INTRODUCTION

Clinically there are two groups of prostate cancer: one that remains confined to the prostate, relatively indolent, and metastatic and the other that eventually culminates in death. Emerging data confirm that recurrent chromosomal rearrangements may be driven by nuclear transcription factors such as the ligand-bound androgen receptor in prostate cancer. Half of prostate cancers harbor gene fusions between androgen-regulated genes TMPRSS2 and members of the ETS transcription factor family. African-American, Caucasian, and Oriental populations have this fusion in a frequency ranging from 40 to 70%, and some had their isoforms (Fig. 1) associated with increased aggressiveness of the tumor (higher Gleason score, early recurrence of PSA, and seminal vesicle invasion). Given the high incidence of PCa in Brazil and in view of its population diversity would be extremely important to know the prevalence and level of expression this rearrangement in this population.

METHODS

Of the total 20 patients assessed, the fusion was present in 35% of cases (Fig. 2), all belonging to type III fusion mRNA (Fig. 3).

This finding is in agreement with previous studies performed in other populations that found this class of fusion in a greater percentage of cases. This isoform expressed a hybrid protein predicted to be shorter than the protein ERG not fused by 39 amino acids residues. It occurs because this isoform contains the translation initiation in an internal non-native ATG codon of the gene ERG.

RESULTS AND DISCUSSION

Thus, these proteins have a reduced or modified biological activity, which is associated with a less aggressive tumor phenotype than other isoforms, such as type I, II, and VI, which contains a native gene ERG ATG start codon (Fig. 3). The analysis of the remaining patients and the level of expression of these isoforms by RT-PCR is the next stage of the project seeking more knowledge that supports the hypothesis of correlation between the isoforms of fusion TMPRSS2/ERG with clinical aggressiveness of prostate cancer and its prevalence.

Conclusion

So far there is a interesting frequency of rearrangement in the study population, indicating that early detection of these rearrangements in at-risk populations such as Brazilian population is a good prediction of the prognosis of PCa that can be extremely useful in the clinical management of these patients.