

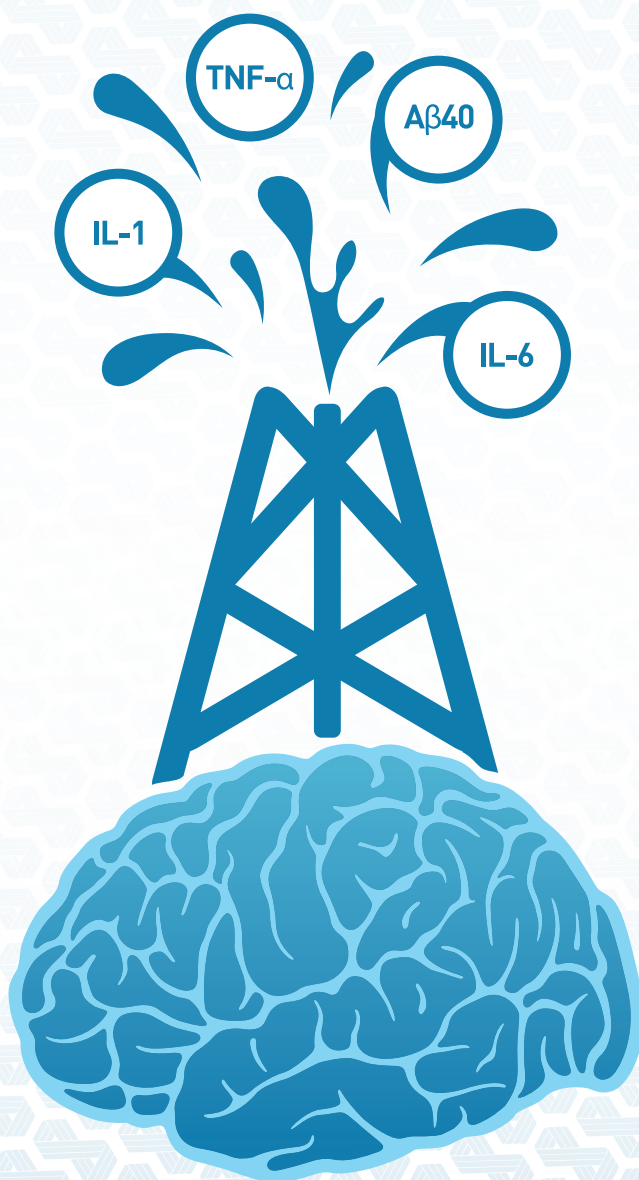
AtmosLM Probes

Large Molecule Microdialysis

In Vivo Sampling of
Neuropeptides
Cytokines
Proteins

Successfully collected

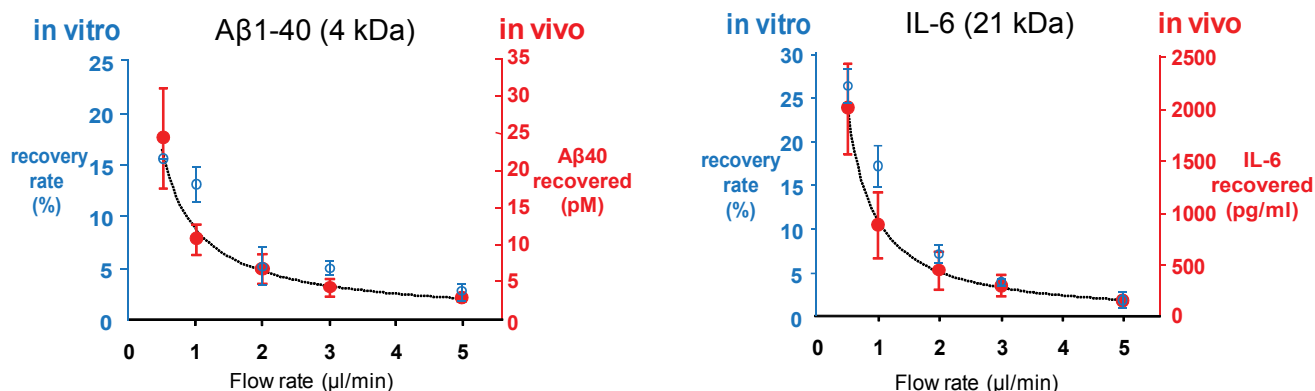
beta-Amyloid
tau protein
TNF-alpha
IL-6
IL-1beta
CRF
ghrelin
leptin
BDNF
beta-endorphin
met-enkephalin



