Shed Syndecan-2 from Human Serum is an Early Marker of Colon Cancer Progression

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Because earlier studies showed the cell surface proteoglycan syndecan-2 sheds from colon cancer cells in culture, shed syndecan-2 was assessed as a potential biomarker. Syndecan-2 mutants had decreased shedding, less cancer-associated activities of syndecan-2 in vitro, and less syndecan-2-mediated metastases of mouse melanoma cells in vivo. Shed syndecan-2 from cancer-conditioned media and recombinant shed syndecan-2 enhanced cancer-associated activities, and depletion of shed syndecan-2 abolished these effects. A shed syndecan-2 synthetic peptide (16 residues) was sufficient to establish pulmonary metastases (B16F10 cells), primary intrasplenic tumor growth and liver metastases (4T1 cells), and subcutaneous primary growth of HT29 colon cancer cells. Moreover, shed syndecan-2 was detected from sera of patients with from adenoma (552.8 ng/ml) to advanced carcinoma (625.9 ng/ml) and promoted cancer-associated activities. These results demonstrate that shed syndecan-2 may serve as a potential diagnostic marker and maybe a promising therapeutic target for controlling colon cancer development.