

# ELMO<sup>®</sup>

## Glow Discharge system for TEM grids



**YOUR TEM GRIDS READY  
WITHIN SECONDS**

*Easy, Standalone, Compact*



System based on J. Dubochet's method implemented by J.C. Homo and developed in collaboration with the IGBMC and ICS laboratories.

A Glow Discharge treatment with a specific gas atmosphere will modify the surface properties of TEM support films or grids in order to optimize the adsorption of the solutions to spread.

## HYDROPHILIC OR HYDROPHOBIC, NEGATIVE OR POSITIVE CHARGE

Surface	Charge	Atmosphere
Hydrophilic	Positive	Air (with subsequent treatment Mg)*
	Negative	Air
Hydrophobic	Positive	Amylamine
	Negative	Methanol

\*Magnesium acetate



Thanks to a glow discharge treatment with amylamine the hydrophobic tendency of the carbon film is kept and the surface is charged **positively** allowing an adsorption of molecules like nucleic acids.

## BENEFITS

### WITHOUT GLOW DISCHARGE

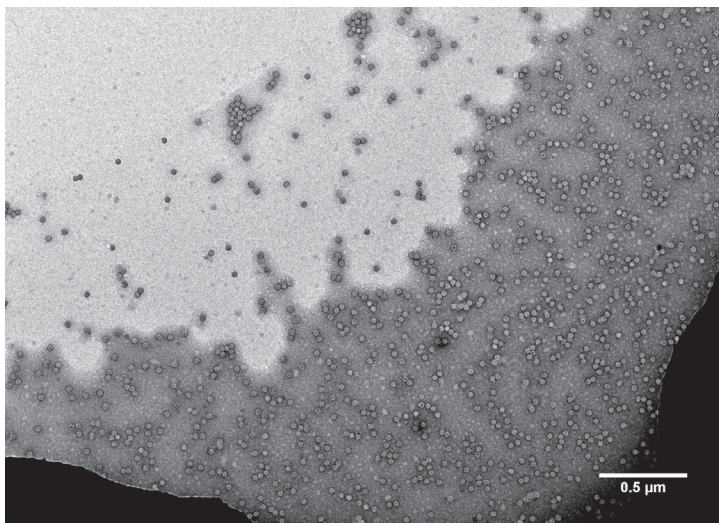
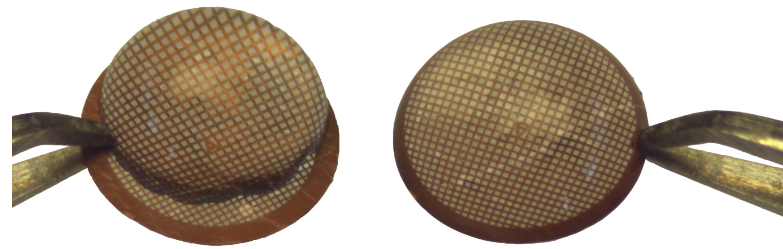


Figure 1 : Negative staining with uranyl acetate of the viral capsids spread on a TEM **grid without treatment**.

Courtesy : M. Decossas, CBMN



Chimie et Biologie des Membranes et des Nanoobjets



WITHOUT GLOW DISCHARGE  
Low adsorption

WITH GLOW DISCHARGE  
Optimized adsorption

TEM grids with carbon support films.  
Courtesy : M. Decossas, CBMN, Pessac

TEM carbon support films have a hydrophobic tendency.

A glow discharge treatment with air makes the carbon film surface negatively charged and hydrophilic which allows an adsorption of aqueous solutions.