Simplified Sampling For Large Neuropeptides and Cytokines

AtmosLM probes use large pore membranes to enhance recovery of large molecules by microdialysis, but avoid the pitfalls of traditional “push-pull” microdialysis. The AtmosLM probe system eliminates worries about membrane leakage, mismatched push and pull side pumps, bubbles forming in the tubing, long equilibration times or extra valves.

AtmosLM Probes Perform Normally *In Vitro* And *In Vivo*

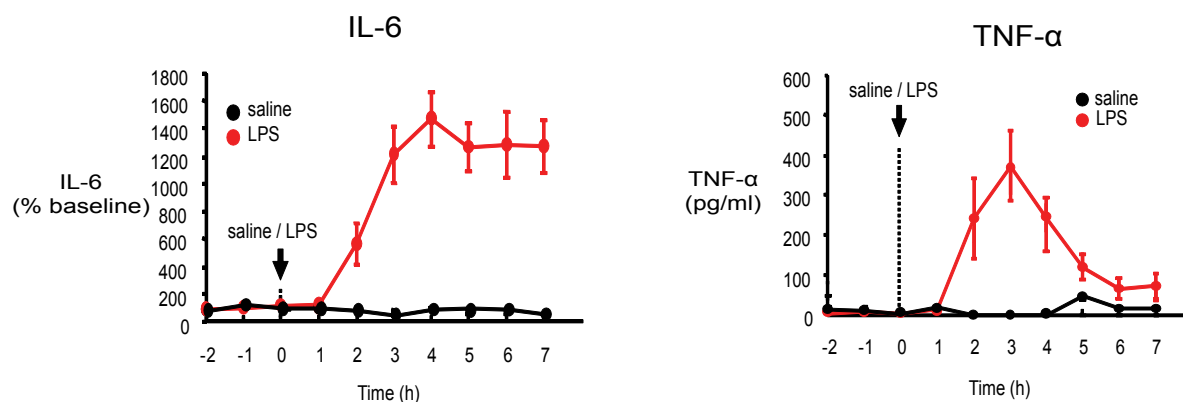


In Vivo: AtmosLM probe used in mouse hippocampus, 4 mm polyethylene membrane with 1,000 kDa cut-off, aCSF with 0.15% BSA, 1 μL/min

In Vitro: AtmosLM probe used with 10 nM Aβ1-40 or 1000 nM IL-6 stock in aCSF with 0.15% BSA at room temp, 4 mm membrane, 1 μL/min

Simple Experimental Design

Follow protein concentration over time in freely moving animal following stimulus.



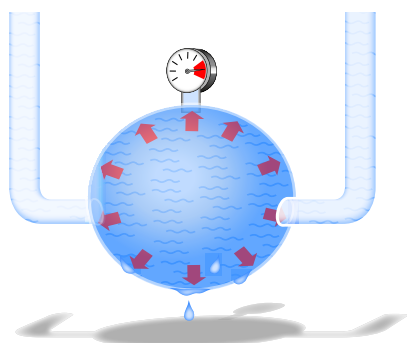
Time course. Concentration of IL-6 or TNF-α in mouse hippocampus following injection of LPS (red) at 10 mg/kg or saline (black).

Microdialysis conditions, AtmosLM probe, 4 mm polyethylene membrane with 1,000 kDa cut-off, perfuse aCSF with 0.15% BSA at 1 μL/min.

