

# New role for natural killers

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Scientists at the University of York have discovered a new role for a population of white blood cells, which may lead to improved treatments for chronic infections and cancer.

Natural Killer (or NK) cells are abundant white blood cells that were recognised over 30 years ago as being able to kill cancer cells in the test tube. Since that time, a role for NK cells in activating other white blood cells (including 'T' lymphocytes and phagocytes) and in directing how the immune system responds to a wide range of infections has also been established.

Because of these properties, NK have been widely regarded as being of benefit in the fight against cancer and infection, and methods to increase NK cell activity underpin a range of new experimental anti-cancer drugs and anti-infectives.

However, a research team in the University's Centre for Immunology and Infection and led by Professor Paul Kaye, has now demonstrated that NK cells also make chemicals that inhibit immune responses.

The research, published in the latest issue of the journal *Immunity*, has shown that in an experimental model of the tropical disease visceral leishmaniasis, too many NK cells can actually make the disease worse. They have identified that NK cells produce a chemical called interleukin-10 that can counteract many of the otherwise beneficial effects of these cells.

Professor Kaye said: "Other researchers have suggested in the past that NK cells might not always be good for you, but we now have the first direct evidence that this can actually be the case. Although we have worked on an infectious disease, the same is likely to be true for NK cells in cancer. So, in practical terms, it means that we need to consider more carefully exactly how we use therapies that affect NK cells, to maximize their beneficial role."

The new findings also open up the potential of developing new drugs that specifically target the beneficial properties of NK cells, and which leave their inhibitory properties switched off. Conversely, in autoimmune diseases, where the immune system is too active, it may be possible to stimulate NK cells to turn it off.

Source: University of York

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