

First genomic sequence of a human Ig variable lambda gene belonging to subgroup III

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A cosmid clone C40.2 was isolated by screening the genomic Colo320HSR library (1), with a 375 base pair (bp) fragment (probe pVλ3RST0.36) from the p3C4λ5 cDNA clone (2). The C40.2 clone contains an immunoglobulin variable lambda gene, which was shown by sequencing to belong to subgroup III according to Chuchana *et al.* (3). This gene was designated as Vλ3.1, or IGLV3S1, since it represents the first genomic sequence of a VλIII subgroup gene. ('IGLV3' stands for 'human immunoglobulin lambda variable gene belonging to subgroup III'. 'IGLV3S1' stands for Vλ3.1 following the Human Gene Mapping recommendation (HGM9).) There are nine nucleotide differences, resulting in eight aminoacid changes, between the 3C4 and IGLV3S1 variable regions. Five of these aminoacid changes are located in the complementary determining regions. These differences most probably represent somatic mutations. Comparison of the IGLV3S1 sequence with those of the published lambda protein or cDNAs (for review, see ref. 3) shows that the variable regions of 3C4 (2), SH (4) and BAK (5) proteins are encoded by the IGLV3S1 gene. Interestingly, it should be noted that the first serine residue of these VλIII mature proteins was missed, probably for technical reasons, in these previous sequences.

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REFERENCES

1. Buluwela,L. *et al.* (1988) *EMBO J.* **7**, 2003–2010.
2. Yamaski,N. *et al.* (1987) *Mol. Immunol.* **24**, 981–985.
3. Chuchana,P. *et al.* (1990) *Eur. J. Immunol.* **20**, 1317–1325.
4. Putman,F.W. *et al.* (1967) *Science* **157**, 1050–1053.
5. Benson,M.D. *et al.* (1989) *Scand. J. Immunol.* **29**, 175–179.

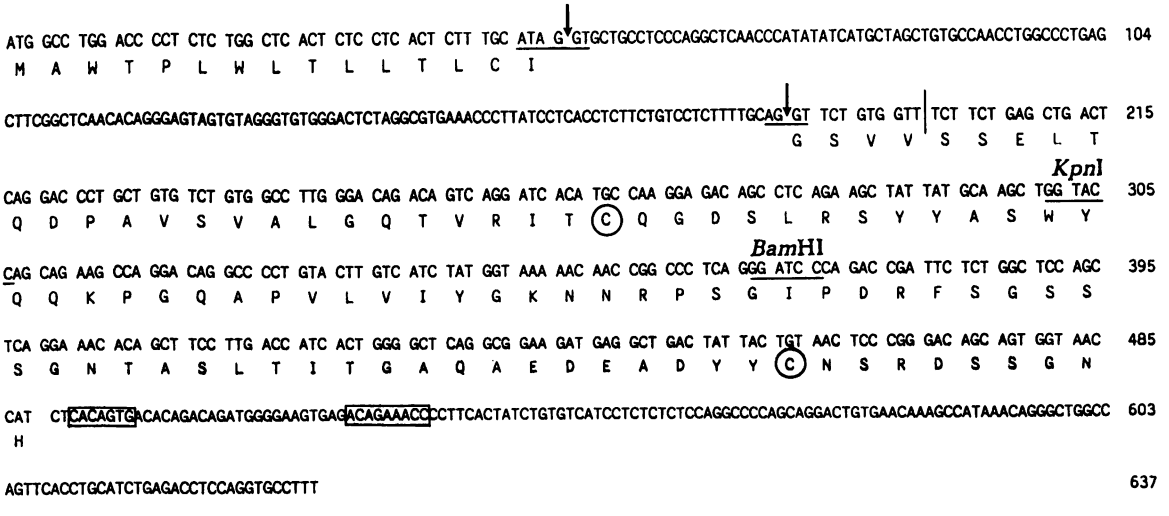

Figure 1. Sequence of the IGLV3S1 gene. Splicing sites are indicated by arrows. The heptamer-nonamer recombination signal sequences are boxed and the cysteins, involved in the intrachain disulfide bond, are circled. A vertical line locates the end of the peptide leader and the beginning of the mature protein.

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