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[\[Medicine\] NTU's Significant Breakthrough in Anti-cancer Drugs Published in 《Science》](#)[Medicine] NTU's Significant Breakthrough in Anti-cancer Drugs Published in 《Science》 ([Chinese Version](#))

Udn.com (2011/07/23), RTI & The Liberty Times (2011/07/22) A significant breakthrough in the development of anti-cancer drugs in Taiwan has occurred. A research team at NTU-College of Medicine has spent three years trying to find the molecular mechanism how the anti-cancer drugs destroy the DNA of cancer cells, whose relevant findings will largely elevate the effect and safety of the anti-cancers in the future. Such a breakthrough is regarded as a novel milestone in the global history of the development of anti-cancers and the report has been published in the current issue (22 July, 2011) of Science.

The research team of thirty young scholars led by Associate Professor Nei-li CHAN, Graduate Institute of Biochemistry and Molecular Biology, NTU, and Associate Professor Tsai-Kun LI, Graduate Institute of Microbiology, NTU, spent years on finding the molecular mechanism how the anti-cancer "etoposide" gets combined with the specific enzyme in human body, namely, Type II topoisomerases (TOP2s), triggering the breakup of both strands of a DNA duplex to form a cleavage complex, which leads to TOP2-mediated chromosome DNA breakage and death of cancer cells. The observations of the mechanism can help with the elevation of the drug effect and the reduction of the side effect in the future; it also contributes information for developing novel drugs.

CHAN points out, TOP2s can be divided into two sup-types:  $\alpha$ -type and  $\beta$ -type; the former aims at cancer cells and the latter normal cells. If drugs targeting TOP2- $\alpha$  can be developed, the the anti-cancer effect of the drug will be enhanced while the side effect upon the health cells will be reduced.

LI points out, NTU has designed the drug development platform, which has been under patent applications in several countries. In the future, it is expectable that more more efficient anti-cancer new drugs with lower side effect will be developed.

Related website:

<http://www.sciencemag.org/content/333/6041/459.abstract>

Further Information:

[Udn.com 2011/07/23](#) (Chinese)

[RTI 2011/07/22](#) (Chinese)

[The Liberty Times 2011/07/22](#) (Chinese)

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[National Science Council International Cooperation Sci-Tech Newsbrief](#)

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