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Chronic infection now clearly tied to immune-system protein (w/Video)

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A new study finds the cross-talk between 'killer T-cells' and 'helper T-cells' can only happen in the presence of interleukin-21, a powerful immune-system protein. UAB researchers say if interleukin-21 is missing, the immune system's anti-viral efforts fail. The study mice were treated for lymphocytic choriomeningitis.

The reason deadly infections like human immunodeficiency virus (HIV) and hepatitis C never go away is because these viruses disarm the body's defense system. Researchers at the University of Alabama at Birmingham (UAB) have discovered that a key immunity protein must be present for this defense system to have a chance against chronic infection.

Research up to now has tried but failed to decipher the cross-talk between 'killer T-cells' and 'helper T-cells' in the fight against viruses. The new UAB study finds this cross-talk can only happen in the presence of interleukin-21, a powerful immune system protein. If interleukin-21 is missing for whatever reason, then the immune system's anti-viral efforts fail, said Allan Zajac, Ph.D., an associate professor in UAB's Department of Microbiology and lead author on the study.

The findings are published in the journal *Science* through its Science Express service.

"Adding interleukin-21 back in stimulates the immune response and controls the infection," Zajac said. "We demonstrate that the loss of this

protein prevents the control of the infection and diminishes the function of the killer T-cells, specifically CD8 T-cells."

The study mice were treated for lymphocytic choriomeningitis, a viral infection of the membranes surrounding the brain and spinal cord. Measurements were taken for two types of T-cells, CD4 and CD8 T-cells, before and after the mice were treated with interleuikin-21.

"Interleukin-21 served as the key messenger between the T-cells, whereas before we didn't know exactly how the two types of cells communicated with each other," Zajac said. The CD4 T-cells help the immune system do its job by boosting CD8 T-cells' ability to fight and kill viruses.

Source: University of Alabama at Birmingham (news : web)

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