

Cold-related asthma attacks predictable with new test

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Cold-related asthma attacks predictable with new test. Credit: Fotolia

People who have asthma generally suffer worse with colds caused by rhinoviruses than other people do. There are also asthmatics and patients with the severe lung condition COPD in whom the cold virus can trigger serious flare-ups of their condition. A team of researchers from the Institute of Pathophysiology and Allergy Research at the MedUni Vienna has now discovered how this risk group can be filtered out using a blood test.

"Many severe [asthma](#) attacks are triggered by rhinoviruses," says study author Katarzyna Niespodziana from the Institute of Pathophysiology

and Allergy Research. People with chronic pulmonary conditions can experience life-threatening exacerbations if they get infected with a [cold virus](#). An attack can also worsen their underlying disease further.

It has now been possible, thanks to collaboration with Imperial College in London, to find a diagnostic marker that can be used to identify the [risk group](#) for [asthma attacks](#) caused by rhinoviruses - and all with just a simple [blood test](#). English asthma patients and healthy subjects were infected with the rhinovirus under controlled conditions.

The results of the subsequent antibody tests using recombinant virus antigens that were developed at the MedUni Vienna showed that the asthmatics who experienced attacks expressed significantly higher antibodies to the structure protein VP1, which is found in all of the known 150 or so rhinovirus strains, than any of the other subjects. "We are therefore able to show that this protein is suitable as a [diagnostic marker](#) and also as a tool for categorising disease-triggering strains", explains the MedUni Vienna researcher.

Until now, although it has been possible to detect the presence of the rhinovirus using a PCR test, it has not been possible to determine whether the rhinovirus strain involved will also make the patient ill or lead to an attack. The raised antibody response to VP1 now allows all individuals who need particular protection against colds to be identified.

This discovery could also represent a further step towards the future development of a vaccine against colds. However to do this, the rhinovirus strain that triggers the attack must first be known precisely. Research into this area is currently ongoing as part of the EU project "Predicta", in which the MedUni Vienna with the Institute of Pathophysiology and Allergy Research, and in particular the Department of Immunopathology (headed by Rudolf Valenta) is playing a major role.

More information: "Rhinovirus-induced VP1-specific antibodies are group-specific and associated with severity of respiratory symptoms."
Katarzyna Niespodziana, Clarissa R. Cabauatan, David J. Jackson,
Daniela Gallerano, Belen Trujillo-Torralbo, Ajerico del Rosario, Patrick
Mallia, Rudolf Valenta, Sebastian L. Johnston. [DOI:
10.1016/j.ebiom.2014.11.012](https://doi.org/10.1016/j.ebiom.2014.11.012) , November 2014.

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