



Professor Hu Zhihong: The New President of the Society for Invertebrate Pathology

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Received: 27 September 2018 / Accepted: 30 September 2018 / Published online: 23 October 2018
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The Society for Invertebrate Pathology (SIP) is foremost in the world covering all aspects of related research in insect virology, bacteriology, mycology, parasitology and microbial control. The SIP has a wide scientific appeal with members from many countries spanning every continent in the globe. Election of members to the Society's Governing Council is based on scientific standing, contributions, reputation and involvement in the activities of the Society. At the recent annual meeting in August 2018, in the Gold Coast of Australia, Prof. Hu Zhihong was inaugurated as the President of the SIP having been elected by worldwide members to take charge of the Society's activities, direction and scientific standing. Prof. Hu's qualifications as a scientist and a leader are impeccable and far-reaching. Her outstanding scientific achievements, salient contributions to the field of virology and innovative approaches to research made her a world-renowned scientist. She has so far published no less than 150 manuscripts, mostly in internationally refereed scientific journals. Her contributed and invited presentations at the annual meetings of the Society often reflected the state-of-the-art in molecular virology. All this gave members of the SIP ample reasons to elect her as the President. Her experience as a past Director General of the Wuhan Institute of Virology of the Chinese Academy of Sciences will help her immensely in

running and directing the SIP to achieve even greater heights. No doubt, she will be an exceptional President.



Prof. Hu Zhihong's journey in science started in the 1990s when she was awarded the prestigious Marie Curie global fellowship to embark on a joint PhD program at the Department of Virology of the University of Wageningen, The Netherlands and at the Wuhan Institute of Virology of the Chinese Academy of Sciences. She earned her PhD in 1998 and has since been advancing both the basic and applied aspects of insect viruses. Her notable achievements in genomics, proteomics and transcriptomics of baculoviruses, molecular mechanisms of baculovirus infection, and virus-related bio-techniques in microbial control have received wide acclaim and published in high impact international journals (Chen *et al.* 2001; Sun *et al.* 2005; Wang *et al.* 2010; Xing *et al.* 2017). One her more recent and remarkable accomplishments is the *in vitro* synthesis of the *Autographa californica* nucleopolyhedrovirus (AcMNPV) from a bioinformatics file (Shang *et al.* 2017). By using a combination of PCR and transformation-associated recombination in yeast, the viral genome was synthesized *in vitro* (AcMNPV-WIV-Syn1) and was infectious to tissue culture cells. Progeny virus was structurally and functionally indistinguishable from the parental AcMNPV. This new platform opened the door to wide genome editing

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such as deleting and/or adding a number of genes, producing an effective expression vector with a minimal genome and even a better biocontrol agent. This is the largest DNA synthesized so far and should be an impetus to stimulate similar advancements with other large DNA viruses. This accomplishment coincided with her research on the *per os* infectivity factors (pifs) with the synthetic genome providing an avenue to delete pifs totally and produce a virus ineffective against the natural host but replicates in tissue culture cells. Prof. Hu's studies also revealed the association of pifs with viral host range and specificity.

Besides research on insect viruses, Prof. Hu also studies tick borne viruses (especially bunyaviruses), identification and isolation of new viruses, phylogeny, pathogenesis, etc (Guo *et al.* 2012; Ning *et al.* 2015; Shi *et al.* 2018). She also delves into other viruses such as SARS-coronavirus, cynophage, and others (Li *et al.* 2005; Xia *et al.* 2013).

The research on insect virology in China has been advancing rapidly due to the commitment of dedicated mission-oriented scientists and excellent support. Indeed, China is fast becoming the world's leader in research on insect virology. Young scientist such as Prof. Hu played important roles to advance our knowledge in all aspects of the field. Equally critical is her continued obligation to educate and mentor younger generation of virologists such as graduate students and post-doctoral fellows by imparting her vast knowledge as well as instilling into them the passion for science and research.

Prof. Hu co-authored the classic college textbook "General Virology" (in Chinese) that has served as a reference for students majoring in virology for more than a decade (Xie and Hu 2002). She also serves as an editor of many scientific journals, such as *Virologica Sinica*, *Chinese Science Bulletin* and the *Journal of Invertebrate Pathology*.

This is the first time in the 50 years' history that the SIP has elected a scientist outside Europe or North America to be its President. This election is not only an affirmation of the outstanding scientific achievements and leadership of

Prof. Hu, but also a testament to the expanding influence of Chinese scientists in the international scientific arenas.

We congratulate Prof. Hu Zhihong for a well-deserved honour.

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