Directing the body’s fight against flu

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*Natural ‘homing’ molecule discovery could help speed-up fight against viruses*

A team of Cardiff University scientists has discovered a new molecule which could help better target and kick-start the body’s natural fight against common infections like influenza.

Published in the journal *Cell Reports,* a team from Cardiff University’s Systems Immunity Research Institute identify a molecule in the body – known as L-selectin - which directs the body’s killer T cells to the site of a virus.

By manipulating this ‘homing molecule’ the team are planning on increasing the number of killer T cells at a site of infection and so boost the killing of viruses.

“We already know white blood cells – or specifically, a subset known as T lymphocytes - provide us with a natural defence against viruses,” said Dr Ann Ager, who led the research.

“When a virus enters the body the T lymphocytes are turned into killer T cells before they are despatched to fight the virus.

“However, until now, there has been little understanding of how these killer T cells find their way to the virus,” she added.

Seasonal influenza can cause severe illness and life-threatening complications in older people, young children, pregnant women and people with on-going respiratory diseases such as asthma or heart disease.

Dr Ager added: “There are currently no anti-viral drugs available to treat the vast majority of viruses that cause a wide range of illnesses.

“We also know that vaccines for influenza need to be re-formulated every season.

“This is why our findings are so significant.

“Now we know what directs the body’s killer T cells to an area of infection, increasing the expression of this homing molecule will, in theory, increase the number of killer T cells at the site of infection and boost the killing of the virus.”

Further studies will be required before the findings can be translated into direct benefit to patients; however, the team are planning on focusing their efforts at finding ways to reduce the loss of L-selectin from the surface of killer T cells in order to increase the number of killer T cells that can home in on infected tissues.

The team will also be looking to identify which molecule L-selectin binds to in virus infected tissues that allows killer T cells to be directed there.