

Danish scientists detect new immune alert signal

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Researchers from Aarhus University have now located the place in the human body where the earliest virus alert signal triggers the human immune system. They have also discovered a new alarm signal, which is activated at the very first sign of a virus attack.

The groundbreaking finding has just been published in the highly esteemed scientific journal [Nature Immunology](#).

"It may turn out that patients suffering from frequent infections actually have problems with activating the mechanism that we have now detected," says Søren Riis Paludan, professor of immunology and virology at Aarhus University, who has completed the study together with Christian Holm, postdoc at Aarhus University.

Cell membrane triggers the alarm

Recent research indicates that our immune system is alerted about a threatening virus infection when genomic material from the virus enters the cell. Researchers from Aarhus University have revealed a process which is triggered already before the foreign genomic material enters the cell, i.e. in the membrane surrounding the cell.

"We have detected a new immune [alarm signal](#), which helps the cells realize that they may soon get infected with virus," says Søren Riis Paludan.

Without this knowledge, the body cannot start fighting [virus](#), which then may spread freely and possibly result in e.g. AIDS, hepatitis, influenza and cold sore.

Alarm signals in two directions

"The cellular membranes are in this situation comparable to a borderline territory in looming war – and this is the place to put an outpost," says Christian Holm.

The 'outpost' will send alarm signals in two directions when danger is detected. One signal (outbound) will prepare the body for a possible attack, whereas the other signal (inbound) will make the cell investigate the threat.

"In the present study, we have revealed that this happens – and what this process means. In future studies, we will investigate how this happens", the researchers say.

They add that this new knowledge could also lead to development of more efficient vaccines.

More information: "Virus-cell fusion as a trigger of innate immunity dependent on the adaptor STING" *Nature Immunology*.

Provided by Aarhus University

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