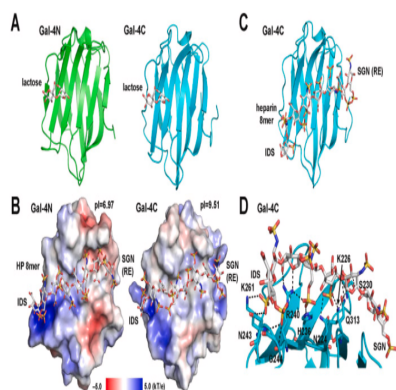




A glycosaminoglycan microarray identifies galectin-4 binding to sulfated glycosaminoglycans

Description

Using GAG microarrays, the authors profiled the binding specificity of 49 human lectins, including SIGLECs, C-type lectins, and galectins. GAGs containing 6-O-sulfation, particularly heparin, chondroitin sulfate C, and chondroitin sulfate E, bound broadly to SIGLECs and C-type lectins, whereas weakly sulfated GAGs showed limited interactions. Most galectins did not bind GAGs, but galectin-4 displayed strong affinity for 6-O-sulfated GAGs, especially heparin ($K_d = 4.70 \times 10^{-6}$ M). Experimental and simulation data indicated cooperative involvement of both carbohydrate-recognition domains. Galectin-4 also bound heparin-positive mast cells, revealing a noncanonical sulfated-GAG recognition mechanism.

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