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Nobel Laureate in Physiology or Medicine Dr Randy Schekman Explains Secretion of Large Particles and miRNA at HKUST 25th Anniversary Distinguished Speakers Series

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The Hong Kong University of Science and Technology (HKUST) hosted the 25th Anniversary Distinguished Speakers Series on 27 May, featuring Dr Randy Schekman, Nobel Laureate in Physiology or Medicine 2013. The event was well received by students, faculty members and guests from HKUST.

In the first part of his talk titled "Secretion of Large Particles and miRNA", Dr Schekman described a recent discovery that provides insights into how a large-sized protein, procollagen, is packaged into COPII vesicles, which is an essential step for secretion of procollagen. Dr Schekman shared with the audience his findings that ubiquitylation of the cage forming subunit of COPII, Sec31, promotes the formation of large COPII structures that speed the transfer of procollagen out of the endoplasmic reticulum (ER).

"Using advanced imaging and improved immunologic detection, we have now confirmed that the large COPII structures capture procollagen, dependent on the expression of the E3 ubiquitin ligase specificity subunit kh112," Dr Schekman said.

Dr Schekman also described a pathway that mediates secretion of specific microRNAs through exosomes. Exosomes are cell-derived vesicles and are implicated to play key roles in processes such as the creation of a pre-metastatic niche in the spread of tumor cells. Dr Schekman showed a biochemical approach to isolate a unique exosome species and identify specific microRNAs including miR-223 that are enriched in the isolated exosomes. Dr Schekman further described the underlying molecular mechanisms that regulate packaging of miR-223 into exosomes.

Dr Schekman is a Professor in the Department of Molecular and Cell Biology at University of California, Berkeley, and an Investigator of the Howard Hughes Medical Institute (HHMI). At Berkeley, Dr Schekman developed a genetic and biochemical approach to the study of eukaryotic membrane traffic. Among his awards are the Gairdner International Award, the Albert Lasker Award in Basic Medical Research and the Nobel Prize in Physiology or Medicine in 2013.

Dr Schekman is a member of the National Academy of Sciences (NAS), the National Academy of Medicine (formerly the Institute of Medicine), the American Academy of Arts and Sciences, the American Philosophical Society as well as a Foreign Associate of the Accademia Nazionale dei Lincei and the Royal Society of London. In 1999, he was elected President of the American Society for Cell Biology. In 2002, he was appointed Editor-in-Chief of the Annual Reviews of Cell and Developmental Biology. From 2006 to 2011, he served as Editor-in-Chief of the Proceedings of the NAS. In 2011, he was appointed Editor-in-Chief of an Open Access journal, eLife, sponsored by the HHMI, Wellcome Trust and the Max Planck Society.

Distinguished speakers including Nobel Prize winners, corporate leaders, entrepreneurs and key financial policy shapers were invited to speak at the HKUST 25th Anniversary Distinguished Speakers Series. Prof Steven Chu, Nobel Laureate in Physics in 1997 and former US Secretary of Energy, was invited as the inaugural speaker of the series. For more details of other distinguished speakers of the Distinguished Speakers Series, please refer to <http://25a.ust.hk/eng/dss.php>. More talks are also being lined up.

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Dr Randy Schekman



Head of Division of Life Science Prof Karl Herrup (Left) and Dr Randy Schekman



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