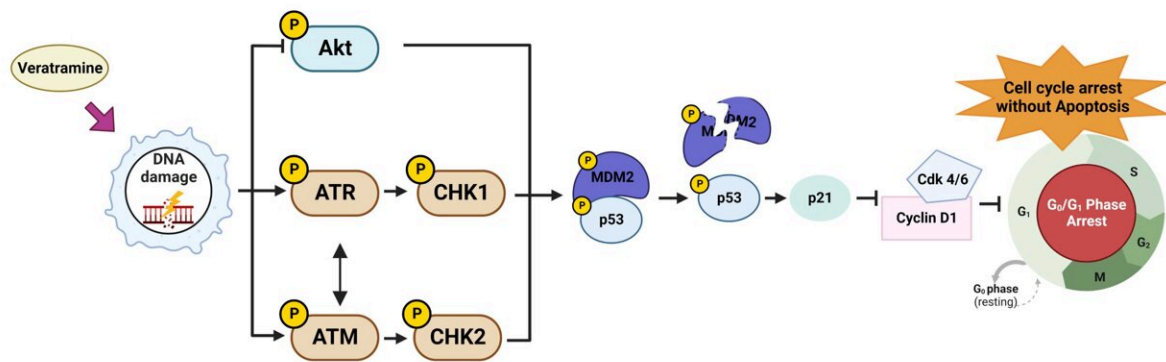


Veratramine found to inhibit androgen-independent prostate cancer

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Credit: Daegu Gyeongbuk Institute of Science and Technology (DGIST)

The DGIST Core Protein Resources Center and Honam National Institute of Biological Resources announced that they have molecularly elucidated the mechanism by which veratramine, extracted from the wild island plant *Veratrum japonicum*, inhibits the proliferation of prostate cancer cells.

Prostate cancer ranks first in incidence among male cancers in Western countries including the United States, and it is also the fastest-growing

male cancer in South Korea. In the early stages of onset, hormone suppression therapy can control proliferation; however, as the disease progresses, it becomes hormone-refractory, making treatment more difficult. Therefore, developing treatments using [natural substances](#) without side effects is considered an important area of research.

Veratramine extracted from *Veratrum japonicum*, a wild island plant, has been known to inhibit the proliferation of liver cancer and brain neuroglioma cells and is also effective for [high blood pressure](#) and [inflammatory diseases](#). However, the effect of veratramine on [prostate cancer](#) had not been studied before.

The research team led by Choi Seong-gyun applied veratramine to prostate cancer cells and identified the concentration at which it inhibits the cells' biological functions. They confirmed that veratramine significantly inhibits the proliferation of prostate cancer. Furthermore, the experiments revealed that veratramine significantly reduces the cancer cells' survivability and mobility. The work is published in *The American Journal of Chinese Medicine*.

Through immunostaining, proteomics, and microarray analyses, the research team found that veratramine increases the expression of ATM/ATR, a DNA damage-related protein in prostate cancer cells, and suppresses the expression of the Akt protein involved in cancer cell proliferation. Additionally, when veratramine was administered to immunodeficient mice with prostate cancer, both the tumor size and the expression of tumorigenic proteins significantly decreased without any toxic lesions in the parenchymal organs.

Choi Seong-gyun, Director of the DGIST Core Protein Resources Center, stated, "This research lays the groundwork for developing effective substances that can overcome the limitations of existing treatments using island wildlife extracts. We will take the lead in

constructing a utility database for various effective substances from island wildlife extracts for different diseases through active joint research between DGIST and the Honam National Institute of Biological Resources."

More information: Hee-Yeon Kim et al, Veratramine Inhibits the Cell Cycle Progression, Migration, and Invasion via ATM/ATR Pathway in Androgen-Independent Prostate Cancer, *The American Journal of Chinese Medicine* (2023). [DOI: 10.1142/S0192415X2350060X](https://doi.org/10.1142/S0192415X2350060X)

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