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## Brain Penetration of an MRI Contrast Reagent that Binds Beta-amyloid

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At this time, there is no established imaging technique that reliably and accurately detects early Alzheimer's disease. Such a technique would allow early diagnosis of the disease, potentially improving treatment and prevention. A significant barrier to the development of such a technique is the need to detect specific chemicals in the brain, particularly beta-amyloid, a protein fragment implicated in Alzheimer pathology.

Brian M. Austen, PhD. and colleagues have proposed to study ways to improve the imaging of beta-amyloid in the brain. They have developed dyes for use with magnetic resonance imaging (MRI) and which can be used to visualize beta-amyloid. However, these dyes are not taken up into the brain efficiently. The researchers are proposing to modify the dyes by addition of lipid molecules to its chemical structure. They will then study the ability of the modified dyes to label beta-amyloid in the brain after the dye is injected into the blood stream. Another technique they plan to test is the use of focused ultrasound to release very small bubbles of dye into the brain. These studies may lead to improvements in methods for imaging the early stages of Alzheimer pathology in the brain.