KHUPO – a Vital Catalyst for Proteomics Research in Asia and the World

Although Korea becomes famous for recent advances in embryonic stem cell research, Korean leadership in proteomics is less well known. Among 30 national and allied proteomics societies, the Korean Human Proteome Organization (KHUPO) may be regarded as a flagship proteome society with respect to history, member size and dynamic participation in HUPO activities (Fig. 1).

According to PubMed survey statistics, Korea is 12th in the number of proteomics publications (415) during the past three years, similar to her rank (14th) of SCI journal publications (18,635 SCI papers in 2003). Thus, Korean science has benefited from recent growth in R&D spending, which is projected to reach 3% of GDP within the next two years (www.most.go.kr). This scientific expansion parallels Korean economic growth in the early 1990s. In my opinion, proteomics growth resulted from the Korean government's recent innovative R&D policy (http://www.president.go.kr/cwd/kr/archive/archive_list.php?meta_id=policy5_10&list=4) in biotechnology. The goals of "Selection and Concentration" on biotechnology coupled with a FY 2005 133 million dollar budget have fostered a modern, competitive research system in the area of proteomics.

KHUPO (www.khupo.org) was founded on July 24, 2001 as the first national organization under the auspices of HUPO (www.hupo.org) to integrate proteome research groups into international organizations, to engage in scientific and educational activities that spread proteomics technologies, and to disseminate knowledge pertaining to human diseases per the HUPO mission statement. It is generally recognized that KHUPO has taken unique roles within HUPO activities by promoting interactions among neighbor societies at various levels. For example, KHUPO designed and contributed the HUPO logo, which became the logo template for many other regional (e.g. AOHUPO, www.aohupo.org) or national HUPO societies such as China, (CHUPO, www.hupo.org.cn/), Japan (JHUPO, www.jhupo.org), and Russia (RHUPO, www.rhupo.ru). Further, Yonsei Proteome Research Center (YPRC, www.proteomix.org) at Yonsei University, Seoul, Korea, an institute of KHUPO has been responsible for operating HUPO and KHUPO Web sites and is heavily involved in various administrative duties, such as the Inaugural HUPO Congress held in Versailles, France, November 2002 one of the founding member societies (along with Australia and Japan) of AOHUPO where 13 national HUPO organisations or delegates are working together (Fig. 1). As HUPO hosted the inaugural AOHUPO conference in March 2002 and has built a tradition of cooperation on important challenges, thereby contributing to the creation of regional HUPO societies (Fig. 2). KHUPO also coordinates the HUPO-sponsored global proteome project in Korea. For example, KHUPO's administrative center, YPRC, has developed dynamic and diverse research programs by actively participating in major HUPO initiatives such as the Human Plasma Proteome Project (HPPP, http://psidev.sourceforge.net/ppp/pilot-Phase/), the Human Liver Proteome Project (HLPP, http://211.32.65.137/hpp/hlpp.htm) and the Proteomics Standard Initiatives of HUPO (HPSI, http://psidev.sourceforge.net/). HPPP is the first case for Korea to contribute to global post-genomics initiatives, by carrying out a special project where the plasma of different races has been examined. KHUPO has published a special issue of Proteomics (http://www3.interscience.wiley.com/cgi-bin/jissue/109747202) (edited by Y.-K.Paik) every year since 2003. These special issues have covered the spectrum from infectious disease to cancer, highlighting proteomics research by members of KHUPO. I trust this special issue serves as a major scientific forum for various proteome research scientists in Korea and neighboring countries. Publication of special issues of Proteomics containing the nation's major projects marks our continued growth, along with our regular KHUPO Newsletter, in which progress and cooperation among proteome scientists throughout Korea and the world can be seen.

