Fluorescein Hyaluronic acid (FHA-Se)

Chemical names: 5-aminofluorescein-labelled hyaluronate

5-aminofluorescein-labelled hyaluronan

Trade name: Fluorescein Hyaluronic acid (FHA-Se)

CAS nr: N/A

Structure:

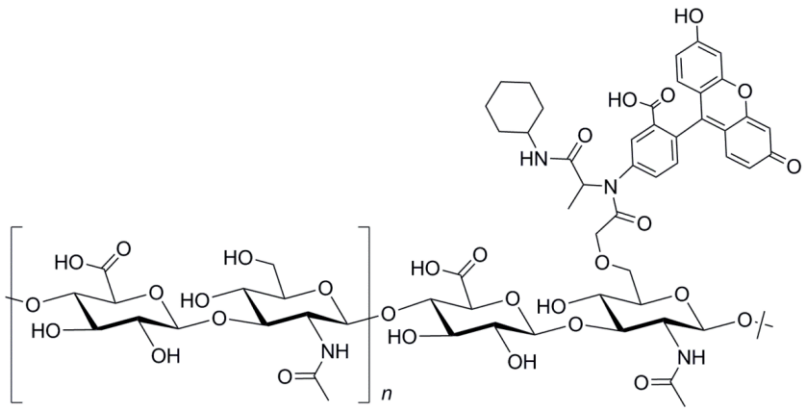

Fig. 1. Structural representation of Fluorescein Hyaluronic acid (FHA-Se).

Properties

Hyaluronic acid, a polysaccharide composed of alternating β(1-3) glucuronide and β(1-4) glucosaminide units-derived from *Streptococcus equi*, is labelled with 5-amino- fluorescein giving a yellow fibrous product that is soluble in water and electrolytes, however, the solid requires prolonged gentle stirring – overnight – to dissolve (1). The degree of substitution lies between 0.001 and 0.008. The molecular weight determined with a GPC system, calibrated with dextran standards, gave Mw of 6.0 x 106.

Spectral data

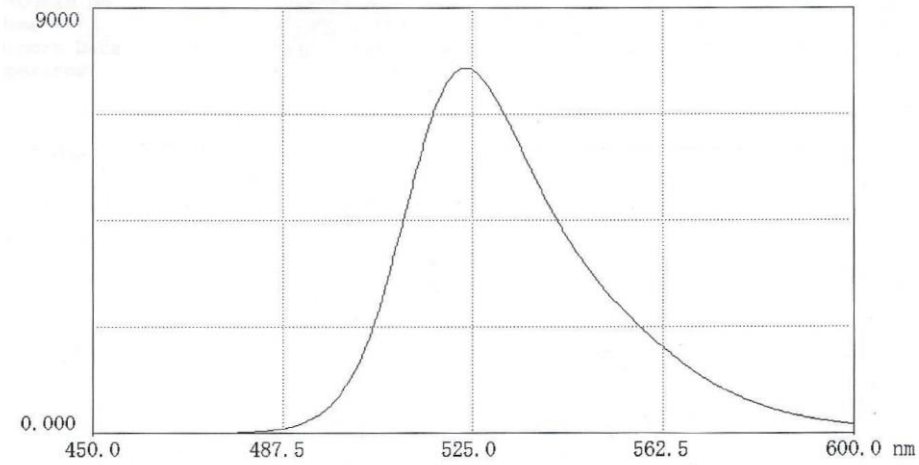

Fig. 1. *Fluorescence scan of FITC-hyaluronic acid in 0.025M borate pH 9.0 (12mg in 50 ml buffer). Excitation 495nm; Emission 524nm.*

Storage and stability

The dried product should be stored in air-tight containers at ambient temperatures in the dark. A shelf-life of 5 years is proposed. No release of fluorescent material was noted when a solution of the product was incubated at pH 7.5 at 37°C for one month (1). Applications Many applications of hyaluronan have appeared over the past years both in medicine (particularly its indispensable contribution to eye surgery) and in cosmetics. Fluorescein-labelled hyaluronic acid may be used as a probe for following the fate of hyaluronan in vitro. A FITC-labelled hyaluronic preparation greatly enhanced the visualisation of the permeation of the substrate through skin (2). Other applications of fluorescein labelled hyaluronic acid have appeared (3-6)

References

1. A.N. de Belder and K.O. Vik, Preparation and properties of fluorescein-labelled hyaluronate, Carbohyd. Res., 44(1975), 251-257.
2. J-E. Yang, E-S. Kim, J.H. Kwon et al., Transdermal delivery of hyaluronic acid – human growth hormone, Biomaterials, 33(2012), 5947-5954.
3. Y. Mitsui, M. Goto, T. Yamada et al., Hyaluronic acid inhibits mRNA expression of pro-inflammatory cytokines and cyclooxygenase-2/prostaglandin E2 production, Paper no. 209, 54th AM of Orthopaedic Society.
4. M. Yokoo, Y. Miyahayashi, T.Nagamuna, Identification of hyaluronic acid- binding proteins and their expressions in porcine cumulus-oocyte complexes during in vitro maturation, Biol Reprod, 67(2002), 1165-71.
5. D .Cheng, W. Han, K. Song et al., One-step facile synthesis of hylauronic acid functionalized fluorescent gold nanoprobes sensitive to hyaluronidase in urine specimen from bladder cancer patients, Talanta, 130(2014), 408-14.
6. M. Yoneda, S. Shimizu, Y. Nishi et al., Hyaluronic acid-dependent change in the extracellular matrix of mouse dermal fibroblasts that is conducive to cell proliferation, J Cell Sci., 90(1988), 275-286.