

Publication

A second higher vertebrate B-type lamin : cDNA sequence determination and in vitro processing of chicken lamin B2

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The chicken nuclear lamina is composed of at least three proteins called lamins A, B1 and B2. In addition, putative precursors are transiently expressed during in vivo synthesis of lamins A and B2. Here we report the complete sequence of lamin B2 as it is deduced from a cloned cDNA. Comparison of lamin B2 with lamins A and B1 in the accompanying paper provides definitive proof for the existence of two structurally distinct chicken B-type lamins. Furthermore, we show that in vitro translation of transcripts derived from lamin A and lamin B2 cDNAs yielded polypeptides that were indistinguishable, by two-dimensional gel electrophoresis, from the putative in vivo precursors of lamins A and B2 respectively. However, whereas the lamin A precursor was stable, the translation product of the lamin B2 transcript was processed in the reticulocyte lysate to a polypeptide comigrating on two-dimensional gels with authentic mature lamin B2. This processing event could be inhibited by chelators of divalent cations, i.e. o-phenanthroline and EDTA. Our results indicate that the transiently expressed variant of lamin B2 represent a bonafide precursor, and that two distinct activities are involved in processing of newly synthesized lamins A and B2. Lamin precursors processing is discussed in relation to characteristic differences in the interactions of A and B-type lamins with the nuclear membrane.

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