

Cigarette smoke impairs ability to fight disease

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University College Dublin researchers in the obesity immunology research group in the Education Research Centre, St Vincent's University Hospital led by Professor Donal O'Shea have demonstrated for the first time that cigarette smoke extract (CSE) has a specific effect on a minor subset of immune cells. They believe that this may contribute to the role of cigarette smoke in the development of cancer.

Carcinogens in [cigarette smoke](#) can lead directly to lung cancer and have been implicated in several other malignancies. In addition, cigarette smokers have an increased susceptibility to type II diabetes, infections and autoimmune disorders such as rheumatoid arthritis.

Invariant natural killer T (iNKT) cells are immune regulators that play an important role in mounting anti-tumour responses with the early production of potent cytokines. Many studies have already shown that iNKT cells are defective in certain cancers.

This study compared the number and function of iNKT cells in a group of healthy individuals who smoke 20 cigarettes each day to those in non-smoking individuals of the same age group.

The findings, which were published recently in the journal, *Clinical Immunology* showed reduced iNKT cell numbers in cigarette smokers and also significant defects in the ability of iNKT cells to produce cytokines and kill target cells.

Commenting on the work, postdoctoral researcher and first author on this publication, Dr Andrew Hogan said, “It would seem that cigarette smoke has multiple negative effects on innate immune [cells](#) that are important in tumour surveillance and protection against infection. In addition to increasing your risk of developing cancer, it appears that smoking also impairs your body’s ability to fight the disease effectively”.

More information: Andrew. E. Hogan, et al., Cigarette smoke alters invariant natural killer T cell function and may inhibit anti-tumour responses, *Clinical Immunology* (2011), [doi:10.1016/j.clim.2011.01.011](https://doi.org/10.1016/j.clim.2011.01.011)

Provided by University College Dublin

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