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Web links:

http://www.molecularmedicine.uthscsa.edu/FAC_Research.aspx?facID=39

- 1) **Androgen receptor, vitamin D and prostate cancer:** We are examining roles of novel corepressors that reduce gene transcription for E2F1, which is a key cell cycle regulatory factor, in response to vitamin D3 signaling, thus impeding prostate tumor growth.
- 2) **Virus-targeted apoptosis of prostate tumor cells:** We show that the respiratory syncytial virus (RSV) targets human prostate tumors for destruction through apoptosis. Current studies aim to delineate the signaling pathway that is activated by RSV to trigger apoptosis.
- 3) **Aging, oxidative stress and androgen action:** Oxidative stress and normal aging reduces androgen receptor expression by a transcriptional mechanism that involves reciprocal chromatin dynamics of poly(ADP-ribose)-polymerase (PARP-1) and the tumor suppressor. Our research aims to understand the significance of PARP-1 activity in the androgen receptor function related to prostate cancer, and in normal liver metabolism and muscle growth.
- 4) **Role of microRNAs and target proteins in prostate cancer:** We identified a novel microRNA which targets a protein that is present in embryonic stem cells and in adult prostate cells. Our study aims to understand the function of this stem cell related protein and its regulator microRNA in the adult prostate stem cell and in prostate cancers in human patients.

Key Publications:

- Echchgadda I, Kota S, De La Cruz IJ, Sabbah A, Chatterjee B, Bose S: Novel anti-tumor oncolytic activity of the human respiratory syncytial virus (RSV): Therapeutic potential for metastatic prostate cancer. *Cancer Gene Therapy* (in press).
- Ahn J and Chatterjee B. Prohibitin-mediated anti-proliferation response of prostate cancer cells to vitamin D₃. 91st Annual Endocrine Society Meeting, Washington DC, June 2009
- Shi LH, Ko SY, Kim SY, Echchgadda I, Oh, T, Song CS, Chatterjee B: Androgen receptor loss in aging and oxidative stress through myb-regulated reciprocal p53/PARP-1 dynamics. *J. Biol. Chem.* 283: 36474-36485, 2008.
- Ko S, Shi L, Kim S, Song CS, Chatterjee B: Interplay of NF- κ B and B-Myb in negative regulation of androgen receptor by tumor necrosis factor. *Mol. Endocrinol* 22: 273-86, 2008.
- Seo YK, Chung YT, Kim S, Echchgadda I, Song CS, Chatterjee B: Xenobiotic- and Vitamin D-responsive induction of the steroid/bile acid-sulfotransferase Sult2A1 in young and old mice: the role of a gene enhancer in the liver chromatin. *Gene*, 386: 218-23, 2007.
- Song CS, Echchgadda I, Seo YK, Oh T, Kim S, Kim SA, Cho S, Shi L, Chatterjee B: An essential role of the CAAT/enhancer binding protein- α in the vitamin D-induced expression of the human steroid/bile acid-sulfotransferase. *Mol Endocrinol.* 20: 795-808, 2006.