

Mohammed Kaplan - Cellular solid-state NMR on large prokaryotic and eukaryotic membrane protein complexes

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Promotor: Prof. Marc Baldus

This year the Gorter jury received 6 nominations for the C.J. Gorter NMR-DG Award. The jury has evaluated all 6 theses and they were impressed by the very high quality of the work. However, they judged that your work, Mohammed Kaplan, stood out in terms of innovation and ground breaking nature and decided to award you with the C.J. Gorter NMR-DG prize for the best Ph.D. thesis in the area of magnetic resonance spectroscopy and/or magnetic resonance imaging.

Mohammed Kaplan was born in Iraq, where he obtained a Medical Doctor's degree at Mosul University. In 2008 he came to The Netherlands and enrolled in the Master's program of Cellular and Molecular Life Sciences at Utrecht University. During his Master studies he became fascinated by the field of structural biology and especially the application of solid-state NMR to study proteins in their natural environment. He took on a PhD student position in the group of Prof. Marc Baldus to further explore this exciting research field. This group made a lot of progress in developing solid-state NMR methods, but so far only for the study of small bacterial membrane proteins. Mohammed really pushed boundaries in his work and further developed the technique to a next level, which made it possible to study prokaryotic and even eukaryotic protein complexes in their natural cellular membrane environments. For instance, he was the first to obtain structural information on the full-length EGF receptor in its native membrane and was able to delineate the mechanism of its ligand-induced activation. Mohammed worked at the forefront of solid-state NMR research and this is also apparent from his publications. He published 6 papers, of which one first-authorship paper in Nature Methods and one very recently published first-authorship paper in Cell. What was also appreciated by the jury was that Mohammed, besides being a medical doctor, developed a strong background in all aspects of structural biology research, including molecular biology, cell biology and NMR. He was responsible for the production of the protein, the sample preparation, the NMR experiments and the analyses. So, he really became an all-round structural biologist.

Currently, Mohammed is a postdoc at the prestigious institute Caltech, in the group of the Nobel prize laureate Prof. Zewail, who unfortunately passed away this summer. We are very happy that Mohammed could make it all the way to The Netherlands to give a lecture on his winning PhD thesis here today and I am delighted to give the floor to you now Mohammed.