Radiopharmaceutical Imaging Agents for Detection and Treatment Monitoring of Cancer and Angiogenesis-Related Diseases

Published date: Nov. 21, 2017

Technology description

Market Opportunity

Stable attachment of radioactive 64Cu2+ to targeted imaging probes requires the use of a bifunctional chelator (BFC), which is used to connect a radionuclide and bioactive molecule to the 64Cu-radiopharmaceutical. The most common chelators often suffer the dissociation of 64Cu from the BFC in vivo, and harsh labeling conditions impair the use of these chelators in preparing biomolecular-based 64Cu-radiopharmaceuticals.
The integrin αVβ3 receptor has been the attractive target of intensive research given its major role in several distinct processes, such as tumor angiogenesis and metastasis, and osteoclast mediated bone resorption. The molecular imaging of integrin αVβ3 expression will allow the detection of cancer and other angiogenesis related diseases, patient stratification, and treatment monitoring of anti-angiogenesis based therapy.

USC Solution

USC inventors have developed a series of new type BFC based on the sarcophagine (Sar) for the preparation of 64Cu-radiopharmaceuticals which show the enhanced in vivo stability.

Application area

Imaging agent with facile preparation and better in vivo pharmacokinetics

Advantages

The new approach is simple and robust and leads to excellent radiolabeling yield.
The new PET tracer (64Cu-BaBaSar-RGD2) will allow the non-invasive evaluation of integrin αVβ3 expression, paving the way toward the detection of cancer and other angiogenesis related diseases, patient stratification, and treatment monitoring of anti-angiogenesis based therapy.

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