Nucleotide sequence of an isoform of chicken retinoic acid binding protein- β varying in its A domain

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During embryonic development, retinoic acid may act as a natural morphogen to establish pattern (1). At least three nuclear receptors for retinoic acid (RAR- α , β and γ) have been previously reported in human and mouse (2). These retinoic acid receptors are found to have homology to the superfamily of steroid hormone and thyroid hormone receptors, which are found to regulate specific gene expression by a similar ligand dependent mechanism (3). On comparison of the three different RARs, they are found to have six domains (A–F). Regions B, C and E are highly conserved among all RARs. In addition, a comparison of human and mouse RARs have shown that the A, D and F regions of a given RAR subtype are conserved (4).

We report here the identification and characterization of a chicken retinoic acid binding protein beta isoform. The percentage homology in different domains of chicken RAR- β isoform compared to the corresponding domains in human and mouse is shown in Table I. Note that there is a high degree of homology among species in the B–F domains. However the nucleotide sequence of the 5' untranslated region and the A domain are found to be completely variant from the previously observed human and mouse RAR- β sequences. Using Kozak's rule the ATG at nt position 296 is chosen as the translation start site. Assuming this choice is correct, the predicted amino acid length of the resulting polypeptide will be 455. The A domain in chicken RAR- β isoform is longer by 7 amino acids than the A domain of mouse and human RAR- β . Three translation termination codons are observed in the 5' untranslated region in frame to the coding sequences. It is noteworthy that the A domain of the mouse RAR-

Table I

Domain	:	Human Protein	:	Mouse Protein
A	:	0.0	:	0.0
B	:	93.0	:	93.0
C	:	98.5	:	98.5
D	:	93.0	:	93.0
E	:	98.0	:	98.0
F	:	86.0	:	77.0

γ has been shown to be alternatively spliced with at least six isoforms having little homology (4). By analogy it is likely that the RAR- β has alternatively spliced variants as well.

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