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Alex SAVA Prion Disinfection

<http://www.sciencealert.com.au/news/20091310-19987-2.html>

New Steriliser to Save Lives

13 October 2009
University of Melbourne

Australian researchers have created a solution to deactivate prions, which are rogue, infectious proteins that cause Creutzfeldt-Jacob disease (CJD) and can be transmitted via surgical instruments.

Novapharm Research (Australia) Pty Ltd, in collaboration with the University of Melbourne, has developed solutions which break up and deactivate the rogue protein molecules of CJD.

The outcome is cost effective, will enable all medical instruments to be treated against prions, will not disrupt current surgical procedures and is easily incorporated into current cleaning protocols.

The importance of this is that CJD and other prion diseases have no known cure and can have a lengthy symptom-free incubation period of decades.

The human prion is resistant to both heat and chemicals and is reported to be up to a hundred thousand times more difficult to deactivate than the animal form of infective agent which causes well known diseases in cattle, such as mad cow disease, and scrapie in sheep.

Any error in identifying a CJD-carrier can be fatal and costly - many hospitals around the world have been forced to destroy millions of dollars worth of instruments when patients were diagnosed with CJD some time after undergoing routine eye and neurosurgical procedures.

A further factor limiting decontamination from prions is that existing cleaning protocols are damaging to medical instruments such as flexible endoscopes and some instruments used in neurosurgical, dental and ophthalmological procedures.

It is estimated that currently less than one per cent of medical instruments are treated against prions, with hospital procedures relying on staff to identify potential carriers.

The treatment process was optimised and performed by a research team in the Department of Pathology at the University of Melbourne led by Dr Victoria Lawson. The University of Melbourne is Australia's leading prion disease research centre.

Novapharm's prion deactivating solutions have been approved by the Australian Therapeutic Goods Administration and have full CE certification for distribution in the European Union.

According to Mr Steve Kritzler, a director of Novapharm, there should be widespread interest from hospitals around the world in a solution that can deactivate prions on all medical instruments, including flexible endoscopes.

“This solution fills a gaping hole in current infection control practices which basically rely on hospital staff identifying ‘high risk patients’ of these diseases which don’t have obvious symptoms,” Mr Kritzler said.

“The new instrument reprocessing solutions developed by Novapharm can also be cost effective for hospitals, GPs, dentists, and vets since they will work with existing cleaning equipment and are highly effective as a general pre-cleaner compatible with any surgical or medical instruments.

“We expect hospitals in the UK to be particularly interested in our solution since it has been the location for a number of CJD incidents in the past,” Mr Kritzler added.

The commercial formulations will be sold in Australia under trade names Asepti RAPIDZYME Pr and Asepti AUTOZYME Pr.

The solutions are derived from naturally occurring enzymes which have been specifically formulated to attack the structure of prions while maintaining characteristics which allow use as a general pre-cleaner of surgical and medical instruments.

<http://www.internetchemie.info/news/2008/jun08/index-en.html>

Chemistry News Archive 2008 - June

Physics - Fundamental Research. Non-magnetic lattice - Credit: Sava Denev Prions are not degraded by conventional sewage treatment processes ...

Patents

WO02/062400

PRION DISINFECTION

Applicants: NOVAPHARM RESEARCH (AUSTRALIA) PTY LTD, et al.

Inventors: KRITZLER, Steven; (AU); SAVA, Alex; (AU); ZALUNARDO, Michael; (AU).

Abstract: The invention relates to a methods and compositions for treating a surface, suspension or solution contaminated with a PrP^{Sc} prion protein or a surrogate thereof. The methods and compositions employ a combination of one or more enzymes effective to cleave a prion protein to fragments having a non-infective molecular weight, and one or more agents selected to favour conformational unfolding of the PrP^{Sc} prion protein while not denaturing the one or more enzymes.

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PRION DISINFECTION

Kritzler, Steven (AU); Sava, Alex (AU); Zalunardo, Michael (AU)

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Prion disinfection

Inventor: SAVA ALEX ; ZALUNARDO MICHAEL

Applicant: NOVAPHARM RES AUSTRALIA

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Prion disinfection

Inventor: SAVA ALEX ; KRITZLER STEVEN

Applicant: NOVAPHARM RES AUSTRALIA

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