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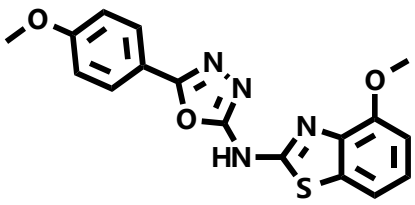
# SERCA2a SUMOylation Activator – N106

**Chemical Name:** N-(4-methoxybenzo[d]thiazol-2-yl)-5-(4-methoxyphenyl)-1,3,4-oxadiazol-2-amine



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|---|---|
| Molecular Weight: | 354.38 |
| Formula: | $C_{17}H_{14}N_4O_3S$ |
| Purity: | ≥98% |
| CAS#: | n/a |
| Solubility: | DMSO up to 50 mM |
| Storage | Powder: 4°C 1 year<br>DMSO: 4°C 3 month<br>-20°C 1 year |

**Biological Activity:**

N106 is a potent SERCA2a SUMOylation activator, which increases SUMOylation of SERCA2a. Decreased activity and expression of the cardiac sarcoplasmic reticulum calcium ATPase (SERCA2a), a critical pump regulating calcium cycling in cardiomyocyte, are hallmarks of heart failure. The small ubiquitin-like modifier type 1 (SUMO-1) is a regulator of SERCA2a and the gene transfer of SUMO-1 in rodents and large animal models of heart failure could restore cardiac function. N106 directly activates the SUMO-activating enzyme, E1 ligase, and triggers intrinsic SUMOylation of SERCA2a. There is a pocket on SUMO E1 likely to be responsible for N106's effect. N106 treatment increases contractile properties of cultured rat cardiomyocytes and significantly improves ventricular function in mice with heart failure. N106 may serve as a good tool compound to validate a potential therapeutic strategy for treatment of heart failure.

**How to Use:**

**In vitro:** N106 was used at 10 μM final concentration in vitro and in cellular assays.

**In vivo:** N106 was were continuously infused through the external jugular vein at a rate of 50 μl/min for 2 min in 1-10 mg/Kg dose in mice with heart failure. Formulation: N106 was solubilized in 10% DMSO, 10% Tween-80 and saline.

**Reference:**

1. Kho C, et al. Small-molecule activation of SERCA2a SUMOylation for the treatment of heart failure. (2015) Nat Commun. 6:7229.