



Technology Offer

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NEW LIGANDS FOR TARGETING OF S1P RECEPTORS FOR IN VIVO IMAGING AND TREATMENT OF DISEASES

Introduction

Sphingosine-1-phosphate (S1P) is a signaling sphingolipid. It is also referred to as a bioactive lipid mediator. Sphingolipids are a class of lipids characterized by a particular aliphatic aminoalcohol, which is sphingosine.

Although S1P is of importance in the entire human body, it is a major regulator of the vascular and immune system and regulates angiogenesis, vascular stability and permeability. In addition, it might be relevant in the skin.

Sphingosine 1-phosphate receptors (S1PRs) are G protein-coupled receptors expressed by many cell types, including immune and neural cells. These receptors are promising targets for immunomodulatory and possibly neuro-modulatory therapies.

Invention

The present invention relates to novel compounds, in particular, novel radioactive and fluorescent compounds, their preparation, and the use of such novel radioactive or fluorescent compounds as radiotracers/markers for imaging techniques and diagnostic tools in the field of diseases or disorders related to S1P receptors in particular in diseases which are connected to the regulatory function of sphingosine-1-phosphate (S1P) and its analogues, such as inflammation, pain, autoimmune diseases and cardiovascular diseases.

Advantages of the invention

When the compounds of the invention are labelled or bearing dyes, they have a clear advantage, as they can be applied in a lower dose for diagnostic purposes that will not interfere with any simultaneous treatments with drugs targeting the same receptors.

It is possible to administrate the compounds of the invention for imaging to patients treated simultaneously with such drugs as only trace amounts of the compound of the invention will be necessary.

The compound of the invention will not compete for biological activity with such drugs and hence will not need any adjustment of the therapy with such drugs.

New aspects of the invention

The novel compounds can be used as imaging agents for a human disease (pain, immunological, inflammatory, neurological, cardiovascular, rheumatic, autoimmune, allergic, infectious, haematological, degenerative, oncological, ophthalmological or metabolic disease) in which S1P and its receptors play a role.

The novel compounds can be used in positron emission tomography (PET), single photon emission computed tomography (SPECT) or in fluorescence imaging.

Patent situation

Patent applications have been filed in Australia, Canada, Europe and USA

For further information please contact:

Clinic Invent

Dr. Elke Benkhart
Landsberger Str. 98
D-80339 München

Tel. +49-(0)89/ 99 88 98 53
Fax +49-(0)89/ 99 88 98 54
E-Mail benkhart@uni-muenster.de