PPERFORMANCE EVALUATION OF TWO MIPS FOR THE SPE-LC-UV DETERMINATION OF *p*-[^{18}F]MPPF IN PLASMA

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Within the family of serotonin (5-HT) receptors, the 5-HT_{1A} subtype is particularly interesting as it may be involved in various physiological processes or psychological disorders. The *p*-[^{18}F]MPPF, a highly selective 5-HT_{1A} antagonist, is used for *in vivo* studies in human or animal by means of positron emission tomography (1).
In order to selectively extract *p*-[^{18}F]MPPF and its metabolites from plasma, molecularly imprinted polymers (MIPs) were prepared against these compounds by using the *p*-MPPF and a structural analogue as templates. For the control of the selectivity, non imprinted polymers (NIPs) were also synthesized without template. These sorbents, packed in disposable extraction cartridges (DECs), were then evaluated as molecularly imprinted solid phase extraction (MISPE) by means of a sample processor (ASPEC system) prior to the LC determination. The separation was performed on octadecyl silica stationary phase with a mixture of 50 mM acetate buffer (pH 5), methanol and acetonitrile (50:25:25;v/v/v) as mobile phase. The compounds of interest were photometrically monitored at 240 nm.
The conditions of extraction were evaluated in order to obtain the highest selective retention of the *p*-[^{18}F]MPPF and its metabolites on these MIPs. The MIPs selectivity was exploited in the loading and washing steps by adjusting the pH of plasma samples at a suitable value and by selecting washing liquids to transform non-specific interactions into more specific interactions. Other important parameters involved in the conditioning and elution steps were also studied. In the final selected conditions, a pre-validation of the methods was carried out in order to confirm the efficiency of these extraction procedures.

(1) A. Plenevaux and Al., Journal of Neurochemistry 75 (2000) 803-811.
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