RPS COMMUNITY OF PRACTICE

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AN INITIATIVE TO PROMOTE RADIOPHARMACEUTICAL SCIENCE IN AUSTRALIA

The research, pre-clinical and clinical application of the knowledge and skills of this specialist area of practice.

Development of [^{18}F]Fluoroestradiol ([^{18}F]FES) on the Trasis AllInOne synthesizer: A radiotracer for imaging tumor estrogen receptor activity in breast cancer.

Dr Kenneth Kam Chung Hong.

Meeting Date/Time: Tuesday 17th November 2026, 14:00 AEDT

Dear Colleagues

It gives me great pleasure to introduce Dr Kenneth Hong, a regular speaker on our program, from Prince of Wales Hospital, who will be presenting the COP lecture for November 2026.

Yours Sincerely

Andrew Katsifis
Chair ACPSEM-Specialty Group

Abstract

The PET radiopharmaceutical [^{18}F]Fluoroestradiol (16α-[^{18}F]-fluoroestradiol or [^{18}F]FES) is a radiotracer that is used for imaging tumour estrogen receptor activity in breast cancer. It is used as an adjunct to biopsy to detect estrogen receptor (ER)-positive lesions in patients with recurrent or metastatic breast cancer. It is a synthetic estrogen analogue labelled with fluorine-18 that binds directly to estrogen receptors in vivo, allowing whole-body imaging of ER-positive tumor sites. In the last decade, there has been renewed interest in this tracer, particularly from surgeons as it identifies target lesions for biopsy, assesses biopsy-proven ER-positive metastatic or recurrent disease and evaluates spatial and temporal heterogeneity of estrogen receptors across different tumour sites in the body. It is particularly useful for invasive lobular carcinoma where standard FDG PET scans show lower sensitivity. [^{18}F]FES was approved by the FDA in May 2020 and is marketed in the US by GE under the brand name Cerianna.

[^{18}F]FES is prepared in a two-step, one-pot process involving radiofluorination of a protected precursor followed by acid hydrolysis. It can now be prepared using a cassette based synthesis on various automated modules. Kenneth will be presenting the general radiochemistry involved in the preparation of [^{18}F]FES and his preliminary results on its development on the Trasis AllInOne synthesiser.

Biography

Kenneth Hong completed his PhD in Synthetic Organic Chemistry at the School of Chemistry, UNSW Sydney, in 2016. His doctoral research focused on the total synthesis of polyphenol-derived natural products. Following his PhD, he undertook a postdoctoral research position at UNSW under the supervision of Associate Professor Graham Ball, investigating the alkane-binding properties of cationic ruthenium and osmium complexes. Kenneth is a certified Radiopharmaceutical Science Specialist and is registered with the Australasian College of Physical Scientists and Engineers in Medicine (ACPSEM). He holds a joint appointment between the Prince of Wales Hospital and the Biological Resources Imaging Laboratory (BRIL) at UNSW Sydney. His interests centre on radiopharmaceutical development, with a particular focus on automation, process optimisation, and the translation of novel methodologies into routine clinical production. Kenneth has played a key role in the clinical translation of several radiopharmaceuticals in Australia, including [^{18}F]FBCTT, [^{18}F]FES, and [^{18}F]mFBG, supporting their implementation for patient imaging and research applications.