Amino Acids and Catecholamines analysis in microdialysates by CE-LIF 410 nm

Application note Ref : AN 060-C

High Speed, Sensitive and Small Sample needs for Separation of primary amino acids and catecholamines

This method couples capillary electrophoresis separation with LIF detection to provide the analyst with a selective and sensitive tool for the analysis of biological samples.
Since the quantification method requires less than 1 µL of sample, neuroschemist can increase the number of tests on the same sample to provide other analytical data with complementary methods.

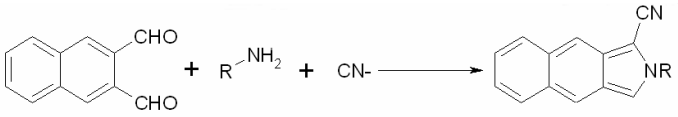
⇒ **Primary amino acids and catecholamines separate in a single run**

⇒ **Limit of detection :**
Glutamate: 6,8.10^{-10} mol/L (2,2.10^{-17}moles)
Gaba : 6,4.10^{-10} mol/L (2,0.10^{-17} moles)
Aspartate: 9,0.10^{-10}mol/L (2,9.10^{-17}moles)
(LOD calculated for a S/N ratio of 3)

⇒ **Run time : 16 minutes**

⇒ **Sample injection of 32 nl**
(microdialysate diluted 1/5)

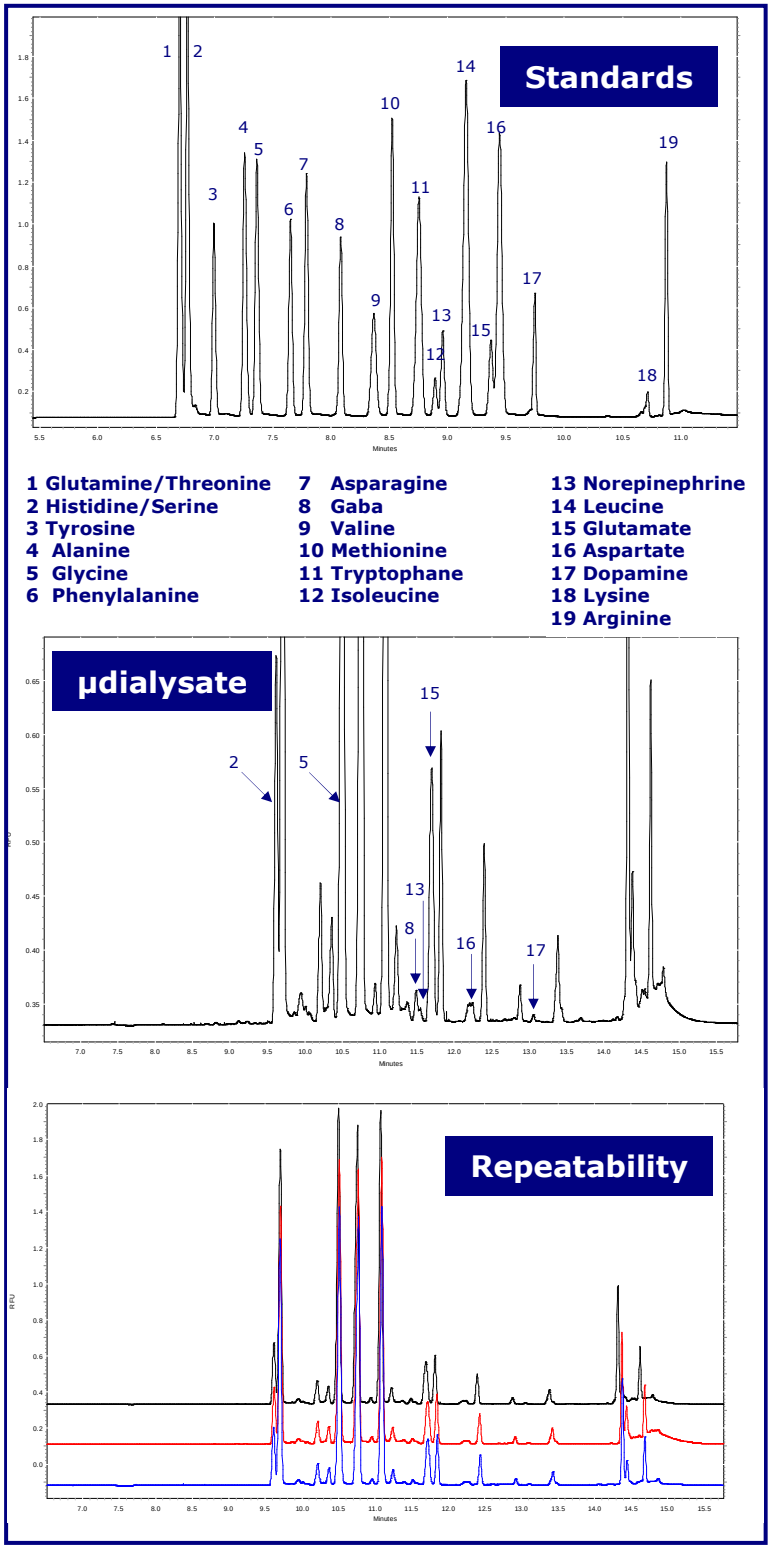
Labelling reagent NDA :



NDA is a fluorogenic dye which fluoresces weakly in its native form but has a good fluorescent yield when reacted with CN- and a primary amine. Such derivatives are excitable at 410 nm or 442 nm using, respectively, diode or HeCd lasers. Derivatization procedure according to Picometrics TN002

Samples:
Standards : 10^{-7}M (labeled at 10^{-6}M and diluted 10 times prior to injection)
Microdialysates : diluted 5 times in distilled water
Instruments:
Capillary Electrophoresis: Agilent 3D CE
Detector: Picometrics ZETALIF *evolution* detector
Laser: Diode laser, 410 nm, 10 mW
Methods:
Capillary: 50 µm ID, 65 cm length (50 cm eff.length)
Standard Injection : 10 seconds at 50mbar, i.e. 14,8 nL injected (working temp. 25°C)
Microdialisat Injection : 15 seconds at 0,7 PSI, i.e. 32 nL injected.

For complete experimental details, please contact Picometrics



1 Glutamine/Threonine
2 Histidine/Serine
3 Tyrosine
4 Alanine
5 Glycine
6 Phenylalanine
7 Asparagine
8 Gaba
9 Valine
10 Methionine
11 Tryptophane
12 Isoleucine
13 Norepinephrine
14 Leucine
15 Glutamate
16 Aspartate
17 Dopamine
18 Lysine
19 Arginine

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