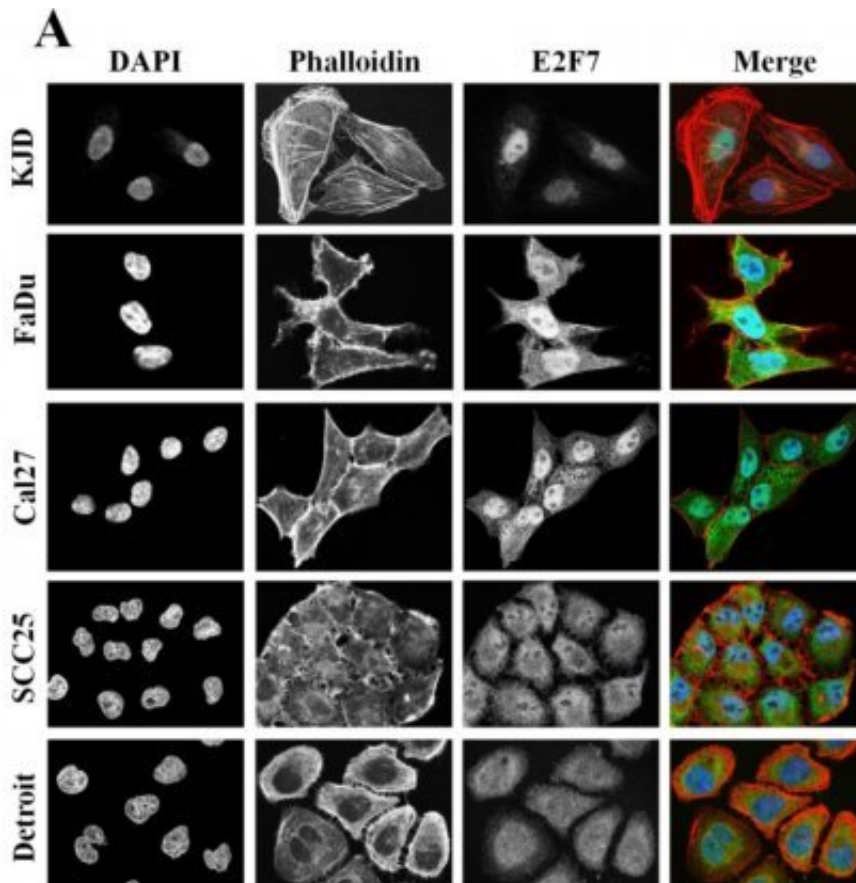


New treatment to reverse drug resistance in some cancers

June 28 2018



Green colour shows E2F7 that has leaked out of the nucleus in drug resistant cancer cells. Credit: University of Queensland

University of Queensland researchers have discovered how to reverse drug resistance in skin and mouth squamous cell carcinomas.

UQ Diamantina Institute Associate Professor Nicholas Saunders said [squamous cell carcinomas](#) was curable when diagnosed early but difficult to eradicate once the cancer spread.

"This cancer of the skin and mouth kills approximately 1,400 Australians each year," Dr. Saunders said.

"The drugs used to treat squamous cell carcinomas that have spread to other parts of the body only work for a small fraction of patients.

"In our study, we successfully added a new [drug](#) to an existing treatment to make squamous cell carcinomas responsive to treatment."

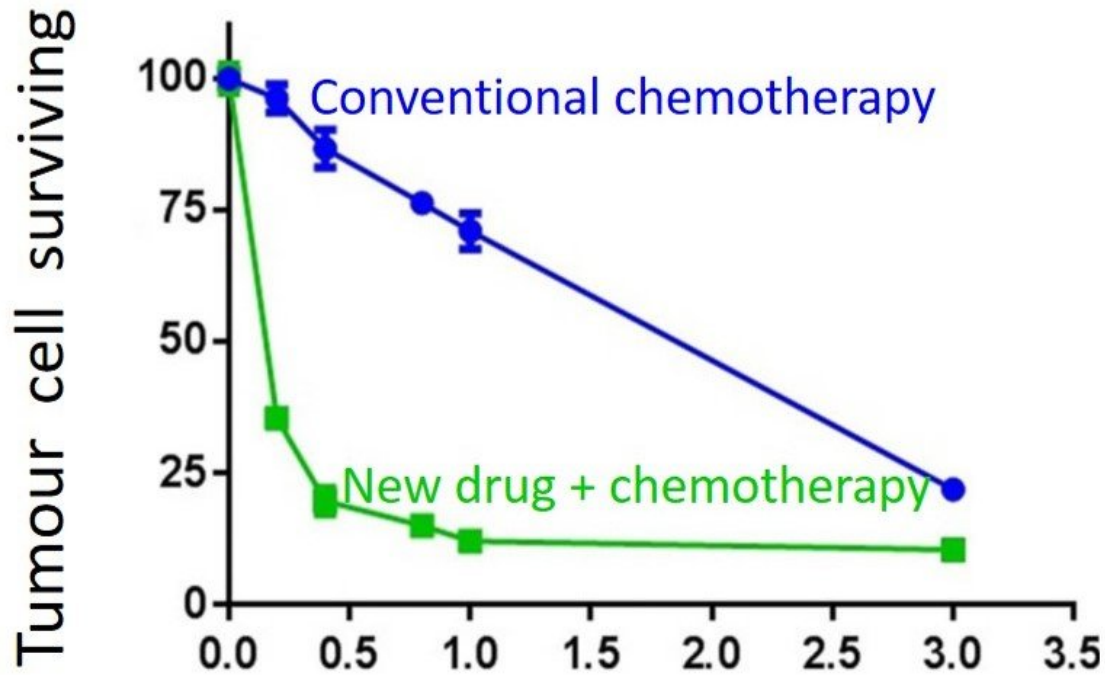
Researchers found that a protein called E2F7 was controlling [drug resistance](#) in the affected [cells](#).

"More than 80 per cent of squamous cell carcinomas we examined had a unique defect in the protein," Dr. Saunders said.

"In normal cells, E2F7 stays within the nucleus of a cell and blocks drug resistance.

"We discovered that in most squamous carcinomas E2F7 is pumped out of the nucleus, meaning it can no longer stop drug resistance occurring.

"By administering a drug that helps to keep E2F7 in the nucleus, the cancer cells become sensitive to existing chemotherapeutics."



Conventional Chemotherapy concentration

Credit: University of Queensland

Dr. Saunders said finding new ways to prevent drug resistance was vital for improving patient outcomes.

The study is published in *Science Translational Medicine*.

More information: Natalia Saenz-Ponce et al. Targeting the XPO1-dependent nuclear export of E2F7 reverses anthracycline resistance in head and neck squamous cell carcinomas, *Science Translational Medicine* (2018). [DOI: 10.1126/scitranslmed.aar7223](https://doi.org/10.1126/scitranslmed.aar7223)

Provided by University of Queensland

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