

Press Release

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PROFESSOR SIR DAVID AND PROFESSOR BIRGIT LANE TO RESUME FULL-TIME APPOINTMENTS AT A*STAR FROM SEPTEMBER 2009

A*STAR continues to attract top scientific talent to anchor their research activities here and contribute to Singapore's biomedical sciences research efforts

1. The Agency for Science, Technology and Research (A*STAR) announced today that Professor Sir David Lane, Chief Scientist of A*STAR, and Professor Birgit Lane, Executive Director of the A*STAR Institute of Medical Biology (IMB), would resume full-time appointments at A*STAR come September this year. This is a welcome move by the two eminent scientists who have a long and deep association with A*STAR, and who have been contributing to Singapore's biomedical sciences research efforts in their various roles in the organisation since 2002.

2. Said Mr Lim Chuan Poh, Chairman of A*STAR, "I am delighted that David and Birgit have chosen to resume their full-time commitment to A*STAR. They have contributed enormously to A*STAR over the years and have always been valued members of the R&D community here. Their decision to anchor their research activities in A*STAR and Singapore underscores their continued excitement with the biomedical sciences R&D journey that we started nearly a decade ago".

Prof Sir David Lane – Chief Scientist & Mentor
Impacting the Next Generation of Singaporean Scientists

3. When Prof David Lane, well-known as the co-discoverer of the tumour suppressor gene, *p53*, resumes his full-time appointment at A*STAR, he plans to expand his lab and to delve deeper into the translational aspect of *p53* research, so as to bring the findings closer to the clinic. He will also be able to mentor and train more PhD students and post-docs in his lab, and thus influence the next generation of Singaporean scientists. At the same time, Prof David Lane will also continue in his non-executive role as Chief Scientist of A*STAR and engage scientists in scientific discussions at the A*STAR-wide, cross-council level.

4. Said Prof David Lane, “I am very excited about continuing my work in A*STAR full-time, and especially welcome the opportunity to spend more time on research, and train more young PhD students and post-docs. I expect the many spontaneous interactions I will have with my colleagues will spawn interesting ideas, and, who knows, another grand discovery! I also look forward to working closely with Chairman of A*STAR, Mr Lim Chuan Poh, and my other colleagues across A*STAR to help shape the research agenda, and advance A*STAR’s scientific excellence and international standing”.

5. Prof David Lane has been associated with A*STAR since 2002 when he was the Chairman of the Scientific Advisory Board of Institute of Molecular and Cell Biology (IMCB). He came to Singapore and took over the reins of IMCB as its Executive Director from 2004 to 2007, and became Chairman of A*STAR’s Biomedical Research Council (BMRC) and founding Chief Executive of Experimental Therapeutics Centre (ETC) in 2007, before moving on to take on the role of Chief Scientist in Apr 2009. In addition to his responsibilities in A*STAR, Prof David Lane will continue in his current position as Chief Scientist for Cancer Research UK, one of the world’s leading cancer charities, on a part-time basis.

Prof Birgit Lane – Executive Director of IMB

Building bridges between basic science and clinical medicine

6. Prof Birgit Lane will resume her full-time role as Executive Director of IMB, the research institute which she helped to establish, and which she has been helming since its inception in 2007. Said Prof Birgit Lane, “I am looking forward to returning to IMB full-time. This is a very exciting time for the new Institute. We are recruiting excellent new colleagues to Singapore and IMB is becoming steadily stronger. I am honoured to be part of this and to work with my great IMB colleagues to help consolidate IMB’s position of building bridges between basic science and clinical medicine”.

7. Prof Birgit Lane has plans to continue expanding IMB’s research portfolio in cancer, epithelial and stem cell biology and work with scientists in IMB to focus their research on issues relating to the interface between basic and clinical sciences, particularly in area of human diseases. She said, “My aim is to see good science being translated into something useful, something with practical outcomes, which could be in the form of a drug, a diagnostic or simply, having a better understanding of a disease”.

8. Known internationally for her work on keratins, Prof Birgit Lane has a long-standing interest in the function of the keratin cytoskeleton in epithelia and its importance in disease. Her work at A*STAR began with the then Centre for Molecular Medicine (CMM) where she was a Programme Director and subsequently the Executive Director in 2006. In 2007, she became the founding Executive Director of IMB. As the Executive Director of IMB, Prof Birgit Lane has

been building the institute from scratch, attracting top scientific talent to work with her there. She also holds adjunct appointments the Departments of Pathology and Biochemistry at the Yong Loo Lin School of Medicine, National University of Singapore, and at the Karolinska Institute in Sweden. She is also an Honorary Visiting Consultant at the National Skin Centre, Singapore.

