

Suksin Lee, the First Ph.D. and Full-Time Professor of Biochemistry in Korea

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Suksin Lee was born on October 6, 1897 at Namchonri, Gageum-myeon, Daedong-county, Pyeongannam-do in North Korea, as son to father Myeong-se Lee and mother surnamed Kang of Gogasan.

He was licensed as a medical doctor (License No. 446) on August 20 in 1921. Right after his graduation from the Gyeong-seong College of Medicine in 1921, he had stayed in Japan for almost 5 months, and then, he went from Japan to Germany for an additional study abroad together with Seong-yong Lee. Gu-chung Jeong had collected a vast amount of data and information, including interviews with many people, in order to write his book *Pioneers of Korean Healthcare*. In this book, he selected Suksin Lee as one of the representative personalities, together with Il-jun Ryu and Il-seon Yun, in the discipline of medicine in the 1920s in Korea. Some of the records on Suksin Lee he left are as follows:

He was born a moderate, self-possessed man who was additionally endowed with a unique personality of being able to take the standpoint of an objective third person. He was a man who seldom communicated with his colleagues and had few friends. He was deliberately a man of few words, and he exhibited agility in taking action. He continued his own study and graduated from the Gyeong-seong College of Medicine with excellent performance, and then, he continued his study on pathology at Tokyo Imperial University from April to August in 1921.

At the time when he was studying in the Gyeong-seong

College of Medicine, the medical school of Tokyo Imperial University was highly regarded. Thereby, when Suksin Lee entered into medical school at Tokyo Imperial University to study pathology, the classmates therein, who respected the personality and academic achievements of professor 'Taek Jang,' regarded the newly established presence of Gyeong-seong College of Medicine insignificant.

Since most professors and instructors who had studied abroad in schools like the University of Berlin in Germany were in positions of the authority over the Tokyo Imperial University at that time. Accordingly, theories presented by German scholars were advocated by these faculty members, and students were taught with textbooks mostly written in German. Upon witnessing the contemporary widespread of German medicine, Suksin Lee decided to study abroad to learn medicine in Germany.¹

Students who studied away from home in the 1920s went abroad with respective ambitions, and they might have been unaware of the difficulties they would encounter while living in foreign countries. In the late 19th century, when Louis Pasteur of France and Robert Koch of Germany were competing in the discipline of microbiology, Germany began to appear as the center of contemporary medical science entering into the 20th century. This was attributable to the advancement in the field of microbiology led by German scientists around 1900. At that time, a prominent lead in the field of microbiology meant the attainment of growing influential governance over comprehensive disciplines in medical science.

In October 1926, Suksin Lee received his Ph.D. degree in medical science with his thesis on *Über Glykolyse* from the University of Berlin under the supervision of professor Lubarsch, his tutor in the school of biology (Fig. 1). Meanwhile, in May of that year, 5 months before he earned his doctoral degree, he started his career as a research assistant in the National Hospital of Berlin (Fig. 2). He kept this position until August 1927 unavoidably as a means to solve his difficult economic situation.²

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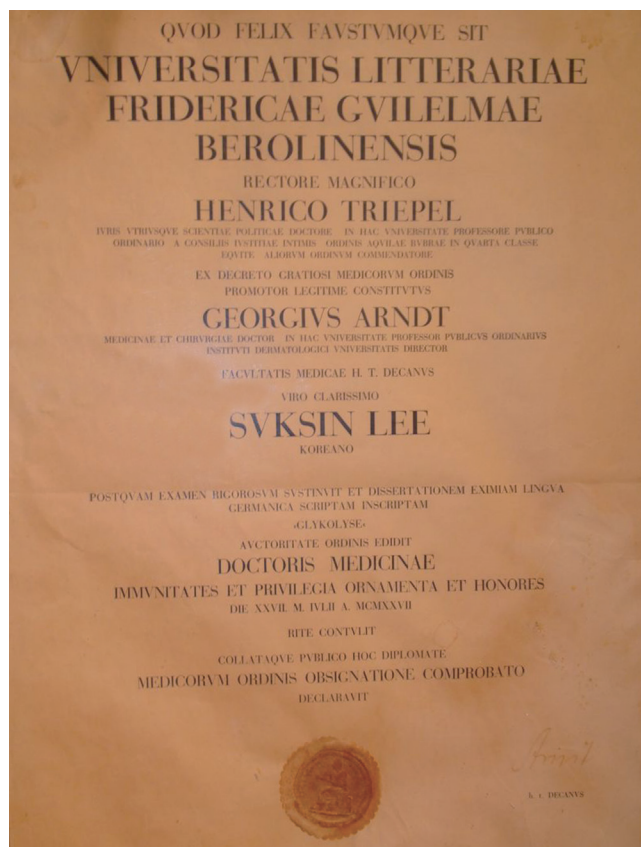


Fig. 1. Philosophy degree of medical science doctor, University of Berlin.

