



Fully automated [^{18}F]fluorocholine synthesis in the TracerLab MX_{FDG} Coincidence synthesizer

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Abstract

Introduction: We developed a new fully automated method for the radiosynthesis of [^{18}F]fluorocholine by modifying the commercial 2- [^{18}F]fluoro-2-D-deoxy-glucose ([^{18}F]FDG) synthesizer module (GE TracerLab MX, formerly Coincidence).

Methods: [^{18}F]Flurocholine was synthesized by ^{18}F -fluoroalkylation of *N,N*-dimethylaminoethanol using [^{18}F]fluorobromomethane as fluoromethylating agent. [^{18}F]Fluorobromomethane was produced by reaction of dibromomethane with [^{18}F]fluoride, assisted by Kryptofix 2.2.2.

Results: After purification on solid-phase extraction cartridges, the [^{18}F]fluorocholine was obtained in 15–25% radiochemical yields (decay not corrected), with more than 99% radiochemical purity. Specific activity was more than 37 GBq/ μmol . Synthesis time was less than 35 min.

Conclusion: This new automated synthesis technique provides high and reproducible yields that could be dedicated for routine use with the same [^{18}F]FDG disposable cassette system.

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