### WITH GLOW DISCHARGE

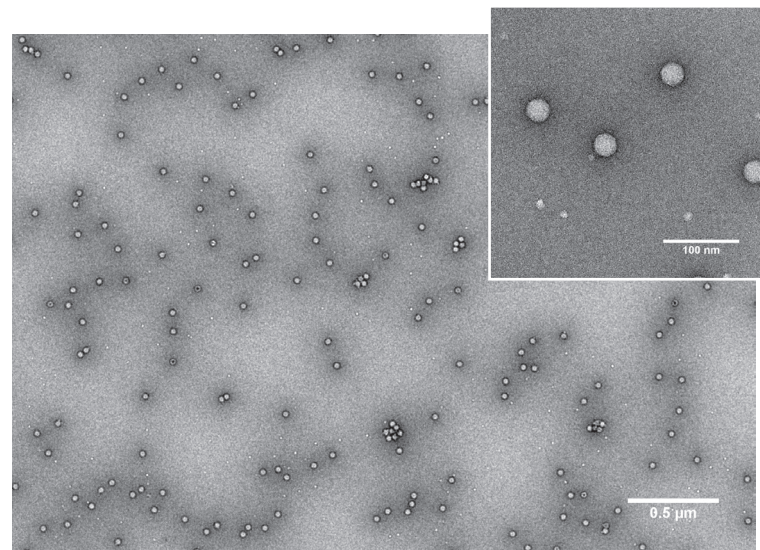


Figure 2 : Negative staining with uranyl acetate of the Poliovirus spread on a TEM **grid with a glow discharge treatment with air (2mA during 40sec)**.



## EASY

- ✓ Quick and easy loading of films or grids
- ✓ Intuitive operation with manual or programmed mode
- ✓ Real-time display of process parameters (current, vacuum, time)

## FLEXIBLE

- ✓ Glow discharge methods : hydrophilic or hydrophobic, negative or positive charge
- ✓ Dual vacuum Bell Jars to avoid cross contamination
- ✓ Anti-implosion glass for an easy cleaning and a high secured process

## REPRODUCIBLE

- ✓ Accurate injection control of gaz or liquids
- ✓ Accurate vacuum control using Pirani gauge
- ✓ Soft venting (air or neutral gaz) using quick inlet fitting

## APPLICATIONS WITH GLOW DISCHARGE IN AMYLAMINE

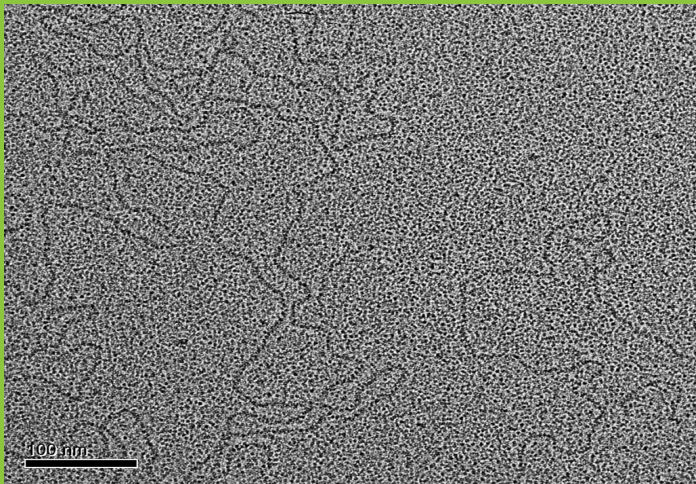


Figure 3 : Negative staining with uranyl acetate and rotary shadowing with platinum of plasmid DNA.

Courtesy : C. Ruhlmann, IGBMC

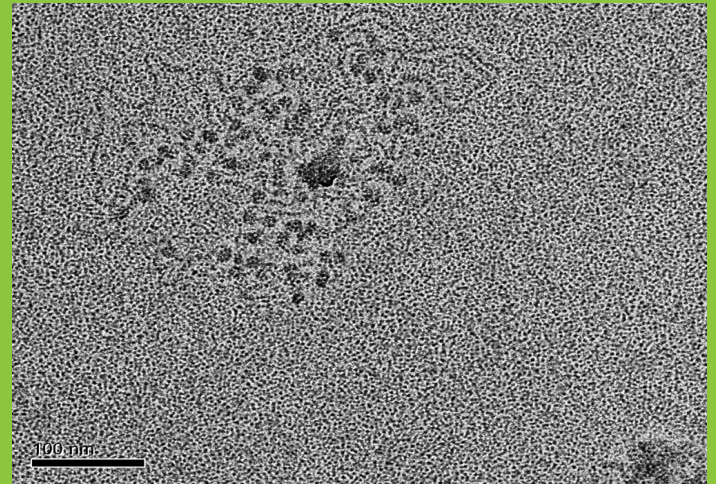


Figure 4 : Negative staining with uranyl acetate and rotary shadowing with platinum of yeast chromatin.

