



## A/Professor Alex de Marco

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My laboratory has worked on the development of Cryo-Electron Tomography and Subtomogram averaging on large scale in order to study various stages of the replication cycle in HIV-1 as well as on the development of hardware and software solutions for Correlative Light and Electron Microscopy (CLEM). Currently we are focusing on the development of hardware and software to extend the use of cryo-CLEM to in situ structural biology and biochemistry. The goal of our research is to bring full automation and high throughput in the sample preparation, data collection and analyses for cryo-Electron Microscopy performed directly in cells or in embryos at early stages of development.

### Selected significant publications:

1. Szymborska A, **de Marco A**, Cordes VC, Briggs JAG, Ellenberg J. 2013. Structural organization of the nuclear pore scaffold revealed by super-resolution microscopy and particle averaging. *Science* 341(6146):655-8.
2. Schur FKM, Hagen W, **de Marco A**, Briggs JAG. 2013. Determination of protein structure at 8.5 Å resolution using cryo-electron tomography and subtomogram averaging. *J Struct Biol* 184(3):394-400.
3. **de Marco A**, Hauser AM, Glass B, Kräusslich HG, Mueller B, Briggs JAG. 2012. The role of the SP2 domain and its proteolytic cleavage in HIV-1 structural maturation and infectivity. *J Virol* 86(24):13708-16.
4. **de Marco A**, Müller B, Glass B, Riches J D, Kräusslich HG, Briggs JAG. 2010. Structural analysis of HIV-1 maturation using cryo-electron tomography. *PLoS Pathog* 6(11):e1001215.
5. Carlson LA, **de Marco A**, Oberwinkler H, Habermann A, Briggs JAG, Kräusslich HG, Grünewald K. 2010. Cryo-Electron Tomography of Native HIV-1 Budding Sites. *PLoS Pathog* 6(11): e1001173.