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THE SYNTHESIS OF [<sup>18</sup>F]-5-FLUOROURIDINE (F-18-5-FUR) AS A PROBE FOR MEASURING  
RNA SYNTHESIS AND TUMOR GROWTH RATES IN VIVO

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ABSTRACT

A method for the rapid synthesis of high specific activity of [<sup>18</sup>F]-5-fluorouridine is described. The <sup>20</sup>Ne(d,α)<sup>18</sup>F nuclear reaction is used to produce high specific activity, anhydrous [<sup>18</sup>F]-F<sub>2</sub> at the Brookhaven National Laboratory 60" cyclotron. Fluorination of 2',3',5'-tri-O-acetyluridine with [<sup>18</sup>F]-F<sub>2</sub> in glacial acetic acid at room temperature followed by hydrolysis with sodium methoxide in methanol gives [<sup>18</sup>F]-5-fluorouridine with a radiochemical yield of 5-7% in a synthesis time of 90 minutes from EOB. The compound is required for the study of RNA synthesis and tumor growth rates in vivo.

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