

Description for general public

For cells to function properly, their proteins must work efficiently under optimal conditions. This is possible because cells are able to compartmentalise unique chemical and physical conditions within themselves. In order to truly understand protein interactions and behaviours at a nanoscopic level, we need to be able to visualise the events that occur **at the protein interface**.

This is possible by developing chemical probes that modulate their fluorescence in response to local environment and **also have the capacity to dock and label a protein**. That way, their signal will indicate changes of a target parameter **directly in the proximity of the target protein**. Developing these tools is a unique approach but will combine the best of fluorescent probes and protein labelling techniques, and giving us unprecedented detail into cellular events, and equipping us with exceptional tools to investigate them.