

Origin of Mad Cow Disease May Have Been Identified by Scientists

By Aristos Georgiou

Newsweek

December 19, 2019

An international team of scientists has said that they may have identified the origin of mad cow disease. Known as bovine spongiform encephalopathy, the neurodegenerative disease destroys the brain and spinal cord in cattle, causing death.

While humans cannot contract BSE, in rare cases people who eat the brain or spinal cord of infected cattle can be affected by a variant known as Creutzfeldt-Jakob disease-which is also fatal.

Since BSE first appeared in the 1980s in the United Kingdom, scientists have tried to identify how the disease emerged, however, no one hypothesis has been confirmed.

BSE belongs to a group of rare neurodegenerative diseases caused by mysterious infectious pathogens that affect humans and other animals. According to the Centers for Disease Control and Prevention, the causative agents of these diseases are thought to be abnormal "prion" proteins.

These are transmissible between animals and cause abnormal folding of normal prion proteins that are mostly found in the brain and spinal cord, resulting in diseases that usually progress quickly after the onset of symptoms and are always fatal.

Prions are thought to be responsible for Creutzfeldt-Jakob disease in humans, chronic wasting disease in deer and other cervids, and scrapie disease in sheep, among others.

For a study published in the journal Proceedings of the National Academy of Sciences*, the team of scientists investigated the origins of BSE by injecting a particular variant of scrapie disease into mice which have been genetically modified with bovine DNA.

[*See: <https://www.pnas.org/content/early/2019/12/11/1915737116>]

The researchers say that, unexpectedly, the injection of the scrapie strain into the genetically modified mice resulted in the propagation of classical mad cow disease prions. These prions are present in natural form in the scrapie variant.

This observation indicates that the illness could be transmitted between different species and that the modified mice could develop mad cow disease, according to the study.

Full text: <https://www.newsweek.com/origin-mad-cow-disease-scientists-1478224>