Preparation and quality control of [^{11}C]raclopride for routine PET application

K. Terasaki, K. Takahashi*[1], M. Shozushima*[2], S. Goto *[3], R. Iwata*[4]

Cyclotron Research Center, Iwate Medical University
348-58 Tomegamori, Takizawa 020-0173, Japan

*[1]Research Institute for Brain and Blood Vessels Akita
6-10 Senshu-Kubota-machi, Akita 010-0874, Japan

*[2]Department of Dental Radiology, School of Dentistry, Iwate Medical University
19-1 Uchimaru, Morioka 020-8505, Japan

*[3]Japan Radioisotope Association, Nishina Memorial Cyclotron Center.
348-58 Tomegamori, Takizawa 020-0173, Japan

*[4]CYRIC, Tohoku University
Aramaki, Aoba-ku, Sendai 980-8578, Japan

Abstract

The purpose of this study is to optimize the synthesis [^{11}C]Raclopride, a radiopharmaceutical used in the imaging of brain dopamine D2 receptors with positron emission tomography (PET). The synthetic method is based on the loop labeling method with [^{11}C]methyltriflate. At ambient temperature [^{11}C]methyltriflate is passed through the loop loaded the precursor for 2 min. The reaction mixture of the loop was then purified with HPLC. For a 40 min irradiation with 30 μA proton beam, 20 mCi of [^{11}C]raclopride ready for injection with >95% radiochemical purity was prepared for 40 min from end of bonbardment. The mean specific activity of [^{11}C]raclopride ready for injection was 37 GBq/μmol (1 Ci/μmol) at the end of synthesis.