Effective synthesis of [^{11}C]PE2I for clinical application by using loop method

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

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

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

*[2] Department of Neurology, 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

Unlike many other DAT ligands, [^{11}C]PE2I is a highly selective ligand for dopamine transporter (DAT), and does not accumulate in regions rich in the serotonin or noradrenaline transporter. PE2I has been dedicated to the diagnostics of neurodegenerative diseases such as Parkinson's disease in human using PET. Preparation of [^{11}C]PE2I was adapted for the loop labeling method using [^{11}C]methyl triflate. The automated system successfully produced [^{11}C]PE2I in 59-88 mCi within 40 min from the start of radiosynthesis. in high radiochemical purity (> 99%).