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Poster 17

Structural Studies of the Wild-type and Mutant Ovine Corticotropin-releasing Factors

류경석¹, 이영태, 김병국, 최병석, 김형만¹

한국과학기술원 화학과 및 ¹생물과학과
대전시 유성구 구성동 373-1, 305-701

The corticotropin-releasing factor (CRF) is a 41 amino acids peptide-amide hormone, which mediates general stress-response. It was reported that a mutant agonist of ovine CRF (oCRF) in which His32 is substituted by an Ala (alanine) increased the activity 4.5 fold. We have determined the structure of this mutant oCRF and compared with that of the wild-type oCRF using the circular dichroism (CD) and NMR techniques in trifluoroethanol (TFE) solution which is known to stabilize α -helix. By analyzing the CD data and the $C_{\alpha}H$ chemical shifts, it was elucidated that the mutant oCRF has more α -helical structure than wild type oCRF in the vicinity of the point of mutation (His32->Ala) at pH 3.5, but this difference was not observed at pH 8.0. In contrast to an earlier report it was observed the α -helical structure extends to the C-terminus of oCRF also has α -helical structure.