Super-Resolution AND EM applications in revealing the centriole biogenesis

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Core Facility for Cell biology at Institute of Biochemistry and Cell Biology (SIBCB) is dedicated to providing high quality technical supports and services in the areas of cell morphology analysis, flow cytometry and cell sorting to all research groups. The cell imaging in optical microscopy department has 24 instruments, including fluorescence microscopy, laser scanning confocal microscopy, living cell microscopy, spinning disk confocal microscopy, multi-photo microscopy, light-sheet microscopy, super-resolution microscopy, etc. Electron microscopy department mainly has TEM and SEM. The core facility usually combines the two parts of technologies to reveal significant scientific research questions.

The Core Facility assisted Cell Cycle Research Group to reveal *de novo* centriole biogenesis for vertebrate multiciliogenesis. Owing to the limitation of optical resolutions, we used 3D-SIM to obtain super-resolution images from MTECs and observed that Deup1 specifically labeled deuterosomes that supported *de novo* centriole amplification which can be classified into six typical stages (FIG 1). Besides, we also used EM to conform the deuterosomes are ring-shaped structures in MTECs (FIG 2).

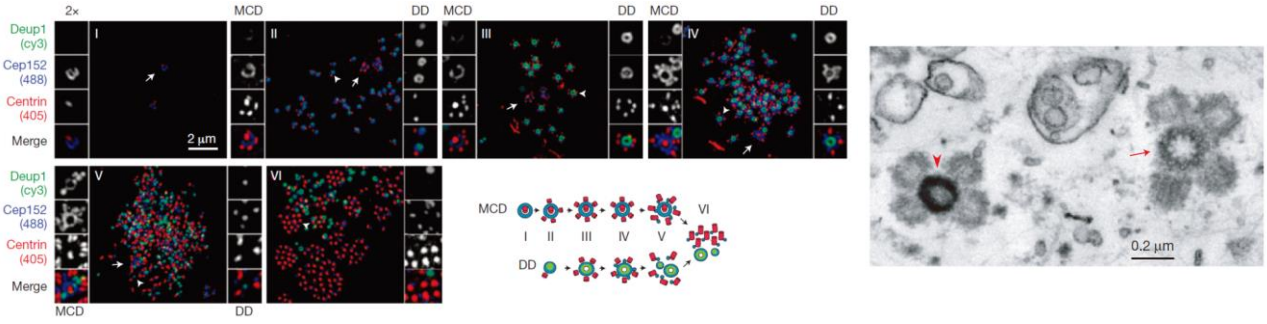

FIG1:Super-resolution 3D-SIM revealed Deup1 specifies deuterosomes in MTECs.
FIG2: Typical EM image of the ring-shaped deuterosomes in MTECs.