



Biography:

Professor Kenneth A. Dawson is Director of the Centre for BioNano Interactions (CBNI). The scientific focus of this Centre is to understand the interaction of nanoparticles with living systems (www.ucd.ie/cbni). The Centre seeks to clarify the controlling factors for these interactions, and to support applications in nanotherapeutics and nanosafety.

Prof. Dawson is Chair of Physical Chemistry, Chairman of the National BioNanoscience Action, and co-ordinator of the European Infrastructure in the arena. He has experience in the management of large scale EU projects, including multi-sectoral cross-disciplinary research projects and other international programs. He has received several international prizes, including the 2007 Cozzarelli prize from the National Academy of Sciences USA, as well as IBM, Packard, Canon, Sloan and Dreyfus prizes.

Prof. Dawson's professional roles include representing Ireland on various international bodies, including the OECD and ISO working groups on standards for Nanotechnology. He has been an advisor on nanoscience matters in the EU New Risk Committee of the European Commission, as well as the Advisory group of the European Medicines Agency.

Publications:

- Giudice M. C., Herda, L. M., Polo E, Dawson, K. A. In Situ Characterization of Nanoparticle Biomolecular Interactions in Complex Biological Media By Flow Cytometry. *Nature Communications* **2016** Nov 15;7:13475.
- Bertoli, F.; Garry, D.; Monopoli, M. P.; Salvati, A.; Dawson, K. A., The Intracellular Destiny of the Protein Corona: A Study on its Cellular Internalization and Evolution. *ACS Nano* **2016**. 10 (11), 10471–10479.
- Hristov, D.R., Mahon, E., Dawson, K.A. Controlling aqueous silica nanoparticle synthesis in the 10–100 nm range. *Chem. Commun.*, **2015**, 51, 17420-17423.

- Kelly, P. M.; Aberg, C.; Polo, E.; O'Connell, A.; Cookman, J.; Fallon, J.; Krpetic, Z.; Dawson, K. A. Mapping protein binding sites on the biomolecular corona of nanoparticles. *Nature Nanotechnology*. **2015**, 10, 472–479.
- Hristov, D.R., Rocks, L., Kelly, P.M., Thomas, S.S., Pitek, A.S., Verderio, P., Mahon, E., Dawson, K.A. Tuning of nanoparticle biological functionality through controlled surface chemistry and characterisation at the bioconjugated nanoparticle surface. *Sci Rep*. **2015**, 1(5),17040.
- Wan S.; Kelly, P.M.; Mahon E.; Stöckmann, H.; Rudd, P.M.; Caruso, F.; Dawson K.A.; Yan Y.; Monopoli M.P. The "sweet" side of the protein corona: effects of glycosylation on nanoparticle-cell interactions. *ACS Nano*. **2015**, 9(2), 2157-66.
- Salvati, A.; Pitek A.S.; Monopoli M.; Prapainop K.; Baldelli Bombelli, F.; Hristov, D.R.; Kelly, P.M.; Aberg, C.; Mahon, E.; Dawson, K.A. Transferrin-functionalized nanoparticles lose their targeting capabilities when a biomolecule corona adsorbs on the surface. *Nature Nanotechnology* **2013**, 8, 137-143.
- Monopoli, M. P.; Aberg, C.; Salvati, A.; Dawson, K. A. Biomolecular Coronas Provide the Biological Identity of Nanosized Materials. *Nature Nanotechnology* **2012**, 7, 779-786.
- Kim, J. A.; Aberg, C.; Salvati, A.; Dawson, K. A. Role of Cell Cycle on the Cellular Uptake and Dilution of Nanoparticles in a Cell Population. *Nature Nanotechnology* **2012**, 7, 62-68.
- Monopoli, M. P.; Walczyk, D.; Campbell, A.; Elia, G.; Lynch, I.; Baldelli Bombelli, F.; Dawson, K. A. Physical-Chemical Aspects of Protein Corona: Relevance to in Vitro and in Vivo Biological Impacts of Nanoparticles. *Journal of the American Chemical Society* **2011**, 133, 2525-2534.
- Cedervall, T.; Lynch, I.; Lindman, S.; Berggard, T.; Thulin, E.; Nilsson, H.; Dawson, K. A.; Linse, S. Understanding the Nanoparticle-Protein Corona Using Methods to Quantify Exchange Rates and Affinities of Proteins for Nanoparticles. *Proceedings of the National Academy of Sciences* **2007**, 104, 2050-2055.