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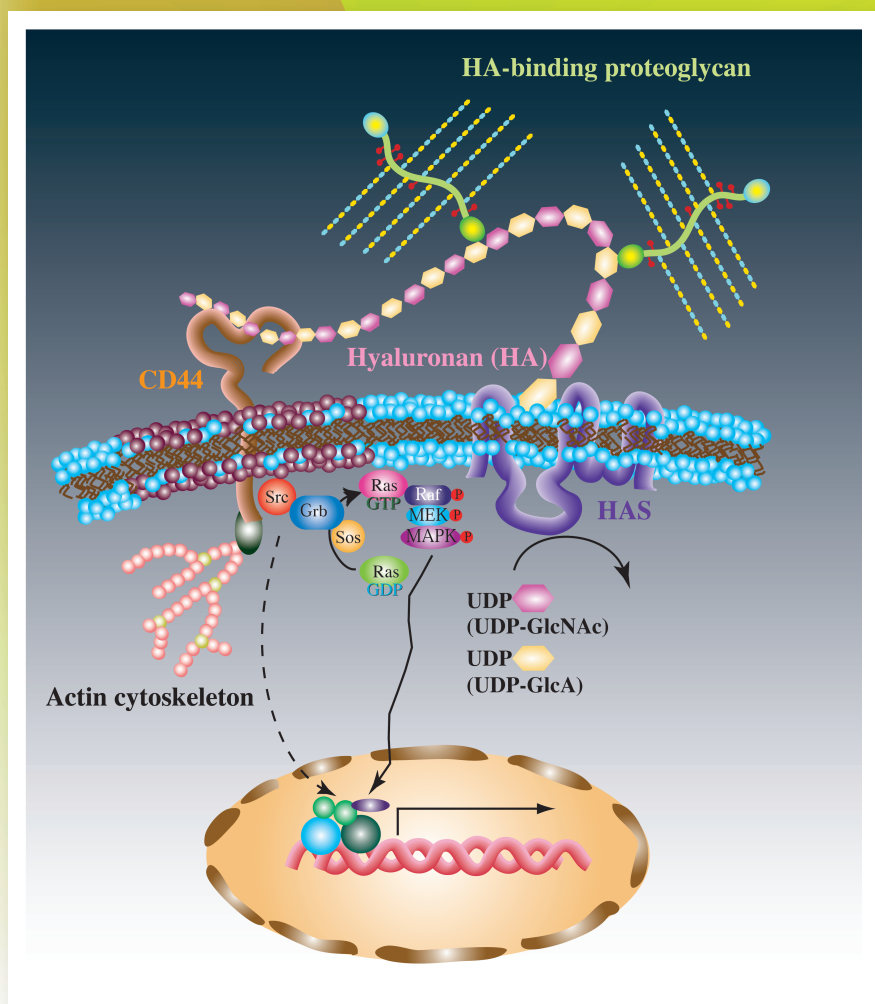
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COVER: Hyaluronan (HA) is a simple polysaccharide composed of repeating disaccharide units of *N*-acetylglucosamine (GlcNAc) and glucuronic acid (GlcA). HA synthases (HASs) are membrane-anchored dual action glycosyltransferases that catalyze polymerization of HA by transferring both UDP-GlcNAc and UDP-GlcA substrates. Secreted HA assembles extracellular matrices (ECMs) by binding to a wide variety of HA binding molecules. HA-rich ECMs activate various intracellular signaling cascades (*e.g.* c-Src, Ras and MAP kinase cascades) through the interaction with cell-surface receptors such as CD44. These downstream signals subsequently induce gene expression related to cell growth and survival. The interaction of HA with CD44 also induces cytoskeletal rearrangement and membrane ruffling, leading to active cell migration. [See Itano; p. 131].