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Molecular Dimensions

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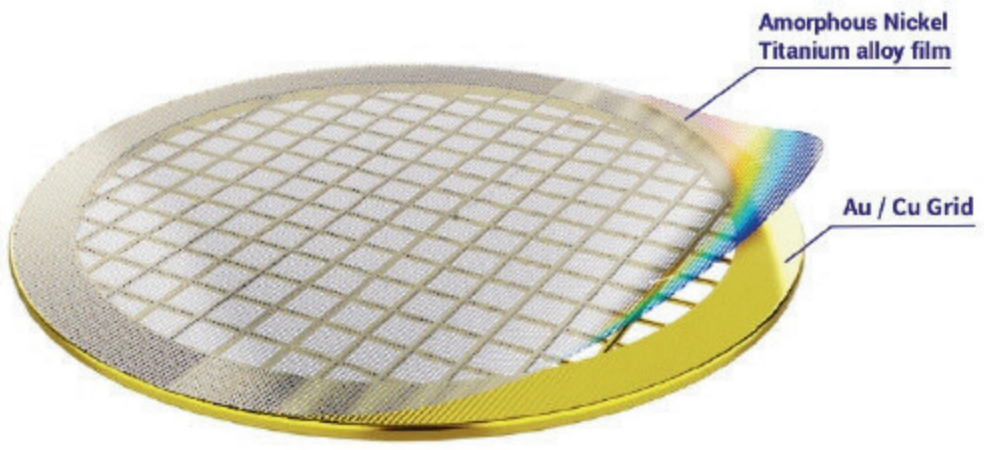
ANTcryo™
Ideal for SPA

Key Info

ANTcryo™ holey support film (Amorphous Nickel Titanium alloy Grid). A new and sophisticated solution for cryo-EM single-particle sample preparation. Users of the ANTcryo™ Grid have published more than 20 papers on high-index Journal in last 3 years, 6 of which were published on CNS [2-13].

ANTcryo™ has extraordinary benefits and is widely recognised by cryo-EM community.



Advantages

1 - Improving the resolution of reconstruction
ANTcryo™ Grids offer increased resolution compared to carbon grids due to their superior conductivity, resulting in reduced electron charging effects and less beam-induced motion (BIM) during cryo-EM imaging. This improvement enables the achievement of higher-resolution structures, with user experiments demonstrating an improvement of more than 0.2 Å in resolution.

2 - Improving the rate of sample preparation
ANTcryo™ support film exhibits an adsorption force nearly 20 times lower than traditional carbon film, thereby enhancing the particle inlet rate and reducing particle aggregation within the pore. This improvement significantly enhances the success rate of sample preparation by improving particle dispersion.

3 - Improving the efficiency of data collection
With the contribution of higher particle density, users need much less EM time for data collection for the same number of particles. Similar to carbon films, ANTcryo™ Grids are made of amorphous material that is suitable for coma alignment. Unlike gold films, ANTA film's amorphous structure allows routine TEM alignment like carbon films (defocus estimation, stigmatism adjustment, coma-free alignment). This eliminates challenges associated with gold's polycrystalline nature, simplifying cryo-EM workflows and saving valuable research time.

