

Summary

Development of [¹⁸F]FRP-170 Injection for Imaging Hypoxia by PET

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A novel [¹⁸F]FRP-170 injection for imaging hypoxia by PET was developed for clinical use. The preparation was based on the simple on-column basic-hydrolysis and the whole procedure was automated by detecting He flow change for transferring and evaporating liquids.

[¹⁸F]FRP-170 was prepared in around 15–20% decay-corrected radiochemical yield within 60 min and

stable in saline for more than 6 hr. Radiochemical purity was over 99% and specific activity at EOS was 40–60 GBq/μmol. The radiation-absorbed dose to the whole body was estimated to be 1.0 mSv/185 MBq. The [¹⁸F]FRP-170 injection proved to be suitable for clinical use without acute toxicity or mutagenicity.

Key words: F-18, Hypoxic cell maker, FRP-170, Automated synthesis, PET radiopharmaceutical.