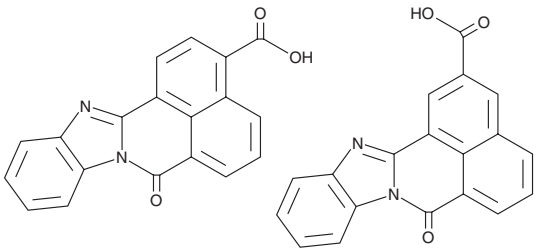
PRODUCT INFORMATION

STO-609

Item No. 31358

CAS Registry No.:	52029-86-4
Formal Name:	7-oxo-7H-benzimidazo[2,1-a]benz[de] isoquinoline-3-carboxylic acid
MF:	$C_{19}H_{10}N_2O_3$
FW:	314.3
Purity:	≥95% (mixture of isomers)
UV/Vis.:	λ_{max}: 221, 287, 297, 390 nm
Supplied as:	A 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

STO-609 is supplied as a solid. A stock solution may be made by dissolving the STO-609 in the solvent of choice, which should be purged with an inert gas. STO-609 is soluble in DMSO at a concentration of approximately 1 mg/ml.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of STO-609 can be prepared by directly dissolving the solid in aqueous buffers. The solubility of STO-609 in 100 mM NaOH is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

STO-609 is a calcium/calmodulin-dependent protein kinase kinase (CaMKK) inhibitor (IC_{50}s = 120 and 40 ng/ml for CaMKKα and CaMKKβ, respectively).[1] It is selective for CaMKKs over CaMKI, CaMKII, CaMKIV, MLCK, PKC, PKA, and p42 MAPK (IC_{50}s = ≥10,000 ng/ml for all). STO-609 inhibits phosphorylation of CaMKI and AMP-activated protein kinase (AMPK) in chicken sperm in the presence of extracellular calcium, as well as reduces chicken sperm motility, in a concentration-dependent manner.[2] It decreases hypothalamic neuropeptide Y (*Npy*) and agouti-related protein (*Agrp*) expression and cumulative food intake in mice when administered intracerebroventricularly as a 20 µM solution at a continuous rate of 0.5 µL/hour .[3] STO-609 (3 µg/animal, i.c.v.) increases cortical, striatal, and total infarct volume in a mouse model of focal transient cerebral ischemia induced by middle cerebral artery occlusion (MCAO).[4]

References

1. Tokumitsu, H., Inuzuka, H., Ishikawa, Y., *et al*. STO-609, a specific inhibitor of Ca^{2+}/calmodulin-dependent protein kinase kinase. *J. Biol. Chem*. **278(13)**, 10908-10913 (2013).
2. Nguyen, T.M.D., Combarnous, Y., Praud, C., *et al*. Ca^{2+}/calmodulin-dependent protein kinase kinases (CaMKKs) effects on AMP-activated protein kinase (AMPK) regulation of chicken sperm functions. *PLoS One* **11(1)**, e0147559 (2016).
3. Anderson, K.A., Ribar, T.J., Lin, F., *et al*. Hypothalamic CaMKK2 contributes to the regulation of energy balance. *Cell Metab*. **7(5)**, 377-388 (2008).
4. McCullough, L.D., Tarabishy, S., Liu, L., *et al*. Inhibition of calcium/calmodulin-dependent protein kinase kinase β and calcium/calmodulin-dependent protein kinase IV is detrimental in cerebral ischemia. *Stroke* **44(9)**, 2559-2566 (2013).

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