

STUDENTS



Aspirin and Cancer

Maria Azzopardi

Aspirin is often considered a wonder drug due to its versatile use in treating inflammation, reducing pain, and helping to prevent heart-related disease. However, there is more to it. Aspirin is actually cancer-preventive.

Studies have shown that a daily low dose of aspirin, medically prescribed for more than five years, lowers the risk of cancer-related deaths by at least 30%. So, should we all start taking aspirin on a daily basis to lower our chances of getting cancer?


No, not exactly. This is because many aspects of aspirin's cancer-preventive effects are still poorly understood. Particularly, researchers have not yet pinpointed what enables aspirin to selectively kill early-stage cancer cells and not healthy cells. This is the scope of the research currently being carried out at the Yeast Molecular Biology and Biotechnology Laboratory (headed by Prof. Rena Balzan).

The secret behind aspirin's tendency to kill certain cells but not others seems to lie in the physiology of the exposed cells. Aspirin exploits the natural differences between healthy and cancerous cells to eliminate malignant cells before they can take over.

Oxygen, if transformed into 'Reactive Oxygen Species', is known to cause DNA mutations that can

lead to cancer. Through this research, we studied mutated yeast cells which are a relevant model of early-stage cancer cells due to their low tolerance to oxygen-associated stress. We then identified genes in these mutant yeasts which are affected by aspirin.

One of aspirin's targets is a key metabolite required for the production of energy-rich compounds vital for cell survival. We found that aspirin creates a shortage of this metabolite in mutated yeast cells, causing them to run out of energy and die.

This implies that early-stage human cancer cells may suffer a similar fate and, more importantly, partly explains how aspirin prevents tumour formation. Such knowledge may prove useful in the development of novel anti-cancer treatments. 

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