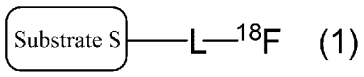
CLAIMS

1. A labeling precursor compound for a radioactive fluorine-labeled compound represented by the following general formula (1):

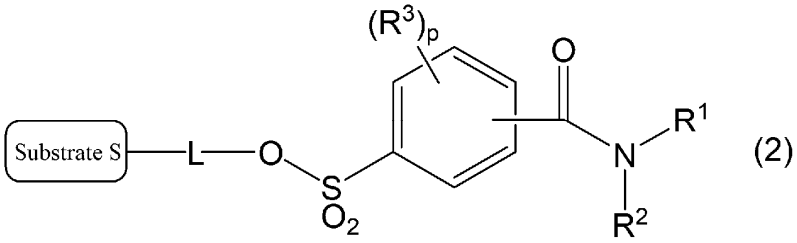


(1)

wherein S represents a substrate, and

L represents a straight alkyl group having 1 to 6 carbon atoms, which may contain an ether group,

the labeling precursor compound being represented by the following general formula (2):



(2)

wherein S and L are the same as in the general formula (1),

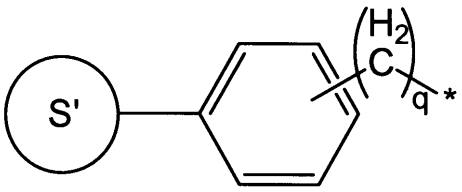
R^1 and R^2 each independently represent a straight or branched alkyl group having 1 to 30 carbon atoms, or a substituted or unsubstituted monocyclic or condensed polycyclic aryl group,

R^3 each independently represent an alkyl group having 1 to 4 carbon atoms or an alkoxy group having 1 to 4 carbon atoms,

p represents an integer of 0 to 4, and

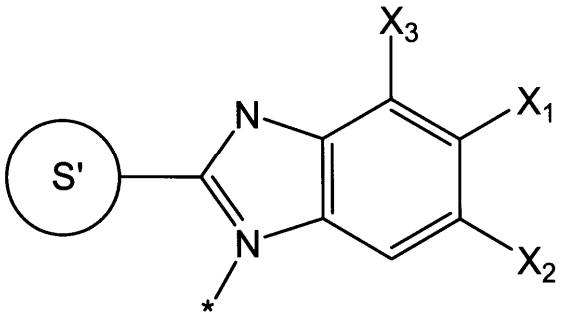
wherein the radioactive fluorine-labeled compound represented by the general formula (1) has a clogP of -1.4 to 5.0, and a difference in clogP between the radioactive fluorine-labeled compound represented by the general formula (1) and the labeling precursor compound represented by the general formula (2) is 2 or more.

2. The labeling precursor compound according to claim 1, wherein, in the general formulas (1) and (2), S is a group represented by the following formula (S-1) or (S-2):



(S-1)

wherein, in the formula (S-1), S′ is a part of S, q is 0 or 1, and the asterisk is a binding site to L,

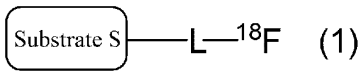


(S-2)

wherein, in the formula (S-2), S′ is a part of S, X_1 and X_3 each independently represent a hydrogen atom or a halogen atom, and X_2 represents a hydrogen atom, a halogen atom, or a nitrile group, but at least one of X_1, X_2, and X_3 is a

halogen atom, and the asterisk is a binding site to L.

3. A production method of a radioactive fluorine-labeled compound, comprising a step of allowing a labeling precursor compound according to claim 1 or 2 to react with [^{18}F]fluoride ion to obtain a radioactive fluorine-labeled compound represented by the following general formula (1):



(1)

wherein S represents a substrate, and
L represents a straight alkyl group having 1 to 6 carbon atoms, which may contain an ether group.

4. The production method according to claim 3, further comprising:

a step of adding a reaction mixture containing a radioactive fluorine-labeled compound represented by the general formula (1) to a reverse-phase cartridge column, said reaction mixture being obtained by the reaction of the labeling precursor compound with [^{18}F]fluoride ion; and

a step of eluting the radioactive fluorine-labeled compound represented by the general formula (1) from the reverse-phase cartridge column.