9. Mr Lim added, "I am pleased that A*STAR remains an attractive place for research. We have been able to bring our friends, who have seen A*STAR grow over the years, to continue to work alongside us in the A*STAR leadership, and contribute to R&D and the Singapore economy. The participation of top scientific talent in our research institutes helps to create a vibrant world class and international R&D community in Singapore. We continue to welcome top talent from all over the world to join us in pushing the envelope of research at A*STAR and to make an impact on Singapore and the world".

AGENCY FOR SCIENCE, TECHNOLOGY AND RESEARCH (A*STAR)**Enclosed:****Annex A - Curricula Vitae of Prof Sir David Lane and Prof Birgit Lane****Annex B - IMB Factsheet****Notes to the Editors:**

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About the Agency for Science, Technology and Research (A*STAR)

www.a-star.edu.sg

A*STAR is Singapore's lead agency for fostering world-class scientific research and talent for a vibrant knowledge-based Singapore. A*STAR actively nurtures public sector research and development in Biomedical Sciences, Physical Sciences and Engineering, with a particular focus on fields essential to Singapore's manufacturing industry and new growth industries. It oversees 22 research institutes and consortia and supports extramural research with the universities, hospital research centres and other local and international partners. At the heart of this knowledge intensive work is human capital. Top local and international scientific talent drive knowledge creation at A*STAR research institutes. The Agency also sends scholars for undergraduate, graduate and post-doctoral training in the best universities, a reflection of the high priority A*STAR places on nurturing the next generation of scientific talent.

About the Biomedical Research Council (BMRC)

The Biomedical Research Council (BMRC) oversees the development of core research capabilities within A*STAR research units specialising in bioprocessing; chemical synthesis; genomics and proteomics; molecular and cell biology; bioengineering and nanotechnology and computational biology. Through competitive grants, the Council also supports research in the wider scientific community such as public universities and hospitals. As part of its efforts to advance human healthcare, BMRC actively promotes translational medicine and cross-disciplinary research. The Council also engages in human capital development in the biomedical sciences and promotes societal awareness of biomedical research through outreach programmes.

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ANNEX A: CURRICULUM VITAE

CURRICULUM VITAE OF SIR DAVID LANE

Professor Sir David Lane is one of the scientists credited with the landmark discovery of cancer gene p53 in 1979. p53, called the "Guardian of the genome" is considered the most significant of all the genes altered in cancer cells because mutations of the gene are known to cause almost 50% of all human cancers.

Professor Lane is currently the Chief Scientist of A*STAR, where his main role is to advise and engage in scientific development across the Biomedical Research Council (BMRC) and the Scientific Engineering Research Council (SERC) at the strategic level. He also runs a research lab in IMCB, primarily focusing on research on p53 using both mammalian and zebrafish systems. His lab just recently published a paper in the journal, Genes and Development, on how an alternative variation of the p53 protein acts as a "control switch" for p53 in zebrafish.

He was previously the Chairman of A*STAR's Institute of Molecular and Cell Biology (IMCB) scientific advisory board from 2002-2003 and Executive Director, IMCB from 2004-2007, where he added on a translational focus to IMCB's core strengths in basic R&D recruited many outstanding scientists and personally led efforts to foster greater collaboration, both within and outside of IMCB. He was also the founding CEO of A*STAR's Experimental Therapeutics Centre, setup in 2006. Professor Lane put in place a robust team of more than 60 scientists and built up top-of-the-line technological platforms essential for the drug discovery business.

Professor Lane was the Chairman of BMRC from 2007-2009. During that time, he had been involved in charting out the strategic directions for all fourteen BMRC research institutes, consortia and centre in preparation for the next phase of Singapore's Biomedical Initiative. Professor Lane was also involved in the establishment of A*STAR's cross-disciplinary R&D initiatives, working closely with the Scientific Engineering Research Council (SERC) and the Cross Council Office (CCO) to further strengthen collaborations and explore new areas of multidisciplinary research. Professor Lane also helped foster collaborations with Scotland, culminating with a Memorandum of Understanding signed in 2006 between A*STAR and the University of Dundee to offer joint PhD training in biomedical sciences and explore opportunities for joint research collaborations.

