Exelon was launched in 1997 as a treatment for Alzheimer's disease, and received regulatory approval for Europe in May 1998 - but does it work? Novartis says it delays the process by around six months. Now Novartis want to conduct larger studies, having shown that the drug seems to slow down progression in some people in earlier trials of 3,300 people.

This is not a cure, and there is no cure on the horizon yet, partly because the term Alzheimer's is used loosely to describe a great number of conditions which affect brain function in the elderly. In strict medical terms Alzheimer's disease is a term used to describe pre-senile dementia, or severe mental deterioration in someone under the age of 65. However, in popular jargon the term is used to describe the process in the elderly. Alzheimer's affects 5 million Americans, with up to 20 million expected to be affected by 2050.

Many things affect the brain as we get older. For example, if the heart is diseased, tiny clots or debris can be released, which travel from the left ventricle up the aorta, into the arteries in the neck. They clog up tiny capillaries in the brain causing death of small numbers of cells. This produces the classic "multi-infarct" syndrome.

The process is completely unrelated to another disease associated with Alzheimer's: the formation of amyloid beta deposits, or plaques, which are often seen in those with mental deterioration and may be genetically influenced. Doctors at the New York University Medical Centre have found that the formation of these plaques can be inhibited by a peptide called iAb5, which could lead one day to a new treatment. However no one is sure whether these plagues arise after damage or if they cause it.

Injecting older monkeys with beta amyloid produces brain damage, while younger monkeys seem immune to it.Other recent research suggests that oestrogen may have a protective effect on plaque formation, but these results are very preliminary, seen in the laboratory only.Up to six genes may be linked to Alzheimer's disease.

What of the future:

- Think of Alzheimer's as many different disease processes, with varying treatments.
- Expect such drugs to be needed for life and to slow down, not arrest the process, with

fresh arguments about cost and benefit.

- Expect genetic screening to be increasingly accurate in identifying those at risk enabling earlier tests and intervention.
- Expect a new generation of smart drugs to emerge, with direct effects on brain function, improving memory, which will then become widely abused by students and others seeking a competitive edge.