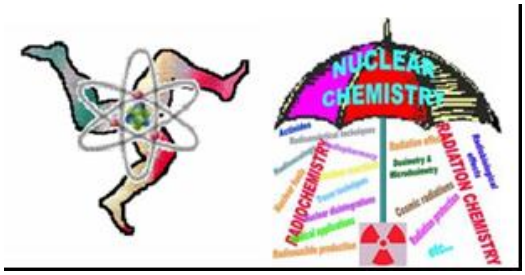

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Hyaluronic acid labeled with radioiodine: Optimization of labeling procedure and preclinical evaluation

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Hyaluronic acid (HA) is a high molecular weight glycosaminoglycan composed of repetitive disaccharide units. HA participates in various physiological and pathological processes in the body and is typically used as a medical device, dietary supplements etc. Ubiquitous in all tissues and fluids, the fate of exogenously administered HA in the body cannot be directly determined by any classical analytical method. Labeling of HA with radiotracer is one of the few ways to determine the fate of HA in the organisms. The aim of this work was to label HA by radioiodination via prosthetic group of reactive aromatic amino acid residues thyrosine and tyramine and to determine biodistribution profiles of 125I-labeled HA in rats. For labeling of adducts of HA with tyrosine and tyramine, oxidative iodinatation was employed. The higher radiochemical yield for HA-tyramine adduct was reached in comparison with HA-tyramine. Reaction products were purified by molecular size exclusion chromatography and administered intravenously to male Wistar rats. Biodistribution profile of both agents was characterized by a rapid uptake from the bloodstream by the liver mediated by CD44 receptors and by relatively long liver radioactivity wash-out time. In the liver, both HA adducts under study were partly degraded and the fragments redistributed in the body. The main elimination pathway was radioactivity excretion to the urine. The results might be usable for a better understanding of biological behavior of HA in the body.
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