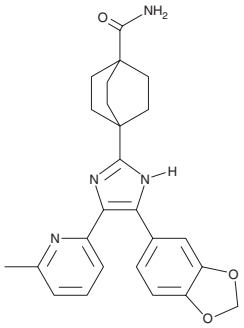
# PRODUCT INFORMATION

## SM-16

*Item No. 34061*



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| **CAS Registry No.:** | 614749-78-9 |
| **Formal Name:** | 4-[4-(1,3-benzodioxol-5-yl)-5-(6-methyl-2-pyridinyl)-1H-imidazol-2-yl]-bicyclo[2.2.2]octane-1-carboxamide |
| **MF:** | $C_{25}H_{26}N_4O_3$ |
| **FW:** | 430.5 |
| **Purity:** | ≥98% |
| **Supplied as:** | A solid |
| **Storage:** | -20°C |
| **Stability:** | ≥2 years |

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

### Laboratory Procedures

SM-16 is supplied as a solid. A stock solution may be made by dissolving the SM-16 in the solvent of choice, which should be purged with an inert gas. SM-16 is soluble in organic solvents such as ethanol, DMSO and dimethyl formamide (DMF). The solubility of SM-16 is slightly soluble in ethanol and is approximately 30 mg/ml in DMSO and DMF.

SM-16 is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, SM-16 should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. SM-16 has a solubility of approximately 0.16 mg/ml in a 1:5 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

### Description

SM-16 is an inhibitor of activin-like kinase 5 (ALK5), also known as the TGF-β type 1 receptor ($K_i$ = 44 nM).[1] It is selective for ALK5 over a panel of 60 non-ALK kinases, as well as ALK1 and ALK6, at 10 µM. SM-16 inhibits TGF-β1-induced reporter activity ($IC_{50}$ = 64 nM) and SMAD2/3 phosphorylation ($IC_{50}$s = 160-620 nM) *in vitro*. *In vivo*, SM-16 (15 and 30 mg/kg) inhibits neointimal formation and luminal narrowing in a rat model of carotid injury. SM-16 (5 mg/kg) inhibits tumor growth in an AB12 murine malignant mesothelioma model.[2]

### References


1. Fu, K., Corbley, M.J., Sun, L., *et al*. SM16, an orally active TGF-beta type I receptor inhibitor prevents myofibroblast induction and vascular fibrosis in the rat carotid injury model. *Arterioscler. Thromb. Vasc. Biol.* **28(4)**, 665-671 (2008).
2. Suzuki, E., Kim, S., Cheung, H.-K., *et al*. A novel small-molecule inhibitor of transforming growth factor beta type I receptor kinase (SM16) inhibits murine mesothelioma tumor growth *in vivo* and prevents tumor recurrence after surgical resection. *Cancer Res.* **67(5)**, 2351-2359 (2007).





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