

# Epigenetic markers correlate with allergic rhinitis severity

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(HealthDay)—Participants with grass pollen-induced allergic rhinitis

undergo epigenetic changes within three hours of exposure to grass pollen, according to a study published online July 29 in *Allergy*.

Michelle L. North, Ph.D., from Queen's University in Kingston, Canada, and colleagues examined genome-wide [epigenetic changes](#) among 38 allergy sufferers and eight controls exposed to grass pollen for three hours on two consecutive days. The Infinium Methylation 450K array assessed DNA methylation at baseline and at three hours in peripheral blood.

The researchers found that there were 42 sites that showed significant DNA methylation changes of  $\geq 2$  percent. Pyrosequencing validated DNA methylation changes in tryptase gamma 1 (*TPSG1*), schlafen 12 (*SLFN12*), and mucin 4 (*MUC4*) in response to exposure. Symptoms significantly correlated with *SLFN12* DNA methylation (P MUC4 DNA methylation in nasal brushings correlated with drop in peak nasal inspiratory flow (P = 0.034), and *MUC4* gene expression was significantly increased (P

"In conclusion, this study demonstrated that participants with grass [pollen-induced allergic rhinitis](#) undergo epigenetic changes within three hours upon exposure to [grass pollen](#)," the authors write. "This study also highlights the possibility that epigenetic changes in the blood may be indicative of similar modifications in target tissues, and that preexisting [epigenetic marks](#), potentially due to environmental exposures, may have effects on subsequent responses to allergen."

One author disclosed financial ties to the pharmaceutical industry.

**More information:** [Abstract](#)  
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