

Pronexus Analytical AB

Pronexus Analytical AB (Inc.) was founded in 2003 by Professors Urban Ungerstedt, Kjell Fuxe and Jan Kehr as a spin-off company linked to the Karolinska Institutet Science Park in Stockholm.

Mission statement

Pronexus Analytical AB is an independent preclinical contract research organization (CRO) offering advanced services and collaborative projects focused on PK/PD studies using microdialysis and neurochemical monitoring in rodent models of CNS and metabolic disorders. The bioanalytical services include UHPLC-MS/MS, standard HPLC techniques, enzyme assays and immunoassays.

Pronexus research laboratories with full regulatory approvals include the central bioanalytical laboratory and the animal research facility.



Pronexus expertise in CNS drug discovery

Preclinical phase 5 – 6 years



Protein targets:

Enzyme
Receptor
Ion-channel
Uptake inhibitor

Other targets:
Gene delivery

Cells expressing the target

HTS
Hits

Lead optimization
in vitro
Medicinal chemistry
Organic chemistry

ADME
Absorption
Distribution
Metabolism
Elimination

Pronexus

Lead optimization in vivo

**PK/PD
microdialysis
biosensors
analytical
neurochemistry**

Animal models

"Go-No Go" decision



Rodent models

Psychiatric and neurodegenerative diseases

- Depression, ADHD
- Schizophrenia
- Drug abuse liability, NPS
- Parkinson's disease
- Alzheimer's disease, cognitive function
- Huntington's disease

Metabolic and rare disorders

- Gaucher disease
- Hepatic encephalopathy, OTC-deficiency

Pronexus Analytical - core expertise

Preclinical research: Experimental models

- Microdialysis protocols on anesthetized or awake rats and mice
- Microsurgery, stereotaxic surgery on small rodents
- Simultaneous microdialysis and behavioral monitoring
- Targeted pharmacokinetics and drug brain delivery
- Behavioral tests

Analytical services

- UHPLC-MS/MS techniques optimized for determination of neurotransmitters, neuromodulators, metabolites and related molecules in the microdialysates and other biological samples
- UHPLC-MS/MS for PK/TK studies
- Chiral separations
- HPLC methods with electrochemical, fluorescence, UV, conductivity detection
- ELISA – VIS, FL, LM, TRF mode
- Enzymatic spectrophotometric assays for clinical microdialysates

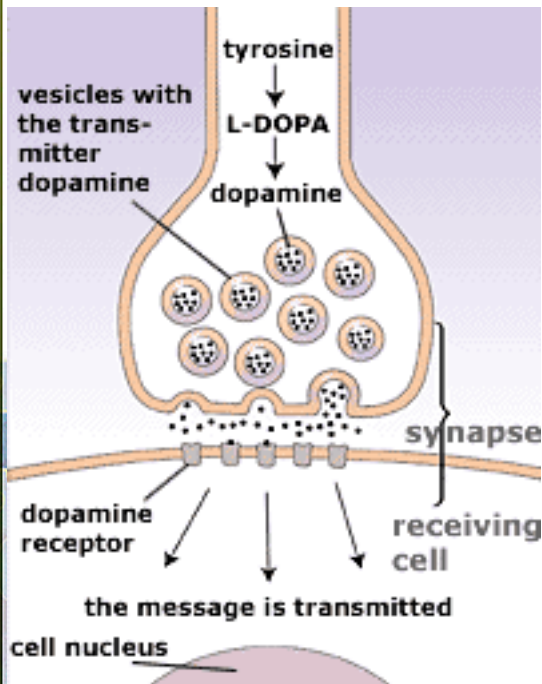




Historical link between microdialysis and dopamine research

Nobel Prize in Physiology or Medicine 2000
for discovery of the neurotransmitter dopamine

Prof. Arvid Carlsson



Prof. Urban Ungerstedt



Prof. Urban Ungerstedt who pioneered the microdialysis technique and a member of the Nobel Committee at that time, delivering the Presentation Speech for the 2000 Nobel Prize in Physiology or Medicine at the Stockholm Concert Hall.

Analytical services

HPLC, UHPLC-MS/MS, Enzymatic assays

Monoamines: Dopamine, Noradrenaline, Serotonin, Histamine
Acetylcholine, Choline

Amino acids: Glu, Asp, GABA, Gly, D-Ser, physiological AAs
Adenosine (and other purines), cAMP

Kynurenine, Kynurenic acid, Quinolinic acid, related metabolites
Reactive oxygen species (ROS)

Glucose, lactate, pyruvate, glycerol

Amino acids - primary and secondary

Gaseous messengers: NO (NO_2^- , NO_3^-)

Small-molecular pharmaceuticals, toxins, nutraceuticals

EIA, ELISA, UHPLC-MS/MS

Second messengers: cAMP, cGMP

Neuropeptides; proteins - fragments; soluble forms of A β peptides

Cytokines, interleukins, trophic factors, hormones, growth factors



Summary

Pronexus Analytical AB

- A unique portfolio of services including *in vivo* microdialysis and neurochemical analysis for evaluation of test substances in rodent models
- Expertise in pharmacology of major neurotransmitter systems, combined academic/industrial background
- International reputation, affiliation to Karolinska Institutet and Uppsala University
- A potential to expand, offering specialized PK/PD studies, *in vitro* and analytical CRO services
- Microdialysis in other organs/models: skin, muscle, liver, lung



Pronexus
analytical

excellence in neurochemical monitoring and analysis

