ELMO© Glow Discharge Cleaning System
AGB8958

Your TEM Grids ready within seconds: Easy, standalone, compact.

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

A Glow Discharge treatment with 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*

TEM carbon support films have a hydrophobic tendency.

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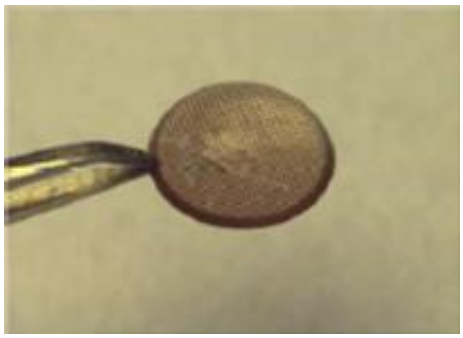
A glow discharge treatment with air makes the carbon film surface negatively charged and hydrophilic which allows an adsorption of aqueous solutions.

WITHOUT GLOW DISCHARGE
Low adsorption



WITH GLOW DISCHARGE
Optimized adsorption

TEM grids with carbon support films.

Courtesy : M. Decossas, CBMN, Pessac

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

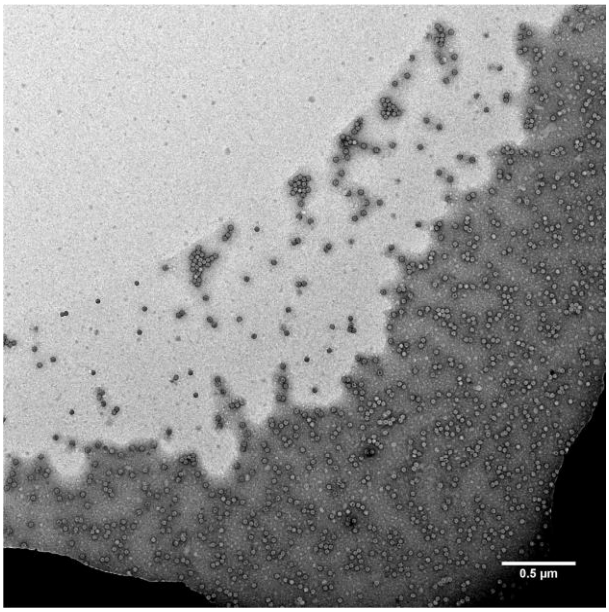


Figure1: Negative staining with uranyl acetate of the viral capsids spread on a TEM grid without treatment.

Courtesy: M. Decosas, CBMN

With Glow Discharge

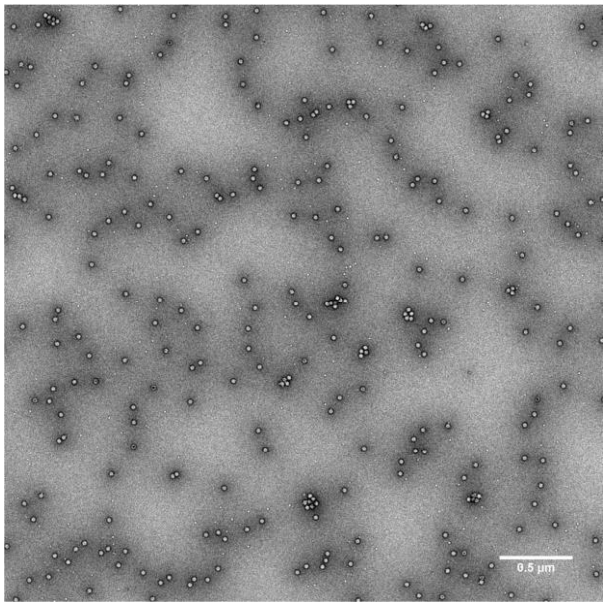


Figure2: Negative staining with uranyl acetate of the Poliomyelite virus spread on a TEM grid with a Glow Discharge treatment with air (2mA during 40sec).

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EASY	FLEXIBLE	REPRODUCIBLE
+Quick and easy loading of films or grids +Intuitive operation with manual or programmed mode +Real-time display of process parameters (current, vacuum, time)	+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	+Accurate injection control of gas or liquids +Accurate vacuum control using Pirani gauge +Soft venting (air or neutral gas) using quick inlet fitting

Applications with Glow Discharge in amylamine

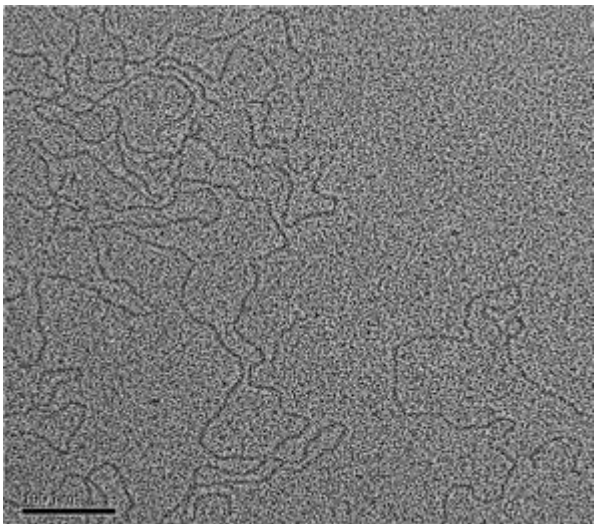

Figure 3: Negative staining with uranyl acetate and rotary shadowing with platinum of plasmid DNA.
Courtesy: C. Ruhlmann, IGBMC