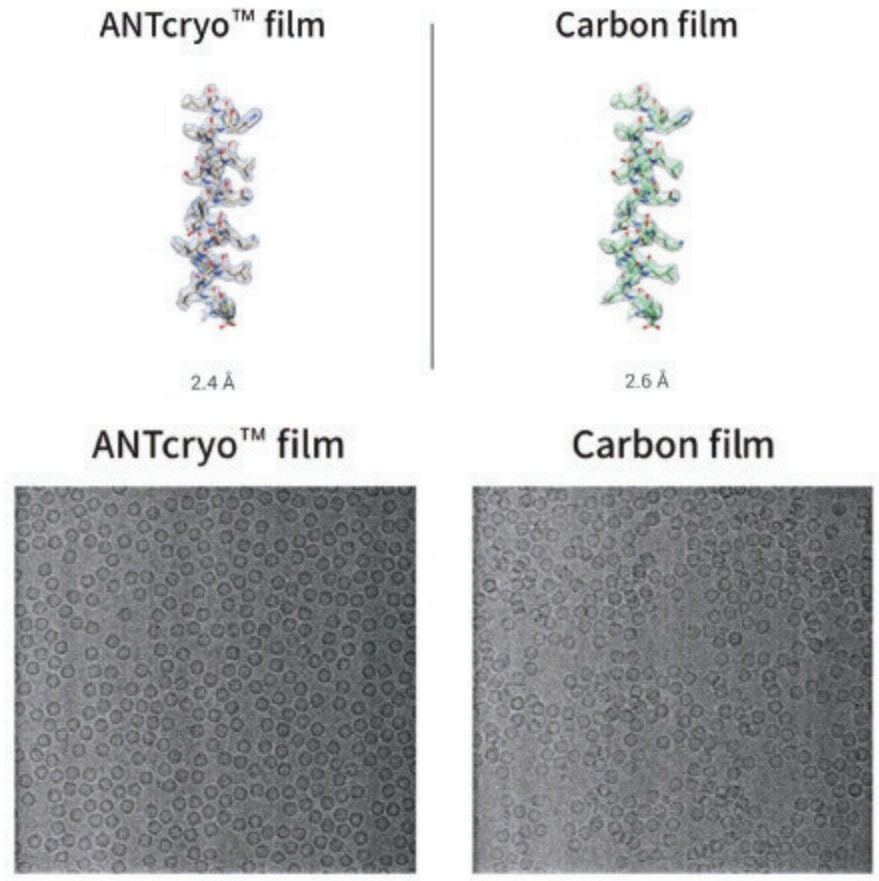
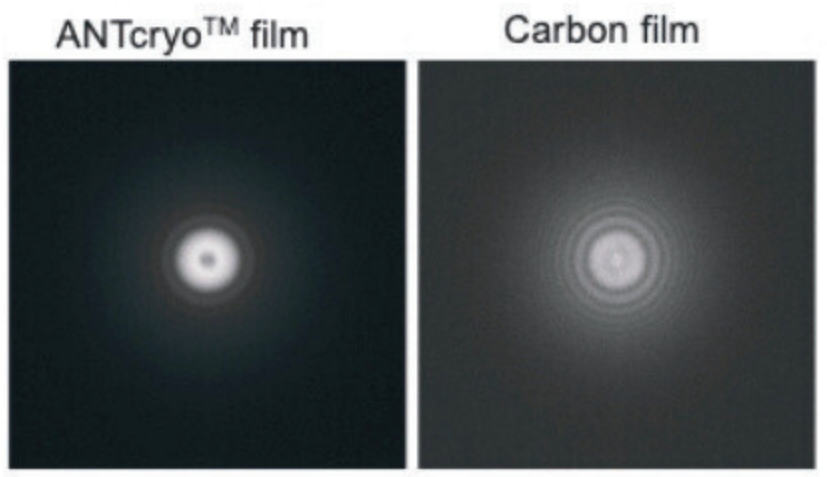


Figure 1: Cryo-EM photo of apoferritin Compared with traditional carbon membrane, ANTcryo™ support membrane has higher particle density, less overlapping of particle dispersion, and shorter data collection time; the particle boundary is clear and the resolution obtained much higher.



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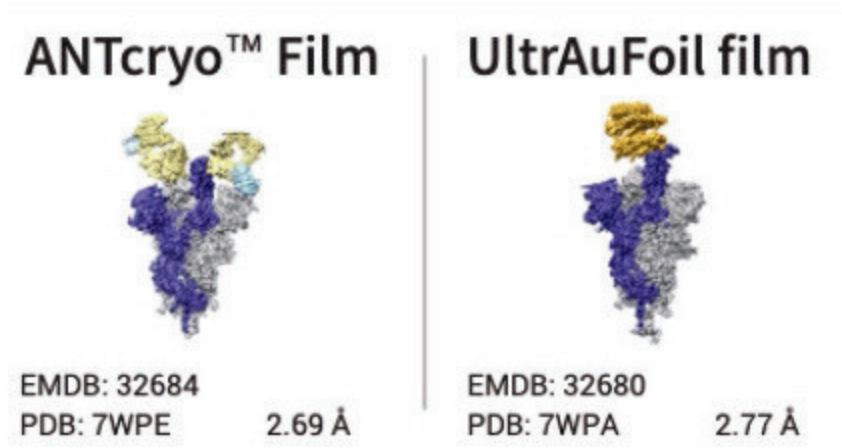
Cases

