A new versatile UHPLC ALEXYS Neurotransmitter Analyzer based on the DECADE Elite detector with SenCell has been developed. This analyzer is based on a flexible and scalable approach to offer an analysis solution for multiple different neurotransmitter applications (monoamines and acidic metabolites, amino acid neurotransmitters and acetylcholine).

**Method**
- Automated colorless in-needle OPA/sulphite derivatization.
- Small sample use per analysis: 5 μL only (injection volume 1.5 μL)
- Fast and efficient separation using 2 μm particle column
- Post separation step-gradient to eliminate late eluting components
- Analysis time of 16 minutes per sample (GABA and Glu)

**Linearity, repeatability and detection limits**

**Automated mobile phase optimization**

The Clarity chromatography data system in combination with an ALEXYS system with two pumps can be used for automated optimization of the mobile phase composition to achieve optimal separation of GABA, Glu and other amino acids.

**GABA, Glu and other amino acids**

**Histamine**

Another example is the analysis of the biogenic amine Histamine using the ALEXYS Neurotransmitter Analyzer. Histamine is considered as one of the most important mediators of allergic reactions and inflammations. A slightly modified mobile phase (pH 6.0) is used to separate Histamine.

**Large Neutral Amino Acids (LNAAs)**

LNAAs (Tyr, Val, Met, Leu, Ile, Phe, Lys, Trp) can also be measured with this method using a mobile phase (pH 4.5) with a larger contents of organic modifier.

**Conclusions**

- Fully automated in needle sample derivatization
- 10 min analysis time
- LOD for GABA <10 nM using only 1.5 μL sample (15 fmol on-column)
- Versatite: GABA, Glu, Histamine, LNAAs and other amino acids
- Rodent saving: More information from less samples, reduces the number of assays and lab animals involved.

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