



Leaders for Integrated Medical System

for Fruitful Healthy-Longevity Society

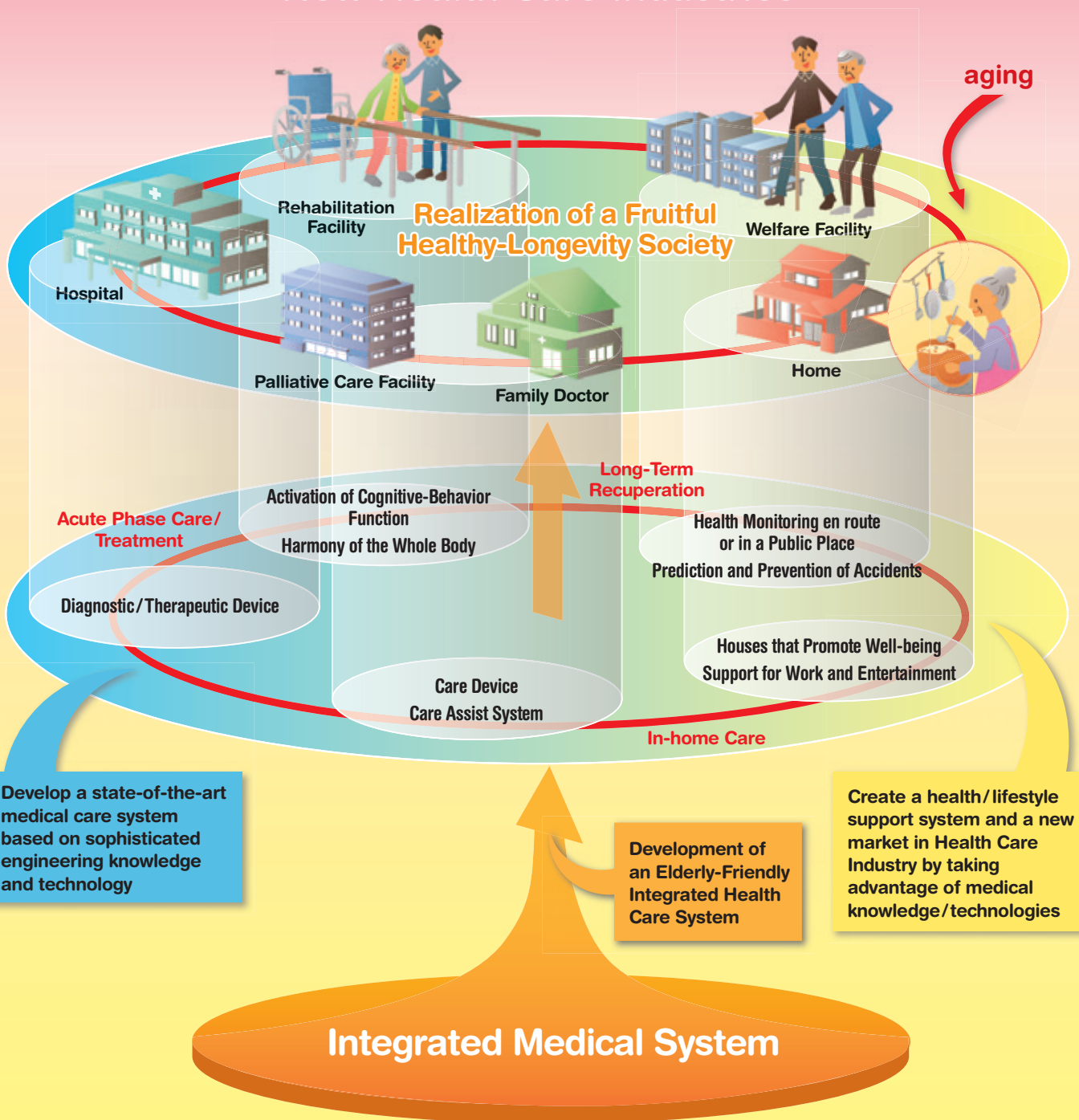


京都大学
KYOTO UNIVERSITY

from Medical Innovation to Medical Revolution

“Medical Revolution” is a movement to create a new concept from the perspective of health care and well-being, and to improve compatibility as a whole between individual-life, community and worldwide issues.

