

Cloning and DNA sequence analysis of the cDNA for the common α -subunit of the ovine pituitary glycoprotein hormones

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The α -subunit is common to the family of heterodimeric glycoprotein hormones FSH, LH, TSH and the placental chorionic gonadotropin (CG). Clones coding for the pre α -subunit of the pituitary glycoprotein hormones were isolated from a lamb pituitary λ gt10 cDNA library [1] using a synthetic oligonucleotide probe based on the published amino acid sequence of the ovine α -subunit [2] and nucleotide sequences for the bovine α -subunit [3,4]. The complete nucleotide sequence as determined by dideoxy sequence analysis [5] and exonuclease III digestion [6] and the predicted amino acid sequence of one clone, designated α 3.2, is given in Figure 1.

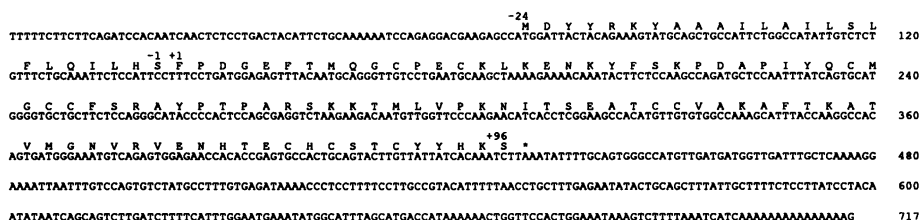


Figure 1. Nucleotide sequence and predicted amino acid sequence for the ovine glycoprotein hormone α -subunit cDNA clone 3.2. The signal peptide is indicated by negative numbers and the mature α -subunit by positive numbers. The termination codon is indicated by *.

The α 3.2 clone is 717 base pairs in length and includes 70 nucleotides of 5'-untranslated sequence, 72 nucleotides coding for the signal peptide (24 amino acids), 288 nucleotides coding for the mature α -subunit (96 amino acids) and 287 nucleotides from the 3'-untranslated region of the mRNA followed by a poly(A) sequence. The amino acid sequence predicted by the nucleotide sequence (Figure 1) agrees completely with the published amino acid sequence for the ovine α -subunit [2]. Comparison of the ovine with published bovine coding region nucleotide sequences [3,4] showed an overall homology of 97%.

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References

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