Conferment of the Degree of Doctor of Science, *honoris causa*
A Citation

Professor Louis J. Ignarro, DSc (Hon), BS, PhD,
Nobel Laureate in Physiology or Medicine

When Alfred Nobel fell ill with heart disease at the end of the nineteenth century, his physician ordered him to be treated by nitroglycerin. He noted the irony, as nitroglycerin is the active ingredient in dynamite, the invention by which Nobel himself had made a vast fortune. By a further irony, the prestigious Prize that he endowed was presented at the end of the twentieth century to a scientist who discovered the agent that made nitroglycerin so effective in the treatment of heart disease. That scientist is the man whose work we are honouring here this morning, Louis J. Ignarro, 1998 Nobel Laureate in Physiology or Medicine. Professor Ignarro discovered that the mysterious signaling agent in nitroglycerin that enables blood vessels to dilate, improving blood flow, is none other than the simple molecule nitric oxide, a common gas produced by motor car engines, for example. This was a discovery that opened up a whole new area of research. When Professor Ignarro started doing research on nitric oxide in the late 1970s, there were only about ten to fifteen articles published on it every year; in 2007 there were over eighty thousand. The applications of his discovery have been momentous, not only for the treatment of cardiovascular disease and strokes, but more famously perhaps for the treatment of a disability that affects around one out of ten adult males, erectile dysfunction. Professor Ignarro himself puts the emphasis more on the benefits of his discovery for preventive medicine. He is well known for his advocacy of ways in which all of us can stimulate the body's production of nitric oxide, by eating more fruit and vegetables that are high in antioxidants, eating more fish and taking fish oil supplements, taking at least thirty minutes of exercise a day, reducing our intake of refined fast foods with high saturated fat content, taking plenty of rest and drinking enough water and drinks high in antioxidants. This healthy lifestyle regime is especially relevant to us today, not least those of us who live in Hong Kong.

Professor Ignarro was born in New York and had an active childhood and youth in which he was as drawn as much to sports and drag racing cars as he was to experiments with a series of increasingly sophisticated chemistry sets. Science won out, and he was admitted to Columbia University to study pharmacy and chemistry. He did his PhD in Pharmacology, with a minor in cardiovascular physiology, at the University of Minnesota. Determined to get the most out of his doctoral study, he took several additional courses in biochemistry, anatomy and enzymology. From his dissertation he was able to published four papers in the distinguished *Journal of Pharmacology and*

Experimental Therapeutics. After his PhD he did postdoctoral research in the Laboratory of Chemical Pharmacology in the National Institutes of Health.

Professor Ignarro then entered the drug industry, taking a position with Geigy Pharmaceuticals, heading their biochemical and anti-inflammatory programme. Geigy allowed him the freedom to undertake basic research in biochemical pharmacology. Nonetheless he felt the need to do some teaching to complement his research, so he took a position as Assistant Professor in the School of Medicine at Tulane University in New Orleans. His research there gradually led to an interest in blood vessels. At that time he came across a paper by a man whose name was to be closely associated with his, Ferid Murad, also an honorary graduate of CUHK, who was to win the Nobel Prize in the same year as Professor Ignarro for associated work. Professor Murad had speculated in that paper that nitroglycerin might release nitric oxide. Professor Ignarro took up the challenge of demonstrating by experiment that this was in fact so, and began by publishing a paper in 1979 showing that nitric oxide could relax vascular smooth muscle. His team then worked to demonstrate the mechanism by which this happened. In the 1980s he showed that our own vascular cells actually produce nitric oxide. Finally he produced experimental evidence that that simple compound, nitric oxide, found commonly in the atmosphere as a pollutant, was one and the same as the mysterious vascular cell "relaxing factor" fellow scientists had been searching for. The result was announced at a historic conference in Minnesota in 1986, when another fellow Nobel Prize winner, Robert Furchgott, published associated results. The crucial missing pieces of an amazing scientific puzzle were finally put in place, creating a whole new domain of research. Professor Ignarro then moved to the University of California at Los Angeles, which has been his academic home ever since. There he is Distinguished Professor of Pharmacology in the David Geffen School of Medicine.

Apart from the Nobel Prize, Professor Ignarro has received many honours and awards. These include the PhRMA Foundation Award for Excellence in Pharmacology/Toxicology, the Ciba Award for Hypertension Research, the Roussel Uclaf Prize, the Basic Research Prize of the American Heart Association, the Lilly Research Award, the USPHS Career Development Award, the Merck Research Award and the Edward G. Schlieder Foundation Award. He is a Member of the National Academy of Sciences, American Academy of Arts and Sciences, American Philosophical Society and has received Honorary Doctorates from the Universities of Bologna, Pisa, Napoli, Charles University, Buenos Aires, Linkoping, and Texas at San Antonio.

Professor Ignarro has been a member of many important scientific and industrial boards, committees and societies. They include the Nutrition and Scientific Advisory Boards of Herbalife, Operation USA, the American Philosophical Society, the Life Science and Medicine Selection Committee of the Shaw Prize, the Scientific Advisory

Board of Universal Detection Technology, the Scientific Board of Metagenics Inc., the Scientific Committee of Nicox, the Board of Antibe Therapeutics, the American Heart Association, the American Physiological Society, the American Society for Cell Biology and the American Society for Pharmacology and Experimental Therapeutics. He is Founder and Editor-in-Chief of *Nitric Oxide: Biology and Chemistry*, and Founder and President of Nitric Oxide Society.

At The Chinese University of Hong Kong Professor Ignarro has made many contributions. He was Wei Lun Visiting Professor in 2001 and delivered a lecture entitled "Nitric Oxide in the Regulation of Vascular Function: A Historical Overview". In 2006 he was inaugurated as an Honorary Professor of Medicine at CUHK, and was a speaker at the University's widely acclaimed The Sun Hung Kai Properties Nobel Laureates Distinguished Lectures. In the same year he also delivered a lecture entitled "Nitric Oxide as a Unique Signaling Molecule" at the Sixth International Symposium on the Frontiers of Life Sciences, jointly organized by Qingdao University and Epithelial Cell Biology Research Center of CUHK. Over the years Professor Ignarro has provided valuable advice and support to the University's research and development in the areas of Medicine and Science.

Mr Chairman, it is my privilege to present to you Professor Louis J. Ignarro, Nobel Laureate, for the award of the degree of Doctor of Science *honoris causa*.

This citation is written by Professor David Parker