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[\[Cancer Treatment\] NCHU Researchers Identify Key Gene Relating with Cancer Metastasis](#)[Cancer Treatment] NCHU Researchers Identify Key Gene Relating with Cancer Metastasis ([Chinese Version](#))

NCHU News (2012/05/24) Metastasis is the most problematic issue in cancer treatment, and it is highly relevant to the capacity of cancer cell invasion; if the ways to suppress the invasion of cancer cells are found, more effective treatment to reduce the incidence of metastasis will be provided. A research team led by Dean of the College of Life Sciences, National Chung Hsing University, Professor Hong-Chen CHEN has identified FAK (focal adhesion kinase, a type of tyrosine kinase) as the key molecule controlling the capacity of cancer cell's invasion. The findings have been published in noted international journal, Journal of Cell Biology on October 3, 2012.

The research is conducted by a PhD student supervised by Professor Hong-Chen CHEN, Yi-Ru PAN (the first author) and a postdoctoral research fellow Chien-Lin CHEN. The team explained, the invasiveness of cancer cells is dependent on their motility and its effect causing extracellular matrix degradation that allows them to invade tissues. To this end, cancer cells need to form certain structure that helps them. The structure is named "podosome," or "invadopodia." Surprisingly, in highly invasive cells, they are often found to assemble into large rosettelike structures, which are called "podosome rosette," with which the invasion capacity is largely enhanced. Until now, however, the key molecule controlling the assembly has not been identified.

The team discovered, the expression of focal adhesion kinase (FAK) controls the assembly. In highly invasive cells, the suppression of FAK's expression or activity stops the formation of podosome rosette, lowering the invasiveness in tissues. Besides, the team also determined that it is the intermediate filaments that FAK decomposed inducing the assembly of podosome rosette.

Hong-Chen CHEN said, the understanding of the mechanism of cancer cells' tissue invasion enriches the understanding of the mechanism of metastasis, and these can help with making treatment policies against cancer metastasis. The findings not only unveil the critical role of FAK in the assembly of podosome rosette but also give proof for FAK as one of the major therapeutic targets for cancer treatment. Besides, CHEN also noted, since podosome rosette is necessary for osteoclast's eroding bones as well, drugs suppressing FAK may also help with osteoporosis treatment.

Reference:

[NCHU News 2012/05/24](#) (Chinese)

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

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