Integrated Medical System and New Health Care Industries

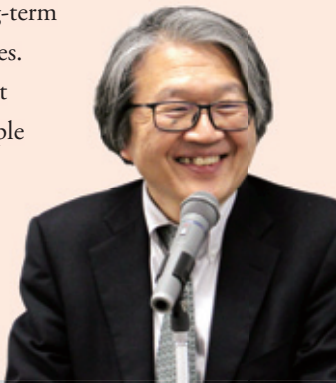


Message from the Program Coordinator

The importance of coordinating medical sciences with engineering has long been emphasized, and this program is based on the concept of "studying engineering and pharmacology in a rich medical research environment". It includes basic and applied research in engineering and pharmacology as well as in basic medicine, clinical medicine and nursing care so as to train leaders who are motivated to exploit new areas of research across the medicine / engineering / pharmacology boundary.

In a "super-aging" society such as Japan, medical / nursing care for the elderly is an absolute necessity for attaining healthy-longevity. Another major purpose of this program is to support human resources development, training individuals so that they can actively transmit various ideas to support the aging society; ideas not just for medical care at hospitals, but also to support family doctors and to manage long-term recuperation facilities. I earnestly hope that talented young people will join this field.

Hidenao Fukuyama,
Professor,
Graduate School of Medicine

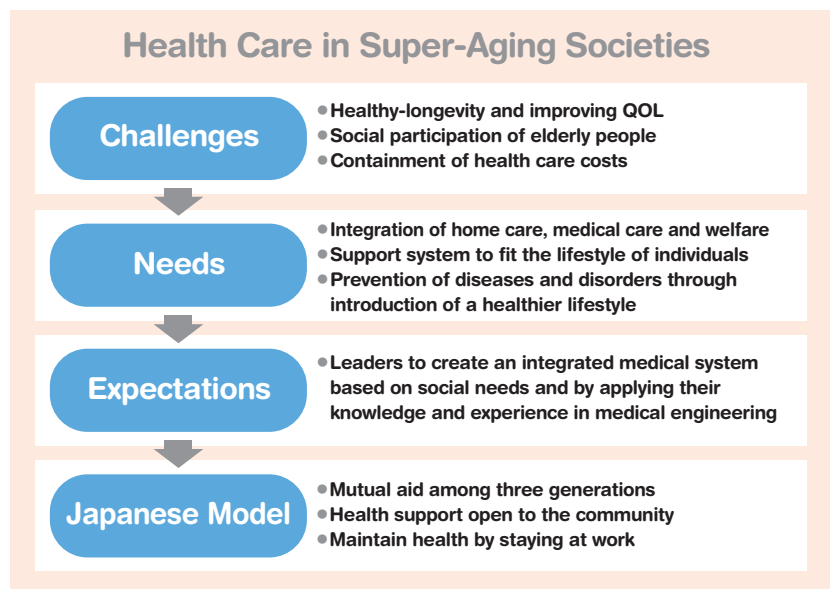


Implementation of Integrated Medical System

Measures to keep up with the shift in diseases and disorders due to the changes in population structure as well as with the changes in social structure are in urgent need worldwide. Japan as one of the leading super-aging societies in the world must resolve pressing issues such as to extend healthy life expectancies while improving the quality of life (QOL), to create an elderly-friendly environment and to contain health care costs. To overcome these challenges and build a healthy-longevity society, it is necessary to implement a totally innovative "integrated medical system".

