# Small Molecules

**AKT Inhibitor VIII**

PI3K/AKT pathway inhibitor; Inhibits AKT1, AKT2, AKT3

| | | |
|---|---|---|
| Catalog # | 72942 | 1 mg |
| | 72944 | 10 mg |

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## Product Description

AKT Inhibitor VIII is a cell permeable, allosteric inhibitor of all three forms of the kinase AKT (AKT1, AKT2 and AKT3) with $IC_{50}$ values of 58, 210 and 2,200 nM respectively (Lindsley et al.; Calleja et al.). It displays good selectivity against a panel of 70 other kinases with micromolar inhibition against some kinases, for example, calcium/calmodulin-dependent protein kinase 1 and smooth muscle myosin light-chain kinase (Logie et al.).

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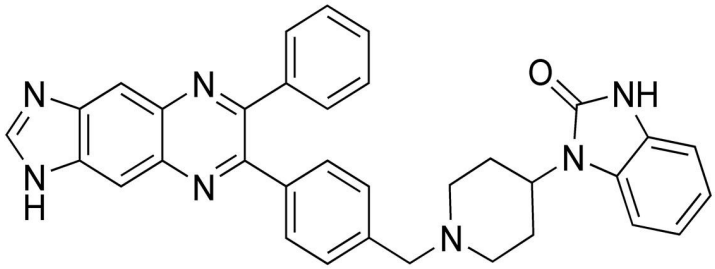
| Molecular Name: | AKT Inhibitor VIII |
| Alternative Names: | AKTi-1/2, AKT 1/2 inhibitor |
| CAS Number: | 612847-09-3 |
| Chemical Formula: | $C_{34}H_{29}N_7O$ |
| Molecular Weight: | 551.7 g/mol |
| Purity: | ≥ 98% |
| Chemical Name: | 3-[1-[[4-(7-phenyl-3H-imidazo[4,5-g]quinoxalin-6-yl)phenyl]methyl]piperidin-4-yl]-1H-benzimidazol-2-one |
| Structure: |  |

## Properties

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| 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 techsupport@stemcell.com. |
| Solubility: | · DMSO ≤ 25 mM<br>For example, to prepare a 10 mM stock solution in DMSO, resuspend 1 mg in 181 µL of DMSO.<br><br>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.<br><br>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

CANCER
· Sensitizes prostate tumor and cervical carcinoma cells to apoptotic stimuli (DeFeo-Jones et al.).
· Blocks mitosis and inhibits migration of HeLa cells (Jo et al.).

METABOLISM
· Reduces insulin-dependent gene repression in liver cells leading to reduced insulin sensitivity (Logie et al.).

## References

Calleja V et al. (2009) Role of a novel PH-kinase domain interface in PKB/Akt regulation: structural mechanism for allosteric inhibition. PLoS Biol 7(1): e17.
DeFeo-Jones D et al. (2005) Tumor cell sensitization to apoptotic stimuli by selective inhibition of specific Akt/PKB family members. Mol Cancer Ther 4(2): 271–279.
Jo H et al. (2011) Deactivation of Akt by a small molecule inhibitor targeting pleckstrin homology domain and facilitating Akt ubiquitination. Proc Natl Acad Sci U S A 108(16): 6486–91.
Lindsley CW et al. (2005) Allosteric Akt (PKB) inhibitors: discovery and SAR of isozyme selective inhibitors. Bioorg Med Chem Lett 15(3): 761–4.
Logie L et al. (2007) Characterization of a protein kinase B inhibitor in vitro and in insulin-treated liver cells. Diabetes 56(9): 2218–27.

## Related Small Molecules

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This product is hazardous. Please refer to the Safety Data Sheet (SDS).