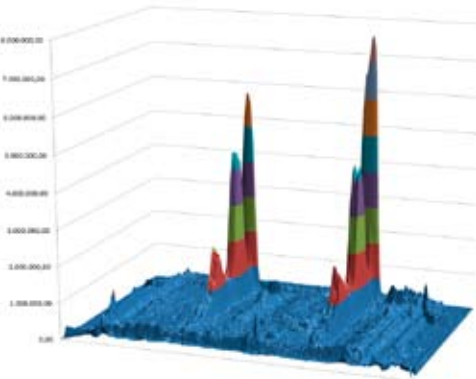


KEYWORDS

Protein detection

- » Proteomics
- » Peptide Synthesis
- » Alzheimer's Disease
- » Huntington's Disease



CONTACT

Dr. Thole Züchner
NWG „Ultrasensitive Protein
Detection Unit“
Fakultät für Chemie und Mineralogie

Biotechnologisch-Biomedizinisches
Zentrum
Deutscher Platz 5
04103 Leipzig
Fon +49-(0)341-97 31332
Fax +49-(0)341-97 31339
thole.zuechner@bbz.uni-leipzig.de
www.uni-leipzig.de/uspdu

DEVELOPMENT AND APPLICATION OF HIGHLY SENSITIVE PROTEIN DETECTION METHODS

The Ultrasensitive Protein Detection Unit (USPDU) focuses on the development of new techniques, which allow the specific detection of proteins in the zeptomole range (10^{21} mole). This means to specifically detect a few thousand molecules of a single protein present in a complex mixture.

To reach this goal, the research group is developing a novel strategy using newly developed fluorescent dyes in combination with multi-step enzyme reactions to activate those dyes. This also requires the adaptation and optimization of enzymes for these assays.

The group around Dr. Thole Züchner is working in the following areas:

- microwave-assisted-peptide synthesis
- fluorescence labeling including time-resolved fluorescence,
- 1D- and 2D-gels,
- mass spectrometry (Orbitrap with ETD, MALDI-TOF, ESI),
- HPLC, recombinant protein expression and purification,
- protein modifications and
- side-specific coupling of agents to proteins.

The central aim is to develop a technology platform which is applicable in a flexible way for the diagnosis of neurodegenerative diseases such as Alzheimer's disease and Huntington's disease amongst others.

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