

澳門大學授予阿龍·切哈諾沃教授榮譽博士學位讚辭

中國辭句“非學無以廣才，非志無以成學”，正好揭示 2004 年諾貝爾化學獎得主之一——阿龍·切哈諾沃教授的成功秘訣。

出生於以色列海法的阿龍·切哈諾沃教授是國際知名的生物化學家。他從小就對生物學產生濃厚興趣，並以興趣規劃人生，畢生投入到基礎科學研究領域。科學研究之路崎嶇難行，需要知識的裝備，經驗的累積，同時也要學習面對失敗，擁有永不氣餒的決心。當時，科學界普遍認為蛋白質降解不需要深入研究，但切哈諾沃教授憑著對科研的熱誠和堅定的信念，在實驗中攻克了無數個科學難關後，終於突破性發現了細胞內泛素調節的蛋白質降解和再利用的泛素-蛋白酶系統，使人們清楚認識泛素調節的蛋白質降解在多個細胞生化過程中起到重要作用，從而改善了治療手段，拯救了無數生命。

泛素存在於許多不同組織和器官中，具有標記待降解蛋白質的作用，被泛素標記的蛋白質在蛋白酶體中被降解。泛素-蛋白酶系統不僅能清除錯誤的蛋白質，對細胞生長週期、DNA 修補、及染色體結構都有重要的調控作用。泛素-蛋白酶系統的任何異常可導致惡性腫瘤、神經退化等多種疾病。切哈諾沃教授一直致力於研究人類細胞中蛋白質的代謝調控機制與人類重大疾病發生的聯繫，解釋人體免疫系統的化學運作原理，使人們可從分子層面上探索和理解蛋白質如何控制人體內的化學現象。他的研究成果為醫學界作出了巨大貢獻，促進了生物化學的進一步發展。目前，他的研究已應用到世界第一個多發性骨髓瘤和套細胞淋巴瘤治療的蛋白酶體抑制劑藥物研發和生產，並已成功實現市場化，為個性化治療奠定了基礎。

於 2004 年，瑞典皇家科學院將該年度的諾貝爾化學獎授予以色列科學家阿龍·切哈諾沃教授、阿夫拉姆·赫什科教授以及美國科學家歐文·羅斯教授，以表彰他們獨闢蹊徑，發現了被泛素調節的蛋白質降解這一蛋白質管理系統，為他們豐碩研究成果作出肯定。

切哈諾沃教授在其研究領域保持活躍，連續發表高質量論文。他現任以色列科學與人文學院院士、美國文理科學院外籍院士、美國哲學學會會士、美國國家科學院外籍院士、美國國家醫學院外籍院士、梵蒂岡宗座科學院院士、中國科學院外籍院士和俄羅斯科學院外籍院士。切哈諾沃教授亦高度關注中國的科研發展，現任廣東以色列理工學院常務副校長，以及南京大學、天津



大學、南開大學等多所中國頂尖學府的客座教授。他與中國科學家廣泛合作，並在中國舉行的學術會議上發表前沿研究報告，大力推動科學發展。切哈諾沃教授為澳門大學作出了卓越貢獻，現任健康科學學院客席講座教授及該學院顧問委員會委員，並於2015年9月1日至2016年8月31日期間擔任澳大國際顧問委員會委員。他也是澳門大學健康科學學院舉辦的“2015年澳門生物醫學科學研討會”主講嘉賓之一。

為此，本人謹恭請校監閣下頒予阿龍·切哈諾沃教授榮譽理學博士學位，以資表彰。



A Citation for Professor Aaron Ciechanover on the Conferment of Honorary Degree

The Chinese expression “One cannot develop his talent without learning, and one cannot accomplish his learning without ambition” well summarizes the key to success of Professor Aaron Ciechanover, a 2004 Nobel Laureate in Chemistry.

Born in Haifa Israel in 1947, Professor Ciechanover is a world-renowned biochemist. When he was a child, he knew he has a strong interest in biology. Thus, he has devoted himself to the basic science research and sees this as his lifelong career. The road for scientific research is rugged. It requires the equipment of knowledge, the accumulation of experience and also the indomitable spirit when facing failure. At that time, in general, the scientific community did not believe the hope for an in-depth study of protein degradation, Professor Ciechanover had a firm belief and enthusiasm in this research direction. After overcoming countless scientific difficulties in the research, he finally discovered the ubiquitin-protease system that regulates protein degradation and the recycling in the cell. His ground-breaking research clearly shows that the ubiquitin-mediated proteolysis plays important roles in numerous biochemical processes, thereby improving the medical treatment and saving countless lives.

Ubiquitin exists in many different tissues and organs, and has the function of labeling proteins which are to be degraded in the proteasome. The ubiquitin-protease system not only removes the incorrect proteins, but also plays an important role in cell growth cycle, DNA repair, and chromosome structure. Any aberrations in the ubiquitin-proteasome system can contribute to diseases such as cancer and neurodegenerative disorders. Professor Ciechanover has been studying the relationship between the occurrence of major human diseases and the metabolic mechanism that regulates proteins in human body. This helps explain the principle of chemical operation of the human immune system, and enables us to understand on how proteins control chemical phenomena in human body at the molecular level. His research has made great contributions to the medical community and promoted the further development of biochemistry. At present, Professor Ciechanover’s research has been applied to the development and production of the world’s first drug as proteasome inhibitor for the treatment of multiple myeloma and mantle cell lymphoma, and has been successfully commercialized, laying the foundation for personalized medicine.



In 2004, the Royal Swedish Academy of Sciences awarded the Nobel Prize in Chemistry to Professor Aaron Ciechanover, together with Professor Avram Hershko and Professor Irwin Rose, in the recognition of their unique approach, ground-break discovery and success research of ubiquitin-protease system.

Professor Ciechanover remains very active in his research area, and is publishing scientific articles with high impacts. Now, he is a member of the Israeli National Academy of Sciences and Humanities, the American Academy of Arts and Sciences (Foreign Fellow), the American Philosophical Society, the National Academy of Sciences and the National Academy of Medicine (NAM) of the USA (Foreign Associate), the Pontifical Academy of Sciences of the Vatican, the Chinese Academy of Sciences (Foreign Fellow) and the Russian Academy of Sciences (Foreign Fellow). Professor Ciechanover greatly cares about the scientific development in China. Currently, he is the Vice Chancellor of Guangdong Technion Israel Institute of Technology, China, and he is the Visiting Professor of Nanjing University, Tianjin University, Nankai University and several top universities in China as well. He has established extensive collaborations with Chinese scientists and delivered cutting-the-edge research reports in conferences held in China, which have greatly promoted the scientific development. Professor Ciechanover has remarkable contributions to the University of Macau too. He is currently an Adjunct Chair Professor and a member of the advisory board of the Faculty of Health Science. He was also the member of University of Macau International Advisory Committee from 1 September 2015 to 31 August 2016. He was also one of the Nobel Laureate speakers at the Macau Symposium on Biomedical Sciences 2015 organized by the Faculty of Health Science (FHS).

Mr Chancellor, it is my honour and privilege to present to you Professor Aaron Ciechanover for the award of Doctor of Science *honoris causa*.