



## Henry, Yu-Keung MOK

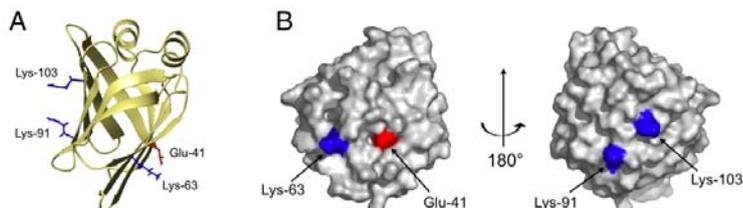
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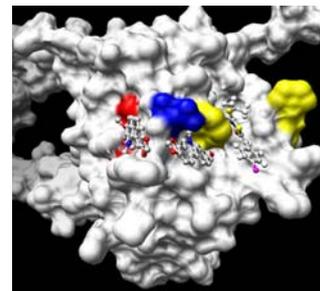
### MAJOR RESEARCH INTERESTS

Our general interest is on the elucidation of protein structure-function relationship using Nuclear Magnetic Resonance (NMR), particularly on proteins related to human diseases. An understanding of the role played by a protein in human disease requires a detailed picture of its three-dimensional structure and how it interacts with its target ligand as well as an appreciation of how the structure varies as a function of time due to molecular dynamics. Protein structural and dynamical data obtained will aid the design of protein mutants and subsequent activity or binding assays. Availability of the structure will also allow us to design drugs rationally based on their binding sites on the protein. Current projects include:

1. Determination of the binding sites of small molecule inhibitor on anti-apoptotic proteins such as Bcl<sub>XL</sub> and Mcl-1.
2. Structure-based IgE epitope mapping of allergens from dust mite and cockroaches for the preparation of hypoallergen for immunotherapy.
3. NMR structure determination of chaperones and their substrates in the Type III secretion system of pathogenic bacteria.
4. Structure determination of NPM and its interaction with caspases, ARF and p53 in acute myeloid leukaemia.



NMR structure of Group 13 dust mite allergen (Der f 13) and its IgE epitope mapping



Inhibitors binding on anti-apoptotic Bcl<sub>XL</sub>

### RECENT REPRESENTATIVE PUBLICATIONS

1. Yong-Hong Zhang, Anirban Bhunia, Kah Fei Wan, Mei Chin Lee, Shing-Leng Chan, Victor C. Yu and Yu-Keung Mok, "Chelerythrine and sanguinarine docks at distinct sites on Bcl<sub>XL</sub> that are not the classic BH3 binding cleft", *J. Mol. Biol.* (2006) 364, 536-549.
2. Siew Leong Chan, Seow Theng Ong, Fook Tim Chew and Yu-Keung Mok, "Solution structure and epitope mapping of dust mite group 13 allergen", *J. Immunology* (2006) 176: 4852-4860.
3. Xing-Fu Xu, Yih-Wan Tan, Lam Lam, Jim Hackett, Mingjie Zhang and Yu-Keung Mok, "NMR structure of a Type IVb pilin from *Salmonella typhi* and its assembly into pilus", *J. Biol. Chem.* (2004) 279 (30): 31599-31605.