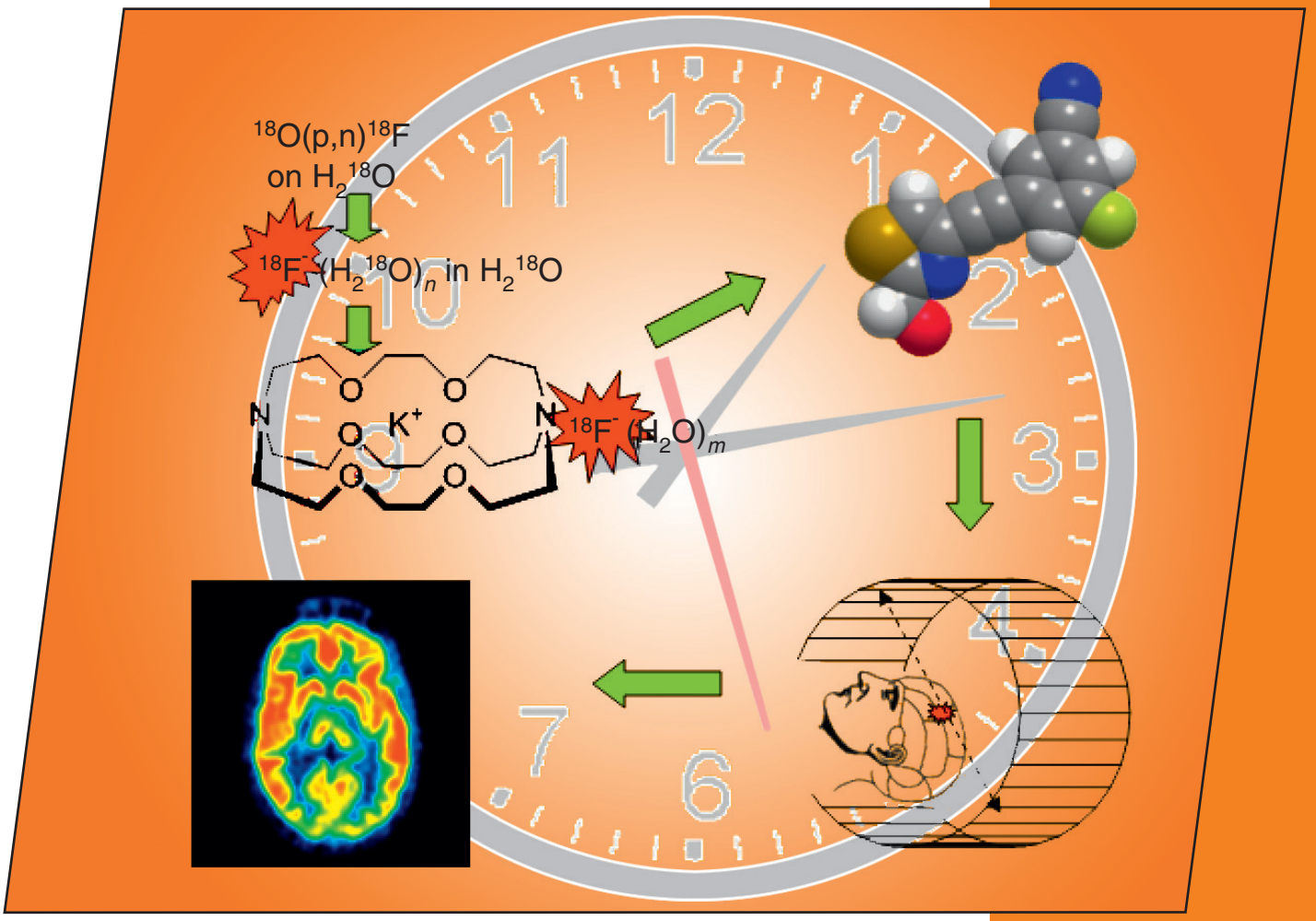
Eur. J. Org. Chem. 2008, 2841–3024

D 6093

EurJOC

European Journal of Organic Chemistry

17/2008
2nd June Issue



Cover Picture / Microreview

Lisheng Cai, Shuiyu Lu and Victor W. Pike

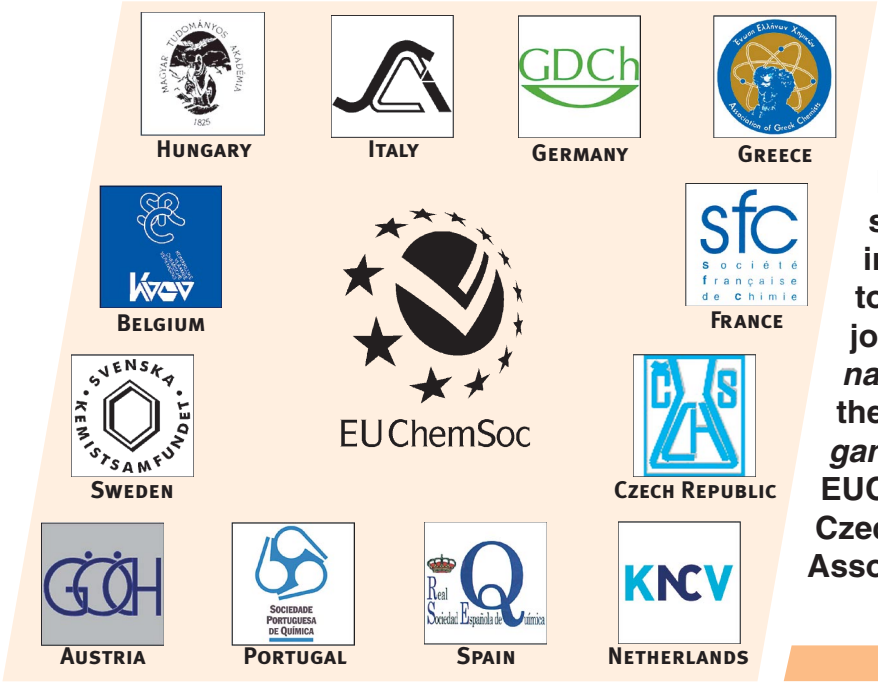
Chemistry with [^{18}F]Fluoride Ion

WILEY-VCH

www.eurjoc.org

EJOCFK (17) 2841–3024 (2008) · ISSN 1434-193X · No. 17/2008

EUChemSoc



The EUChemSoc Societies have taken the significant step into the future by merging their traditional journals, to form two leading chemistry journals, the *European Journal of Inorganic Chemistry* and the *European Journal of Organic Chemistry.* Three further EUChemSoc Societies (Austria, Czech Republic and Sweden) are Associates of the two journals.

COVER PICTURE

The cover picture shows the "Chemistry with [^{18}F]Fluoride Ion" in PET radiotracer production. The procedure includes: (i) production of aqueous [^{18}F]fluoride ion from the cyclotron-promoted ^{18}O(p,n)^{18}F nuclear reaction on ^{18}O-enriched water, (ii) conversion of the aqueous [^{18}F]fluoride ion into a more nucleophilic species by complexation with kryptand-K$^+$, (iii) incorporation of fluorine-18 into a radiotracer, namely [^{18}F]SP203, for brain mGluR5 receptors, (iv) positron emission tomography (PET) of the radiotracer in a human subject, and (v) generation of the corresponding PET image of the brain mGluR5 receptor distribution. These steps are presented over a clock background to stress the necessity to work quickly and efficiently with short-lived fluorine-18 ($t_{1/2}$ = 109.7 min) and according to a tight time schedule from radionuclide production through to PET imaging. Details are presented in the Microreview by L. S. Cai, S. Y. Lu and V. W. Pike on p. 2853ff. The authors thank Dr. A. K. Brown and other staff of the Molecular Imaging Branch at the National Institute of Mental Health (Bethesda, Maryland, USA) for the generation of the PET image.