2-20. Male-Specific Protein (MSP) of Wax Moth - a New Member of JHBP Family

Jikhyon Han, Chang-Seok Lee[1], Chi-Young Yun and Hak-Ryul Kim[1]

Department of Biology, Daejeon University, Daejeon;
[1]Graduate School of Biotechnology, Korea University, Seoul

Male-specific protein (MSP) is a soluble protein which is accumulated in high amounts in the hemolymph and other organs of adult male wax moth. The MSP was purified from adult male wax moth by gel filtration and reversed phase column chromatography, and its amino acid sequence was determined. Three internal amino acid sequences of MSP were obtained by the in-gel digestion method using trypsin because of its blocked N-terminus. RT-PCR was conducted using degenerate primers designed from the internal amino acid sequences. The full length MSP cDNA sequence encodes a 239 amino acid polypeptide including a potential signal peptide region consisting of 18 amino acids. It was theoretically calculated that the recombinant MSP has a molecular mass of 24,317 Da and an isoelectric point (pI) of 6.00 without a signal peptide region, but the recombinant protein showed a molecular mass of about 27 kDa similar to that of innate MSP by SDS-PAGE. Sequence alignment and other similarities between MSP and juvenile hormone binding proteins (JHBPs) of several lepidopteran species including *G. mellonella* suggested that *G. mellonella* MSP may be a new member of JHBP family, even though the dramatic difference of the stage specificity between MSP and JHBPs.