



Seminar Announcement

The Origins of Death and Sex



Speaker:

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Ph.D.

Date : 24 October 2019
Time : 10.30 a.m. – 12 p.m.
Venue : Classroom 2, SBS
Hosted By : Prof. Lars Nordenskiöld

Abstract

We survive by eating other living organisms, which may be interpreted as the need to inflict death on others in order to survive. But if we look at the entire biosphere, we can take it as a continuous process in the metabolism and redistribution of biomolecules; death of individuals becomes inevitable. However, death evolved to rescue life. The simplest examples are the sporulation of *Bacillus* and slimemold. Both are normally unicellular organisms but in stress, they form aggregates and differentiate so that only one cell type would continue to survive and the others result in death. In fact, many cells in our body die in the process of development. Sexual reproduction had evolved to become the preferred mode of reproduction in higher multicellular organisms. Only certain cells (gametes) are devoted for the propagation of the species. All others are supportive in this process; they die when the job is done. Propagation of the species by sexual means is very inefficient but it provides the diversity for each species to compete with all others in the complex battle of survival. An example is the sickle-cell anemia allele of the hemoglobin β -subunit. Individuals homozygous with this allele are infertile. But this allele offers protection against malaria for heterozygous individuals. Its frequency is found to stabilize at about 10% in Central Africa where malaria is common to give humans a better chance of survival. A mathematical model suggests that if it evolved by a mutational event, it would need less than 5,000 years to establish stability in malaria infested regions.

Biography

Professor Alex Law was born in Hong Kong. He obtained his BSc degree in Physics from Caltech in 1972, and Ph.D. degree in Biology from Harvard University in 1978. After three years at the Washington University Medical School at St. Louis, he joined Professor Rodney Porter's MRC (Medical Research Council) Immunochemistry Unit in the University of Oxford, UK in 1981 and became a full member in 1986.

In 2002, he joined Nanyang Technological University, Singapore as a Professor in the School of Biological Sciences (SBS). At NTU, he served as Associate Chair of Research in SBS (2002-2010), Acting Chair of SBS (2008-2011), and the Director of the Double Degree Programme in Biomedical Sciences and Chinese Medicine (2012-2016). His major research work was on proteins of the immune system. He retired at the end of 2016 and now lives in Hong Kong.