Chip identifies rhinoviruses as cause of asthma

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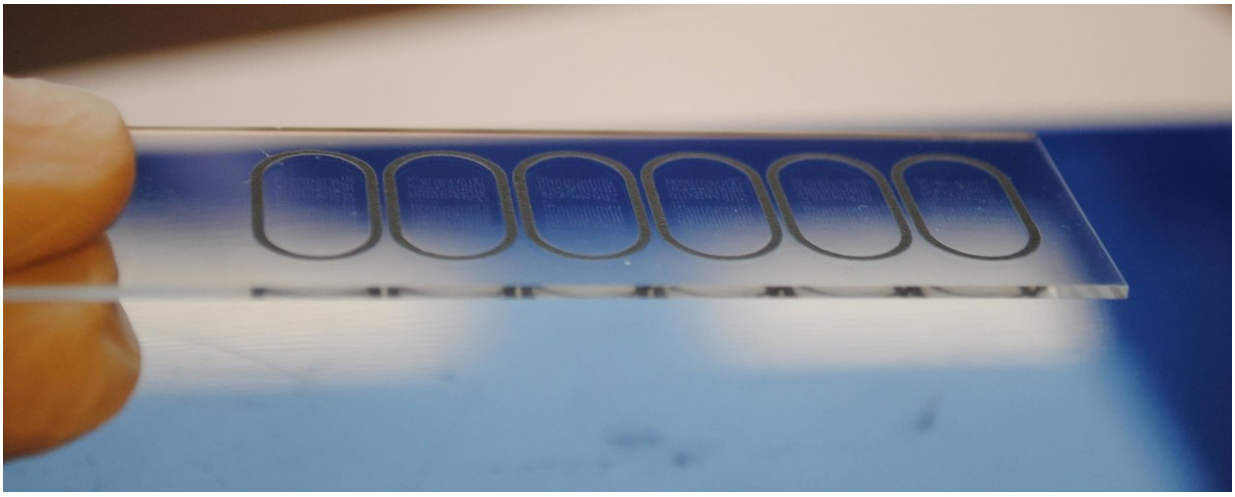

Credit: Medical University of Vienna

MedUni Vienna has developed a method that can be used to identify individual rhinovirus strains ("cold viruses") as a cause of asthma. A "chip" is used to clearly identify certain virus strains by means of a blood test in the event of an asthma attack. This paves the way for developing a new vaccine which should protect against these particularly dangerous viruses.

Certain rhinoviruses are responsible for up to 80% of all asthma attacks. Viral asthma is particularly dangerous for children, who are subsequently

more prone to develop allergies and lung diseases. However, infection with these cold viruses can also be life-threatening for people with chronic lung diseases.

The rhinovirus chip developed at MedUni Vienna covers all the major virus groups and is able to identify the viral strain that has caused the asthma attack by simple blood testing. The current study identified the culprit rhinovirus strains by testing blood samples from children with severe asthma attacks.

This development of the chip is based on previous studies conducted by the working group led by Rudolf Valenta from MedUni Vienna's Center for Pathophysiology, Infectiology and Immunology. These studies identified the N-terminal peptide of the viral coat protein VP1 as a marker for all rhinovirus strains.

"At last we now know exactly which strains of rhinovirus cause such attacks," explains lead author Katarzyna Niespodziana. The precise identification of the asthma-triggering rhinoviruses is a further step towards the future development of a vaccine. The identified rhinovirus strains will become the main target of a "cold vaccine" currently in development. "Our work will focus on a vaccine which should protect against these asthma-triggering strains of virus," explains Niespodziana.

More information: Katarzyna Niespodziana et al. PreDicta chip-based high resolution diagnosis of rhinovirus-induced wheeze, *Nature Communications* (2018). DOI: 10.1038/s41467-018-04591-0

Provided by Medical University of Vienna