

**Novel type of splice junctions in the chicken cartilage matrix protein gene**

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In a recent survey (1) of a large database comprising 3700 splice sites (ss) it was found that only nine introns did not start with GT and four did not end with AG. Two types of non-conforming donor sites were identified, one of them is characteristic of immunoglobulin genes. Here we report that intron G of a single copy gene, the chicken cartilage matrix protein (CMP) gene (Kiss et al., manuscript in preparation), is bordered by non-conforming ss at both ends. The intron starts with AT and ends with AC (Fig. 1). It is also unique in that intron G has a novel type of donor site, differing very much from the consensus sequence as well as from the non-conforming 5' ss mentioned above (1). The score as defined in (1) is 38.95 and 77.27 for the donor and acceptor sites, respectively.

The splice junction sequences of intron G are aligned with the corresponding cDNA sequence (2) in Fig. 1. Independent genomic clones carrying the CMP genes of two different chicken lines were sequenced on both strands of the DNA and they proved to be the same. The cDNA sequence was also identical in three independent cDNA clones expressing the chicken CMP.

The fundamental difference between the 5' ss of intron G and the consensus sequence excludes possible base pairing with the 5' end of U1 snRNA and suggests that a special type of splicing mechanism is involved in the processing of the CMP pre-mRNA. Two alternative hypotheses are suggested. Either a minor U1 or another type of snRNA exists in chondrocytes as it was shown for other cells (3) or the donor site might base pair with U2 snRNA owing to sequence complementarity between the middle part of chicken U2 snRNA (4) and the 5' ss of intron G (Fig. 2).

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cDNA          ...CTGCAACAGAAATTGGAAGCTGTGGCAAAA...
exon 7        ...CTGCAACAGAAATatatacctttggaagctctttgt... intron G
intron G      ...ctccttaactctcactcactGGAAGCTGTGGCAAAA... exon 8
    
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Fig. 1. Splice junction sequences of intron G of the chicken CMP gene.

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              70                110
Chicken U2 snRNA  5' ...ccucgagagaggacuuuauuaaacggauuuuugggcgcg... 3'
                  : . : : : : : : : : : : : : : : : : : : : : : : : : :
3' intron G      ...tcgaaggtttctct---ataTAAAG...exon 7      5'
    
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Fig. 2. Complementarity of the 5' ss of intron G with chicken U2 snRNA.

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