

Camouflaged Tumour Cells Under Attack

Our immune system should treat tumour cells as enemies, but these cells have learned to camouflage themselves to escape detection, known as “immune evasion”. Research by **Dr Victor Lee Ho-fun**, Clinical Associate Professor in the Department of Clinical Oncology and Assistant Dean (Assessment) in the Faculty, aims to identify and attack the camouflaged cells involved in nasopharyngeal cancer (NPC).

NPC is most prevalent in Hong Kong and southern China due to a combination of genetic factors, exposure to the Epstein Barr virus (EBV) and a traditional diet heavy in salted fish, which contains carcinogenic substances. Typically it is treated with radiation and chemotherapy, but about 30 per cent of patients will suffer a relapse that spreads, with minimal chance for a cure.

Dr Lee’s research aims firstly to improve understanding of NPC tumours. Sometimes very small tumours at the nasopharynx will spread to the lymph nodes, while in other cases there will be a large tumour that does not spread. He is one of the first to investigate this heterogeneity in tumours, using single-cell sequencing techniques that screen the characteristics of the hundreds of millions of cells present in tumours.


“We want to identify the mechanisms involved in the evolution of NPC. If we can determine that a tumour has a low likelihood of spreading to the neck, then we won’t need to radiate there or we radiate less. Or if we find it is more likely to spread, we can apply intensified radiation and other therapies,” he said.

Last year, his department led by Professor Anne Lee Wing-mui established a new biobank of tumorous and normal cells from the nasopharynx and from the lungs, another research area he is interested, to aid in these investigations.

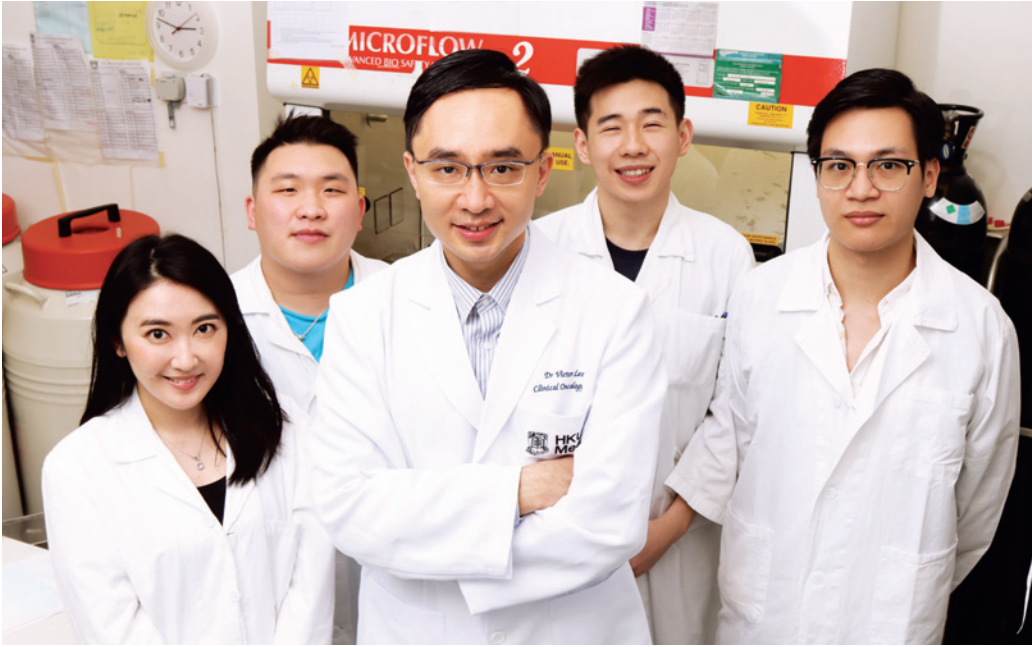
Dr Lee is also studying alternative or modified forms of therapy for NPC because of the limitations of radiation. Other important organs, such as the brain stem, are located close to the nasopharynx, so radiation doses have to be dialled down to avoid damaging those areas. Dr Lee is working with Hong Kong Sanatorium & Hospital to study a new radiation technique, proton therapy, that provides more finely-targeted doses that can be delivered precisely to the tumour and spare the surrounding tissue and organs.

He has also been involved in a long-term study of immunotherapy for NPC led by Professor Dora Kwong Lai-wan in the Department of Clinical Oncology and the QIMR Berghofer Medical Research Institute in Australia. Blood is taken from patients and the T-cells are trained to target the EBV antigens. An eight-year Phase 1 trial showed the therapy was safe and could extend the survival rates of patients with terminal NPC. It also helped some patients who were at high risk of recurrence to remain disease-free. A larger Phase 2 trial is now underway.

“Tumour cells should be considered enemies. If we can stimulate a patient’s own immune system to find and attack them, they will be spared the side effects of other therapies,” he said.



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Biography 簡歷

nasopharyngeal carcinoma