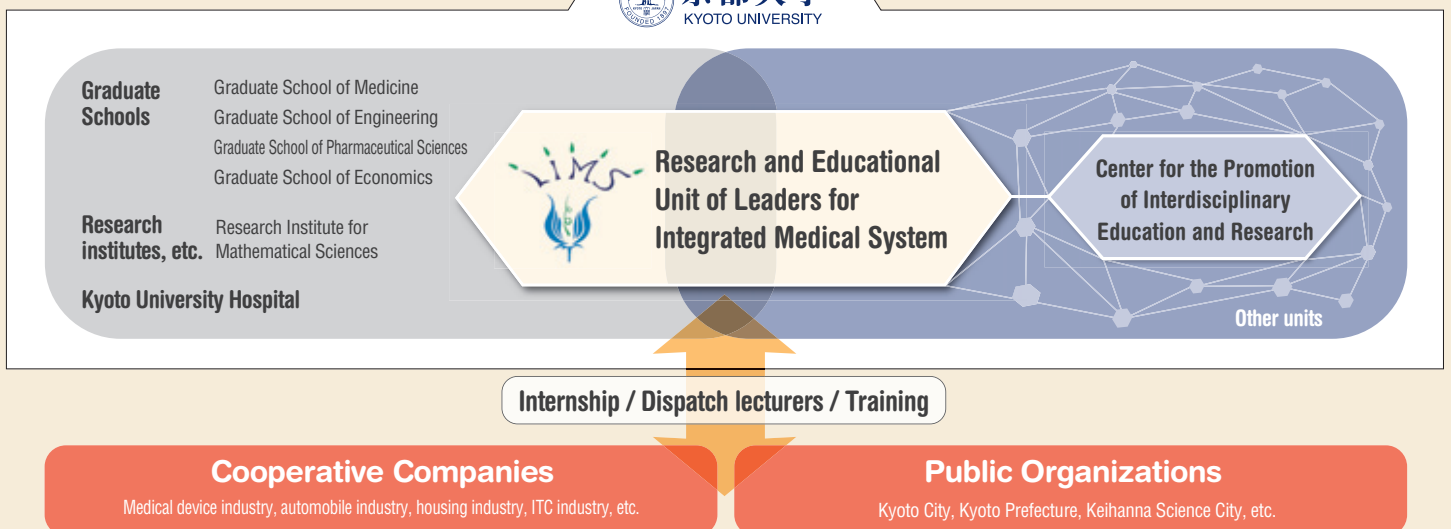
First of all, there is a need to embody specific systems to integrate home care/medical care/welfare, to create support systems to fit the lifestyle of individuals, and to prevent diseases and disorders through introduction of a healthier lifestyle. Based on sophisticated progress of medical science and engineering, the importance of 'medical innovation' has been proposed. This includes the upgrading of hospital medical care and in-home care, creation of new health care industries and employment, and revitalization of local communities.

