

# Prof. Yilong Wu: a great doctor must have great virtue, and be the most proficient to reach supreme goodness

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## Introduction

The ancient Greek aphorism “*know thyself*” engraved on the forecourt of the Temple of Apollo epitomizes the human desire for the exploration into the unknown. In fact, never has mankind dragged their feet in understanding themselves, as in the achievements scientists have made all these years in the studies of disease and pathology.

Ere the 2017 WCLC journey, AME Editors were sent across China to conduct in-depth interviews with an army of distinguished experts in the field of lung cancer. Together we learned how these soldiers fought for the nation that has the largest number of patients, and how they dedicated their lives to inventing the most-advanced weapons and probing into the enemy camp. From the past, they reflect and learn from mistakes; At present, they work hard and make changes; For the future, they make plans and improvements.

May this issue take you to the innermost world of these Chinese scholars, where you can delve into their wealth of knowledge and be inspired.

## Prologue

As the saying goes, “*A great doctor should master perfect skills and have great virtue.*” Now another saying goes, “*A great doctor should have great virtue and be the most proficient to reach supreme goodness.*” What is great virtue? In “*Kun Diagram, Book of Change,*” it reads “As earth’s condition is receptive devotion, a gentleman should hold the outer world with broad mind.” How could a person become the most proficient? In “*Biography of Huayi of Book of Jin,*” it reads “Having talent and learning to be proficient, a man could be the most proficient.” What is supreme goodness? In “*Book of Rites, Great Learning,*” it reads “The way of the great learning involves manifesting virtue, loving the people, and resting in supreme goodness.” There are numerous doctors, and a great number of them may be

qualified and excellent. What about a great doctor? A great doctor must have preeminent skills and a sincere heart, who is one in a hundred or one in a thousand.

## Expert’s introduction

- ❖ Winner of Outstanding Science Achievement from IASLC (IASLC Paul A. Bunn, Jr. MD Scientific Award);
- ❖ President-Elect of Chinese Society of Clinical Oncology (CSCO);
- ❖ Former Director of Guangdong Lung Cancer Institute (GLCI);
- ❖ Lifetime Director and past vice president of Guangdong General Hospital (GGH);
- ❖ The Third-term Commissioner of Chinese Society of Lung Cancer (CSLC);
- ❖ Chairman of Guangdong Association of Clinical Trials (GACT);
- ❖ President of Chinese Thoracic Oncology Group (CTONG);
- ❖ The 5th Chairman of International Chinese Society of Thoracic Surgery(ICSTS);
- ❖ International Association Study of Lung Cancer (IASLC) Board of Directors from 2013;
- ❖ Member of the International Affairs Committee of ASCO.

With countless honorary titles, Prof. Wu (*Figure 1*) has been in the vanguard of lung cancer research in China, gaining tremendous recognition from peers all over the world. Occupied by heavy academic tasks, he has been busy shuttling between national and international academic meetings and has committed himself to battling thoracic oncology at the front line. Put under the spotlight, he is a ‘favorite’ of the media, appeared on screen again and again to deliver the cutting-edge academic research with his unique and insightful comments.



Figure 1 Prof. Yilong Wu.



Figure 2 The interview was conducted Prof. Wu's his office.



Figure 3 A photo of Prof. Wu's team, presented in Prof. Wu's office.

When we collected materials for preparation of Prof. Wu's interviews, besides getting his personal information through multiple resources, we also read through his interviews' scripts in the past five years. It took us almost one week to accomplish the task because of the great number. And then, a sense of respect arose spontaneously, one can't help being 'fascinated' by Prof. Wu's achievements. During the actual interview, which lasted an hour, we could see that rather than being lofty, Prof. Wu is a kind and modest "Master of Medicine" who has unique insights (Figure 2).

### Great virtue, "a gentleman should hold the outer world with broad mind"

#### *The importance of inheritance and carrying forward*

When asked "What's the most meaningful thing you have ever done so far in your life?", Prof. Wu answered, "Cultivating young generation brings me the most delight and joy." According to the latest record of manuscripts accepted in WCLC 2017, Prof. Wu's team has kept a good record: Prof. Wu will have an oral presentation and three poster presentations; Prof. Jinyi Yang and Prof. Benyuan Jiang, will have an oral report respectively. Jin Kang and other 12 young scholars from Guangdong Lung Cancer Institute (GLCI) all received a poster presentation opportunity. It could be said that this is a group of talents. "The lung cancer research team we belong to is really extraordinary. Few single disease research institutes in China could cultivate young talented people in a multidisciplinary aspect. Luckily, in our team there are many outstanding youths with different specialties, such as Dr. Xuchao Zhang, specializing in Basic Translational Research, Dr. Jinyi Yang and Dr. Qing Zhou, specializing in Medical Oncology, Dr. Wenzhao Zhong and Dr. Xuening Yang, specializing in Surgery, Dr. Yi Pang, specializing in radiation therapy, and research nurse, Bin Gan, specializing in clinical trials. I am proud of them (Figure 3)."

