

Synthesis Example 1-5-1

Synthesis of Intermediate 8

[0198] Intermediate 8 was obtained by the same procedure as in Synthesis Examples 1-1-1 to 1-1-2 aside from using Reactant 7 instead of Reactant 2.

Synthesis Example 1-5-2

Synthesis of Intermediate 9

[0199] Intermediate 9 was obtained by the same procedure as in Synthesis Example 1-1-3 aside from using Reactant 8 instead of Reactant 3.

Synthesis Example 1-5-3

Synthesis of PAG-5

[0200] PAG-5 was synthesized by the same procedure as in Synthesis Examples 1-1-4 to 1-1-6 aside from using Intermediate 9 instead of Intermediate 3, and benzyltrimethylammonium 1,1,3,3,3-pentafluoro-2-hydroxypropane-1-sulfonate instead of benzyltrimethylammonium 1,1-difluoro-2-hydroxyethane-1-sulfonate.

[0201] PAG-5 was analyzed by IR spectroscopy and LC-MS, with the data shown below. FIG. 4 is the $^1\text{H-NMR}$ /DMSO- d_6 spectrum of PAG-5.

[0202] IR (D-ATR): $\nu=3486, 3097, 2976, 1587, 1493, 1448, 1401, 1369, 1318, 1245, 1161, 1107, 1087, 1060, 1012, 998, 913, 884, 834, 751, 741, 690, 642, 593, 553, 525 \text{ cm}^{-1}$

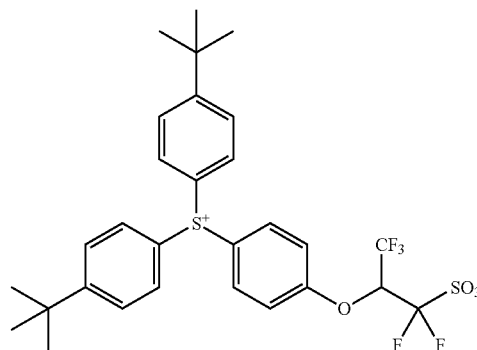
[0203] LC-MS: positive $[\text{M}+\text{H}]^+$ 713

Synthesis Examples 1-6 to 1-11

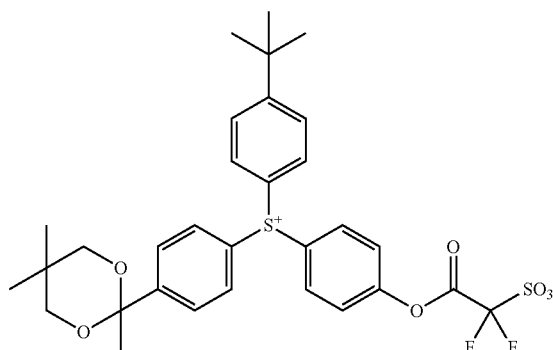
Synthesis of Additional Acid Generators PAG-6 to PAG-11

[0204]

PAG-6



PAG-7



PAG-8