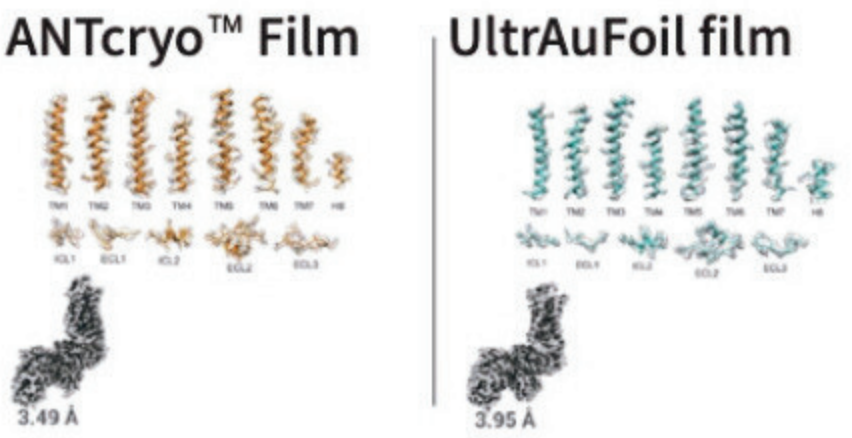
Case 1

On February 8, 2022, Science Online published a groundbreaking paper by the Xu Huaqiang/Yin Wanchao team and the Jimin Kexin/Deng YuJun's team from the Shanghai Institute of Materia Medica, Chinese Academy of Sciences. Titled "Structures of the Omicron Spike Trimer with ACE2 and an Anti-Omicron Antibody," this study showcased the remarkable capabilities of ANTcryo grids compared to UltrAuFoil. Using ANTcryo grids, the team achieved an exceptional resolution of 2.69 Å, significantly outperforming the 2.77 Å resolution obtained with UltrAuFoil. These findings underscore ANTcryo's superior performance in revealing the intricate structures of the Omicron mutant strain of the novel coronavirus spike protein when bound to the specific therapeutic antibody JMB2002 and the receptor ACE2.



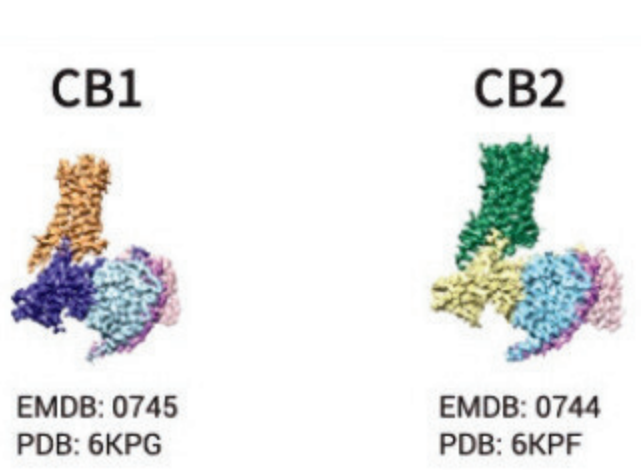
Case 2

On March 28th 2022, the team led by Brian K. Kobilka at Stanford University published "Calcineurinfusion Facilitates Cryo-EM Structure Determination of a Family A GPCR" on BioRxiv. In this study, cryo-EM sample preparation was conducted using ANTcryo and Quantifoil grids. The team examined various states of beta2 adrenergic receptors (β 2AR) and achieved high resolutions of 3.49 Å using ANTcryo compared with 3.95 Å using Quantifoil.



Case 3

In February 2020, the paper titled "Activation and Signaling Mechanism Revealed by Cannabinoid Receptor-Gi Complex Structures" was published by Liu Zhijie's team at ShanghaiTech University in the journal "Cell". This study analyzed the three-dimensional cryo-EM structures of CB1 and CB2 bound to G protein molecules. The cryo-EM sample preparation method utilized in this research employed the ANTcryo grid (formerly known as CryoMatrix), achieving final resolutions of 3.0Å and 2.9Å for CB1 and CB2, respectively.



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[12]. 2020. Nature, Ruan, Z., et al., Structures of human pannexin 1 reveal ion pathways and mechanism of gating.
[13]. 2022. Science, Yin, W., et al., Structures of the Omicron spike trimer with ACE2 and an anti-Omicron antibody.

Ordering Information

Standard Product	Grid Type	Meshes	Hole Size	Spacing
MDL-M01-Au300-1.2/1.3	Au	300	1.2 µm	1.3 µm
MDL-M02-Cu300-1.2/1.3	Cu	300	1.2 µm	1.3 µm
MDL-M03-Au400-1.2/1.3	Au	400	1.2 µm	1.3 µm
MDL-M04-Au300-2.0/1.0	Au	300	2.0 µm	1.0 µm

1. Grid customisation with further variations of formats are available.
2. Film Thickness 22 ± 3 nm.
3. Quantity: 50 ea/pack.

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