As a wish for the young people, Prof. Wu said, "In this ever-changing society, I hope that young men can embrace everything useful with an open mind and they must know how to adapt themselves to the society to stand out from the crowd."

#### *Emphasis on cooperation*

Speaking of an impression of "Chinese scholars are not so

united” in the international community, Prof. Wu disagreed with the word “united.” He thought that “united” could reflect a relationship between fair-weather friends, or a care for your countrymen. “Exchanging ideas” in the academia should not be called “united” but “cooperative.”

Prof. Wu pointed out that the spirit of cooperation cannot be emphasized enough in the development of medicine. To illustrate, he refers to the classic debate topic, “Which one is correct, heroes create history or people create history? The correct answer is, of course, people create history and then they elect heroes.” However, sometimes we may emphasize too much on heroism and cult of personality.

“Another example is our evaluation systems for intellectuals. Currently, all evaluation is based on the number of paper published as the first author or corresponding author and this parameter reflects the importance of being No. 1”. However, none of the systems be them large or small tells us that the second, third, fourth, or even the last are also indispensable for the team.

### *Delight of cooperation*

The following is an excerpt of “Yilong Wu, a person who seeks trouble” from the book “*the Past Decade of CTONG*” (1).

*When he was a senior at the university, he founded a college magazine, named “China’s Medical School Students” for the sake of the juniors.*

*Later on, he founded a journal, named “Family Doctor” for the public who may lack medical knowledge.*

*He is the first person introducing evidence-based oncology into China, and simultaneously founded a journal, named “Evidence-Based Medicine”.*

*In 1997, he took precautions and surmounted every obstacle to establish the Specimen Database for Lung Cancer Patients’ Biological Samples.*

*In 2001, as “the best lung cancer surgeon of Guangdong Province”, he changed his research direction and led his team start the research of targeted therapy and precision medicine.*

*In 2007, he saw the potential of establishing a Chinese thoracic oncology group, so CTONG was born.*

(Translated from Chinese)

The establishment of Chinese Thoracic Oncology Group (CTONG) was based on “interest” and “spirit of cooperation.” This group aims to facilitate and push forward the clinical trials in lung cancer research. As of today, CTONG has always believed in the tenet that if you can have good ideas, you stand a chance to become PI and lead the project. Every group member has his/her

own strength and they help each other to accomplish a project. Everyone can feel he/she plays an important role in the team and enjoy themselves simultaneously. Prof. Wu believed that the key is to create good atmosphere and fair ‘game rules’. CTONG might not be the best but we have always strived for becoming the best.

Prof. Wu told us that all medical practitioners are in equal and ought to cooperate with each other to pass down what they have learned. “*A gentleman should hold the outer world with broad mind*” may be the most appropriate phrase in describing Prof. Yilong Wu.

### **Being the most proficient, “having talent and learning to be proficient, a man could be professional”**

*To be a man with talent and a level of proficiency, one should have preeminent skills and be erudite, which is by no means easy*

Prof. Wu was born in the “Golden Generation,” and took China’s college entrance exam in 1977. In 1982, Prof. Wu graduated from Zhongshan School of Medicine (now become Zhongshan School of Medicine, Sun Yat-sen University). He was assigned to the Cancer Hospital by ranking top 10 in the National Medical Licensing Examination (NMLE) and chose to specialize in thoracic and abdominal surgery. “*In the past, the treatments of tumors were very limited. There were only a handful of chemotherapy drugs available and only a small part of early cancer patients could be cured by surgery.*” At that time, surgery was the most beneficial treatment for cancer patients.

“*In the past, there were not so many specialized specialties like today and my first independent operation was colon surgery. Undoubtedly, the training at that period wasn’t easy at all and even made me feel painful.*” After mentioning the “painful training” lightly, Prof. Wu did not mention anything about it again. After all, every surgeon’s training is very hard.

In 1989, after completing his study in Germany, Prof. Wu spent every day’s noon time in sorting out 1,980 medical records of Sun Yat-sen University Cancer Hospital deliberately. And he was astounded to find that the survival rate of lung cancer patients had been very low in the past five years and had not changed for a long time. “It was then that I have decided to pursue lung cancer research.” Since then, Prof. Wu has joined the battle of fighting with lung cancer.