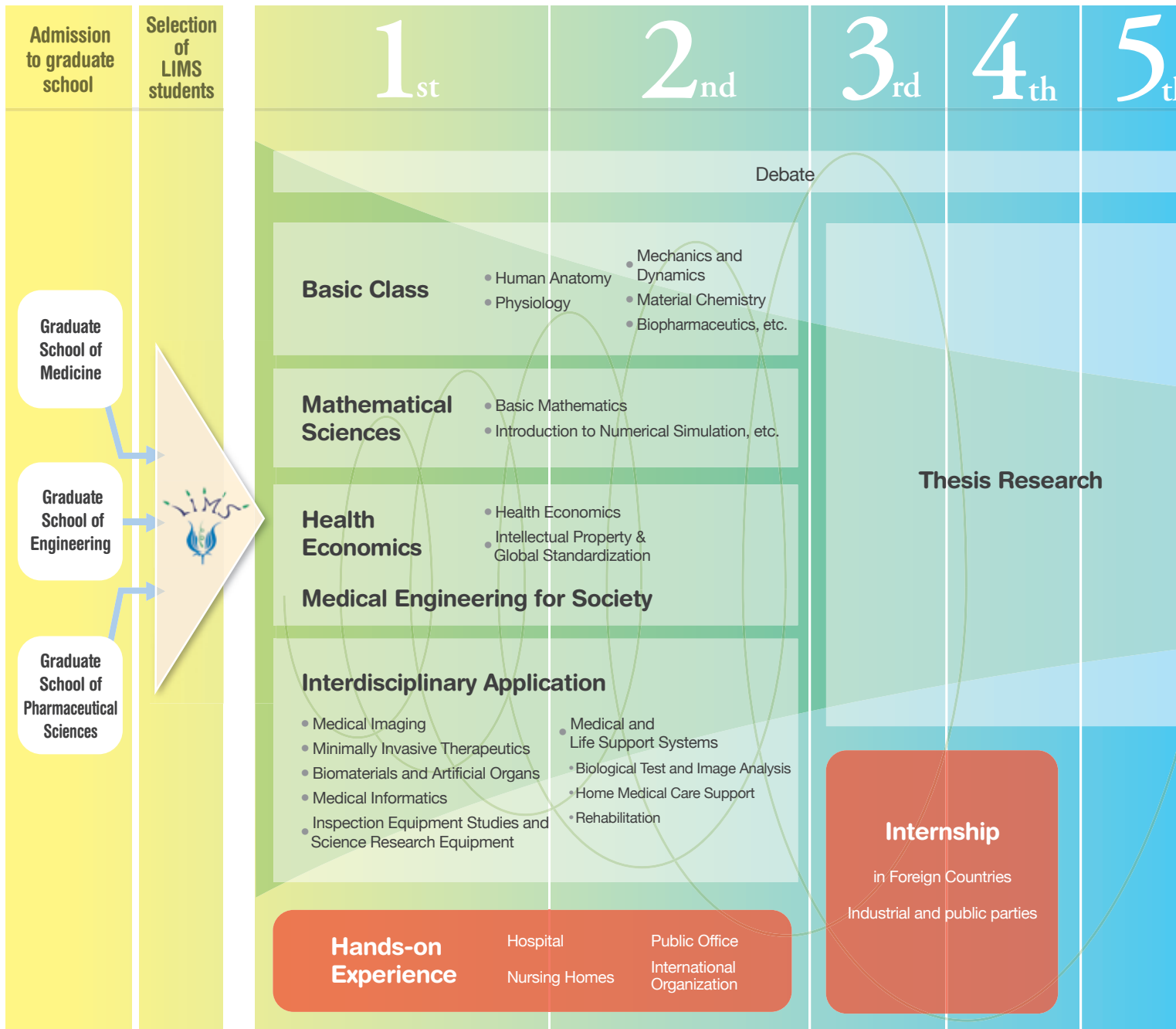
Further, it is necessary to finely coordinate all these factors to implement an "integrated medical system", which can be customized according to the changes in the lives of individuals. There is a need for talented leaders who can invent new concepts, be a leading figure for people from various fields and promote integrated medical system, in order to create a Japanese model of a healthy-longevity society and for the model to contribute globally.



Training Leaders for Integrated Medical System

We will train graduate students in the field of medico-engineering who truly understand medical science and health care, and foster leaders who can apply medical knowledge to other fields.





Training Based on Medical Science, Engineering and Pharmacology

Acquire highly specialized knowledge and skills of medico-engineering cultivated by Kyoto University and acquire the ability to perform R & D based on social needs.

Know the Human Body

The program provides an efficient curriculum so that LIMS students from the Graduate Schools of Science, Engineering, Pharmaceutical Sciences, Nursing, Rehabilitation, Medical Technology, etc will learn the basics of medicine and knowledge of the living body comparable to graduates from medical schools.

- Human Anatomy: Practice the essence of human anatomy in a similar environment as medical students.
- Physiology: Acquire a sense to focus on functional coordination of the diversity of tissues, organs and the whole body.

Understanding the Needs

Through training at Kyoto University Hospital, related medical institutes, nursing homes, companies, public and international organizations, the students will understand the social needs especially in medical and health care practice.

Know the Norm

Master the social norm related to health care such as healthcare policy, healthcare economics, healthcare ethics, intellectual property and global standardization.

Acquisition of Doctorate ※1

Doctor of ※2

Medicine

Medical Science

Human Health Science

Engineering

Pharmaceutical Sciences



Certificate of the “Leading Program”
(additional remark)

※1 Category of degree that can be acquired depends on the student's graduate school or major.

※2 Complete in 4 years for a 4-year doctor course.

Career paths/Future goals

Students are expected to play leading roles in divers scenes including but not limited to the following:

- Can integrate wide knowledge of medical science and health care and sophisticated engineering technology to invent an elderly-friendly support system that may lead to medical innovation.
- Can understand the needs specific to the elderly and propose new ideas to improve autonomous life and motivation for social participation.
- Can deeply understand the health economics in the aging society and behave proactively.
- Can create a health care industry aiming to meet global standards.

