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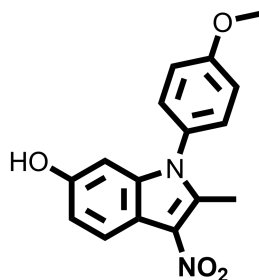
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## DYRK Inhibitor – ID-8

**Chemical Name:** 1-(4-methoxyphenyl)-2-methyl-3-nitro-1H-indol-6-ol



Molecular Weight:	298.29
Formula:	C <sub>16</sub> H <sub>14</sub> N <sub>2</sub> O <sub>4</sub>
Purity:	≥ 98%
CAS#:	147591-46-6
Solubility:	DMSO up to 100 mM
Storage	Powder: 4 °C 1 year DMSO: 4 °C 3 months -20 °C 1 year

### Biological Activity:

ID-8 is a highly potent and selective small molecule inhibitor of dual-specificity tyrosine phosphorylation-regulated kinase (DYRK). It could support Wnt-induced human embryonic stem cell proliferation and survival without differentiation. Using ID-8, a novel and simple chemically defined xeno-free culture system was developed that allows for long-term expansion of human pluripotent stem cells without FGF or TGF-beta pathway activation. These culture conditions do not include xenobiotic supplements, serum, serum replacement, or albumin. Using this culture system, several human pluripotent cell lines maintained pluripotency (>20 passages) and a normal karyotype and still retained the ability to differentiate into derivatives of all three germ layers. This Wnt-dependent culture system should provide a platform for complete replacement of growth factors with chemical compounds.

### How to Use:

**In vitro:** ID-8 was used at 0.5 μM final concentration in cell culture.

**In vivo:** n/a

### Reference:

1. Hasegawa K, et al. Wnt signaling orchestration with a small molecule DYRK inhibitor provides long-term xeno-free human pluripotent cell expansion. (2012) *Stem Cells Transl Med.* 1(1):18-28.
2. Miyabayashi T, et al. Indole derivatives sustain embryonic stem cell self-renewal in long-term culture. (2008) *Biosci Biotechnol Biochem.* 72(5):1242-8.
3. Firestone AJ, et al. Controlling destiny through chemistry: small-molecule regulators of cell fate. (2010) *ACS Chem Biol.* 5(1):15-34.

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