

Decorin Binds Fibrinogen in a Zn²⁺-dependent interaction

楊維中

Dugan TA;Yang WCV;McQuillan JD;Höök M

摘要

We have previously shown that decorin, a member of the small leucine-rich proteoglycan family of extracellular matrix proteoglycans/glycoproteins is a Zn²⁺ metalloprotein at physiological Zn²⁺ concentrations (Yang, V. W-C., LaBrenz, S. R., Rosenberg, L. C., McQuillan, D., and Höök, M. (1999) *J. Biol. Chem.* 274, 12454–12460). We now report that the decorin proteoglycan binds fibrinogen in the presence of Zn²⁺. The fibrinogen-binding site is located in the N-terminal domain of the decorin core protein and a 45-amino acid peptide representing this domain binds to the fibrinogen D fragment with an apparent K_D of 1.7×10^{-6} M, as determined from fluorescence polarization data. Furthermore, we show that Zn²⁺ promotes the self-association of decorin. The N-terminal domain of the core protein also mediates this activity. The results of solid-phase binding assays and gel filtration chromatography suggest that the N-terminal domain of decorin, when present at low micromolar concentrations, forms an oligomer in a Zn²⁺-dependent manner. Thus, Zn²⁺ appears to play a pivotal role in the interactions and biological function of decorin.