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Nonfouling TEM Grid Coatings for Specific Capture of Target Proteins from Cell Lysates

A new coated transmission electron microscopy grid enables faster, more efficient cryo-electron microscopy sample preparation with smaller sample sizes for structural biology and particle analysis.

Transmission electron microscopy (TEM) is a technique where electrons are transmitted through an ultra-thin specimen in order to form an image created by interactions between the electrons and specimen. CryoEM is an application of TEM that produces high resolution images of proteins. CryoEM uses grids to capture target proteins. Despite the advances of this method, cryoEM currently requires large samples and time-consuming sample preparation.

Researchers at Purdue University have developed a TEM grid for cryoEM with a coating that enables rapid and efficient capture of target proteins. The coatings limit non-specific adsorption and allow specific immobilization and random orientation of the protein target on the TEM grid. Capture of the target proteins in this manner controls their areal densities and efficiently limits film degradation. These TEM grids use smaller samples and accelerate sample preparation in comparison to available grids. These concepts can be extended to other coatings and films for TEM grids.

Advantages:

-Accelerated sample preparation

-Smaller samples

-Binding in multiple orientations

Potential Applications:

-Particle reconstruction analysis

-Further research and development

-High resolution cryoEM

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Category

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Pharmaceuticals/Research Tools & Assays

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Intellectual Property:

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