

Innovations in cancer research

Cell focus offers new hope

An Australian biotech company hopes its new approach to knocking out cancer cells will make a dent in a \$100 billion global market.

An Australian biotechnology company says it has come up with an innovative drug that has the potential to transform the treatment of people with cancer—and make a significant dent in a \$100 billion global market.

The company is Noxopharm, based in Sydney. Its CEO, Dr Graham Kelly, sees huge potential for its anti-cancer drug, NOX66.

"We believe NOX66 is going to change the face of cancer therapy," he says. "It's the only anti-cancer drug we know of that makes cancer cells more sensitive to radiotherapy and chemotherapy so that those therapies become dramatically more effective, but without making them any more unsafe."

According to the Australian Cancer Research Foundation, one in three Australian men and one in four Australian women will develop a life-threatening cancer before the age of 75.

Dr Kelly says conventional chemotherapy and radiotherapy are poisons that work by damaging the cancer cells.

"The problem is that cancer cells fight back by increasing their ability to repair the damage, whereas normal cells don't. In the end, sometimes it is just not possible to inflict enough damage to kill the cancer cells, and that is why people succumb to the cancer."

Dr Kelly says NOX66 works by blocking the ability of cancer cells to repair damage, with the result that even the most resistant cancer cells are killed by chemotherapy or radiotherapy.

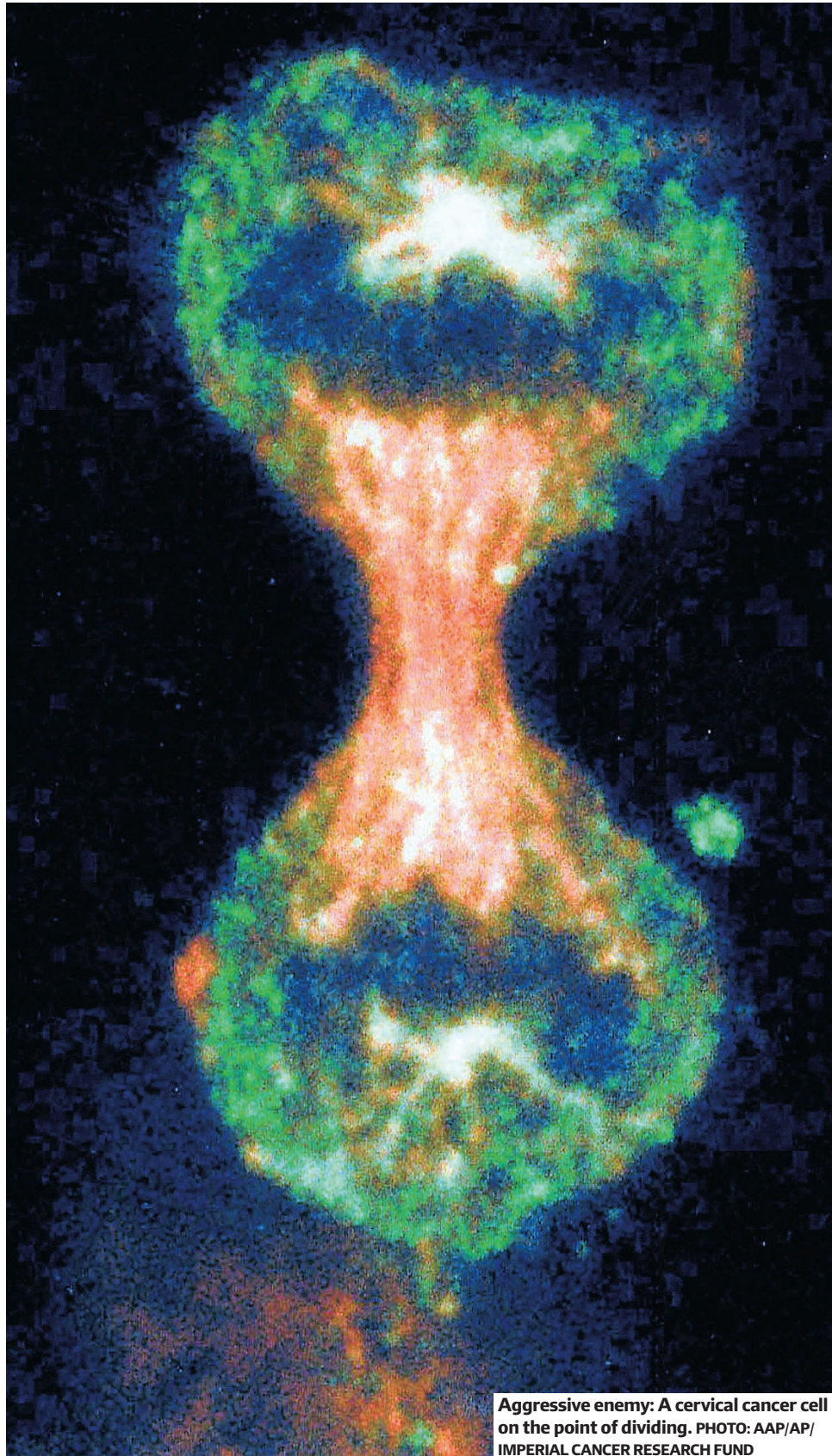
"Many companies have tried to develop a drug like NOX66, but have failed because their drug ends up not distinguishing between repair mechanisms in cancer cells and normal cells," he says. "Those drugs have proved to be too unsafe."

