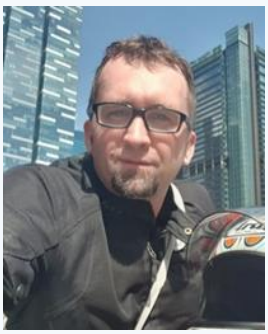
Department of Microbiology & Immunology Programme Seminar Series… *October 2019*

Tue 8 Oct 19
12pm – 1pm

NUS, Blk MD4, Level 2 Seminar Room @ 5 Science Drive 2, S117545

medicine.nus.edu.sg/mbio/

A New Beginning; Application of Mass Spectrometry-based Proteomics in The Post-Genomic Era



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Abstract

Mass spectrometry has become one of the most important analytical techniques in modern biomedical and clinical sciences, and is set to revolutionize the development of diagnostic and new therapies. In contrast to other techniques in the genomics arena, mass spectrometry enables endpoint detection of changes in gene and protein products (proteins and metabolites) in terms of their abundance, structure and dynamics, interactions with other proteins or small molecules and post translational modifications. Mass spectrometry offers an unsurpassed, composite readout for functional genomics and impacts every aspect of drug discovery, vaccine development and clinical diagnostics. "Multi-Omics" approaches based on mass spectrometry has shown to deliver valuable insights into disease treatment and early diagnostics for personalized medicine. The application of mass spectrometry will increase in foreseeable future in biomedical research, as well as in the environmental, chemical and pharmaceutical industries. My presentation will give a comprehensive first-hand view on the new applications of mass spectrometry-based quantitative proteomics in the post genomics era.

Recommended Reading

Ooi J, Langley SR, Xu X, Utami KH, Sim B, Huang Y, Harmston NP, Tay YL, Ziaei A, Zeng R, Low D, Aminkeng F, **Sobota RM,** Ginhoux F, Petretto E, Pouladi MA. Unbiased Profiling of Isogenic Huntington Disease hPSC-Derived CNS and Peripheral Cells Reveals Strong Cell-Type Specificity of CAG Length Effects. ***Cell Rep***. 2019 Feb 26;26(9):2494-2508.e7. doi: 10.1016/j.celrep.2019.02.008

Ahn M, Anderson DE, Zhang Q, Tan CW, Lim BL, Luko K, Wen M, Chia WN, Mani S, Wang LC, Ng JHJ, **Sobota RM**, Dutertre CA, Ginhoux F, Shi ZL, Irving AT, Wang LF. Dampened NLRP3-mediated inflammation in bats and implications for a special viral reservoir host. ***Nat Microbiol***. 2019 Feb 25. doi: 10.1038/s41564-019-0371-3

Dziekan JM, Yu H, Chen D, Dai L, Wirjanata G, Larsson A, Prabhu N, **Sobota RM**, Bozdech Z, Nordlund P. Identifying purine nucleoside phosphorylase as the target of quinine using cellular thermal shift assay. ***Sci Transl Med***. 2019 Jan 2;11(473). pii: eaau3174. doi: 10.1126/scitranslmed.aau3174

Lim YT, Prabhu N, Dai L, Go KD, Chen D, Sreekumar L, Egeblad L, Eriksson S, Chen L, Veerappan S, Teo HL, Tan CSH, Lengqvist J, Larsson A, **Sobota RM***, Nordlund P. An efficient proteome-wide strategy for discovery and characterization of cellular nucleotide-protein interactions. ***PLoS One.*** 2018 Dec 6;13(12):e0208273. doi: 10.1371/journal.pone.0208273. eCollection 2018. *co-corresponding