Surgeons always value the scalpel in their hand and is

proud of their surgical skills. At the end of 1990s, Prof. Wu was not complacent about the title of “the best lung cancer surgeon in Guangdong Province.” After years of devoting himself to the research and deliberation, he understood that treating lung cancer patients should not merely rely on surgery. Thereafter, he opened the door of comprehensive therapies for China’s lung cancer patients.

As the saying goes, “*Diligence is the path to the mountain of knowledge.*” Prof. Wu always stayed optimistic even though the path to success was bumpy. He earnestly told us, “*Only doing the work will make a person successful. However, honestly speaking, doing the work can be a process of experiencing hardship.*” He illustrated it by using the example of clinical trials of CTONG: “*Currently, on average, one clinical trial will take researchers 5 to 6 or even 7 years to finish it. If the research project succeeds, it will be glamorous. On the contrary, if the research fails the cruel truth is that many people make sacrifices and devote themselves to the research for 7 years for nothing, which is unfortunately quite commonplace in the research field.*”

Prof. Wu has practiced medicine for 40 years and only “how to benefit patients more” could be in consideration of his choice in his clinical career. He has always been a down-to-earth doctor and fought in the front line to battle with lung cancer. Maybe that’s the reason why he chose to be a surgeon at first, and then decided to specialize in tumor molecular biology without hesitation.

### **The supreme goodness, “the way of the great learning involves manifesting virtue, loving the people, and resting in supreme goodness”**

“Three guiding principles” of “*the Great Learning*” are for carrying forward noble virtues, teaching people to reject the old for the new, abandon evil and raise well, and eventually reaching the supreme goodness. What kind of state is the supreme goodness that a medical practitioner could reach? In Prof. Wu’s perspective, to reach the state of supreme goodness, the prime is to have humanistic qualities. “*Firstly, doctors should try their best to make patients understand that even if there are flaws in the treatment, doctors always do their best and fulfill their duty. Secondly, doctors should be honest with patients. When we don’t know how to treat their illness, we should honestly tell them. Thirdly, with the constant advancement of medical technology, we should be innovative and provide patients with treatments, which might be a bit risky but with the most efficacious benefit. The three points mentioned above show that a doctor should continually improve their clinical and academic level so that they can benefit patients.*”

In the end of the interview, Prof. Wu recommended us an “interesting” book, called “*New Knowledge of Cancer*” (translated from Chinese), for which he wrote a preface “*We need to thank Bo-Luo (Mr. Chib-Chung Li). Because of his words, we can be less ignorant to this world. Because of his book, a great number of cancer patients can avoid a detour in treatment. Because of his tireless work, our world can be better. Thank you, my respectful Mr. Chib-Chung Li.*”

Actually, Prof. Wu felt pitiful about the fast-changing world and said, “*The pace of social development and information turnaround are too fast. We almost have no time to read thick and heavy books, and mainly browse through academic journals.*” Prof. Wu, an elder expert whose age is more than 60 still tirelessly enhances his leechcraft. Though he does not have time for his hobbies, he was happy to write a preface for the book and gave his greatest tribute to the author just because this author wanted to make patients understand cancer more. Isn’t this an illustration of Prof. Wu’s understanding of “supreme goodness”? He wants to make patients understand medicine does not have perfect solution, and doctors and patients should get along with each other with honesty and sincerity.

Furthermore, “innovation” has always been a key word in Prof. Wu’s lung cancer research. He sets an example with his own and tells the majority of clinical doctors that lung cancer research could go much further for the benefit of the patient. This is also a show of determination and pursuing supreme goodness in another aspect.

### **Conversation with Prof. Yilong Wu**

**AME:** *If there were a time machine for you to go back to the coffee shop in Chicago (when CTONG just established), and you were allowed to change one thing, what would it be?*

**Prof. Wu:** Everything happened must have an inevitable reason behind. Many elements like background and time can influence how things go. Nothing in the world is a coincidence. For instance, I have established a biological sample specimen bank for lung cancer patients since 1997. Every tumor specimen was requested to be kept in combination with clinical information. So far, the specimen bank is only used for collecting clinical information and has not yet developed for data analysis and translational medicine.

In 2004, the potential relation between EGFR mutation and targeted drug published in *Science* and *The New England Journal of Medicine* (NEJM), had caught my attention. At

that time, our specimen bank had been set up for 7 years and we could carry on the targeted drug translational research rapidly, which subsequently resulted in the success of CTONG. The accumulative effort made in the past is the reason why we are among the pioneers in this field in China, and even take a place in the front ranks of the world.

