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Probable sources of trematode *Himasthla elongata parthenitae* clonal polymorphisms

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Transposable elements (TEs) are widely spread in all phylogenetic groups and comprise a significant part of eukaryotic genomes. A marine trematode – *Himasthla elongata* possesses an alternation of sex and parthenogenetic stages. It was believed that trematode parthenitae constitutes a clonal population. But their larvae have different infectivity rates. Thereby, the polymorphism could be expected and it increases the chance for successful host invasion. We found that the S-SAP (Sequence-Specific Amplification Polymorphism) method revealed clonal variability in the *H. elongata* larvae genomes. The aim was to determine the main components of the variable bands and which could be the source of clonal diversity. Cloning of several bands from S-SAP patterns and their sequence analysis allowed finding the presence of CR1-like and RTEK-like non-LTR (Long Terminal Repeat) TE fragments in the conservative regions in electrophoresis pattern and non-LTR and LTR-like fragments in variable zones. Some sequences are found in transcriptome and seem to belong to active TE copies. The fragment 7.5 cloned from variable bands doesn't have any ORFs. Dot hybridization revealed that 7.5 prevail in high and medium molecular length bands of S-SAP patterns and it is also present transcriptome. According to PCR analysis, 7.5 seems to be a part of CR1-like elements, but it forms clusters near pericentromeric and subtelomeric zones at chromosomes i.e. near satellite DNA regions. Thus, we suppose that mobile genetic elements play a key role in trematode clonal polymorphisms occurrence.

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Expression of androgen receptor and cyclooxygenase-2 in the vesicular glands of castrated and intact goat

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This study was conducted to demonstrate the effect of castration on the structure of vesicular glands of the Egyptian Nubian (Zaraibi) goat. Vesicular glands of castrated (n=4) and intact (n=6) goat were used for histological and immunohistochemical evaluations. In this study, we report the difference in cell specific expression of androgen receptor (AR) and cyclooxygenase-2 (COX-2) in the vesicular glands of castrated and intact goats. In both castrated and intact goats, the present study revealed no immunopositive cells for AR or COX-2 in the fibromuscular stroma meanwhile, AR and COX-2 containing immunoreactive cells were restricted only to the epithelium of the secretory acini of the vesicular gland. Such finding suggests androgen and COX-2 as important regulators for the growth and secretory activity of epithelial cells in the vesicular gland of goats. Overall, the vesicular gland of castrated goats showed significantly ($P < 0.05$) lower AR and COX-2 immunoexpression than intact goats indicating that both AR and COX-2 are androgen dependent.

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