Compositions and methods are provided for treatment of sexual dysfunction in mammals, including male sexual dysfunction, such as erectile dysfunction, and female sexual dysfunction. In one embodiment, a peptide-based composition including the peptide sequence Ac-Nle-cyclo(-Asp-His-D-Phe-Arg-Trp-Lys)-OH is administered. Methods of administration include injection, oral, nasal and mucosal administration.

18 Claims, 8 Drawing Sheets