Recognizing the vital activities of KHUPO since its creation in 2001, the Korean government has launched several proteomics initiatives. Included are the Biomedical Proteome Research Center Project (BPRC), (20 million US-$ for 8 years) by the Ministry of Health and

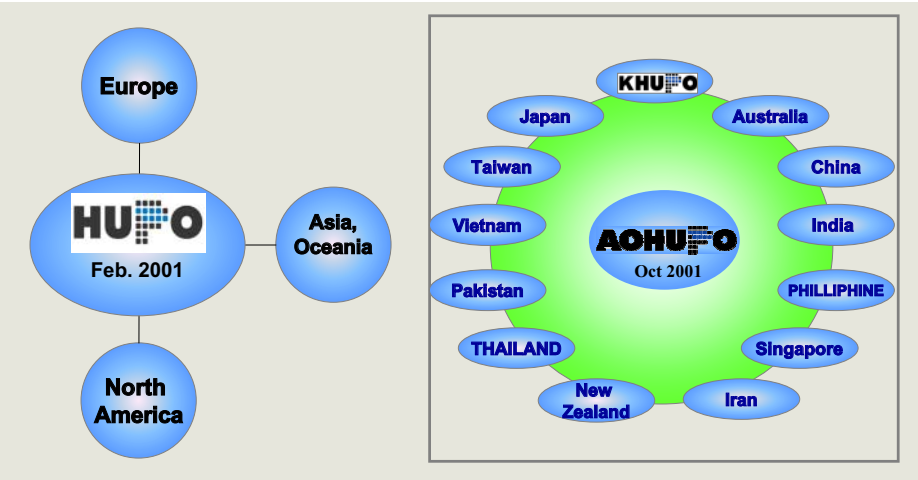

Fig. 1: HUPO and Associated Organizations

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Welfare (www.mohw.go.kr) in 2003, the 21C Frontier Project (10 years) by the Ministry of Science and Technology in 2002, and the Proteomics Informatics Initiative (five years) by the Ministry of Commerce Industry and Energy (www.mocie.go.kr) in 2001. The latter has been financially supporting web site operation of the ExPASy mirror site (http://kr.expasy.org), for HUPO, AOHUPO and KHUPO. Among these projects, the BPRC project (led by Prof. Y.-K. Paik) is believed to be one of the most challenging proteome projects in Korea, where more than 150 research scientists are tackling various human diseases, in order to map the Korean human plasma proteome for the first time in her history. In this BPRC project, YPRC has an annual budget of nearly 2.4 million US-$ and provides technical service and training/education in support of 14 Medical Genomics Research Centers throughout the country, which conduct a broad spectra of disease proteomics from cancer to skin diseases. YPRC serves as the user center for the development of standards, and analytical capabilities that can be used by the research community. We believe that soon or later proteomics may become routine, hands-on-techniques in every biomedical lab. KHUPO, along with her regional organizations such as AOHUPO, has also been dedicated to promoting understanding of the protein network within cells, by hosting joint proteomics workshop on membrane proteome initiative in April 27, 2005 (Fig. 3).

Fig. 2: from left to right: Dr. Sam Hanash, Fred Hutchinson Cancer Research Center, Seattle, Washington, USA, Inaugural HUPO President (2001–2004)
Dr. Young-Ki Paik, YPRC, Yonsei Univ., Seoul, Korea, former KHUPO president (1st and 2nd, 2001–2005), Dr. Richard Simpson, Ludwig Institute of Cancer Research, Melbourne, Australia, Inaugural President of AOHUPO (2002–present), Vice president of HUPO (2001-present)

Fig. 3: KHUPO–AOHUPO Joint Proteomics Workshop (Konkuk University, Seoul, Korea, April 27, 2005)

The KHUPO annual meeting attracts an average of over 800 people, which has fostered rapid development of proteomics and enthusiastic support from various sectors in this field, so it is quite natural that KHUPO will host the 2007 HUPO Congress, October 8–11, in Seoul. This will mark the turning point of Korea's proteomics development, allowing Korea to move to an advanced level of proteomics. As a former president of KHUPO for four years, I thank many members and staff officers of KHUPO including vice presidents, the secretary general and chairs of KHUPO standing committees for their dedication and hard work for this organization. Although proteomics is at an early growth phase with respect to technology, training and infrastructure in Korea, we will continue toward our ultimate goals to map and elucidate all human plasma proteomes, and to understand mechanisms whereby many proteins are involved in the pathogenesis of human disease. As KHUPO celebrates four years of proteomics advances, we desire to continue as a key part of world proteome societies and will continue to function in our unique role, under the auspices of HUPO.

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