

ELMO[®]

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

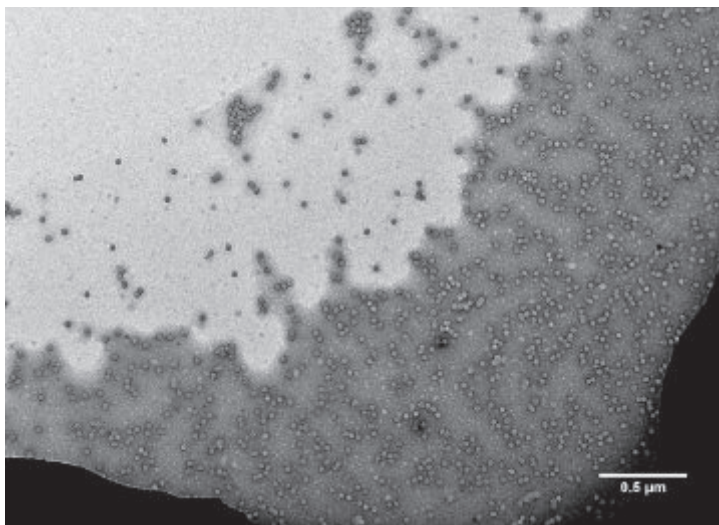
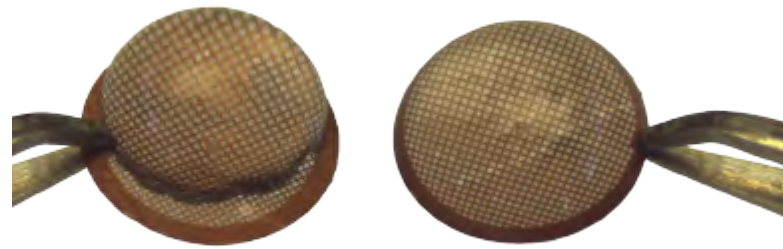


Figure 1 : Negative staining with uranyl acetate of the viral capsids spread on a TEM **grid without treatment**.

Courtesy : M. Decossas, CBMN



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

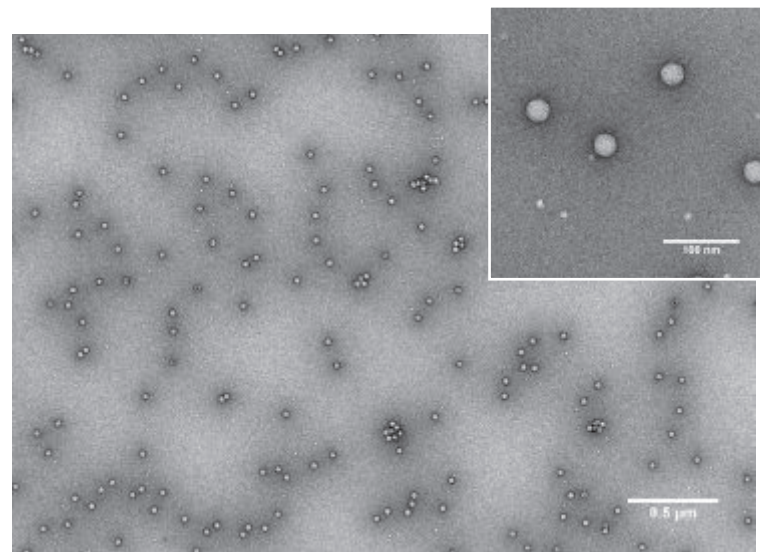


Figure 2 : Negative staining with uranyl acetate of the Poliovirus spread on a TEM **grid with a glow discharge treatment with air (2mA during 40sec)**.

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

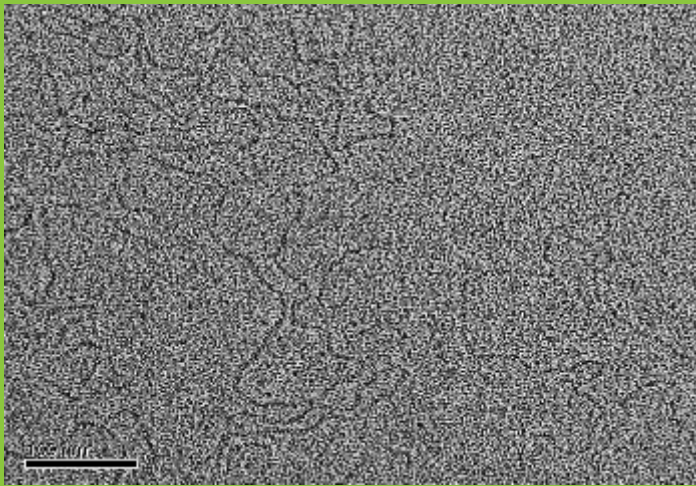


Figure 3 : Negative staining with uranyl acetate and rotary shadowing with platinum of plasmid DNA.