AtmosLM Pressure Canceling Technology

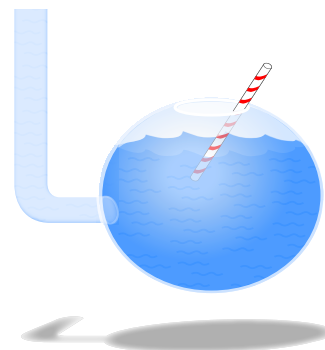
AtmosLM probes utilize very large pore membranes, but they don't leak. Each probe relies on a vent to limit pressure at the membrane. Since the vent is open to the atmosphere, the pressure inside the membrane never reaches the point where fluid can be forced out of the probe. A separate peristaltic pump is used to remove the sample from the probe.

Conventional microdialysis



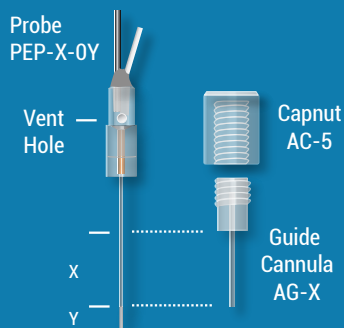
Normal microdialysis probes require that the membrane resists the pressure of a column of fluid being pushed up and out of the probe through narrow tubing.

AtmosLM sampling



AtmosLM microdialysis is like filling an open vessel with a hose. The only pressure against the walls of the vessel is from the weight of the fluid inside of it.

AtmosLM Probes and Accessories



Probe Specifications

Membrane Material	Polyethylene
Mol. Wt. Cut-off	1,000 kDa
Membrane OD	0.44 mm
Shaft Dimensions	0.58/0.50 mm OD/ID

Ordering Information

AtmosLM Probe	PEP-X-0Y (3 pcs/pk) Shaft (X) = 4, 8, 12 mm Membrane (Y) = 1, 2, 3, 4 mm
Guide Cannula 0.70/0.62 mm OD/ID	PEG-X (3 pcs/pk) Length (X) = 4, 8, 12 mm
Dummy Probe (reusable)	PED-X (3 pcs/pk) Length (X) = 4, 8, 12 mm
Stereotaxic Adapter (reusable) Fixes guide to stereotaxic apparatus.	PESG-X (1 ea) Length (X) = 4, 8, 12 mm
Cap Nut (reusable) Holds probe or dummy into guide	AC-5 (3 pcs/pk)

References

Takeda S, et al. Novel microdialysis method to assess neuropeptides and large molecules in free-moving mouse. *Neuroscience* 186 (2011): 110-119.

Aluisio L., et al. Selective P2X7 receptor antagonists inhibit Bz-ATP induced IL-1 β release in the rat brain [abstract]. In: *Monitoring Molecules in Neuroscience*, Sept 16-20, 2012; London.

McIntosh B., et al. Improvements in the structure of microdialysis system facilitate the recovery of neuropeptides and large molecules [abstract]. In: *Society for Neuroscience*; Nov. 13-17, 2010; San Diego. Abstract 819.15.



Complete AtmosLM Instrument Package

Peristaltic pump
ERP-10

Syringe pump
ESP-32

Microdialysis
Fraction Collector
FC-90

Microdialysis Apparatus
*see details below



ERP-10 Peristaltic Pump



Samples are collected from AtmosLM probes with a convenient, low pulse peristaltic pump. The Eicom ERP-10 pump was developed especially for the AtmosLM system. It features:

- 2 channels per pump
- Flow rate as low as 0.5 $\mu\text{L}/\text{min}$
- Six roller pump head for smooth flow

Peristaltic Pump	ERP-10
Tubing replacements (<i>includes 4 pcs RTJ</i>)	RT-5S, 5 pcs/pk
Connecting needle replacements	RTJ, 4 pcs/pk

Microdialysis Apparatus

Balance Arm	TSB-23
Cage	FC-30
2-Ch Swivel (<i>Large bore required, 21 gauge</i>)	TCS2-21
Inlet Tubing, 0.1 mm ID Teflon	JT-10
Outlet Tubing, 0.25 mm ID FEP (<i>Larger diameter required</i>)	JF-10
Tether <i>JT-10 inlet, JF-10 outlet</i>	WT-35
Collar, rat	NF-10
Harness, rat	NF-20
Harness, mouse	DR-CO-M