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Bio:
TBC

Presentation Title:
From live cell STED Superresolution to State of the art Ultramicroscopy, new tools for biological imaging.

Abstract:
New results using the Ultramicroscope:

For the first time Belle et al (Alain Chedotal's group at the Institute de la Vision in Paris) performed whole-mount immunostaining on 36 human embryos ranging from 6 to 14 weeks of gestation with over 70 antibodies, most of which had never been used in humans. They have generated 3D images of human embryos at an unprecedented cellular resolution using light sheet microscopy. This work offers a unique opportunity to start building a molecular and cellular atlas for the study of human development. The possible applications of this new method in the field of embryology are countless. They open new avenues for the study of molecular mechanisms regulating the development of human embryos in physiological and pathological conditions. Latest results will be presented.

Live cell imaging with STED now routine.

RESCUE STED, a new modality developed at the Max Planck Institute in Goettingen by Professor Stephan Hell's group and implemented by his company, Abberior Instruments, solves the problem of using STED with live cells.

RESCue (Reduction of State transition Cycles) STED is an improved, photon-efficient STED imaging mode that significantly reduces the light dose sent onto the sample to levels that do not damage the sample enabling live-cell STED imaging! Resolution is not compromised and 30nm resolution in XY is achievable. Avoiding unnecessary excitation and de-excitation cycles reduces photo-bleaching of any fluorescent marker. The reduction in excitation and de-excitation cycles is particularly beneficial for volume imaging with 3D STED as well as for time lapse STED imaging.

How this is achieved will be explained and examples presented.