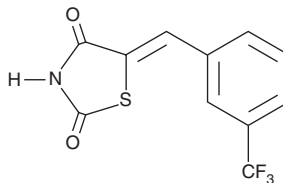
# PRODUCT INFORMATION



## 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%  
**UV/Vis.:** λ<sub>max</sub>: 230, 320 nm  
**Supplied as:** A crystalline solid  
**Storage:** -20°C  
**Stability:** ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

### Laboratory Procedures

SMI-4a is supplied as a crystalline solid. A stock solution may be made by dissolving the SMI-4a in the solvent of choice, which should be purged with an inert gas. SMI-4a is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. 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.

### Description

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 p27Kip1, 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

1. 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).
2. 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).

#### WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

#### SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

#### WARRANTY AND LIMITATION OF REMEDY

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