

## Molecular characterization of an expressed sequence tag representing the cuticle-degrading serine protease gene (*PII*) from the nematophagous fungus *Arthrobotrys oviformis* by differential display technology

A. Nagee<sup>1</sup>, A. Acharya<sup>2</sup>, A. Shete<sup>2</sup>, P.N. Mukhopadhyaya<sup>2,3</sup> and B.A. Aich<sup>2</sup>

<sup>1</sup>Ashok and Rita Patel Institute of Integrated Study and Research in Biotechnology and Allied Sciences, New Vallabh Vidyanagar, Anand, India

<sup>2</sup>Medical Genetics Division, geneOmbio Technologies, Krishna Chambers, Pashan-Sus Road, Pashan, Pune, Maharashtra, Gujarat, India

Corresponding author: P.N. Mukhopadhyaya

E-mail: pnm6619@yahoo.co.in

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**ABSTRACT.** The technology of mRNA-based differential display reverse transcriptase-polymerase chain reaction (DDRT-PCR) was used to detect a 246-bp differentially expressed fragment from the nematophagous fungus *Arthrobotrys oviformis* when young mycelia were induced with the round worm *Haemonchus contortus*. The fragment was converted into an expressed sequence tag (EST) through characterization at the molecular level. Homology search indicated that the differentially expressed fragment originated from the cuticle-degrading serine protease gene, which has been previously reported to play a role in nematophagous activity in *A. oligospora*, *Dactylaria parvispora*, *A. musiformis*, and other potential anti-fungal biological control agents. Several single nucleotide polymorphisms found to represent both synonymous as well as non-synonymous mutations within this short sequence stretch of 246 bp suggested genetic variability within the gene in this group of nematode-trapping fungi. The cloned EST fragment

has potential for use as a hybridization probe for searching full-length gene from an appropriate cDNA library of this and related fungi. This is the first report of the identification of an EST representing the cuticle-degrading serine protease gene from *A. oviformis* using the technique of DDRT-PCR.

**Key words:** Expressed sequence tag; Biological control; Differential display reverse transcriptase; Nematophagous; Single nucleotide polymorphism