

p r o d u c t
c a t a l o g

products for microdialysis



CMA / *Microdialysis*

www.microdialysis.com



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OUR VISION

“Microdialysis based research and diagnostics leads to improved quality of life”

THE COMPANY

CMA Microdialysis is a Swedish medical device company devoted to the development, manufacturing and marketing of the Microdialysis technique. The company was formed in 1984 as the first company in the world to market Microdialysis products and know-how. Instruments, consumables and computer software are sold globally to universities, hospitals and pharmaceutical companies as unique tools for *in vivo* sampling and monitoring of organs and tissues.

CMA is the leading company developing and marketing Microdialysis products for the scientific & medical research field. Since 1994, CMA also offers unique Microdialysis products for clinical research and diagnostics. The products are produced in Sweden under ISO 13485 and according to FDA standards.

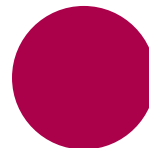
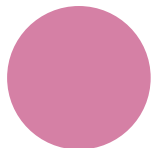
With a highly specialized and skilled staff, consumables are manufactured in a Class 8 clean room environment. The head office is located outside Stockholm, Sweden, with subsidiaries in Germany and the USA. CMA has distributors across the globe, responsible for local sales, service and support.

HISTORY

The concept of Microdialysis was born in the early 1970's. While examining the cross-section of a blood vessel among fluorescent nerve endings, Professor Urban Ungerstedt of the Karolinska Institute in Stockholm had the idea of using a dialysis tube as “an artificial blood capillary”, in order to monitor chemical events in the tissue, see Microdialysis technique. The first paper on Microdialysis was published in 1974. Since then, more than 12,000 scientific papers have been published on the technique - among them some 2,000 clinical investigations.

The CMA /10 Microdialysis Probe – the first commercially produced microdialysis probe in the world – was probably the most significant contribution toward the boom in the use of microdialysis in neurobiological research. The CMA/10 Probe has since been followed by several modifications directed towards improved spatial resolution and ease of use, as well as new lines of probes to suit many different applications.

CMA's business concept is to develop microdialysis as a standard research tool in academic and industrial laboratories as well as a diagnostic tool in the clinic. CMA works in close cooperation with scientists all over the world with particular emphasis on scientific support, method development, offering of courses, literature, and more. The many applications of microdialysis are rapidly increasing with the spread of the technique throughout the world, placing CMA Microdialysis at the forefront both in terms of research and development and as a manufacturer/supplier of microdialysis technology and know-how.



Introduction



PRODUCTS

CMA develops and produces a complete range of Microdialysis products for basic research, clinical research and clinical diagnostics. The basic research portfolio includes a broad range of probes, pumps, fraction collectors, analyzers and complete systems for advanced research.

The clinical product range includes catheters and analyzers cleared for human use. The system is used for monitoring the human brain, subcutaneous and intramuscular use and continuous monitoring and detection of local changes in metabolism following gastrointestinal and hepatic surgery.

Intravenous Microdialysis offers novel opportunities for continuous monitoring of small substances in blood. By using an optimized membrane, CMA catheters can be implanted into peripheral veins for up to 3 days, with very high accuracy.

The massive amount of data generated by Microdialysis and other complementary techniques can be analyzed by CMA's extraordinary computer software LABpilot and ICUpilot. They introduce the new concept of "Data Navigation" where data can be displayed and manipulated in a graphic environment. ICUpilot enables the complete bedside integration of all physiological, chemical and pharmacological data as unparalleled decision support for the medical professional.

RESEARCH APPLICATIONS

For more than thirty years, Microdialysis has been used to study brain neurophysiology and the release of neurotransmitters, monoamines and metabolites, amino acids and other small endogenous compounds.

With the introduction of several new Microdialysis probes for use in the peripheral organs, Microdialysis is seeing widespread use in sampling molecules in tissues such as muscle, liver and adipose tissue, as well as in the spinal cord, synovial fluid, vitreous humour and blood, to assess the delivery and distribution of parent drug and metabolites and their effects on endogenous compounds.

As global drug development costs continue to escalate, partially because of the high attrition rate of development candidates, there is increasing pressure to improve the predictability of clinical outcomes from preclinical studies.

By understanding the exposure in the appropriate biophase, as well as the effect of a drug candidate at the site of action, selection and optimal doses of the best compound can be improved. Microdialysis is a practical and data-rich in vivo method, which is an extremely useful tool to investigate the PK/PD profiles of drug candidates.



Introduction

CMA's basic research solutions are used by leading pharmaceutical companies in the drug discovery process to assess drug concentrations at the site of drug action. Since the exchange of molecules through the dialysis membrane is in both directions, a Microdialysis probe placed in target tissue can be used to continuously:

- **Sample unbound drug and/or active metabolites as they arrive to the tissue following systemic administration.**
- **Deliver drug locally into an organ or tissue through the probe, and simultaneously collect endogenous target compounds to determine pharmacological effect.**
- **Assess controlled release of drugs from encapsulation *in vivo*, within specific tissues.**

In summary, Microdialysis is a valuable tool for *in vivo* evaluation studies on drug delivery, drug metabolism, PK/PD, bioavailability, bioequivalence and pharmacological efficacy. It is the only technique that gives simultaneous *in vivo* temporal information on unbound drug and metabolic levels as well as endogenous compounds in target tissues.



CLINICAL APPLICATIONS

In the clinic, Microdialysis is used to address various issues in different clinical fields, such as monitoring for early detection of secondary brain injuries, flap thrombosis, transplant rejection and anastomosis leakage. Microdialysis is also used in clinical pharmacology to measure target site concentrations of antibiotics or anticancer drugs in different tissues and organs and to subsequently relate target site PK to PD.

CMA's clinical solutions are used by leading university hospitals around the globe for continuous tissue monitoring in the ICU.

SALES AND DISTRIBUTION

CMA offers a complete and leading suite of Microdialysis solutions that meets the needs of advanced research. All products are produced under high quality standards and in a clean environment in Sweden.

User meetings, seminars and courses are held regularly all over the world. Through a constant dialogue with our customers, the application areas of the microdialysis technique are expanding, and a continuous development and improvement of our instruments is guaranteed.

Global support comes from the CMA Microdialysis home office located in Stockholm Sweden, a branch office located in Boston (responsible for the USA, Canada, and South America), and many knowledgeable distributors in Europe, Asia and Australia.

REGULATORY APPROVALS AND ISO 13485

CMA Microdialysis was one of the first medical technology companies to certify a product according to the Medical Device Directive (MDD). The first Microdialysis catheter was approved for CE marking in 1995. All products are produced in Sweden under rigorous quality control under the ISO13485 accreditation.