In October 1927, he went home again from his life studying abroad in Germany, and he restarted his life as a research assistant in the medical school of Gyeong-seong Imperial University from February 1928.³ He was appointed as an instructor of physiology in the department of biochemistry of the Severance Medical College in April that year. Further, during the period from April 1929 to February 1935, he took a position as an adjunct instructor of dietetics at Ewha College of Medicine.⁴

Even though Suksin Lee succeeded in attaining his doctoral degree of medical science in Germany, he was not appointed as a regular professor in medical science under the rule of Japanese Imperialism. This was because the contemporary Japanese colonial government of Korea did not allow the appointment of people to regular positions as professors in universities, except for those who attained their doctoral degrees from universities in Japan. Thus, the attainment of Japanese doctoral degrees from universities in Japan was an essential condition to becoming a professor in universities under colonial governance of Japan. Thus, in addition to his contemporary work as an instructor and as a research assistant, Suksin Lee had to study further to attain an additional doctoral degree in medical science from a Japanese university.

On February 29, 1932, Suksin Lee earned his doctoral degree in medical science for his doctoral thesis presented to Kyoto University on nutrition and metabolism among prisoners in Joseon.



Fig. 2. Suksin Lee while studying abroad in Germany.

Upon attainment of his doctoral degree from Kyoto University, Suksin Lee was appointed as a professor at the Severance College of Medicine, and he began his new career as a professor in the Department of Medical Chemistry in 1933. There were both the departments of medical chemistry and the departments of biological chemistry at Severance College of Medicine at that time. The former one was rather closer to the discipline of biochemistry today, whereas the latter one was rather closer to the discipline of chemistry today. The department of biological chemistry was guided by professor 'Jeon You'. Also 'Hak-song Lee', who had served as an assistant researcher for more than 3 years since 1934 in medical chemistry, became an assistant researcher in the department of biological chemistry together with 'Sa-yeong Ahn', and they served as an assistant researcher to professor 'Jeon You'.⁵ Thereafter, the term 'medical chemistry' became obsolete, and with the appointment of 'Suksin Lee' as a professor in the department of biochemistry, the term, 'biochemistry' came to represent disciplines in the current Department of Biochemistry and Molecular Biology, Yonsei University College of Medicine (Fig. 3).

He took charge as Dean of Student Affairs in 1944, and on December 12 of that year, he suddenly passed away due to an acute cerebral hemorrhage. On December 17, Severance College of Medicine hosted his funeral ceremonies, and he was buried in the public cemetery of Miahri, Seoul. His body was exhumed and buried in a cemetery in Byeokjeri, Gyeonggi-do in 1961. Finally, his bones were re-exhumed and transferred to

