Seprion overview – Protein Aggregation Diseases

The Seprion ligand only binds aggregated proteins. The Seprion ligand is a unique tool for the detection, investigation and study of protein aggregates and Protein Aggregation Diseases.

Seprion application areas

Investigation and study of disease

Alzheimer's Disease
Parkinson's Disease
Huntington's Disease
Prion disease (CJD, BSE, scrapie etc.)
And many more.....

Aggregated proteins studied

β-amyloid
tau
α-synuclein
Huntingtin
Prion protein
List continues to grow .....

Application to studies *in vitro*

Cell culture studies of disease eg drug development

Application to studies *in vivo*

Animal models of disease eg drug efficacy and clinical studies

Investigation of the design, manufacture and stability of therapeutic proteins

Therapeutic proteins eg monoclonal antibodies

Investigation of aggregated proteins in cancer

For example, study of aggregated p53

Seprion is an established technology

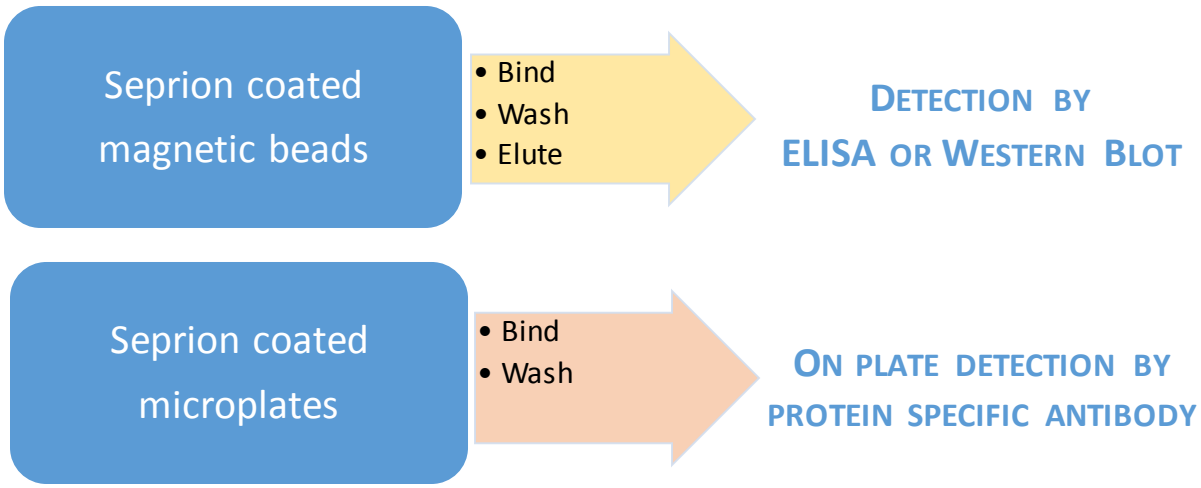
Established patent protected technology with many publications in leading scientific journals eg

J.P. Clewley et al. Prevalence of disease related prion protein in anonymous tonsil specimens in Britain: cross sectional opportunistic survey. 2009. BMJ 338:b1442

K. Sathasivam et al. Identical oligomeric and fibrillar structures captured from the brains of R6/2 and knock-in mouse models of Huntington's disease. (2010); Human Mol. Gen. 19(1):65-78

Used by University of London, Lancaster University, Veterinary Laboratory Agency and many more researchers for research and drug screening. Used commercially by IDEXX Laboratories Inc

