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Molecular cloning, expression, and regulation of the ovalbumin gene in pigeon oviduct epithelial cells

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ABSTRACT. The full-length pigeon ovalbumin (OVA) gene cDNA was cloned and sequenced by reverse transcription-polymerase chain reaction (RT-PCR) and rapid-amplification of cDNA ends. A 386-amino acid protein was predicted for the obtained sequence, which had 67% identity with the chicken protein. Similar to chicken OVA, the pigeon OVA gene is a non-inhibitory serine protease inhibitor. Quantitative PCR analysis revealed that pigeon OVA mRNA was highly expressed in the oviduct, and trace amounts were detected in other tissues. During the reproductive cycle, pigeon oviduct OVA mRNA expression reached its peak during the egg-laying stage, decreased with brooding, and then increased again during the squab-feeding period. Moreover, the relative OVA expression level in

pigeon oviduct epithelial cells could be upregulated by a constant concentration of steroid hormones.

Key words: Pigeon; Ovalbumin expression; Ovalbumin regulation; Pigeon oviduct epithelial cells; Steroid hormones

