

## PROGESTERONE AND THE PROSTATE

## **BIBLIOGRAPHIES AND REFERENCES**

1. Chen R, Yu Y, Dong X. Progesterone receptor in the prostate: A potential suppressor for benign prostatic hyperplasia and prostate cancer. J Steroid Biochem Mol Biol. 2017 Feb;166:91-96. doi: 10.1016/j.jsbmb.2016.04.008.

This article summarized the current understanding of the role of the progesterone receptor in the prostate based on the available research. Progesterone receptors in the prostatic stroma cells inhibit cell proliferation, suppressing development of benign prostatic hypertrophy. Progesterone receptors may also prevent differentiation of prostate stromal cells into cancer-associated fibroblasts. Progesterone receptors inhibit secretion of IL-6 and stromal derived factor-1, which are tumor-promoting cytokines. The findings suggest a role of stromal progesterone receptors as a potential target in the prevention and treatment of prostate cancer.

2. Mauvais-Jarvis P, Kuttenn F, Baudot N. Inhibition of Testosterone Conversion to Dihydrotestosterone in Men Treated Percutaneously by Progesterone. J Clin Endocrinol Metab. 1974 Jan;38(1):142-7. doi: 10.1210/jcem-38-1-142.

In multiple in vitro studies, bioidentical progesterone was applied to skin samples taken from healthy male volunteers, resulting in inhibition of  $5-\alpha$  reduction of testosterone to dihydrotestosterone.

3. Yu Y, Lee JS, Xie N, et al. Prostate Stromal Cells Express the Progesterone Receptor to Control Cancer Cell Mobility. PLOS One. 2014 Mar; 9(3): 1-13. doi: 10.1371/journal.pone.0092714.

This in vitro study showed that progesterone receptors in prostatic stromal cells functioned to inhibit prostate cancer cell migration and invasion. The progesterone receptors were shown to repress expression of stromal derived factor-1 (SDF-1) and interleukin-6 (IL-6). The reduction in progesterone receptors in cancerous stromal cells may be partially responsible for the elevated SDF-1 and IL-6, which enhance progression of prostate tumors.

4. Lee, John R. MD. What Your Doctor May Not Tell You About Prostate Health and Natural Hormone Supplementation. Phoenix, AZ: Hormones Etc; 2003.

Dr. John Lee writes that progesterone and testosterone activate the protector gene p53, which prevents proliferation of prostate cancer cells in vitro. Progesterone inhibits 5-alpha reductase preventing conversion of testosterone to DHT. DHT stimulates proliferation of prostate cells. According to Dr. Lee, estrogen dominance activates the oncogene Bcl-2 and is among the metabolic imbalances that can contribute to the development of prostate cancer. Dr Lee states that "Optimal protection against estradiol-induced cancer occurs when the saliva progesterone level is 200 to 300 times that of the saliva estradiol level."

Health Disclaimer: All information given about health conditions, treatments, products and dosages are not intended to be a substitute for professional medical advice, diagnosis or treatment.



