



# Earthworm Extract Provides a Biological Means of Decontaminating Prion-Containing Surfaces

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## Technology description

Transmissible spongiform encephalopathies (TSEs) are a group of fatal diseases caused by a misfolded form of the prion protein. TSEs include sheep scrapie; bovine spongiform encephalopathy, known as “mad cow” disease; chronic wasting disease (CWD) in deer, moose and elk; and Creutzfeldt-Jakob disease (CJD) in humans. These diseases attack the neurological system and are characterized by a long incubation followed by a short period of neurological symptoms and eventually death. The long incubation period makes it difficult to determine if a person or animal has been infected.

Prions are highly resistant to degradation and disinfection and no process that can eliminate prion infectivity without the use of high heat or detergents currently exists. After a surgical procedure on an infected patient or the butchering of an infected animal, prion residue can remain on the instruments and tools. Soil can retain prion infectivity for years, and if prions were to enter wastewater treatment facilities, they likely would still be present and infectious in treated solids. New methods of decontaminating surfaces and eliminating prion infectivity are needed. UW-Madison researchers have developed a method of using earthworm extract to degrade prion proteins and minimize or eliminate their infectivity. The extract can be applied to a surface that may carry prion-infected material to decontaminate it. It contains enzymes, collectively called lumbrokinase, that are capable of reducing prion infectivity by at least 75 percent.

The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing compositions and methods for degrading prions to minimize or eliminate their infectivity.

## Application area

Eliminating the infectivity of prions

Decontaminating medical devices and other instruments and tools

Cleaning lab surfaces or butcher shops

Treating meat in a rendering plant

Decontaminating food

## Advantages

Provides a biological means of eliminating prion infectivity

Does not use high heat or detergents

## Institution

[Wisconsin Alumni Research Foundation](#)

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