

Abstract Submitted
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A novel cell penetrating peptide carrier for the delivery of nematocidal proteins drug JEA HYUN KIM, Korea Minjok Leadership Academy (KMLA) — Nematodes have recently become a primary source of harmful diseases to the environment that inflict harsh damages to pine trees and marine species. However, nematodes cannot be killed by normal pesticides or chemicals due to their thick outer protective layer mainly composed of collagen and cuticles. Thus, a novel approach to trigger intracellular delivery of chemicals through the layers of nematodes is required. In this study, the selection of the novel CPP was carefully progressed through protein database and serial digested fragmentation, internalization of each amino sequence was analyzed through flow cytometry and confocal microscope. As one of the most effective CPP material, JH 1.6 was compared with other major CPPs and its cellular toxicity was investigated. Furthermore, JH 1.6 was attached to various RNA, DNA, and proteins and internalization efficiency was evaluated for mammalian cells. To examine its effects on nematodes in vivo, JH 1.6 was conjugated with nematocidal protein - botulinum neurotoxin (BnT) and treated in *C.elegans* as a model animal. The results showed that JH 1.6 had high relative internalization rate and low cellular toxicity compared to other major CPP such as TAT and GV1001 peptides.

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