

# **Capillary zone electrophoresis (CZE)** of neuropeptides

## **Application Note**

Life Sciences

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### **Abstract**

Approximately 100 different peptides are known to be released by different populations of neurons in the mammalian brain. Neurotensin is a 13 amino acid neuropetide, implicated in the regulation of luteinizing hormone and prolactin release and has significant interaction with the dopaminergic system. Neurotensin can be present in two isomeric forms due to presence of D- and L-tyrosine. Diastereomeric peptides often possess different biological activities and/or conformational properties. Therefore, the separation and determination of diastereomeric peptides is particularly significant to the pharmaceutical industry for quality control of peptide synthesis and stability as well as for regulatory requirements. Diastereomers differ in their physicochemical properties which can be utilized for their analysis.



### **Experimental**

Analysis was performed using the Agilent Capillary Electrophoresis system equipped with diode-array detection and Agilent ChemStation.

#### **Results and discussion**

This application describes the separation of the two neurotensin diastereomers (13 amino acids), angiotensin I (10 amino acids), angiotensin II (8 amino acids) and [Leu] enkephalin (5 amino acids).

In contrast to many other methods capillary electrophoresis allows the rapid, sensitive and simultaneous identification and quantification of peptide diastereomers.



#### Figure 1

Capillary zone electrophoresis of neuropeptides.

#### **Chromatographic conditions**

30 mM borate, pH 8.3,
See electropherogram, peptide concentration was 2.5 x 10 <sup>-5</sup> M per peptide
Effective length 50 cm. total length 58 cm, internal diameter 50 µm
200 mbars
30 °C
270 V/cm

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