

## Small Molecules

### BI-D1870

90 kDa ribosomal S6 kinase (RSK) inhibitor

Catalog # 72712  
72714

1 mg  
10 mg



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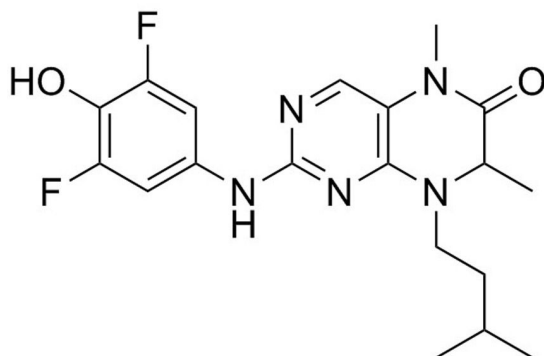
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## Product Description

BI-D1870 inhibits the 90 kDa ribosomal S6 kinases (RSKs), which are serine/threonine kinases involved in diverse cellular processes including growth, survival, and motility (Romeo et al.). BI-D1870 is a cell-permeable, ATP-competitive inhibitor of the four vertebrate isoforms of RSK (RSK1 - 4 IC<sub>50</sub> = 31, 24, 18, and 15 nM, respectively; Sapkota et al.). At 100 nM, it also significantly inhibits polo-like kinase 1, Aurora B, maternal embryonic leucine zipper kinase, and mammalian STE20-like kinase 2 (Bain et al.; Sapkota et al.).

|                    |                                                                                    |
|--------------------|------------------------------------------------------------------------------------|
| Molecular Name:    | BI-D1870                                                                           |
| Alternative Names: | Not applicable                                                                     |
| CAS Number:        | 501437-28-1                                                                        |
| Chemical Formula:  | C <sub>19</sub> H <sub>23</sub> F <sub>2</sub> N <sub>5</sub> O <sub>2</sub>       |
| Molecular Weight:  | 391.4 g/mol                                                                        |
| Purity:            | ≥ 95%                                                                              |
| Chemical Name:     | 2-(3,5-difluoro-4-hydroxyanilino)-5,7-dimethyl-8-(3-methylbutyl)-7H-pteridin-6-one |
| Structure:         |                                                                                    |



## Properties

|                      |                                                                                                                                                                                                 |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Physical Appearance: | A crystalline solid                                                                                                                                                                             |
| Storage:             | Product stable at -20°C as supplied. Protect from prolonged exposure to light. For product expiry date, please contact <a href="mailto:techsupport@stemcell.com">techsupport@stemcell.com</a> . |
| Solubility:          | · DMSO ≤ 38 mM<br>For example, to prepare a 10 mM stock solution in DMSO, resuspend 1 mg in 255 µL of fresh DMSO.                                                                               |

Prepare stock solution fresh before use. Information regarding stability of small molecules in solution has rarely been reported, however, as a general guide we recommend storage in DMSO at -20°C. Aliquot into working volumes to avoid repeated freeze-thaw cycles. The effect of storage of stock solution on compound performance should be tested for each application.

Compound has low solubility in aqueous media. For use as a cell culture supplement, stock solution should be diluted into culture medium immediately before use. Avoid final DMSO concentration above 0.1% due to potential cell toxicity.

## Published Applications

### MAINTENANCE AND SELF-RENEWAL

- Reduces neural stem cell proliferation and self-renewal in vitro (Karelina et al.).

### CANCER RESEARCH

- Inhibits growth of breast cancer cell lines (Stratford et al.; Dhillon et al.).

## References

- Bain J et al. (2007) The selectivity of protein kinase inhibitors: a further update. *Biochem J* 408(3): 297–315.
- Dhillon J et al. (2010) The expression of activated Y-box binding protein-1 serine 102 mediates trastuzumab resistance in breast cancer cells by increasing CD44+ cells. *Oncogene* 29(47): 6294–300.
- Karelina K et al. (2014) Ribosomal S6 kinase regulates ischemia-induced progenitor cell proliferation in the adult mouse hippocampus. *Exp Neurol* 253: 72–81.
- Romeo Y et al. (2012) Regulation and function of the RSK family of protein kinases. *Biochem J* 441(2): 553–69.
- Sapkota GP et al. (2007) BI-D1870 is a specific inhibitor of the p90 RSK (ribosomal S6 kinase) isoforms in vitro and in vivo. *Biochem J* 401(1): 29–38.
- Stratford AL et al. (2012) Targeting p90 ribosomal S6 kinase eliminates tumor-initiating cells by inactivating Y-box binding protein-1 in triple-negative breast cancers. *Stem Cells* 30(7): 1338–48.

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