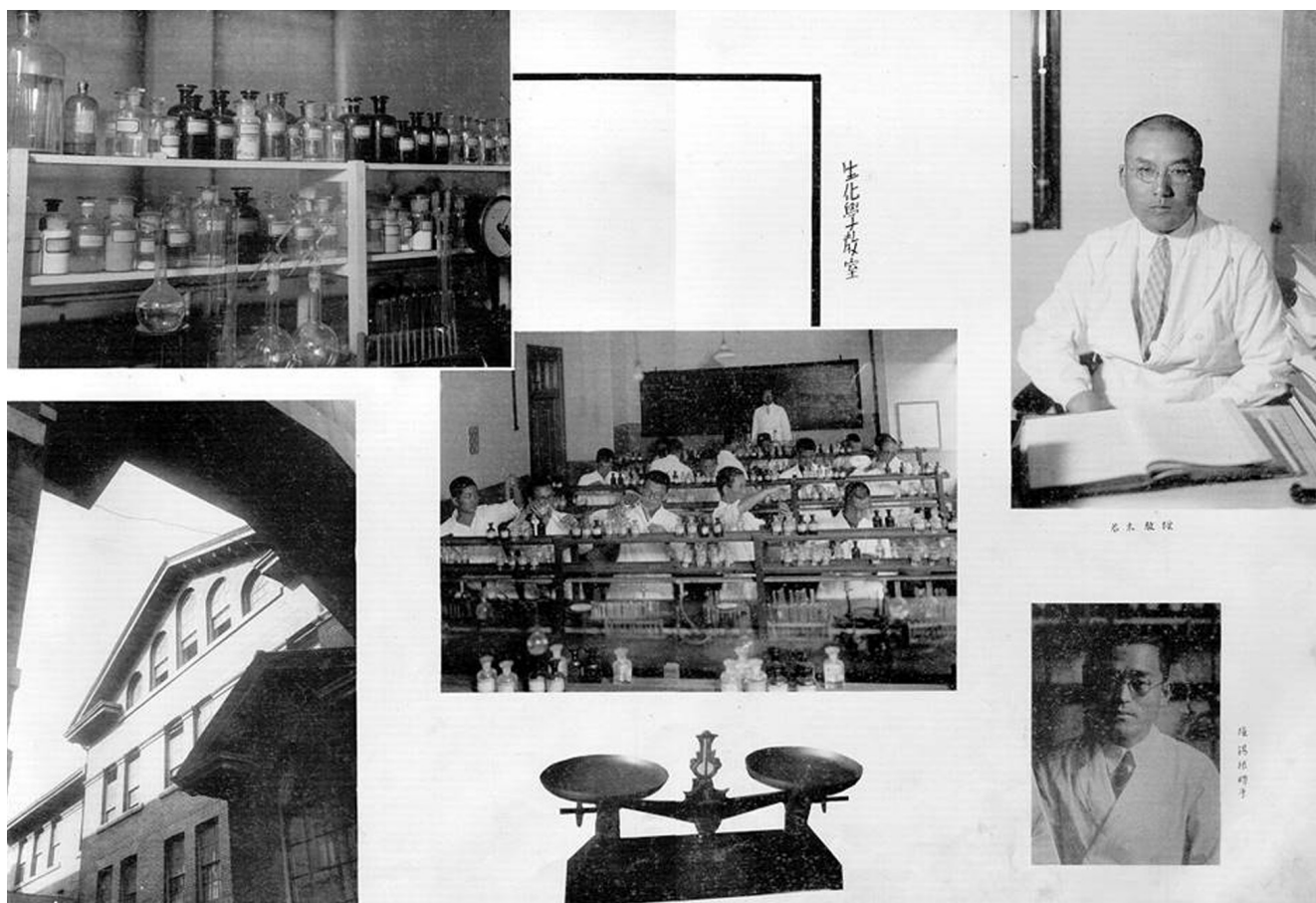


Fig. 3. Picture in the album of the Graduates of Severance College of Medicine in 1941.

a cemetery in Norbeck Memorial Park, MD, USA in February 1998.

In 2014 and 2016, the Department of Biochemistry and Molecular Biology, Yonsei University College of Medicine hosted academic symposiums in commemoration of Suksin Lee. In 2015, the Special Memorial Exhibition for Suksin Lee was held at the Dong-eun Museum of Medical Science with a collection of the articles left by the late Suksin Lee, the first biochemist in Korea (Fig. 4).

The doctoral thesis of Suksin Lee prepared under the supervision of professor Lubarsch at the University of Berlin was a short paper of only 16 pages. In the paper, Suksin Lee reported on the correlation between the decomposition of glucose and an increase in the amount of phosphorus.

However, the poor presentation of references therein prevents us from identifying the methods and experiments employed in his study for the doctoral degree. Nonetheless, we can infer that he might have reached his conclusion in the paper through experiments conducted to identify the degree of decomposition of glucose based on the amount of phosphorus created in the process of glucose decomposition.

In the 1920s, when Suksin Lee studied glycolysis, famous scientists like Otto Fritz Meyerhof (1884–1951; He won the Nobel Prize in Physiology in 1922 for his study on the correlation

between consumption of oxygen and lactate) and Otto Heinrich Warburg [1883–1970; He was also awarded the Nobel Prize in Physiology in 1931. His students included Hans Adolf Krebs (1900–1981) who was awarded the Nobel Prize in physiology in 1953 for clarification of the citric acid cycle, Krebs cycle, and Axel Hugo Theodor Theorell (1903–1982) who also won the Nobel Prize in physiology in 1955 for his contribution on the characteristics and action mechanism of enzymes involved in the oxidation process] etc. had endeavored in studies conducted to identify the process of metabolism.

While the accomplishment of Suksin Lee in his study, which delved into the process of carbohydrate metabolism, may not have been an important contribution thereto, his study would be significant in that he participated in the contemporary major trend of research on carbohydrate metabolism in Germany that started to open the unidentified, hidden mechanisms thereof.

