

Synthesis of High-Molar-Activity Tritium-Labeled Biologically Active Compounds Containing Aromatic and Heterocyclic Fragments¹

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Abstract - Procedures are examined for tritium labeling of biologically active compounds. By isotope exchange with tritium water, it is possible to prepare products with the molar radioactivity of about 1 PBq mol⁻¹. The molar radioactivities of compounds prepared by solid-phase isotope exchange with gaseous tritium at 180–220°C reached 5–6 PBq mol⁻¹. The degree of labeling varied by a factor of more than 100 depending on the physicochemical properties of the substrate. Selective hydrogenation of a heterocyclic fragment of an organic compound, leaving intact the aromatic fragment, was performed for the first time by solid-phase tritiation.