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Development of labelled protein for drug screening**Zoe Chan and Yun Chung Leung**

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Tuberculosis has been one of the deadliest disease in history. Although it became curable since the discovery of antibiotics, drug resistance was soon developed and the needs in new antituberculosis treatment escalated. BlaC, a β -lactamase responsible for the β -lactam antibiotics resistance, was engineered to be a sensitive and efficient biosensor for screening potential inhibitors to use in combination with currently available β -lactam antibiotics. By making a single point mutation on BlaC β -lactamase and we subsequently prepare a fluorescent sensor enzyme by site-directed labelling a fluorophore on the mutated residue. The kinetic parameters were measured and calculated against various penicillins and inhibitors. Fluorescence measurements were conducted on the labelled protein. The mechanism was proposed from molecular dynamic simulations and the conformational dynamics was studied using EPR spectroscopy. The promising results suggested that this mutant has great potential to be refined as a powerful biosensor for drug discovery.

Biography

Zoe Chan is a PhD student from The Hong Kong Polytechnic University, supervised by Prof. Thomas Y C Leung. She received her Master's degree in Chemistry from University of Oxford, focused on modulation of surface of metal oxide nanoparticles. She currently works on a project funded by Research Grants Council of Hong Kong on the development of a novel enzyme-based biosensor.

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