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## **New discovery tackles treatment-resistant melanoma**

Researchers from the Centenary Institute have developed a new approach to fighting melanomas that fail to respond – or are resistant – to standard treatments. The deadliest form of skin cancer, melanoma is responsible for more than 1,700 deaths each year in Australia.

In their pre-clinical study, the researchers found that use of the chemotherapy drug temozolomide, in combination with chloroquine, was able to kill medication-resistant melanoma cells.

Joint senior author of the study Dr Abdullah Al Emran, affiliated with both the Centenary Institute and Harvard Medical School, said that melanoma was often quite ‘plastic’ in nature.

“What we mean by this is that melanoma can change its biology to more resistant forms during treatment. The cancer cells adapt to treatment over time and continue to survive and grow. Our use of temozolomide and chloroquine has shown however that these resistant forms are still able to be killed,” said Dr Emran.

In the study, the researchers investigated BRAF positive melanoma cells. Accounting for about half of all melanomas, a mutation in the BRAF gene promotes cancer cell growth.

The use of temozolomide and chloroquine activated innate death (self-destruct) mechanisms within the melanoma cells targeted. These death mechanisms are normally triggered by the immune system when trying to resist viral infections or attacks from other micro-organisms.

Professor Peter Hersey, Head of the Centenary Institute’s Melanoma Oncology and Immunology Program and joint senior author of the paper, said that although treatment of melanoma over the past 10 years had improved enormously, only about 50% of patients survived beyond five years.

“We need new approaches to overcome this treatment resistance and to reduce mortality rates. Our findings have important implications for future patients failing current melanoma treatments.”

The study was published in the Journal of Investigative Dermatology and utilised melanoma cells from patients as well as experimental mouse models.

[ENDS]

### **Publication:**

Repurposing melanoma chemotherapy to activate inflammasomes in treatment of BRAF/MAPK inhibitor resistant melanoma. Journal of Investigative Dermatology.  
[https://www.jidonline.org/article/S0022-202X\(21\)02384-8/fulltext](https://www.jidonline.org/article/S0022-202X(21)02384-8/fulltext)

### **Images:**

Dr Abdullah Al Emran:

[https://drive.google.com/file/d/1JIKkLDCpk2dqOZBQb17KUxXcS\\_BunqOi/view](https://drive.google.com/file/d/1JIKkLDCpk2dqOZBQb17KUxXcS_BunqOi/view)

Professor Peter Hersey:

<https://drive.google.com/file/d/1GiQTnUckq80ypqxSXqxnvUYQ73VBmsEo/view?usp=sharing>

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**About the Centenary Institute**

The Centenary Institute is a world-leading independent medical research institute, closely affiliated to the University of Sydney and the Royal Prince Alfred Hospital. Our research focuses on three key areas: cancer, inflammation and cardiovascular disease. Our strength lies in uncovering disease mechanisms and applying this knowledge to improve diagnostics and treatments for patients.

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