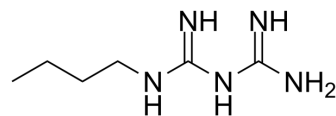


## Buformin

Cat. No.:	HY-B2099
CAS No.:	692-13-7
Molecular Formula:	C <sub>6</sub> H <sub>15</sub> N <sub>5</sub>
Molecular Weight:	157.22
Target:	AMPK
Pathway:	Epigenetics; PI3K/Akt/mTOR
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



### BIOLOGICAL ACTIVITY

<b>Description</b>	Buformin (1-Butylbiguanide), a potent AMPK activator, acts as an orally active biguanide antidiabetic agent. Buformin decreases hepatic gluconeogenesis and lowers blood glucose production in vivo. Buformin also has anti-cancer activities and is applied in cancer study (such as, cervical cancer and breast cancer, et al) <sup>[1]</sup> .																		
<b>In Vitro</b>	<p>Buformin (0-10 mM; 5 days) inhibits SKBR3 and BT474 cells growth as a concentration-dependent manner, exhibits IC<sub>50</sub> values of 246.7 μM and 98.6 μM for erbB-2-overexpressing SKBR3 and BT474 cells, respectively<sup>[1]</sup>.</p> <p>Buformin (0-3 mM; 48 hours) increases the percentage of cells in G0/G1 phase and reduced the percentage of cells in S phase, especially in the SKBR3 cells<sup>[1]</sup>.</p> <p>Buformin (0-3 mM; 24 hours) suppresses RTK activation, including erbB-2 and IGF1R signaling downstream, and Akt activation/phosphorylation is inhibited in both SKBR3 and BT474 cells<sup>[1]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> <p>Cell Viability Assay<sup>[1]</sup></p> <table border="1"> <tr> <td>Cell Line:</td> <td>ErbB-2-overexpressing SKBR3 and BT474 cells</td> </tr> <tr> <td>Concentration:</td> <td>0 μM, 1 μM, 3 μM, 10 μM, 30 μM, 100 μM, 300 μM, 1, 3, or 10 mM</td> </tr> <tr> <td>Incubation Time:</td> <td>5 days</td> </tr> <tr> <td>Result:</td> <td>Reduced cell viability in erbB-2-overexpressing breast cells.</td> </tr> </table> <p>Cell Cycle Analysis<sup>[1]</sup></p> <table border="1"> <tr> <td>Cell Line:</td> <td>ErbB-2-overexpressing SKBR3 and BT474 cells</td> </tr> <tr> <td>Concentration:</td> <td>0.5 mM; 1 mM; 3 mM</td> </tr> <tr> <td>Incubation Time:</td> <td>48 hours</td> </tr> <tr> <td>Result:</td> <td>Increased cells arresting in G0/G1 phase.</td> </tr> </table> <p>Western Blot Analysis<sup>[1]</sup></p> <table border="1"> <tr> <td>Cell Line:</td> <td>ErbB-2-overexpressing SKBR3 and BT474 cells</td> </tr> </table>	Cell Line:	ErbB-2-overexpressing SKBR3 and BT474 cells	Concentration:	0 μM, 1 μM, 3 μM, 10 μM, 30 μM, 100 μM, 300 μM, 1, 3, or 10 mM	Incubation Time:	5 days	Result:	Reduced cell viability in erbB-2-overexpressing breast cells.	Cell Line:	ErbB-2-overexpressing SKBR3 and BT474 cells	Concentration:	0.5 mM; 1 mM; 3 mM	Incubation Time:	48 hours	Result:	Increased cells arresting in G0/G1 phase.	Cell Line:	ErbB-2-overexpressing SKBR3 and BT474 cells
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	Concentration:	0 mM, 0.1 mM, 0.3 mM, 1 mM, or 3 mM
	Incubation Time:	24 hours
	Result:	Decreased p-AMPK, p-p70S6, p-ERK1/2 expression in a concentration-dependent manner.
<b>In Vivo</b>	Buformin (oral administration; 7.6 mmol/kg of chow; 7 days) exhibits significantly reduced tumor volumes and weights, and hinders mammary morphogenesis and proliferation in MMTV-erbB-2 transgenic mice <sup>[1]</sup> MCE has not independently confirmed the accuracy of these methods. They are for reference only.	
	Animal Model:	Female MMTV-erbB-2 transgenic mice <sup>[1]</sup>
	Dosage:	7.6 mmol/kg
	Administration:	Oral administration; 7 days
	Result:	Inhibited mammary syngeneic tumor growth in MMTV-erbB-2 transgenic mice.

## CUSTOMER VALIDATION

- Clin Sci. 2022 Feb 25;136(4):273-289.

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## REFERENCES

[1]. Amanda B Parris, et al. Buformin Inhibits the Stemness of erbB-2-overexpressing Breast Cancer Cells and Premalignant Mammary Tissues of MMTV-erbB-2 Transgenic Mice. J Exp Clin Cancer Res

[2]. Jing Li, et al. Buformin Suppresses Proliferation and Invasion via AMPK/S6 Pathway in Cervical Cancer and Synergizes With Paclitaxel. Cancer Biol Ther. 2018 Jun 3;19(6):507-517.

**Caution: Product has not been fully validated for medical applications. For research use only.**

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