

## Super support film for high-resolution electron microscopy made from naphthalene gas

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We developed a new support film for electron microscopy from naphthalene gas using a plasma polymerization method [1]. In this method, a thin film is formed on the surface of sodium chloride crystals by applying a high voltage (2 kV, D.C.) across electrodes through naphthalene gas in a plasma polymerization replica apparatus (Fig. 1, step 1 - 4). The film is floated off in water, and picked up on an electron microscopy grid placed on a filter paper (Fig. 1, step 5 - 6). After drying in air, the grids are ready for use (Fig. 1, step 7).

This support film was named "Super support film", and is now commercially available from Nisshin EM Ltd. (telephone and fax: 81-3-3355-3001). Super Support Film has the following features.

- 1) It is a three-dimensionally polymerized carbon film.
- 2) It shows an amorphous texture and high transparency to electrons.
- 3) It is mechanically strong and resists heat, chemicals, and electron bombardment.
- 4) It has a very smooth surface, suitable for negative staining.

[1] Yamaguchi et al.: A support film of plasma-polymerized naphthalene for electron microscopy: method of preparation and application. *J Electron Microsc.* 41: 7-13, 1992.

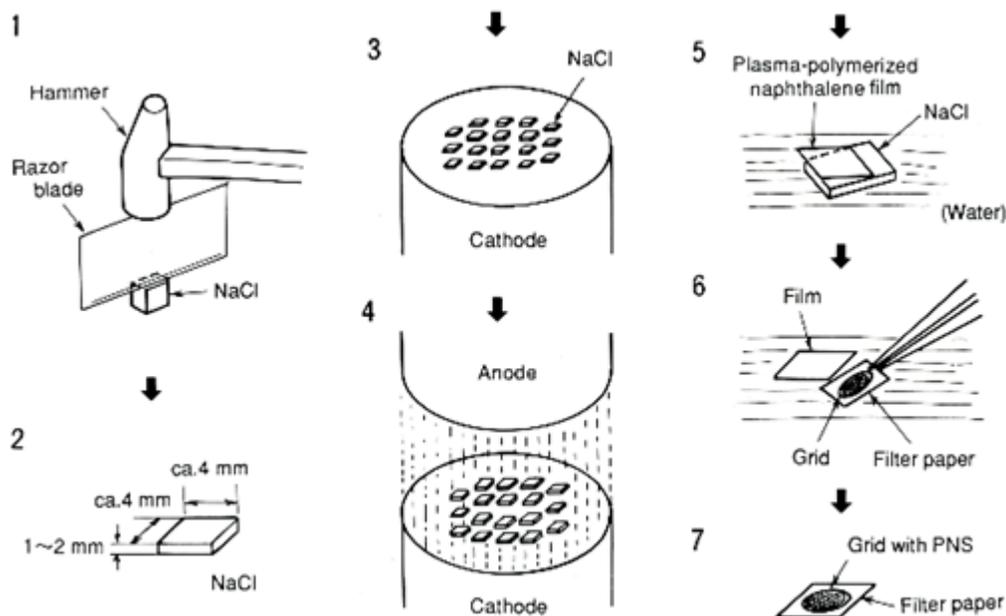


Fig. 1. Preparation of Super support film.

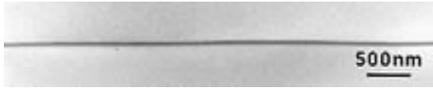


Fig. 2. A cross section of Super support film (10-20 nm thick).

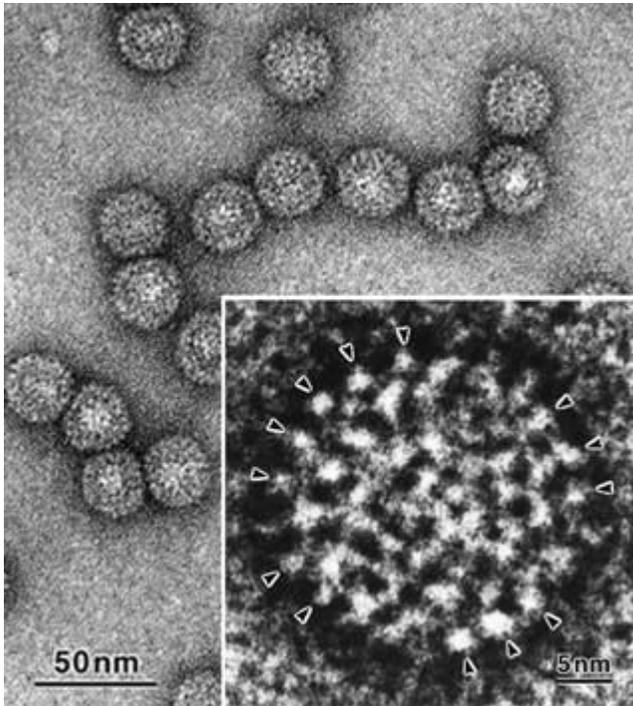


Fig. 4. A negative staining of hepatitis B core particles using a Super support film.

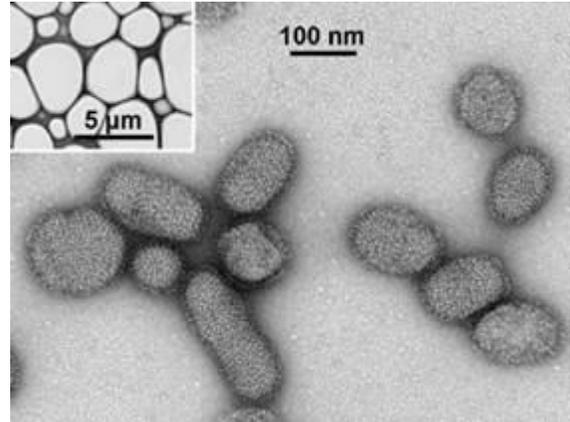


Fig. 3. A negative staining of the influenza A virus using a Super support film-coated microgrid.

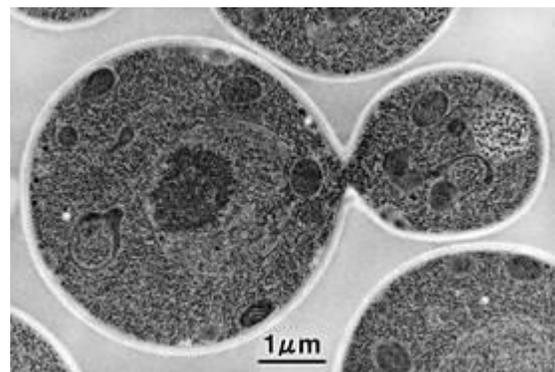


Fig. 5. An ultrathin section of a freeze-substituted yeast (*Cryptococcus*) using a Super support film.

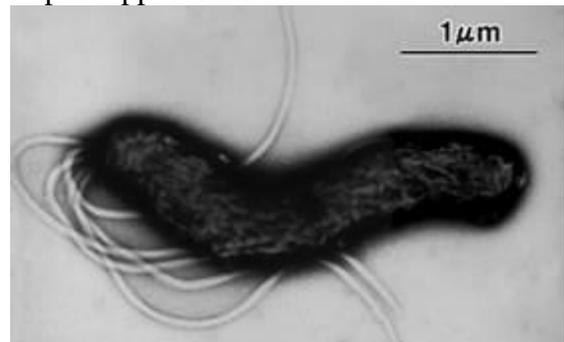


Fig. 6. A negative staining of the bacterium *Helicobacter pylori* using a Super support film.