Courtesy : C. Ruhlmann, IGBMC

## APPLICATIONS WITH GLOW DISCHARGE IN AIR

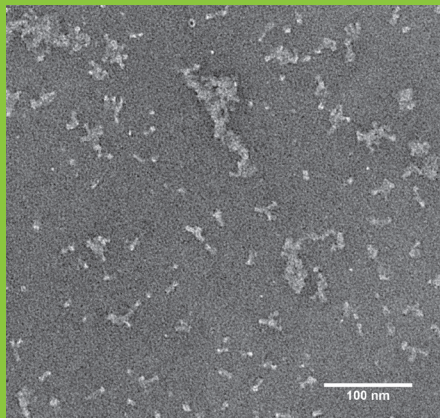


Figure 5 : Negative staining with phosphotungstic acid of Influenza virus hemagglutinin .

Courtesy : M. Decossas, CBMN

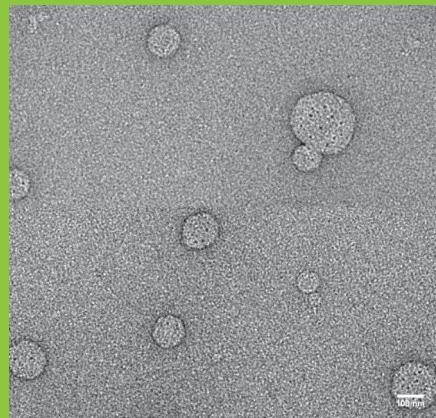


Figure 6 : Negative staining with uranyl acetate of liposome and proteo-liposome.

Courtesy : L. Daury-Joucla, CBMN

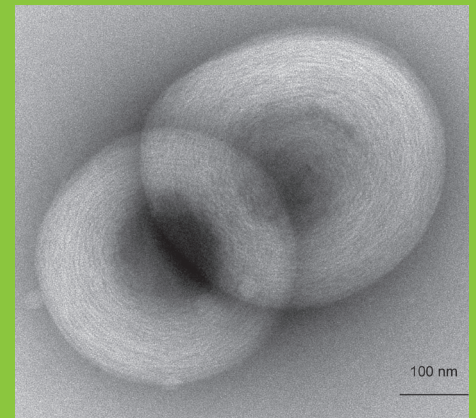


Figure 7 : Torus obtained by complex coacervation between the peptide P140 and hyaluronic acid (therapeutic aim).

Courtesy : C. Blanck, ICS

# ELMO<sup>®</sup>

## Glow Discharge system for TEM grids

### ELMO Specifications

Plasma current	0 – 35 mA
Platform diameter	Ø 60 mm
Process time	1 – 6000 seconds
Chamber size	Ø 80 mm x 60 mm H
Vacuum control	Pirani Gauge
Working vacuum range	1.0 – 0.1 mbar
Operation mode	Manual & Programmed
Gaz inlets	Ø 6 mm
Instrument size	480 x 310 x 320 mm
Weight	12 kg

### Vacuum Pump Specifications

Displacement 50/60 Hz	3.7 m <sup>3</sup> h <sup>-1</sup> / 4.5 m <sup>3</sup> h <sup>-1</sup>
Speed (Pneurop 6602) 50/60 Hz	3.3 m <sup>3</sup> h <sup>-1</sup> / 3.9 m <sup>3</sup> h <sup>-1</sup>
Ultimate pressure	2.0 x 10 <sup>-3</sup> mbar
Motor power 50/60 Hz	450 / 550 W
Power connector 1-ph	IEC EN60320 C13
Nominal rotation speed 50/60 Hz	1500/1800 rpm
Weight	25 kg / 55 lb
Inlet / Exhaust flange	NW25 / NW25
Noise level	48 dBA à 50 Hz
Operating temperature range	12 – 40 °C

Distributeur

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