

NEWS RELEASE

For Immediate Release:

March 12, 2014

Molecule Plays Important Role in Triggering Immune Response

NEWARK, N.J.—The nucleoside adenosine—a tiny chemical structure made up of a simple base linked to a sugar—is critical for the regulation of bodily functions ranging from blood flow to tissue repair to sleep. Now, researchers at Rutgers New Jersey Medical School show that adenosine is essential in promoting the development of a type of immune response that helps oust gut-infecting worms in a study that will be published in the journal *Cell Host & Microbe*.

Fighting off gut-dwelling parasitic worms requires the immune system to generate a specific type of response called type 2 immunity—the same type of immune response that can promote tissue healing and mediate allergic reactions. A team of scientists led by William Gause at Rutgers found that mice lacking adenosine receptors could not develop effective type 2 immune responses during parasitic worm infections. The lack of adenosine signaling dampened production of an immune protein called interleukin (IL)-33, which was required to orchestrate the activation of various cells and proteins comprising the type 2 response. Indeed, provision of IL-33 in the absence of adenosine receptors restored type 2 immunity. In their model, tissue damage caused by the invading parasite triggers adenosine release leading to the development of the type 2 immune response.

Adenosine may thus serve as an essential danger signal that alerts the body and activates an immune response to invading parasites. The study may also help us to understand how non-infectious insults causing tissue damage, such as allergens or particulate debris from prosthetic implants, similarly trigger type 2 immunity.

This work was funded by NIH Grant 6R01AI031678.

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Founded in 1954, **Rutgers New Jersey Medical School** is the oldest school of medicine in the state. Today it is part of Rutgers, The State University of New Jersey and graduates approximately 170 physicians a year. Dedicated to excellence in education, research, clinical care and community outreach, the medical school comprises 22 academic departments and works with several healthcare partners, including its principal teaching hospital, The University Hospital. Its faculty consists of numerous world-renowned scientists and many of the region's "top doctors." New Jersey Medical School hosts more than 50 centers and institutes, including the Public Health Research Institute Center, the Global Tuberculosis Institute and the Neurological Institute of New Jersey. For more information please visit: njms.rutgers.edu