

**Title:** A Dumbbell-Shaped Small Molecule that Promotes Cell Adhesion and Growth

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**Abstract:** During an image-based phenotype screening of our chemical library, we noted a small molecule that boosts the adhesion and growth of human cells. Chemical and cell biological experiments suggest that the diaryldispirotripiperazine derivative (adhesamine) targets selective cell-surface glycosaminoglycans, especially heparan sulfate, for increasing cell adhesion and growth. The addition of adhesamine to the culture medium enables the adhesion of even floating lymphocytes to cell culture plates and the microinjection into them. Unlike poly-*L*-lysine, adhesamine induces apparently normal cell adhesion accompanied by organized actin structures and activation of focal adhesion kinase and ERK1/2 mitogen-activated protein kinases. Adhesamine may be useful as a cell-attaching reagent for cell engineering and basic cell biology.