

# Allicin

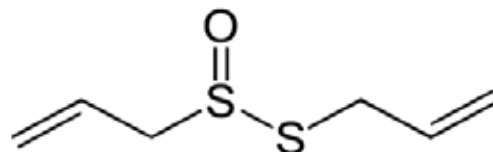
**Allicin (A4440)** is an organosulfur compound found in garlic. Like other organosulfurs, allicin exhibits a wide variety of biological activities, including antiviral, antibacterial, anti-inflammatory, antioxidative, antihypertensive, and anticancer properties.

LKT Laboratories now carries an aqueous solution of allicin (**Allicin, aqueous A4441**) that eliminates the presence of methanol as a solvent. This solution of water and 0.1% formic acid allows allicin to be used in cell cultures and animal studies without the cytotoxic effects of methanol. The aqueous solution does not sacrifice quality or stability for its ease-of-use benefit. General storage conditions and stabilities are similar to those of allicin in methanol.

Several studies using allicin supplied from LKT Laboratories have been published within the last several years, many focusing on the antimicrobial effects of allicin. One study highlights the ability of allicin to inhibit streptolysin O, a potent cytolytic toxin produced by species of *Streptococcus*, a gram-positive bacteria<sup>1</sup>.

#### References:

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**Allicin, aqueous (A4441)** does not contain methanol, making it easier to use in cell culture and animal studies!

A separate study suggests that allicin inhibits surface adherence and suppresses production of virulence factors by gram-negative bacteria *Pseudomonas aeruginosa*<sup>2</sup>. Additionally, allicin downregulates expression and secretion of *Mycobacterium tuberculosis* 85B mRNA in infected monocytes<sup>3</sup>. This effect is likely due to allicin's anti-inflammatory and antioxidative activities, as it increases levels of glutathione and IFN- $\gamma$  and decreases levels of TNF- $\alpha$ .

Allicin displays other antioxidative activities as well. In animal models, allicin suppresses increased ROS levels and NADPH activity induced by angiotensin II or pressure overload, preserving cardiac function and preventing the development of cardiac hypertrophy<sup>4</sup>. This compound also reduces systolic and diastolic blood pressure when administered to hypertensive subjects in a clinical setting<sup>5</sup>.

In various cellular and animal models, allicin also exhibits anticancer and chemopreventive properties. This compound suppresses PI3K/mTOR signaling and induces p53-mediated autophagy in hepatocellular carcinoma cells<sup>6</sup>. Allicin also inhibits growth of glioma cells in vitro through modulation of MAPK/ERK signaling and Bcl-2/Bax levels<sup>7</sup>.

