Meeting report: 6th Negative Hydrogen Ions International Academic Forum

6th Negative Hydrogen Ions International Academic Forum (NHIAF) was held in Shenyang, China on July 23, 2016. It was sponsored by Shanghai Professional Committee of Hydrogen Molecular Medical Rehabilitation, assisted by Shanghai Quanren Biological Technology Company Ltd. and TAANE Japan Company Ltd., and supported by the United States Institute for Molecular Hydrogen, Second Military Medical University, Shanghai Jiao Tong University, China Medical University, Taishan Medical University, the Fourth Hospital of Harbin Medical University, Shenyang Agricultural University, Shengjing Hospital of China Medical University and other authoritative scientific research institutions.

The NHIAF has been held annually between the Chinese and Japanese scholars since July 10, 2011 in Shanghai Jiao Tong University, a famous university in China, which officially kicked off the NHIAF. Being held in Sendai of Japan as well as Shanghai, Jinan, Changsha and Shenyang of China, the Forum has become an annual academic conference periodically held in the hydrogen medicine field, and has attracted scholars from China, Japan, the United States, *etc.*

Professor Xue-jun Sun from the Second Military Medical University, the national authority in the field of molecular hydrogen biology and the Chairman of Professional Committee of Molecular Hydrogen Biology, was the president of the Forum and the guest host. Professor Sun reviewed development history of molecular hydrogen medicines and made a macro analysis of the trend of development of hydrogen technology. He emphasized the great potential and broad prospect of the application of hydrogen technology in medical development. At the same time, Professor Sun reviewed the achievements of the previous NHIAF, and expressed that the Forum represents the international level by attracting both domestic and international scholars. He also said that the Forum has become a brand academic forum, which is an excellent combination of academic research and industry development. Professor Sun held high hope for the future of the Forum.

Vice Chairman of Professional Committee of Molecular Hydrogen Biology, Mr. Chao-yang Li, who is the Chairman of Shanghai Quanren Biological Technology Company Ltd., made a speech at the Forum, proposing his own opinion about the development of the hydrogen technology industry in China, expressing his sincere gratitude and warm welcome to medical experts, scholars, and guests from all over the world and wished the Forum a complete success.

Yamanoi Noboru, a famous negative hydrogen ion expert

and the President of the Institute of Negative Hydrogen Ion Application of Japan, used modern medical methods to reveal the effect of hydrogen in the human body from the perspective of "Yin and Yang" in ancient China. Meanwhile, president Yamanoi Noboru analyzed the effects of various methods of intake. He presented that the way of solid-intake interacting with substances in stomach attracts more and more attention.

Mr. Tyler LeBaron, the founder of the United States Institute for Molecular Hydrogen, briefly introduced the development and application of hydrogen worldwide. He expressed that the development of hydrogen technology in the United States is very fast, and study and education in this field should be continuously moving forward. Meanwhile, Mr. Tyler LeBaron analyzed the molecular mechanism of hydrogen and presented his opinion about the application of hydrogen among athletes to reduce oxidative stress and the effect of hydrogen to mitochondria functions.

Professor Hong-li Yan, Laboratory Diagnostics Division, Changhai Hospital, introduced the experimental study and mechanism of the preventative effect of hydrogen against enteritis and intestinal cancer. Professor Yan testified that hydrogen can optimize the number of intestinal flora and compositions and inhibit enteritis and intestinal cancer. He started by building an experimental model to observe the recovery of colon atrophy, and decrease of tumour quantity, and the improvement of spleen and thymus index. Professor Yan suggested that research about the protective effect of hydrogen against cancer will become an important domain in the future.

Xiao-min Zhao, Vice Dean of College of Pharmacy, Taishan Medical University, gave a study report of "Protective effect of hydrogen on myocardial infarction and the function of baroreceptor reflex in rats". He provided a systemic analysis on the effect of hydrogen through the function of baroreceptor reflex based on the treatment effect of hydrogen against cardiac infarction and presented a new mechanism of treatment against cardiac infarction by hydrogen.

