

Problems of [S-methyl-¹¹C]-L-methionine as a protein synthesis marker in the pancreas

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To evaluate the possibility of [S-methyl-¹¹C]-L-methionine as a protein synthesis marker in the pancreas, the effect of various labeling positions in the accumulation and metabolism of ¹⁴C-labeled L-methionines (S-methyl-¹⁴C, 1-¹⁴C and 3, 4-¹⁴C) was studied. In mouse bio-distribution studies, the methionines showed differing patterns of labeling position-dependent pancreatic accumulation. In the case of [S-methyl-¹⁴C]-L-methionine, protein-incorporation and methyl-transformation equally served as retention mechanisms in the pancreas, indicating [S-methyl-¹¹C]-L-methionine's unsuitability as a pancreatic protein synthesis marker. For such purposes, [1-¹¹C]-L-methionine is considered more suitable.

Key words: [S-methyl-¹¹C]-L-methionine, ¹⁴C-methionines, labeling position, pancreas, protein synthesis, amino acid metabolism