CONTRAST AGENT FOR ~~IMAGINING~~ IMAGING MYOCARDIAL PERFUSION

FIELD OF INVENTION

The present disclosure is directed to imaging agents, pharmaceutical compositions and methods for imaging myocardial perfusion, comprising administering to a patient a compound linked to an imaging moiety, wherein said compound binds MC-1, and scanning the patient using diagnostic imaging. The invention also relates to kits comprising said imaging agent or precursor compounds linked or not linked to an imaging moiety.

BACKGROUND OF INVENTION

Coronary artery disease (CAD) is a leading cause of death in the Western world. Imaging techniques for diagnosis and prognosis are very important for the treatment of CAD to reduce the mortality. Imaging for evaluation the myocardial blood flow to determine the treatment necessary (often surgery) is a critical part of CAD healthcare. Currently Single Photon Emission Computer Tomography (SPECT) is the mainstay of CAD imaging but improved diagnostic methods are needed.

Heart cells, myocardia, have a very high intracellular density, weight percentage, of mitochondria. It was therefore reasoned that compounds that selectively bind to mitochondria would be enriched in myocardia. Certain insecticides act through binding to the mitochondria complex I (MCI). Included in this group of insecticides are rotenone, pyridaben, tebufenpyrad and fenazaquin. It was believed that such compounds selective for MCI could be used for imaging mitochondrial rich tissue. A patent for the use of labelled rotenone for myocardial blood flow imaging was disclosed in 2001.

In 2005 BMS filed a patent (WO 2005/079391), describing 18F labelled compounds based on the insecticides pyridaben, tebufenpyrad and fenazaquin for the use as PET-ligands for the diagnosis and imaging of mycocardial blood flow in CAD. The patents from BMS were later acquired by Lantheus Medical imaging. One of the compounds based on pyridaben, flurpiradaz (BMS747158), has been extensively studied and is now in phase III studies for myocardial imaging. Flurpiridaz has been