



## INTISARI

**Latar belakang:** Kanker prostat merupakan keganasan umum pada pria. Peran androgen dalam kanker prostat sudah diketahui dengan baik; namun tidak semua aspek sinyal androgen dipahami dengan baik. Sex hormone-binding globulin (SHBG), yang mengikat androgen dalam plasma, memediasi respons androgen yang cepat dalam sel prostat melalui reseptor berbasis membran spesifik (RSHBG) yang tidak bergantung pada reseptor androgen (AR). Kadar SHBG diukur dalam jaringan kanker prostat dan dibandingkan dengan jaringan hiperplasia prostat jinak

**Metode:** Metode pengambilan sampel yang digunakan adalah consecutive sampling. Sampel diperoleh dari jaringan formalin-fixed paraffin-embedded (FFPE) pasien dari RSUP Dr. Sardjito yang secara klinis didiagnosis menderita kanker prostat yang menjalani biopsi prostat dan/atau prosedur reseksi prostat transurethral. Genom RNA diekstraksi dari jaringan prostat FFPE dan produk ekstraksi RNA diperiksa dengan RT-qPCR. Urutan primer SHBG Forward adalah CTG AGA TCC AAC TGC ACA ATC ACT, Reverse ATC CAC CTG CAG CAG CAC A. Usia, Skor GS, kelompok ISUP dan ekspresi SHBG dikumpulkan dan dianalisis dengan SPSS ver.25

**Hasil:** Sampel dibagi menjadi 3 kelompok. Kelompok pertama (BPH) terdiri dari 14 sampel (31.1%). Kelompok lainnya, yaitu kanker prostat non metastatik (Non-MPCa) and kanker prostat metastatik (MPCa) terdiri dari 10 (22.2%) dan 21 sampel (46.7%) secara berturut-turut. Level SHBG dari kelompok BPH, Non-MPCa, and MPCa adalah 4.2, 14.6 and 11.6 berturut-turut. Rerata perbedaan antara kelompok BPH dan MPCa adalah 7.3 dengan 95% CI of 3.4-11.3 (P-Value < 0.001).

**Kesimpulan:** Ekspresi SHBG ditemukan lebih tinggi di antara pasien dengan kanker prostat metastatik. SHBG dan jalur sinyal terkaitnya dapat memberikan target terapi potensial untuk kanker prostat.

**Kata kunci:** Sex-Hormone Binding Globulin, SHBG, Prostate cancer, Pca



## ABSTRACT

**Background:** Prostate cancer is a common male malignancy. The role of androgens in prostate cancer is well established; yet not all facets of androgen signaling are well understood. Sex hormone-binding globulin (SHBG), which binds androgens in plasma, mediates rapid androgen response in prostate cells through a specific membrane-based receptor ( $R_{SHBG}$ ) independent of the androgen receptor (AR). The SHBG levels was measured within the prostate cancer tissue and compared with benign prostate hyperplasia (BPH) tissue

**Methods:** Consecutive sampling was used as the sampling method. The sample was obtained from formalin-fixed paraffin-embedded (FFPE) tissue of patient from RSUP Dr.Sardjito between 2015 and 2020 who was diagnosed with prostate cancer clinically who underwent prostate biopsy and/or a transurethral resection of prostate procedure. The RNA genome was extracted from FFPE prostate tissue and the RNA extraction product was examined by RT-qPCR. The primary sequence of SHBG Forward is CTG AGA TCC AAC TGC ACA ATC ACT, Reverse ATC CAC CTG CAG CAG CAC A. The age, GS Score, ISUP group and expression of SHBG were collected and analyzed with SPSS ver.25

**Results:** These samples were divided into 3 groups. The first group was BPH group which consists of 14 samples (31.1%). The other groups were non-MPCa and MPCa which consist of 10 samples (22.2%) and 21 samples (46.7%) respectively. The SHBG levels of BPH, Non-MPCa, and MPCa were 4.2, 14.6 and 11.6 respectively. The mean difference between BPH vs MPCa group was 7.3 with 95% CI of 3.4-11.3 (P-Value < 0.001).

**Conclusions:** SHBG expression was found to be higher among the patient with metastatic prostate cancer. SHBG and its associated signaling pathways could provide potential therapeutic targets for prostate cancer.

**Keyword:** Sex-Hormone Binding Globulin, SHBG, Prostate cancer, Pca