The topics of two papers he had published in Germany were also relevant to metabolism. The studies employed light radiation or photosensitive substances in his experiments to clarify the process of metabolism. He controlled the level of the amount of substances involved in metabolism to identify the effects thereof. These suggest that Suksin Lee consistently participated in studies on metabolism when he was studying in

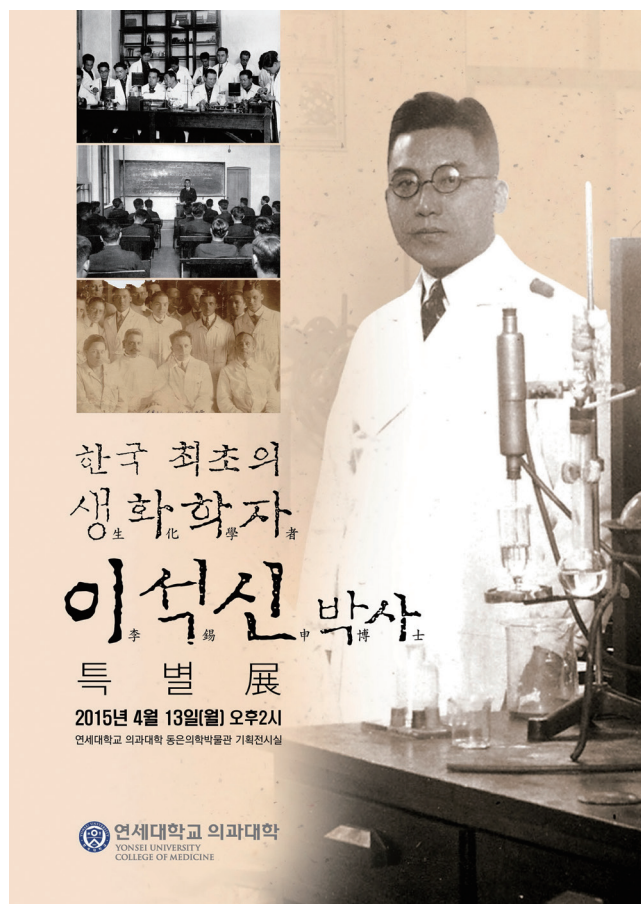


Fig. 4. A poster of the Special Memorial Exhibition of Suksin Lee.

his doctoral course in Germany.

After returning home from Germany, the topics of his study had transferred to the field associated with nutrition. He started to teach students biochemistry in the Severance College of Medicine and in the medical school of Gyeong-seong Imperial University. This might be attributable to professor 'Sato' in the Gyeong-seong Imperial University and professor 'Van Birs Kirk' in the Severance College of Medicine who were commonly interested in nutritional science.

Most papers published in the 1930s by Suksin Lee are associated with topics of nutritive components contained in certain foods. In contrast to other papers, published in more or less than 5 pages, his study that delved into metabolism and nutritional diseases of prisoners in Joseon was a comparatively big work, totaling 205 pages. The study comprised comprehensive research on more than 10 topics, such as the habitual food intake, issues on female prisoners, and digestive disorders among juvenile prisoners in the Kimcheon prison, etc.

At this moment in time, the research accomplishments realized more than 80 to 90 years ago may not have been easy. However, former professor 'Woon Ki Paik', who was a professor in Ajou University and left significant footprints during the late 20th century in the United States as a Korean scientist, appraised the accomplishments of Suksin Lee as follows.⁶

I would like to write the scientific achievements realized by professor Suksin Lee. Lee's papers are mainly involved in the subjects of nutrition that are left in just 10 papers. Young students or scientists today may regard the academic accomplishments of Suksin Lee as insignificant. However, we have to take the account of the times of the 1920s to 1930s, wherein Suksin Lee had deliberated on his research subjects during the colonial period under the rule of Japanese colonial government.

Above all, the Japanese never allowed Korean scientists to have authoritative positions or opportunities thereof. During the period from the 1920s to 1930s, even Germany, which led contemporary scientific research, was not furnished with good conditions pertinent or required to conduct proper scientific research. For example, I still remember when professor 'Philip P. Cohen', who was my tutor when I was a 'Post-Doctoral Fellow' in biochemistry at the University of Wisconsin in 1958, told me at that time: He was the scientist who found the 'Carbamoyl Phosphate Sybthetase I' in the 'Urea Cycle', and he had studied relevant topics in Germany in the 1930s under the guidance of professor Hans Krebs (the professor who found both the Heuseleit Urea Cycle and TCA Cycle). While there, he told me that he had prepared a big jar to collect the urine of students that was forwarded to the treatment of concentration and purification installed to attain the compounds therefrom, such as Ornithine, Citrulline, and Arginine etc. that are involved in the 'Urea Cycle'.

To complete a paper, he would have had to spend a few years at that time. Thus, the 10 papers that were completed in just 10 years represent the significance of his great efforts and academic accomplishment resulting therefrom.

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