

PET imaging of human brain gliosis using Imidazoline2 (I2) binding sites: potential biomarker for Alzheimer's disease

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Title of project or programme

Title of PI PET imaging of human brain gliosis using Imidazoline2 (I2) binding sites: potential biomarker for Alzheimer's disease

Principal Investigators of project/programme grant

Title	Forname	Surname	Institution	Country
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- United Kingdom

Source of funding information

Medical Research Council

Total sum awarded (Euro)

572901.60

Start date of award

01-09-2009

Total duration of award in months

36

The project/programme is most relevant to

- Alzheimer's disease and other dementias

Keywords

Research abstract in English

The imidazoline2 binding sites (I2BS) are a novel brain targets for PET tracer development that may

offer a measure of gliosis as these sites are thought to be located on glial cells and may regulate glial fibrillary acidic protein (GAFP) expression. This has led to research interest in I2BS and Imidazoline2 ligands in conditions where glial are altered such as dementia and other neurological disorders. Changes in the density of the I2BS have been seen in a range of diseases and disorders in human post-mortem brain. Key among these is that in Alzheimer's Disease (AD) there is a ~60% increase in I2BS density, relative to age matched controls and even larger increases are found in glial tumours. The plan of research is to radiolabel a potential I2BS PET ligand developed at the Universities of Bristol and Bath, to confirm this tracers safety and then to evaluate its kinetics, selectivity and methodology in healthy volunteers. When this has been accomplished we will test the in vivo densities of the I2BS in AD patients and compare them to age matched controls to determine its suitability as a biomarker. This will be carried out in collaboration with GSK, CIC, with whom we have a proven research collaboration. If it proves viable we shall then be in a position to evaluate its value compared with other PET tracers for AD such as PIB and explore utility in other disorders such as glial tumours and other neurological conditions where gliosis is prominent e.g. multiple sclerosis.

Lay summary

In which category does this research fall?

- Clinical research