Experts and scholars from other authoritative scientific research institutions also presented splendid report about the result of hydrogen technology and medicine studies. Professor Ueda Hayato, Department of Medicine, University of Miyazaki, Japan presented "The effect of coral calcium hydride on glires-change of behavior and change of antioxidant capability of brain". This report gives us a new point of view on the administration of hydrogen. Coral calcium hydride is safe and it can ameliorate dysfunction of the brain and improve antioxidant capability of the brain. Huacheng Zhou, archiater of Department of Pain Treatment, the Fourth Hospital of Harbin Medical University presented the special report, "The protective effects of hydrogen on

the lung transplantation donor". This report reviewed the previous research on the protective effects of hydrogen on the lung transplantation donor. Mr. Zhou summarized that hydrogen can protect donors through its anti-oxidation, anti-inflammation and anti-apoptosis effect, its regulative effect on signal transduction pathway and gene expression. He then showed his expectation on research about effects of hydrogen on subcellular organelles. Professor Feng-song Cong, School of Life and Biotechnology, Shanghai Jiao Tong University presented keynote speech, "Negative hydrogen ions for human life". Watanabe Kiyofumi, Director of Research Department of Joint-Stock Company TAANE presented the report, "Negative hydrogen ions for good health and long life". These two reports presented the effect of negative hydrogen ions on human beings macroscopically. Doctor Hai-shui Shi, Hebei Medical University presented the research report, "The experimental study of hydrogen's inhibitory effect on the occurrence and development of depression". This report presented that hydrogen can ameliorate depression and anxiety induced by acute and chronic stress; it can ameliorate cognitive impairments induced by chronic stress. Hydrogen intake can reduce oxidative damage and neuro injury induced by chronic stress through the immunoregulative effect of hydrogen. Doctor of neurology, Jian Li, China Medical University presented the report, "Alzheimer's disease, let's face it together". Doctor Ning Zhang, Department of Naval Aeromedicine, Second Military Medical University presented, "Exploring the treatment effects of hydrogen on multiple sclerosis". Multiple sclerosis is difficult to treat. The anti-inflammatory and anti-apoptotic effect of hydrogen ameliorated multiple sclerosis in an animal model. Hydrogen administration could be a new potential therapy to treat multiple sclerosis. Ou-yang Chen, Department of Naval Aeromedicine, Second Military Medical University presented the research report, "Inspiration of high concentrations of hydrogen treating mice ischemia and reperfusion injury of cardiac muscle". This report not only presented the effect of high concentrations of hydrogen on mice ischemia and reperfusion injury of cardiac muscles, but also conveyed that hydrogen activated phosphoinositide 3-kinase (PI3K) additionally phosphorylate Akt1 and revealed this therapeutic effect.

In conclusion, these reports gave us a new point of view

about hydrogen. Firstly, several reports showed the potential therapeutic effect of hydrogen against enteritis and intestinal cancer, donor damage induced by lung transplantation, depression and multiple sclerosis. Secondly, several reports introduced new mechanisms of hydrogen, such as the protective effects induced by hydrogen through baroreceptor reflex and PI3K-Akt1 pathway. What's more, a neoteric administrative technique, orally administering coral calcium hydride, was also mentioned among these reports.

More than 10 of most professional and authoritative research achievements were presented at this Forum, which revealed the big achievement in hydrogen technology and the medicine field. These academic reports attracted great attention and inspired active communication among the attendees. The 6th NHIAF is a milestone for hydrogen technology and the academic communication field, and attendees communicated sufficiently on the academic reports. Hydrogen medicine is a newborn scientific field, and there have not been many academic conferences held regularly. Being the only international conference organized unitedly by China, Japan and Korea, it deserves attentions from scholars engaged in the hydrogen medicine field.

He Li, Ning Zhang, Ou-yang Chen*

Department of Clinical Medicine, Second Military Medical University, Shanghai, China (Li H, Chen OY)

Department of Naval Aeromedicine, Second Military Medical University, Shanghai, China (Li H, Zhang N, Chen OY)

***Correspondence to:** Ou-yang Chen,

lahm.2009@outlook.com.

orcid: 0000-0003-1387-9408 (Ou-yang Chen)

doi: 10.4103/2045-9912.202913

How to cite this article: Li H, Zhang N, Chen OY. Meeting report: 6th Negative Hydrogen Ions International Academic Forum. *Med Gas Res.* 2017;7(1):74-75.

Open Access Statement: This is an open access article distributed under the terms of the Creative Commons Attribution-Non-Commercial-ShareAlike 3.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.