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技术交流

半自动化合成N-琥珀酰亚胺-4-^{18}F-氟苯甲酸酯

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摘要 通过对现有计算机控制化学合成模块 (CPCU)进行改造后，以乙基-4-三甲胺苯甲酸酯-三氟磺酸盐为反应前体合成用于标记蛋白质、抗体及多肽等生物分子18F标记辅助基团18F-SFB，产品使用高效液相色谱 (HPLC) 进行检测并通过与标准品进行对照确认。合成过程在80 min内完成，校正后得到中间产物18F-FBA产率为80±5% (n=8)，而终产品18F-SFB总的衰变校正后的放化收率为40 ±5% (n=20)。利用CPCU半自动合成18F-SFB，方法简便、稳定，不需要另外购置新的合成装置。终产物经HPLC方法检测其放射化学纯度大于 99%，这为将来多肽等生物分子的18F 标记研究奠定了基础。

关键词 N-琥珀酰亚胺-4-18F氟苯甲酸酯 (18F-SFB) 放射性合成 计算机控制化学合成模块 (CPCU)

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Radiosynthesis of N-succunimidy-4-18F-Fluorobenzoate using Siemens Chemistry Process Control Unit (CPCU)

Abstract The objective of this research was to synthesize the N-succunimidy-4-18F- Fluorobenzoate (18F-SFB), which is used as the prosthetic groups for the 18F labeling of bimolecular like proteins, mono-antibodies and peptides, using the modified Chemistry Process Control Unit (CPCU). The CPCU was modified, we synthesized 18F-SFB using the ethyl-4-trimethyammonium-benzoate triflate as precursor. And the radiochemical purity of the products was measured by High Performance Liquid Chromatograph (HPLC). The total synthesis time was 80 min after EOB. The decay-corrected radiochemical yield of 18F-FBA was 80±5% (n=8) and that of 18F-SFB was 40±5 % (n=20) . The radiochemical purity was more than 99%. Thus, 18F-SFB can be conveniently synthesized with modified CPCU and the labeling yield was stable, which was easily used for the labeling of bioactive compounds.

Key words N-succunimidy-4-18F-Fluorobenzoate(18F-SFB) Radiosynthesis Chemistry Process Control Unit (CPCU)

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