Expression of cyclooxygenase–2 (E. C. 1.14.99.1) in prostate and the lower urinary tract (LUT) of the neonatally estrogenized male rat has been studied by using a COX–2’s PCR fragment of 724 nt spanning 3 introns and a 478nt internal standard for quantitative RT-PCR. The same fragment of 724 nt was used for RNA probe in Northern hybridization. Neonatal estrogenization (10 µg/day of diethylstilbestrol on days 1–5) had no effect on COX–2 expression in prostatic urethra, prostatic lobes, or bladder. Acute estrogen treatment of castrated animals did not induce COX–2 expression, either. In addition the differential expression of basal level of COX–2 in the different lobes of prostate in normal rat was demonstrated. Our results suggest a constant expression of COX–2 gene in prostate and the lower urinary tract of the neonatally estrogenized (neoDES) rats. The present study indicates that the increased expression of COX–2 is probably not essential for the estrogen-driven development of stromal inflammation or hyperplastic and dysplastic alterations in the prostate of neoDES rats.