AT THE MOLECULAR RESOLUTION WITH MINFLUX?

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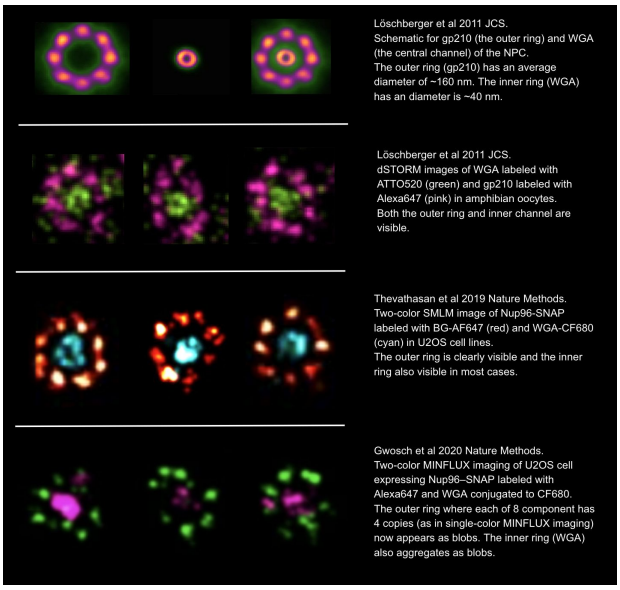
Balzarotti et al (2017) and Gwosch et al (2020) project MINFLUX as the next revolutionary fluorescence microscope and claim a spatial resolution in the range of 1-3 nm in fixed and living cells with light microscopy. Though the claim of molecular resolution is attractive, I am concerned if true 1 nm resolution has been attained? Here, I compare the performance of MINFLUX with other super-resolution methods focussing particularly on spatial resolution



claims, visualisation enhancement, labelling efficiency, linker length (localisation precision vs resolution), filtering of localizations and the possible limitations when imaging samples containing densely labelled structures. I hope the analysis and evaluation parameters presented here are not only useful for future research directions but also for microscope users, developers and core facility managers' when deciding on an investment for the next "state-of-the-art" instrument.

References:

1. Balzarotti, Francisco, et al. "Nanometer resolution imaging and tracking of fluorescent molecules with minimal photon fluxes." *Science* 355.6325 (2017): 606-612.
2. Gwosch, Klaus C., et al. "MINFLUX nanoscopy delivers 3D multicolor nanometer resolution in cells." *Nature methods* 17.2 (2020): 217-224.