Dermatan sulfate inhibits P-selectin-dependent cellular interaction during metastasis and inflammation.

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The Laboratory of Connective Tissue from the Institute of Medical Biochemistry, Federal University of Rio de Janeiro isolated and characterized various heparin analogs from marine invertebrates. Several of these compounds, such as dermatan sulfates with different degrees of sulfation from the ascidians Styela plicata and Ascidia nigra (Pavão et al.1995, Pavão et al., 1998) possess high anti-selectin activity. Initial studies indicated that, after intravenous administration to animals, these compounds were able to inhibit P- and L-selectin-mediated events, such as inflammation and tumor metastasis, without producing significant bleeding. Therefore, the invertebrate glycans represent a potential therapeutic alternative to mammalian heparin to treat inflammation and tumor metastasis. Initial experiments showed that ascidian dermatan sulfates inhibited melanoma metastasis in a mouse model and dastically attenuated colon and kidney inflammation in animal models.

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