J Gene Med

. 2020 Oct;22(10):e3239.

 doi: 10.1002/jgm.3239. Epub 2020 Jul 6.

**Evaluation of the plasma level of long non-coding RNA PCAT1 in prostatic hyperplasia and newly diagnosed prostate cancer patients**

[Setareh Rezatabar](https://pubmed.ncbi.nlm.nih.gov/?term=Rezatabar+S&cauthor_id=32529802)[1](https://pubmed.ncbi.nlm.nih.gov/32529802/#affiliation-1)[2](https://pubmed.ncbi.nlm.nih.gov/32529802/#affiliation-2), [Emadoddin Moudi](https://pubmed.ncbi.nlm.nih.gov/?term=Moudi+E&cauthor_id=32529802)[3](https://pubmed.ncbi.nlm.nih.gov/32529802/#affiliation-3)[4](https://pubmed.ncbi.nlm.nih.gov/32529802/#affiliation-4), [Farzin Sadeghi](https://pubmed.ncbi.nlm.nih.gov/?term=Sadeghi+F&cauthor_id=32529802)[5](https://pubmed.ncbi.nlm.nih.gov/32529802/#affiliation-5), [Soraya Khafri](https://pubmed.ncbi.nlm.nih.gov/?term=Khafri+S&cauthor_id=32529802)[6](https://pubmed.ncbi.nlm.nih.gov/32529802/#affiliation-6), [Tayebeh Azramezani Kopi](https://pubmed.ncbi.nlm.nih.gov/?term=Kopi+TA&cauthor_id=32529802)[2](https://pubmed.ncbi.nlm.nih.gov/32529802/#affiliation-2), [Hadi Parsian](https://pubmed.ncbi.nlm.nih.gov/?term=Parsian+H&cauthor_id=32529802)[5](https://pubmed.ncbi.nlm.nih.gov/32529802/#affiliation-5)

Affiliations expand

* PMID: 32529802

* DOI: [10.1002/jgm.3239](https://doi.org/10.1002/jgm.3239)

**Abstract**

**Background:**Prostate cancer (PCa) is generally detected by prostate-specific antigen (PSA) as one of the most widely applied tumor markers over decades for its high sensitivity. Nevertheless, it causes overtreatment or an unnecessary biopsy because of its limited specificity. PCa-associated ncRNA transcript 1 (PCAT1), the newly identified long non-coding RNA (lncRNA) has been reported to associate with the progress of PCa. In vitro studies proposed that PCAT-1 may be an appealing candidate for diagnostic accuracy improvement with regard to its notable overexpression in PCa cells. The present study aimed to evaluate the diagnostic potential of the plasma PCAT1 expression levels in PCa patients in comparison to benign prostatic hyperplasia (BPH) patients and healthy controls.

**Methods:**The plasma lncRNA PCAT1 level was measured by a real-time quantitative reverse transcriptase-polymerase chain reaction in 40 men newly diagnosed with PCa, 20 patients with BPH and 20 healthy subjects. The results were analyzed statistically using SPSS, version 25 (IBM Corp., Armonk, NY, USA).

**Results:**The expression of PCAT1 was significantly higher in healthy subjects compared to BPH patients (p = 0.03). The diagnostic accuracy of the plasma lncRNA PCAT-1 for discrimination of the healthy subjects than BPH patients was reasonable (area under the receiver operating characteristic curve = 0.799; sensitivity = 71%; specificity = 74%; negative predictive value = 74%; positive predictive value = 71%).

**Conclusions:**It appears that the plasma levels of PCAT1 expression have reasonable diagnostic accuracy for the discrimination of healthy individuals compared to those with BPH, although no significant difference of PCAT1 expression levels was observed in comparisons between the PCa with BPH and normal groups.

**Keywords:**long non-coding RNA PCAT1; plasma; prostatic hyperplasia; prostatic neoplasms.