Courtesy : C. Ruhlmann, IGBMC

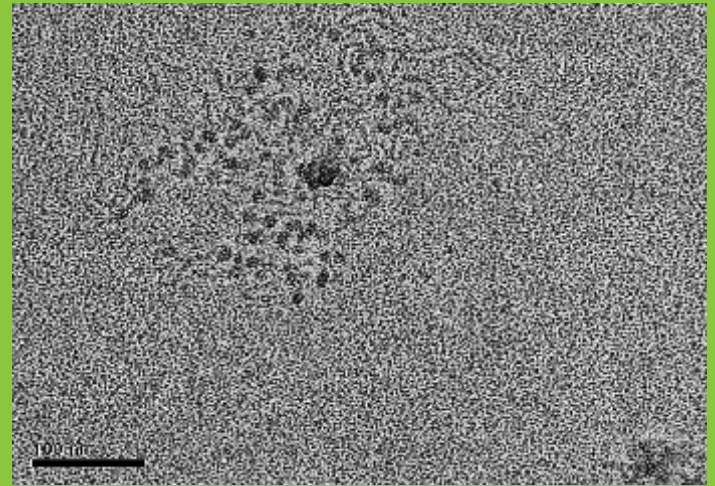


Figure 4 : Negative staining with uranyl acetate and rotary shadowing with platinum of yeast chromatin.

Courtesy : C. Ruhlmann, IGBMC

APPLICATIONS WITH GLOW DISCHARGE IN AIR

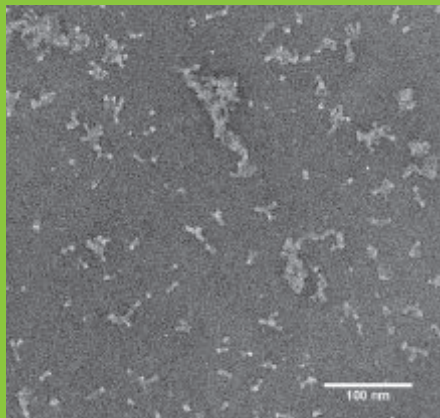


Figure 5 : Negative staining with phosphotungstic acid of Influenza virus hemagglutinin .

Courtesy : M. Decossas, CBMN

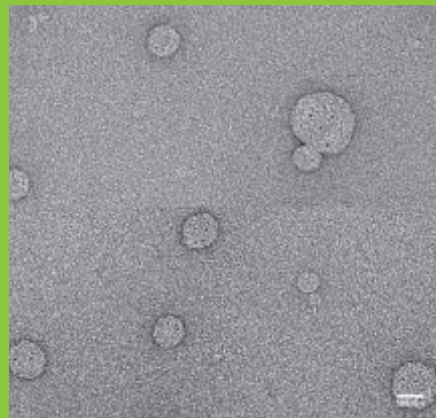


Figure 6 : Negative staining with uranyl acetate of liposome and proteo-liposome.

Courtesy : L. Daury-Joucla, CBMN

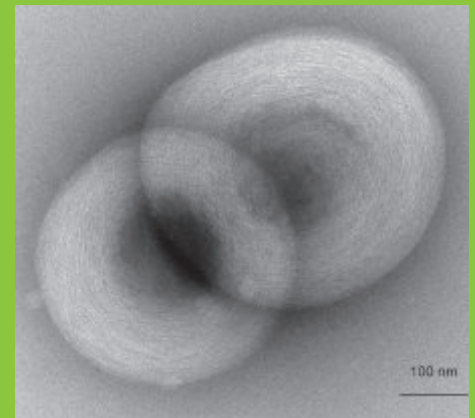


Figure 7 : Torus obtained by complex coacervation between the peptide P140 and hyaluronic acid (therapeutic aim).

Courtesy : C. Blanck, ICS

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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 ³ h ⁻¹ / 4.5 m ³ h ⁻¹
Speed (Pneurop 6602) 50/60 Hz	3.3 m ³ h ⁻¹ / 3.9 m ³ h ⁻¹
Ultimate pressure	2.0 x 10 ⁻³ 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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