Professor Lane completed his undergraduate and postgraduate degrees at University College London where he studied auto-immunity. He did his postdoctoral training at the Imperial Cancer Research Fund in London and then at the Cold Spring Harbor Labs in New York. On his return to UK, he established his independent research lab at University College London before moving to the University of Dundee. He is also the founder of Cyclacel Pharmaceuticals Inc., a

biotechnology company developing novel drugs for the treatment of cancer, with three oncology drug candidates in clinical trials.

He was previously the Director of the Cancer Research UK Cell Transformation Research Group and Professor of Oncology at the University of Dundee in Scotland. He currently holds concurrent appointments as the Chief Scientist with Cancer Research UK and Head of Molecular Oncology at the University of Dundee.

For his efforts in cancer research, Professor Lane was knighted in 2000 and has won many awards such as the Paul Ehrlich Prize in 1998, the Buchanan Medal in 2004, and the Medal of Honor from the International Agency for Research on Cancer in 2005 and recently in 2008, the Royal Medal from the Royal Society of Edinburgh. He is a member of the European Molecular Biology Organisation (EMBO) and a Fellow of UK's premier scientific academy, the Royal Society, the Royal Society of Edinburgh and a founder member of the Academy of Medical Science. Professor Lane has been awarded Honorary Degrees from the University of Abertay, University of Stirling, University of Aberdeen, University of Birmingham, University of Nottingham and the University Paul Sabatier, Toulouse.

Professor Lane has published more than 300 research articles in international peer reviewed journals many of which have been very highly cited and has co-authored a successful practical guide to the use of immunochemical methods called "Antibodies" with Ed Harlow, selling more than 40,000 copies.

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CURRICULUM VITAE OF BIRGIT LANE

Professor Birgit Lane is currently the Executive Director of A*STAR's Institute of Medical Biology. She joined A*STAR's Centre for Molecular Medicine (CMM) in 2005 before becoming Executive Director, CMM in 2006. Professor Lane was involved in the repositioning of CMM into the Institute of Medical Biology, which was officially opened in December 2007. She oversaw the development of the scientific plan for IMB, and was responsible for its recruitment programme which has seen eminent researchers such as Colin Stewart, Davor Solter and Barbara Knowles brought to the institute. She also developed laboratory plans and oversaw the outfitting of IMB's new laboratory space in the Immunos/Neuros building at Singapore's Biopolis.

Professor Lane has been actively promoting and fostering collaborations between A*STAR, Dundee and the Karolinska Institute, especially in shared programmes of training PhD students. She organized the A*STAR-University of Dundee Joint Scientific Symposium in 2007 and the A*STAR-Dundee-Karolinska Institute Joint Scientific Symposium in 2008. She was also the co-organiser of the 21st European Cytoskeleton Forum held in Singapore in 2006.

At the University of Dundee, Professor Lane has held the Cox Chair of Anatomy and Cell Biology and has been Director of the Cancer Research UK Cell Structure Research Group. In the 1990s she played a key role in setting up the Division of Cell and Developmental Biology in the new Wellcome Trust Biocentre. In late 2007, she was responsible, together with Professors David Lane and Irwin McLean, for setting up the Division of Molecular Medicine in the College of Life Sciences. The division is a novel trans-faculty research division which aims to enable interdisciplinary research amongst scientists from Dundee's College of Life Sciences, and the College of Medicine, Dentistry and Nursing, as well as from the Department of Physics.

Professor Lane has had a long standing interest in the function of the keratin cytoskeleton in skin biology. She first raised a monoclonal antibody against keratins in the early 1980s to harness their potential for skin cancer diagnostics. This resulted in many clinical collaborations and generated many interesting studies of skin differentiation from hair follicles to mammary glands. In the 1990s, she was one of the first scientists to identify the critical link between mutations in keratin genes and cell fragility in skin and the discovery of mutations in keratins in people with skin fragility disorders. This was a turning point in understanding the function of intermediate filaments as little was known at that time about the molecular basis of skin blistering disorders. This landmark discovery led to many discoveries on the genetic basis of skin disorders. Her research interests are currently focused on how skin cells respond to mechanical stress.

Birgit Lane completed her undergraduate and postgraduate studies at the University College London's Department of Zoology. Her postdoctoral training

was done at the Imperial College of Science and Technology, University College London and Cold Spring Harbor Labs in New York. She returned to UK to join the Imperial Cancer Research Fund (ICRF, now known as Cancer Research UK) where she eventually headed her own lab at the Clare Hall Laboratories before joining the University of Dundee.

