

## Superfusion System

Cat. No. 14900

### General

Neurotransmitter release is the major step of neurotransmission. Abnormalities in neurotransmitter release have been proposed to be involved in many pathological conditions.

Therefore, understanding the physiological mechanisms of transmitter release and how the process can be modified by pathological states is essential to develop therapeutically useful pharmacological agents.

**UGO BASILE 14900 Superfusion System has been especially designed to perform release studies from synaptosomes**, although brain slices can be employed as well.

On the other hand, presynaptic nerve terminals are the sites where release specifically occurs; therefore superfusion of synaptosomes is best suited to explore presynaptic events.

Superfused synaptosomes are the preparation of choice to study release-regulating presynaptic receptors and to explore the intimate mechanisms of neurotransmitter release.



**RAITERI'S METHOD**

**Synaptosomes  
Release  
Studies**

### Main Features

- Specifically designed to perform release studies from synaptosomes
- Brain slices can be employed as well
- More than 300 full papers using superfused synaptosomes have been published

## Introduction

UGO BASILE 14900 Superfusion System is a semi-automated version of that originally developed in Raiteri's laboratory, where about 300 papers have been published exploiting the technique.

We have developed this Superfusion System in order to make commercially available an instrument in which the original design of the superfusion chambers has remained intact.

The 14900 Superfusion System consists of 12 parallel open superfusion chambers with 12 upper reservoirs, all thermoregulated by a water-jacket. Prewarmed oxygenated media of the desired composition can be concomitantly delivered from the reservoirs to the superfusion chambers.

Synaptosomes are accommodated as very thin layers on microporous filters placed on glass filter supports.



Superfusion is provided by a multi-channel peristaltic pump and superfusate samples are directly collected into scintillation vials.

### Ordering Information

- 14900 SUPERFUSION SYSTEM (Raiteri's method)**, standard package, including:-
- 14900-001** Electronic Unit
  - 14900-002** Superfusion Bath Complete Assembly, including upper & lower chambers, valves, set of tubes, etc.
  - 14900-004** Suction Pump
  - 14900-302** Instruction Manual
  - 14900-328** Set of Phials
  - 14900-338** Set of Filters
  - 14900-325** Phial Rack
  - 14900-302** Drain Pan
  - E-WP008** Mains Cord

#### Optional:

- 14900-003-MA12** Water Circulator/Heater (12 litres)
- 14900-003-MA12** Water Circulator/Heater (26 litres)
- 14900-015** Masterflex Peristaltic Pump, 12 channels, expandable
- 14900-024** Masterflex Peristaltic Pump, 24 channels

### Physical

Weight	34Kg (complete assembly)
Shipping Weight	48Kg
Dimensions	14900-001: 38(w)x30(d)x13(h)cm 14900-002: 46(w)x28(d)x60(h)cm
Packing	1 box 80x60x44cm 1 box 62x65x84
Power Requirement	115 or 230V, 50/60Hz, 100W max.

### Bibliography

#### Method Paper:

- M. Raiteri, F. Angelini, G. Levi: "A simple apparatus for studying the release of neurotransmitters from synaptosomes" *Eur. J. Pharmacol.* 25: 411-414, 1974

#### Papers quoting 14900:

- A. Pittaluga et alia: "Effects of the neoclerodane Hardwickiic acid on the presynaptic opioid receptors which modulate noradrenaline and dopamine release in mouse central nervous system" *Neurochemistry Intl.* 62 (4): 354-359, 2013
- S. Zucchini et alia: "Increased excitability in tat-transgenic mice: Role of tat in HIV-related neurological disorders" *Neurobiology of Disease*: available online 2013
- F. Giribaldi et alia: "Group I metabotropic glutamate autoreceptors induce abnormal glutamate exocytosis in a mouse model of amyotrophic lateral sclerosis" *Neuropharmacology* 66: 253-263, 2013
- J. Marrocco et alia: "Anxiety-Like Behavior of Prenatally Stressed Rats Is Associated with a Selective Reduction of Glutamate Release in the Ventral Hippocampus" *J. neuroscience* 32 (48): 17143-17154, 2012
- C. Romei et alia: "The GABAB receptor antagonists CGP35348 and CGP52432 inhibit glycine exocytosis: Study with GABAB1- and GABAB2-deficient mice" *Pharmacological Res.* 61: 547-552, 2010
- M. Grilli et alia: "Specific Inhibitory Effect of Amyloid-β on Presynaptic Muscarinic Receptor Subtypes Modulating Neurotransmitter Release in the Rat Nucleus Accumbens" *Neuroscience* 167: 482-489, 2010
- G. Bonanno et alia: "Release of [3H]D-aspartate induced by K<sup>+</sup>-stimulation is increased in the cervical spinal cord of the wobbler mouse: a model of motor neuron disease" *Neurochemistry Intl.* 55: 302-306, 2009
- M. Grilli et alia: "Release-enhancing pre-synaptic muscarinic and nicotinic receptors co-exist and interact on dopaminergic nerve endings of rat nucleus accumbens" *J. Neurochemistry* 105 (6): 2205-2213, 2008

*In addition, more than 300 full papers using superfused synaptosomes have been published*