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Team develops DNA compounds that could help treat lupus

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A research team led by a University of Iowa investigator has generated DNA-like compounds that effectively inhibit the cells responsible for systemic lupus erythematosus -- the most common and serious form of lupus. There currently is no cure for this chronic autoimmune condition that damages the skin, joints and internal organs and affects an estimated one million Americans.

The team, which included researchers at Boston University School of Medicine, demonstrated the anti-inflammatory effects of class R inhibitory oligonucleotides in laboratory experiments. The findings, which could eventually lead to new treatments, appear May 28 in BioMed Central's open access journal *Arthritis Research and Therapy*.

"The increased potency of class R inhibitory oligonucleotides for certain cells involved in lupus flare-ups could help patients by providing specific inhibition, yet allowing them to generate a protective immune response when needed," said the study's lead author, Petar Lenert, M.D., Ph.D., assistant professor of internal medicine at the University of Iowa Roy Carver College of Medicine.

During periodic flare-ups in people with lupus, the immune system overreacts and mistakenly attacks cells and tissues throughout the body, resulting in a range of symptoms including inflammation, pain and a characteristic "butterfly rash" across the cheeks.

Using human cell lines and isolated mouse cells, Lenert and his

colleagues showed that the DNA-like compounds were able to selectively reduce the activity of two types of immune cells called autoreactive B cells and dendritic cells. When given to mice with lupus, the compounds delayed death and reduced kidney damage, proving their effectiveness.

"With further testing, we hope that class R inhibitory oligonucleotides may become another weapon in the fight against lupus," Lenert said.

Lupus prevalence varies by country and ethnicity. It is much more common in women than men; nine out of 10 people with lupus are female. Lupus also is three times more common in African-American women than in Caucasian women and is more prevalent in women of Latino, Asian and Native American descent.

More information: DNA-like class R inhibitory oligonucleotides (INH-ODNs) preferentially block autoantigen-induced B-cell and dendritic cell activation in vitro and autoantibody production in lupus-prone MRL-Fas lpr/lpr mice in vivo, Petar Lenert, Kei Yasuda, Liliana Busconi, Patrice Nelson, Courtney Fleenor, Radhika S Ratnabalasuriar, Peter L Nagy, Robert F Ashman, Ian R Rifkin and Ann Marshak-Rothstein, *Arthritis Research & Therapy*, arthritis-research.com/

Source: University of Iowa (news : web)