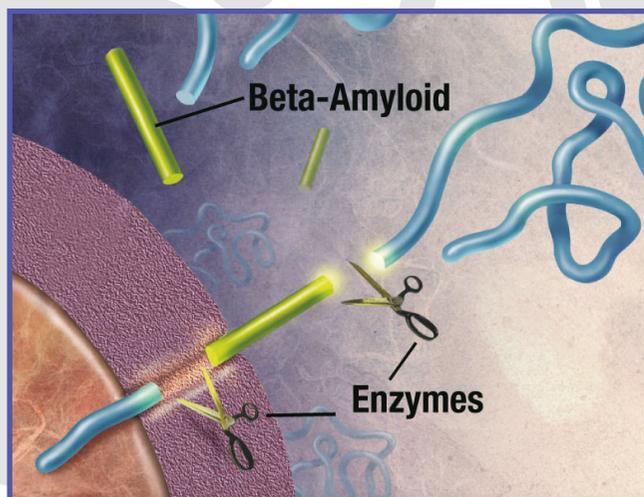


A new research tool created at the University of Sussex is allowing researchers to explore the role of certain proteins associated with Alzheimer's disease, which affects 850,000 people in the UK. The tool, a re-designed version of a peptide called amyloid beta that can be used as an experimental control by researchers, was created by Professor Louise Serpell and colleagues at Sussex and is being commercialised by Swiss peptide manufacturer Bachem.

Alzheimer's disease affects one in six people over the age of 80 and one in fourteen over-65s in the UK¹. Although the cause of Alzheimer's is unknown, researchers have found evidence that amyloid beta peptides play a major role in the disease. The peptide is able to self-assemble and accumulate in cells in the form of fibres and smaller groupings that are toxic to cells.

"If you add these amyloid beta structures to cells it kills them or causes dysfunction," explains Serpell, Professor of Biochemistry at the University of Sussex². "We're trying to understand how that happens, and how it's relevant to disease."



Amyloid beta is a major component of the plaque deposits that are a hallmark of the disease.

Serpell's research group, which receives funding from BBSRC, MRC and the Alzheimer's Society, are interested in the structure and function of amyloid beta, and their role in Alzheimer's disease³. During a recent MRC-funded project, the researchers realised that they needed a suitable control for their research. In particular, they needed a version of the amyloid beta peptide which was identical to their experimental peptide but which did not cause the same damage when added to a cell.

The researchers took the amyloid beta peptide and designed a similar molecule with a slightly different sequence of amino acids – the building blocks from which peptides are constructed⁴. A Sparking Impact award from BBSRC then allowed the group to show that the peptide they had designed did behave as intended⁵.

"What we showed was that the peptide we had designed did exactly what we designed it to do, which is to not assemble – it stays as a monomer – and it doesn't affect cells," says Serpell. Further research by Serpell also showed that their new control peptide was superior to the two existing control peptides currently available.

"This is a really useful tool for trying to understand the role of the amyloid beta protein in disease. The idea is that we can provide this control peptide to researchers trying to understand the effects caused by this peptide," Serpell explains. "I would have thought that anyone using those two previous controls would switch to this one."

IMPACT SUMMARY

Peptide manufacturer Bachem is commercialising an Alzheimer's research tool developed by researchers at the University of Sussex.

The tool is a peptide that can be used as an experimental control by researchers interested in the role of amyloid beta peptide in Alzheimer's disease. A study by the researchers found that it is better than existing controls.

The tool was developed and commercialised thanks to BBSRC Sparking Impact funding awarded to the University of Sussex.

Following the Sparking Impact award the researchers patented the peptide and licenced it to Bachem⁶, a major peptide manufacturer. The company, which already sells the normal disease-causing form of amyloid beta, as well as the two existing controls, plans to launch the new peptide onto the market in mid-2017.

REFERENCES

- 1 Alzheimer's Disease, NHS: <http://www.nhs.uk/Conditions/Alzheimers-disease/Pages/Introduction.aspx>
- 2 Professor Louise Serpell: <http://www.sussex.ac.uk/profiles/163364>
- 3 BBSRC funds world class bioscience and biotechnology that underpins health research funded by others, but does not fund research directly relating to understanding/treating specific diseases.
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