

# Activated *H-ras* gene mutations in transitional cell carcinoma of urinary bladder in a Kashmiri population

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## ABSTRACT

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**Aims and background.** The primary aim of the study was to evaluate the incidence of *H-ras* specific point mutations among a group of Kashmiri patients diagnosed with bladder cancer. We also explored the correlation of clinic-pathological status of the illness with these mutations.

**Methods and study design.** The DNA samples of both tumor and normal tissue were evaluated for the occurrence of *H-ras* activating mutations in exon 1 and 2 by PCR-SSCP and DNA sequencing. In addition, blood was also collected from all the cases to rule out any germ-line mutation.

**Results.** Point mutations of activated *H-ras* identified in bladder cancer patients were 14.5% (7 of 48), including four transversions (two G→T and two A→T) and three transitions (A→G). Of the mutations, 71.4% were detected in codon 61 and 28.6% in codon 12. The pattern of mutation in the study showed a significant association with smoking in bladder tumors ( $P < 0.05$ ). No correlation was found between tumor grade and/or stage and the presence of *H-ras* mutation.

**Conclusions.** Activation of *H-ras* by mutation plays a less frequent role than other genetic events in the development of the most transitional cell tumors of the bladder in Kashmiri population. Free full text available at [www.tumorionline.it](http://www.tumorionline.it)

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**Key words:** cystectomy, *H-ras*, Kashmir, PCR-SSCP, transitional cell carcinoma.

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