

Chemicals in sunscreen found to inhibit multiple sclerosis in mice

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Demyelination by MS. The CD68 colored tissue shows several macrophages in the area of the lesion. Original scale 1:100. Credit: [CC BY-SA 3.0](https://creativecommons.org/licenses/by-sa/3.0/) Marvin 101/Wikipedia

(Medical Xpress)—A team of researchers at the University of Wisconsin has found that applying certain types of sunscreen to mice with a multiple sclerosis-like condition dissipated the symptoms of the

condition. In their paper published in *Proceedings of the National Academy of Sciences*, the group describes accidentally discovering the impact of sunscreen on mice and what testing of their results showed.

Multiple sclerosis is an autoimmune demyelinating disease that results in [nerve damage](#) in people—the immune system, for unknown reasons, attacks the fatty material (called myelin) that insulates nerves. Symptoms include problems with vision, [muscle movement](#), sensation and coordination. Scientists still do not know why it occurs and there is no known cure. In this new effort, the researchers found that two compounds common in [sunscreen](#) caused such symptoms to disappear in test [mice](#).

The researchers describe investigating the possibility of using one or more wavelengths of light as a means of alleviating MS symptoms. To test their ideas, they induced an MS-like condition in multiple mice and then shaved their backs to allow for exposure to sunscreen and/or different wavelengths of light. They found that those mice with a coat of sunscreen, which were intended as the study's controls, showed reduced signs of MS symptoms. Intrigued, the researchers looked more closely at the sunscreens, sorting out which ingredients might be the cause of the reduction in symptoms. They found two: octisalate and homosalate—both resulted in reductions of MS symptoms when applied alone to test mice.

The researchers do not know why the two compounds have an impact on MS conditions in mice, nor do they know if they might have a similar impact on people with MS, but expect future research to find out (it is also likely that some MS patients may begin to apply sunscreen themselves upon hearing of the results of the study). In the meantime, they suggest it might be connected to the compounds causing the mice to produce less cyclooxygenase—an enzyme very often found in the lesions MS produces.

More information: Salate derivatives found in sunscreens block experimental autoimmune encephalomyelitis in mice, Yanping Wang, DOI: [10.1073/pnas.1703995114](https://doi.org/10.1073/pnas.1703995114) , www.pnas.org/content/early/2017/07/18/1703995114

Abstract

UV light suppresses experimental autoimmune encephalomyelitis (EAE), a widely used animal model of MS, in mice and may be responsible for the decreased incidence of MS in equatorial regions. To test this concept further, we applied commercially available sunblock preparations to mice before exposing them to UV radiation. Surprisingly, some of the sunblock preparations blocked EAE without UV radiation. Furthermore, various sunblock preparations had variable ability to suppress EAE. By examining the components of the most effective agents, we identified homosalate and octisalate as the components responsible for suppressing EAE. Thus, salates may be useful in stopping the progression of MS, and may provide new insight into mechanisms of controlling autoimmune disease.

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