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## Syndecan-1 up-regulates micro RNA-331-3p and mediates epithelial-to-mesenchymal transition in prostate cancer

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Prostate cancer has become a common cancer in men. Although, several treatments such as radical prostatectomy and radiation therapy including brachytherapy have contributed to an improved prognosis for this malignancy, few therapeutic strategies are available for metastatic or hormone-refractory cancers. We have investigated syndecan-1 and/or several microRNA (miRNAs) affect on prostate carcinogenesis, so we investigated whether the micro RNA(miR)-331-3p controlled by syndecan-1 had positive effect on epithelial-to-mesenchymal transition (EMT) in the prostate cancer. The over-expression of miR-331-3p up-regulates mesenchymal markers such as vimentin, N-cadherin and snail, in contrast to down-regulation of epithelial markers such as E-cadherin and desmoplakin in prostate cancer cell line, PC3. We identified Neuropilin 2 and nucleus accumbens-associated protein 1 as putative target molecules, which were closely associated with expression of miR-331-3p and TGF- $\beta$ /Smad 4 signals. By in-situ hybridization and immunohistochemistry using radical prostatectomy samples, miR-331-3p was detected in cancer cells with high Gleason patterns, in which EMT was demonstrated by decreased E-cadherin and increased vimentin. Interestingly, syndecan-1 gene silencing decreased Dicer involving miRNA maturation. These findings show that overexpression of miR-331-3p lead to EMT through TGF- $\beta$  and Smad signaling associated with syndecan-1 expression. Syndecan-1 plays an important role in the processing of miRNA to maturation by regulating Dicer expression. In addition, syndecan-1 and miR-331-3p may be useful clinical diagnostic and/or prognostic markers.

### Biography

Lynne Racette is an Assistant Professor of Ophthalmology at the Eugene and Marilyn Glick Eye Institute at Indiana University's School of Medicine (Indianapolis, IN), and an Adjunct Professor at Indiana University's School of Optometry (Bloomington, IN). After receiving her PhD from Carleton University (Ottawa, Canada), she joined the University of California at San Diego (San Diego, CA) where she completed a Postdoctoral Fellowship at the Hamilton Glaucoma Center.

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