It is expected that students will create and cultivate professions or special fields not seen before.

- Can create new services and business models in the industrial world to guide preparation of a support system for the elderly by carefully considering every aspect of their lives.
- In universities and research institutes, can lay the groundwork on which unconventional wisdom buried in medicine, science, or engineering may be developed to be put into use for everyday life.
- Start a venture business.
- In governmental and public organizations, contribute to policy making for a vibrant society, and swift social implementation of the fruits from R&D through industry-academia cooperation.
- In the global community, propagate advanced medical and health care system, and expand the healthy-longevity society by effectively using the high-quality Japanese model.

Leader for Integrated Medical System

Realization of a Fruitful Healthy-Longevity Society



Training through industry - academia - government cooperation based on social needs

Aim to foster a sense to create techniques based on social needs rather than seeking sophistication of techniques alone, or, if necessary, to search for novel technologies and flexibly integrate them with existing techniques.

Cultivate the ability to put in perspective, from the early stages, future technological maturation such as during operational experiments or after social implementation, without being satisfied with the level of technology attained in laboratories.

Foster their abilities in situational assessments and in communication i) to contemplate social cost, evidence in health economics and to develop and conduct operational experiments, ii) to propose methods of evaluation, regulation or ethical consideration of new technologies and systems, ii) to prepare supportive evidence for political decision making.



Participation in extramural workshop



Field trip to geriatric health services facility

Scenes of Guidance to LIMS Students

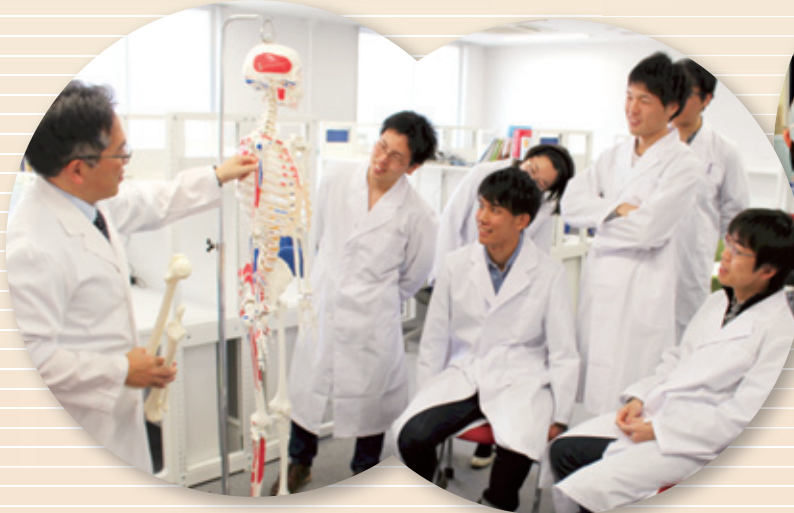
Each student of the LIMS Program is supported by four senior persons: one Professor of their own graduate school, one Professor and two Mentors of the LIMS Program.



Debate



Physiology Practice



Human Anatomy Practice



Interdisciplinary Application Practice

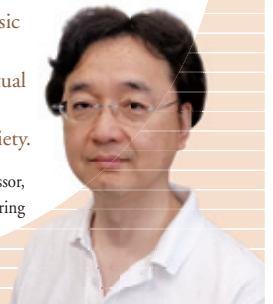


Medical and Life Support Systems Practice

Expectations for the program

During those training days as a junior scientist, I believe that I managed to become a qualified researcher of basic medical science, or medico-engineering after I entered the field from outside. But looking back, I also sometimes think that I could have performed better if I had full training and knowledge of anatomy and physiology at that time. While such knowledge may have had little effect on the results of my research, it could at least have helped me to be more tactical and time-efficient. Collaborations between researchers from different fields such as engineering, medicine and pharmacology are sometimes hindered by communication difficulties between them. I am confident that, mentoring the students of graduate school of medical science / pharmacology the knowledge of engineering, and the students of graduate school of engineering the basic knowledge of medical science and pharmacology in this LIMS program will surely improve their mutual communications and accelerate nurturing of individuals to lead the future longevity society.

Yasuo Mori, Professor,
Graduate School of Engineering



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