Genistein inhibits human prostate cancer cell detachment, invasion, and metastasis.

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Abstract
Prostate cancer (PCa) is the most commonly diagnosed cancer in men in the United States and the second leading cause of cancer death. Death is not caused by the primary tumor but rather by the formation of distinct metastatic tumors. Therefore, prevention of metastasis is of utmost importance. The natural product genistein, found in high amounts in soy products, has been implicated in preventing PCa formation and metastasis in men who consume high amounts of soy. In vitro studies and in vivo rodent models that used human PCa cells, as well as prospective human clinical trials, provide a mechanistic explanation directly supporting genistein as an antimetastatic agent. Specifically, our group showed that genistein inhibits cell detachment, protease production, cell invasion, and human PCa metastasis at concentrations achieved in humans with dietary intake. Finally, phase I and phase II clinical trials conducted by us and others showed that concentrations of genistein associated with antimetastatic efficacy in preclinical models are achievable in humans, and treatment with genistein inhibits pathways that regulate metastatic transformation in human prostate tissue.
