

**Technology**

Imaging technology to identify transmissible spongiform encephalopathies in animals and/or humans

Inventor

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Key Features

- Detects appearance of characteristic TSE vacuoles in neurological tissue
- Can reduce screening time
- Non-invasive procedure
- Cost competitive

Stage of Development

Reduced to practice

Keywords

- Diagnostic
- Research Tool
 - Optical Coherence Tomography
 - Prion Diseases
 - TSEs
 - Mad-cow
 - Creutzfeldt-Jakob

Patent Status

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Method for Rapid Screening of Mad Cow Disease and Other Transmissible Spongiform Encephalopathies (VA Reference No. 04-085)

Novel imaging methodology to identify transmissible spongiform encephalopathies in animals and/or humans

Technology

The Department of Veterans Affairs has developed a method to identify animals with transmissible spongiform encephalopathies (TSEs), such as Mad Cow disease, and to identify humans with Creutzfeldt-Jakob disease (CJD).

Description

Prion diseases are often called spongiform encephalopathies because microscopic vacuoles appear within the affected brain causing it to appear sponge-like. The technology developed by the VA utilizes optical coherence tomography (OCT), an emerging imaging technology based on fiber optics and Michelson interferometry, to detect the appearance of the characteristic vacuoles of BSE in cattle. Vacuoles induced by BSE cause a high degree of backscatter of light and produce a characteristic, high-contrast image when viewed by OCT. The technology can be utilized for post-mortem and possible ante-mortem screening of cattle, other animals, or potentially, humans.

Competitive Advantage

The most commonly used method for detection of PrP^{res} is a biochemical test based on the separation of proteins in a sample by gel electrophoresis followed by recognition of the PrP protein by a specific antibody. However, this method by itself is not sensitive enough to detect very low levels of PrP^{res}.

Unlike existing technologies and methods, the present invention:

- Has the potential to reduce screening time with results available prior to product shipment and could be integrated into an automated screening process within a high-throughput production environment.
- Can eliminate the need for biopsy sampling and analysis.
- Is cost competitive with current technology.

Status

The Department of Veterans Affairs is looking for a partner for further development and commercialization of this technology through a license, and the VA inventors are available to collaborate with interested companies through a Cooperative Research and Development Agreement (CRADA).