

Genomic structure of the gene for mouse germ cell nuclear factor (GCNF)

ABSTRACT

The protein-coding region of GCNF is contained in 11 exons. The genomic structure of this nuclear receptor gene will be useful for further studies.

INTRODUCTION

Background The germ cell nuclear factor (GCNF, NR6A1) is a member of the nuclear receptor superfamily. Originally isolated from mouse cDNA libraries, homologs of GCNF have been identified in humans, frogs and fish. As no ligand has been identified, GCNF is designated an orphan receptor. Also known as RTR (retinoid acid receptor-related testis-associated receptor) or NCNF (neuronal cell nuclear receptor), evolutionary studies have defined GCNF as the only known member of a sixth subfamily of nuclear receptors. The mouse *Gcnf* gene is highly expressed in the developing nervous system, in the labyrinthine layer of the placenta and in the developing germ cells. Two transcripts of approximately 7.5 kb and 2.4 kb are present in testis, but only the larger transcript is found in somatic cells. Hybridization experiments reveal that the size difference is at least partially due to the use of different polyadenylation sites. Interestingly, GCNF expression is transiently up-regulated and later down-regulated again when embryonal carcinoma cells are triggered to differentiate by retinoic acid.

CONCLUSION

Conclusions The protein-coding region of GCNF is contained in 11 exons. Additional studies will be required to define the regulatory/promoter region. We think the genomic structure of this first, and at present only, member of the sixth subfamily of nuclear receptors will be useful for further studies of this unique receptor.