Receptor suppresses the immune response in order to save it
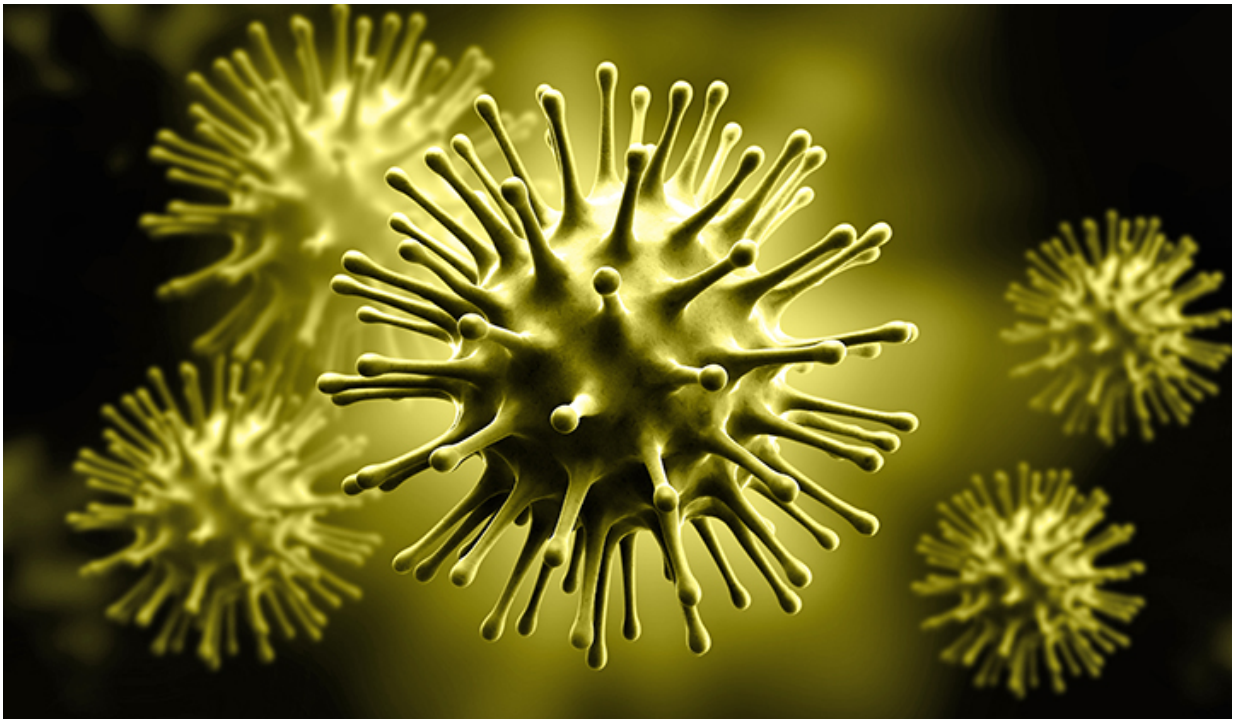
June 29 2016, by Ziba Kashef

Credit: abhijith3747/adobe.com

When viruses enter the body, they activate receptors on the surface of cells that allow viruses to invade those cells. A Yale-led team has found that one of the receptors, known as AXL, actually plays an essential role in the immune system's ability to fight viral infections.

Prior studies have shown that the AXL receptor served as an immune "checkpoint," limiting resistance to infection by suppressing immune cells. But those studies were only performed in tissue culture. To examine the role of AXL in animals, the research team tested the immune response to influenza A and West Nile viruses in mice. They found that mice lacking AXL were more susceptible to infection because their immune cells did not have enough information to marshal an adequate defense.

"In an organism, it turns out it's good for some immune system cells to get infected—to 'see' the virus—so you can mount a good immune response," said Carla Rothlin associate professor of immunobiology and pharmacology, and senior author on the study. The finding should inform the development of drugs designed to inhibit AXL for treatment of flu and West Nile, as well as cancer, she noted.

Edward T. Schmid, a former graduate student in Rothlin's lab, was first author. The study was published June 28 in *eLife*.

  More information: Edward T Schmid et al. AXL receptor tyrosine kinase is required for T cell priming and antiviral immunity, *eLife* (2016). DOI: 10.7554/eLife.12414

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