Professor Lane is a fellow of the Royal Society of Edinburgh and the Academy of Medical Sciences. She receives regular recognition from the ICRF (Cancer Research UK) "Award for Inventors" scheme for her contributions to the production of monoclonal antibodies of commercial significance. She is also an honorary consultant at Singapore's National Skin Centre. She has published more than 200 research articles in internationally peer reviewed journals

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ANNEX B: INSTITUTE OF MEDICAL BIOLOGY FACTSHEET

The **Institute of Medical Biology (IMB)** was established in 2007 from the former Centre for Molecular Medicine and the Executive Director is Prof. Birgit Lane. Its mission is to study mechanisms of human disease in order to discover new and effective therapeutic strategies for an improved quality of life. Their growing portfolio of strategic research topics aims to promote translational research on the mechanisms of human diseases with a cell-to-tissue emphasis that can help identify new therapeutic strategies for disease amelioration, cure, and eradication. These areas include stem cells, cancer, development and differentiation studies and genetic diseases.

Stem Cells

The Stem Cell Diseases Model Laboratory is headed by **Dr Alan Colman** (Executive Director of the Singapore Stem Cell Consortium). Stem cells carrying defective genes can be investigated in vitro to understand molecular mechanisms of disease, and aberrant cells can be used for drug screening to developing novel or improved therapeutics.

Dr. Ray Dunn's team studies the developmental pathway leading to formation of the pancreas, to understand how to create safe and efficient insulin-producing cells starting with cultured human stem cells for the treatment of diabetes.

The Mesenchymal Stem Cell Group led by **Dr Sai Kiang Lim** aims to understand the mechanisms whereby human embryonic stem cells commit to becoming mesenchymal stem cells, and then terminally differentiated cell types. They use mesenchymal stem cells to exert profound influences on enhancing tissue repair.

Drs Simon Cool and Victor Nurcombe are studying and optimizing the effects of sugars in the extracellular matrix to promote stem cell proliferation and regenerative properties. Both these groups work closely with clinicians to assess the effectiveness of these potentially powerful therapeutic applications of stem cell technology.

Cancer

The Papillomavirus Regulation and Cancer Laboratory, led by **Dr Francoise Thierry**, focus on mechanisms of malignant conversion of cervical cells infected by human papilloma viruses. The aim of the research is to unravel viral protein interactions with the host cells and hence to identify new targets suitable for therapeutic approaches.

The Singapore OncoGenome Project is undertaking a comprehensive analysis of genetic alterations in cancer cells and characterisation of their functional significance. Their current focus is on protein tyrosine kinases. This systematic

cancer therapeutics target identification programme aims to develop novel diagnostic tests to revolutionise cancer treatment. This programme is overseen by Prof. Axel Ulrich (Munich) and is run by Project Leaders **Ho Han Kiat and Chua Boon Tin**.

Genetic Diseases

The Epithelial Biology Programme led by **Prof Birgit Lane** studies genetic tissue fragility disorders and skin cancer. Working with clinicians to identify mutations in structural proteins and their cellular consequences, they investigate how keratin cytoskeleton filaments provide physical resilience to cells in tissues, respond to stress, and contribute to wound healing and cancer.

Developmental and Regenerative Biology is headed by **Dr Colin Stewart** in the study of mechanisms underlying multiple tissue failure in the genetic disorders caused by mutations in lamins and related proteins of the nuclear envelope. These diseases teach us about the functional architecture of the nucleus in development, ageing and disease, and about the importance of nuclear architecture for embryonic and adult stem cell function.

The Human Embryology group led by **Dr Bruno Reversade** studies other informative rare disorders, pioneering our understanding of the genetic events that allow for the occurrence of human twins and providing insight into the genetic and epigenetic mechanism that underlie natural cloning events.

Development and Differentiation

Prof. Davor Solter and Barbara Knowles together head the Mammalian Development laboratory. Their research interest focuses on genetic and epigenetic mechanism regulating preimplantation mouse development and reprogramming in human embryonic stem cells.

Several groups study other aspects of the control of differentiation, especially in nerve cells; these include **Prof Ed Manser** and **Drs Gerald Udolph and Sohail Ahmed**. Another group led by **Dr Mike Jones** is studying how the brain and central nervous system is first formed in the embryo. **Drs Taka Nakano, Leah Vardy and Prabha Sampath** lead three young groups studying different aspects of early switching on of neuronal differentiation, including stem cell regulation mechanisms that operate downstream of gene control.