

A sweet discovery raises hope for treating Ebola, Lassa, Marburg and other fast-acting viruses

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When a team of European researchers sought to discover how a class of antiviral drugs worked, they looked in an unlikely place: the sugar dish. A new research report appearing in the *Journal of Leukocyte Biology* suggests that a purified and modified form of a simple sugar chain may stop fast-acting and deadly viruses, such as Ebola, Lassa, or Marburg viruses, in their tracks. This compound, called chlorite-oxidized oxyamylose or COAM, could be a very attractive therapeutic option because not only did this compound enhance the early-stage immune defenses in mice, but because of sugar's abundance, it is derived from easily obtainable sources.

"We modified and purified a safe drug from natural sources and discovered how it can protect against deadly virus infections," said Ghislain Opdenakker, M.D., a researcher involved in the study from the Laboratory of Immunobiology at the Rega Institute for Medical Research and the University of Leuven in Belgium.

To make this discovery, researchers infected mice with a virus that kills in less than a week. When one group of these infected mice was treated with an unpurified version of the compound, about half of the infected mice were protected from the effects of the virus. Researchers then purified the compound and treated another group of infected mice. In that group, more than 90 percent survived the deadly infection. These results suggest that the purified compound almost completely blocked

the killer virus by speeding the response of the body's fast-acting immune cells, called [white blood cells](#) or leukocytes, at the early stage of infection.

"This is an exciting discovery because it offers hope that we will finally be able to really do something about some of the world's deadliest viruses – rapidly mobilizing antiviral [immune cells](#) is critical in the race between these killer viruses and the host," said John Wherry, Ph.D., Deputy Editor of the [Journal of Leukocyte Biology](#). "The fact that this compound comes from something as abundant as sugar just sweetens the findings."

More information: Sandra Li, Sofie Starckx, Erik Martens, Chris Dillen, Nathalie Lamerant-Fayel, Nele Berghmans, Mieke Gouwy, Melissa van Pel, Hubertine Heremans, Claudine Kieda, Willem E. Fibbe, Alfons Billiau, Jo Van Damme, and Ghislain Opdenakker. Myeloid cells are tunable by a polyanionic polysaccharide derivative and co-determine host rescue from lethal virus infection. *J Leukoc Biol* November 2010 88:1017-1029; [doi:10.1189/jlb.1109724](https://doi.org/10.1189/jlb.1109724)

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