Seprion can be provided coated onto magnetic beads or onto microplates



For more information on Seprion and its uses, please contact
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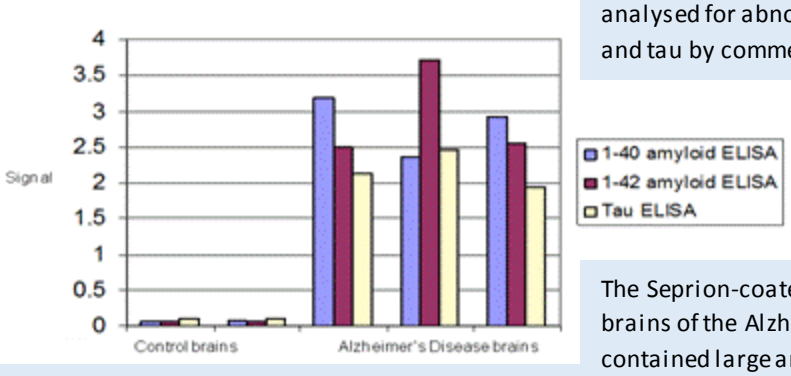
Selected examples of research using Seprion

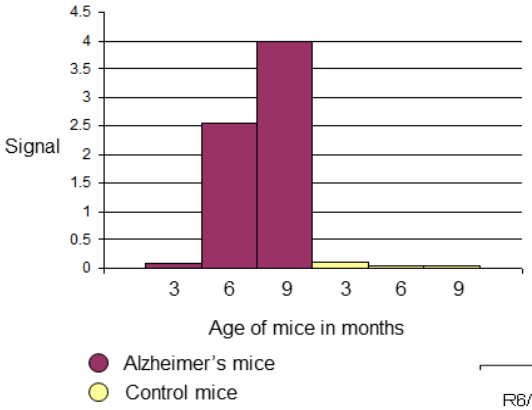
A. Samples from two normal and three confirmed Alzheimer's Disease brains were homogenised and incubated with Seprion-coated magnetic beads.

After washing, captured proteins were eluted and analysed for abnormal 1-40 and 1-42 β-amyloid and tau by commercial ELISA

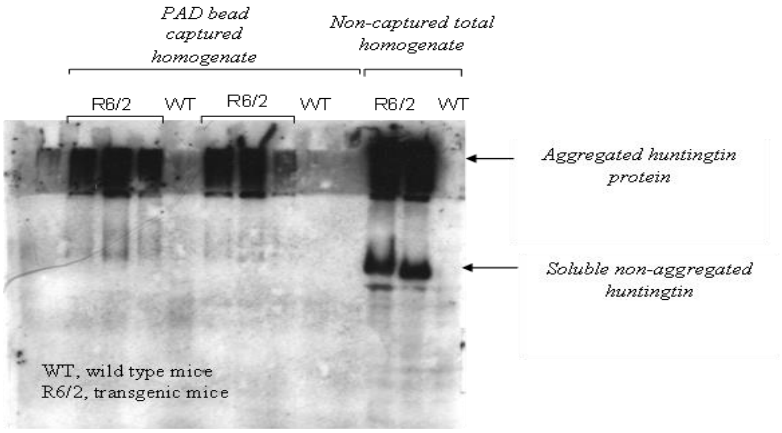


The Seprion-coated beads demonstrated that the brains of the Alzheimer's Disease patients contained large amounts of both abnormal 1-40 and 1-42 β-amyloid and abnormal tau protein compared to the brains from age matched controls without Alzheimer's Disease

B. Brains of Alzheimer's Disease model mice at various ages were homogenised. The abnormal β-amyloid protein was separated from the normal protein using the Seprion-coated beads and investigated by ELISA.



C. Seprion-coated beads (PAD beads) were used to capture brain homogenates from wild type (WT) and transgenic (R6/2) mice expressing the human huntingtin gene. Captured proteins were analysed by Western blotting with an anti-huntingtin antibody.



Homogenate from a transgenic mouse brain that was not captured by PAD beads was run as a control.

D. Kits based on Seprion received USDA approval for BSE and CWD testing, EU approval for BSE and scrapie testing and have been used to screen many millions of cows for BSE.

E. CJD Kits for human testing have being used by the Health Protection Agency for tonsil screening for vCJD.

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