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Conjugates of hyaluronic acid with tyramine - synthesis and application

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Hyaluronic acid (HA) is a natural linear polyglycosaminoglycan composed of repetitive disaccharide units, each consisting of N-acetyl-D-glucosamine and D-glucuronic acid. This polysaccharide is an important part of the extra-cellular matrix, vitreous humour and skin. HA modified with a tyramine moiety (HA-tyr) is a biocompatible polymer soluble in water, widely used for many biomedicinal applications. The main advantage of the HA-tyr is its ability to react with various phenolic groups under physiological conditions. This capability has been extensively used mainly for the preparation of biodegradable hydrogels using cross-linking reactions between tyramine molecules. This work presents a simple and effective method for synthesis of HA-Tyr conjugates connected via C6 linker: Tyramine is condensed with 6-aminohexanoic acid and the final substrate is attached on HA-aldehyde by reductive amination. Optimised method is suitable for production in industrial scale.

Biography

Radovan Buffa has completed his PhD in 2002 from Comenius University in Bratislava, Slovakia and Post-doctoral studies from ETH Zurich, Switzerland. He is the Head of the Department of Chemical Modification in the Contipro Pharma Company, Czech Republic. He has published more than 15 papers in reputed journals and is the author/co-author of more than 20 patents.

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