Basophil reactivity to allergens varies by time of day

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Noriko Ando, M.D., of the University of Yamanashi in Japan, and colleagues examined allergen-specific basophil reactivity according to circadian clock activity in murine models.

The researchers found that allergen-induced surface CD203c expression on basophils in seasonal allergic rhinitis, in response to Japanese cedar pollen, was dependent on time of day according to temporal variations of canonical circadian clock gene expression. Bone marrow-derived basophils generated from wild-type mice showed variation in immunoglobulin E-mediated interleukin 4 and histamine production that was dependent on time of day. This pattern was not observed in bone marrow-derived basophils generated from Clock-mutated mice.

"Therefore, allergen-specific basophil reactivity shows daily variations depending on the circadian clock activity in basophils, which could partly explain temporal symptomatic variations in allergic rhinitis," the authors write.