"NOX66 avoids this problem by blocking repair mechanisms only in cancer cells."

The active drug in NOX66 is a compound called idronoxil. Dr Kelly and a team of medical researchers developed idronoxil at Sydney University Medical School more than 20 years ago, "as a way of trying to make chemotherapy work better", he says.

"Idronoxil went on to be used in over 400 cancer patients around the world, but unfortunately didn't work in enough patients to make it worthwhile going on with, so it was then put back on the shelf."

Dr Kelly went from being cancer-drug researcher to guinea pig after he was diagnosed in 2008 with a highly aggressive form of prostate cancer. He underwent the usual treatment, but says that by



Aggressive enemy: A cervical cancer cell on the point of dividing. PHOTO: AAP/AP/ IMPERIAL CANCER RESEARCH FUND

2012 the cancer had spread around his body, and doctors indicated he did not have long to live.

Dr Kelly had sufficient faith in idronoxil to believe it could save his life. He says it then became a race against time to understand why it hadn't worked on humans as it had done during animal testing back in the university lab.

"The light bulb finally went on in early 2012. At a couple of seconds to midnight I had to pull something out of the hat and luckily I did. The answer turned out to lie in the way we had been giving idronoxil to patients. Once it was given in the form of NOX66, it worked."

"Five years later I am without any sign of cancer



New approach: Dr Graham Kelly says NOX66 blocks cancer cells' ability to repair themselves after they've been hit by chemotherapy and radiotherapy. PHOTO: KIMBAL BAKER

and am in what the doctors refer to as 'complete remission'.

"That's what's made me confident that we've cracked how to make this drug work."

Dr Kelly says idronoxil works in the laboratory against all forms of cancer so far tested.

He adds that by this October, Noxopharm intends to have seven clinical studies of NOX66 running in Europe, Australia, New Zealand and Hong Kong, with a major focus being the use of NOX66 in combination with radiotherapy.

By the end of this year, Dr Kelly expects Noxopharm will have a clear read-out on the drug's

'At a couple of seconds to midnight I had to pull something out of the hat and luckily I did.'

Dr Graham Kelly

effectiveness and "whether it works on other people in the way it has worked on me".

He adds: "Drug development is black and white. In our case, success would mean we would have a potential blockbuster drug on our hands that might change in a very meaningful way how we manage cancer".

Noxopharm listed on the ASX last August and has a current market capitalisation of \$43 million. Dr Kelly says that the company has enough money to take NOX66 through its initial testing phases.

"But drug development is an expensive business, with success driving the need for more funding. If we are as successful as we believe we are going to be, then of course we will need additional investment to bring NOX66 into the \$100 billion oncology-drug market."

For now, investors are waiting and watching. Dr Kelly anticipates that Noxopharm's share price will soon reflect the viability of NOX66.

"We are talking about potentially one of the biggest-selling drugs in the oncology field, and we expect to know by the end of this year whether NOX66 has that potential."

Noxopharm is holding shareholder briefings in Melbourne on May 30, Sydney on June 2 and the Gold Coast on June 6.



www.noxopharm.com