Reply to the Letter-to-the Editor of C. Lemaire and A. Luxen regarding the review “Historical and radiopharmaceutical relevance of [^{18}F]FDG” Journal of Radioanalytical and Nuclear Chemistry (2020) 323:1017–1031, <https://doi.org/10.1007/s10967-020-07013-y>

D. Petroni¹ · L. Menichetti¹ · M. Poli¹

Accepted: 24 November 2020 / Published online: 9 January 2021
© Akadémiai Kiadó, Budapest, Hungary 2021

Dear Dr. Revay,

The aim of the article was to analyze the historical path by which [^{18}F]FDG became the leading radiotracer in the radiopharmaceutical and in PET imaging field. A literature review of research publications about [^{18}F]FDG from the last 40 years was the starting point to study how this important radiotracer has evolved over time, and speculate about its future perspectives in nuclear medicine. For this purpose, various aspects related to [^{18}F]FDG production were analyzed. The topics we selected were not just about the chemical approach or the synthesis automation, but also the clinical application, the technological innovation, and the regulatory aspects. Each topic was discussed in a general way in separate sections focusing on essential aspects only.

Referring to the comments in the letter, the introduction in 1996 of the basic hydrolysis of [^{18}F]FTAG was mentioned as an alternative to acid hydrolysis, without specifying the various ways it can be performed. Likewise, the possibility to obtain [^{18}F]FDM as a by-product of basic hydrolysis in particular conditions, was cited without going into further details.

Table 1 was designed to show a wide selection of commercial synthesis modules, classified according to their characteristics. In our laboratory for many years we have used several of these modules (GE FDG Microlab, TRACERlab FX FDG, FASTlab, Synthera), so we have encountered various types of synthesis methods. However, the type of

synthetic approach adopted for each module, which could be an element for a further classification of automatic modules, was beyond the scope of our review.

A more detailed analysis of each topic would have led to a much longer work, incompatible with the format of a review. Readers can go into more depth for each section by using the references cited in the bibliography, which are specific for each individual topic, where the work of the authors of the letter is also described [1–3].

We would like to take this opportunity to thank the authors of the letter, whose remarkable contribution in this field is indisputably recognized, for the interest they dedicated to our article.

References

1. Krasikowa R (2007) Synthesis modules and automation in F-18 labeling. In: Schubiger PA, Lehmann L, Friebe M (eds) PET chemistry: the driving force in molecular imaging. Springer, Heidelberg
2. Yu S (2006) Review of 18F-FDG synthesis and quality control. Biomed Imaging Interv J 2(4):e57
3. Koziorowski J (2010) A simple method for the quality control of [^{18}F]FDG. Appl Radiat Isot 68:1740–1742

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

✉ D. Petroni
debora@ifc.cnr.it

¹ CNR, Institute of Clinical Physiology, Via Moruzzi No. 1, 56124 Pisa, Italy