Though clinical trial has nowadays been widely known, it is actually still at the early stage in China, which means even if I did not establish CTONG at that time, it is still not too late to establish an organization for lung cancer clinical trials now. However, I am very glad that I made a wise decision then.

If I could change one thing, I would put more emphasis on molecular biology and conduct more proactive clinical research on biomarker. Molecular biology had once been stucked at the stage of basic research, but now we are able to combine it with clinical research, and translate it into clinical practice. If we can accelerate the development of targeted therapy and precision medicine, having genetic information integrated into clinical trials, we believe more patients will be benefited. Furthermore, we should also keep abreast of the trend of modern medicine.

**AME:** *We all notice the imbalance of medical development across China. How can we solidify our peers to benefit more patients?*

**Prof. Wu:** One simple answer—to homogenize the qualification of doctors.

Let me explain with a simple example. When two doctors graduate from the same college, their ability won't differ too much from each other. However, if one chooses to work at a tertiary hospital in a big city and the other chooses to work at a county-level hospital back home, five years later, the difference between them will appear significantly due to the imbalanced medical development in our country. It directly results from the single focus on the homogenization of higher medical education and the neglect of the importance of further education after graduating. This is why the medical reform entails the implementation of standard training of residents.

Besides, I am still supportive to the specialized training of doctors, which is definitely not just a simple question of our "personal development." The professional knowledge is extensive and profound. If we want patients to have the same medical service where they go, we must always improve our skills. It is a systematic project we need for cultivation of a doctor.

Doctors in basic level need to have a comprehensive and systematic training; upper level doctors should contribute to creating a Chinese guideline in lung cancer so as to standard the treatment.

The reason I led the publication of the *CSCO Primary Lung Cancer Consulting Guideline* is also for homogenization of qualification. A good guideline should be established according to the feasibility of therapeutic program and reflect the imbalanced development across regions. As a clinician, we should not just take AJCC or NCCN as the only reference. What we should do is to provide the most cost-effective therapeutic options based on regional feature.

The content of a guideline should be adjusted by region and benefit to people. It provides lung cancer patients across China many different kinds of treatment and it guarantees every clinician's skill and provides them a guiding reference. To my satisfaction, more and more Chinese oncologists are willing to follow CSCO guideline to carry out clinical research and practice.

**AME:** *The WCLC 2017 annual meeting is coming soon. How can Chinese doctors better let their voice heard in an international event, usually led by European / American peers?*

**Prof. Wu:** We need to have our own work in hand. Given the vast territory of China, the international academic organizations cannot exclude the physicians and researchers in China. However, if we really want to establish ourselves in the world for long, we need to prove to them we have the "power". What is "power?" It involves the presentation of results from clinical trials and practices.

Every clinical research must be based on international rules, instead of putting too much emphasis on how to show "Chinese features". As a scholar, we should be open-minded because research should be open for all mankind in the world. Medicine is a science and the language of science is universal. Only by using the universal language, we can better make the voice of China heard in the international academic arena.

**AME:** *You are going to give an oral presentation on "Global perspectives in eliminating the major cause of lung cancer" in the WCLC 2017 annual meeting. What advantage do you think Guangzhou have on the elimination of lung cancer?*

**Prof. Wu:** Though the lung cancer cases in Guangzhou are not the most, this city has four advantages in the field of Lung Cancer research. First, after the economic

reform, it has developed into a practical and steady city. In addition, Guangzhou is the capital city in South China and has 82 colleges and universities, creating a good academic atmosphere. Third, Guangzhou, also known as “Hometown of Overseas Chinese,” is diverse and comprehensive. Thus, it is a good place for development of new theory and academia. The last is that many lung cancer experts in Guangzhou are world-renowned and quite influential.

### Epilogue

- (I) Prof. Wen-Zhao Zhong, working in Guangdong General Hospital, described his mentor Prof. Wu as a hardworking bee, a talented poet, and a warrior with spirit of innovation who makes lung cancer history.
- (II) The writer asked what does Prof. Wu think about their hospital motto “Commitment in profession, integrity in practice and quality in service.” Prof. Wu answered with humor and said, “It seems that this motto can be applied to any hospital.”

The motto is originated from the first volume of “*Beiji Qian Jin Yao Fang*” written by a Master of Medicine, Simiao Sun in Tang Dynasty. That volume is honored as “The Oath of Hippocrates in East.” Many hospitals and universities still take it as their motto for self-restriction, and so does Guangdong General Hospital. We accidentally found

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Prof. Wu has all the characteristics described in the motto, “Commitment to profession, integrity in practice and quality in service”, and this is how the article title comes.

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### Footnote

*Conflicts of Interest:* The authors have no conflicts of interest to declare.

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