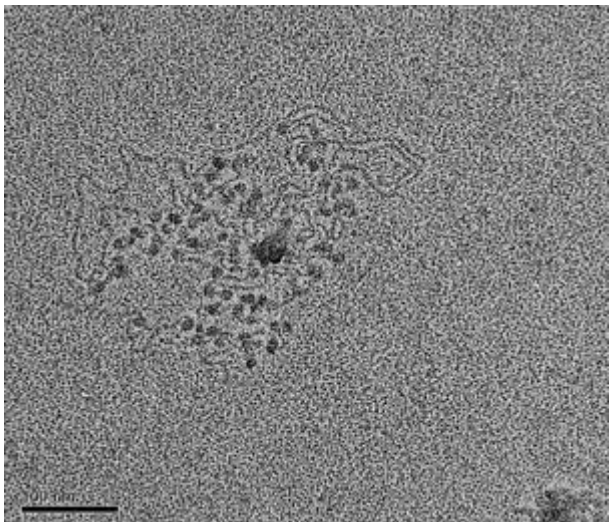

Figure 4: Negative staining with uranyl acetate and rotary shadowing with platinum of yeast chromatin.
Courtesy: C. Ruhlmann, IGBMC

Applications with Glow Discharge in air

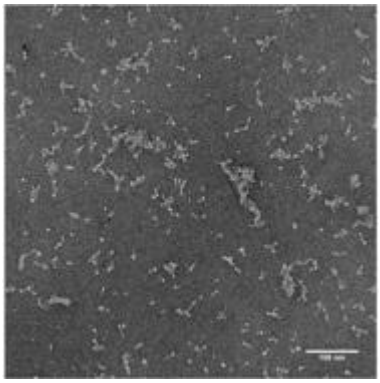

Figure 5: Negative staining with phosphotungstic acid of Influenza virus hemagglutinin
Courtesy : M. Decossas, CBMN

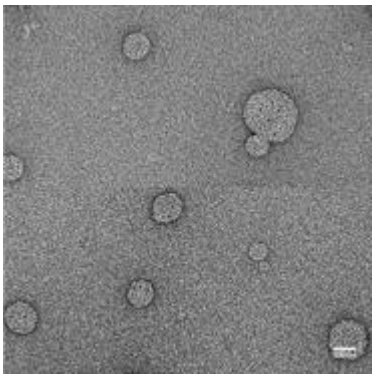

Figure 6 : Negative staining with uranyl acetate of liposome and proteo-liposome.
Courtesy : L. Daury-Joucla, CBMN

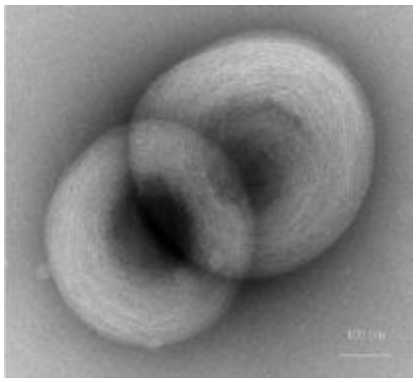

Figure 7 : Torus obtained by complex coacervation between the peptide P140 and hyaluronic acid (therapeutic aim).
Courtesy : C. Blanck, ICS

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ELMO Glow Discharge Specifications

Plasma current	0 – 30 mA
Platform diameter	Ø 60mm
Process time	1 – 6000 seconds
Chamber size	Ø 80mm x 60mm H
Vacuum control	Pirani Gauge
Working vacuum range	1.0 – 0.1 mbar
Operation mode	Manual & Programmed
Gas inlets	Ø 6mm
Instrument size	480 x 310 x 320mm
Weight	12kg
Power	230/240Vac 50/60Hz 110Vac to order

Vacuum Pump Specifications

Displacement 50/60Hz	3.7 m3h-1 / 4.5 m3h-1
Speed (Pneurop 6602) 50/60Hz	3.3 m3h-1 / 3.9 m3h-1
Ultimate pressure	2.0 x 10-3mbar
Motor power 50/60 Hz	450/550W
Power connector 1-ph	IEC EN60320 C13
Nominal rotation speed 50/60 Hz	1500/1800rpm
Weight	25kg/55 lb
Inlet/Exhaust flange	NW25/NW25
Noise level	48dBA @ 50Hz
Operating temperature range	12 – 40°C

References:

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- "Contribution of DNA Conformation and Topology in Right-handed DNA Wrapping by the Bacillus subtilis LrpC Protein" (Christophe Beloin, Josette Jeusset, Bernard Revet, Gilles Mirambeau, Francoise Le Hegarat, Eric Le Cam) – *The Journal of Biological Chemistry Vol. 278, No. 7, Issue of February 14, pp. 5333–5342, 2003*
- "The Srs2 Helicase Activity Is Stimulated by Rad51 Filaments on dsDNA: Implications for Crossover Incidence during Mitotic Recombination" (Pauline Dupaigne, Cyrille Le Breton, Francis Fabre, Serge Gangloff, Eric Le Cam, Xavier Veaute) - *Molecular Cell 29, 243–254, February 1, 2008 ª2008 Elsevier Inc. 2*
- "Rad51 Polymerization Reveals a New Chromatin Remodelling Mechanism" (Pauline Dupaigne, Christophe Lavelle, Anthony Justome, Sophie Lafosse, Gilles Mirambeau, Marc Lipinski, Olivier Pietrement, Eric Le Cam) - *PLoS ONE, November 2008, Volume 3, Issue 11, e3643*
- "Filamentous Condensation of DNA Induced by Pegylated Poly-L-lysine and Transfection Efficiency" (Vesna Stanic, Youri Arntz, Doriane Richard, Christine Affolter, Isabelle Nguyen, Corinne Crucifix, Patrick Schultz, Corinne Baehr, Benoit Frisch, Joelle Ogier) - *Biomacromolecules 2008, 9, 2048–2055*

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