Introduction to eIMBL
(electronic International Molecular Biology Laboratory)

and the application of AccessGrid
Established in 1997 to promote development of molecular biology and biotechnology throughout the Asia-Pacific region

Consists of 290 leading scientists from 16 participating economies* and 13 Supporting Institutes

* Australia, China, Chinese Taipei, Hong Kong, India, Indonesia, Israel, Japan, Korea, Malaysia, New Zealand, Pakistan, the Philippines, Singapore, Thailand, Vietnam

Possesses a world-class International Advisory Board, and works in close consultation with EMBO, ICGEB

Recognized as a priority APEC (Asia Pacific Economic Cooperation) initiative since 1998

Funds come from private and government sources and the financial accounts are managed by a non-profit organization in SF
What A-IMBN Does

- Sponsors annual conferences, training courses, fellowship programs, practical workshops throughout the region


- Promotes R&D innovation and dissemination of knowledge in molecular biology and directly related areas of science and technology

- Planning, development and coordination of multi-center, multi-investigator collaborative research projects

- Fully committed to supporting eIMBL project in manpower and finance
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<tr>
<th>Country</th>
<th>Name</th>
<th>Institution and Location</th>
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<tr>
<td>China</td>
<td>Zu-Xun Gong</td>
<td>Shanghai Inst. Biochem., Shanghai</td>
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<td>Chinese Taipei</td>
<td>Jung-Yaw Lin</td>
<td>National Taiwan Univ., Taipei</td>
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<td>Hong Kong</td>
<td>Nancy Ip</td>
<td>Hong Kong Univ. Science &amp; Tech., HK</td>
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<td>India</td>
<td>Obaid Siddiqi</td>
<td>Tata Inst. Fundamental Res., Bombay</td>
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<td>Indonesia</td>
<td>Sangkot Marzuki</td>
<td>Eijkman Inst. Mol. Biol., Jakarta</td>
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<td>Israel</td>
<td>Yoram Groner</td>
<td>Weizmann Inst. Sci., Rehovot</td>
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<td>Japan</td>
<td>Yoshikazu Nakamura</td>
<td>Inst. Med. Sci., Univ. of Tokyo, Tokyo</td>
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<td>Korea</td>
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<td>Malaysia</td>
<td>Chong-Lek Koh</td>
<td>Univ. of Malaya, Kuala Lumpur</td>
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<td>New Zealand</td>
<td>Warren Tate</td>
<td>Univ. Otago, Dunedin</td>
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<td>Philippines</td>
<td>Filipinas Natividad</td>
<td>St. Luke’s Med. Center, Quezon City</td>
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<td>Thailand</td>
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<td>Mahidol Univ., Bangkok</td>
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<td>Vietnam</td>
<td>Hoa Xo</td>
<td>Biotech Center, Ho Chi Minh City</td>
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Definition of eIMBL

- A state-of-the-art web-based molecular biological laboratory network
- Linking leading scientists, institutions, entrepreneurs, investors, and policy makers
- To capitalize on the knowledge and expertise base of participating laboratories
- Across the Asia-Pacific region
A unique International Virtual Laboratory Network

- International in status, non-political in management, staffing and operation

- Shall be organized exclusively for scientific, developmental and educational purposes

- Shall operate as a non-profit organization under the aegis of the Asia-Pacific International Molecular Biology Network (A-IMBN)
Functions of eIMBL:

- Research Activity
  - Head of Unit Lab
  - Individual labs

- Scientific Networking
  - Database
  - Symposium and Workshop
  - Training Courses
  - ePublication of international journal
Network individual labs of related research field and coordinate their research activities

Provide scientific information/database through its official homepage, www.eimbl.org

Organize symposium, workshop and training courses annually for participating laboratories

**Two Unit labs: Systems Biology and DNA Replication were established during the first year of operation**
Goals and Benefits of Unit Labs

☐ Share research equipment, materials, know-how, and laboratory personnel

☐ Conduct real-time peer discussion and analysis of experimental results among laboratories participating the “Unit Lab”

☐ Increase chances and opportunities of international research collaboration

Each eIMBL lab will benefit from the cost-effective, efficient nature of this new research environment to enhance scientific achievements
Systems biology is an effort seeking system-level understanding of biological phenomena of varying orders such as molecules, cells, organs, individuals, or even echo-systems.

**Participating Laboratories**

- Head of the eIMBL-Systems Biology Laboratory  
  Dr. Do Han Kim (Gwangju Institute of Science and Technology, Korea)
- Core members  
  Dr. Kwang-Hyun Cho (Seoul National University, Korea)  
  Dr. Sang Yup Lee (Korea Advanced Institute of Science and Technology, Korea)  
  Dr. Young Sook Yoo (Korea Institute of Science and Technology, Korea)  
  Dr. Shui-Tein Chen (Academia Sinica, Taiwan)  
  Dr. Eytan Domany (Weizmann Institute of Science, Israel)  
  Dr. Upinder S. Bhalla (The National Centre for Biological Sciences, India)  
  Dr. Masaru Tomita (Keio University, Japan)  
  Dr. Peter J. Hunter (The University of Auckland, New Zealand)  
  Dr. Gang Pei (Shanghai Institute for Biological Sciences, China)  
  Dr. Gianhua Liu (Genome Institute of Singapore, Singapore)  
  Dr. Siegfried Neumann (Merck, Darmstadt, Germany)
DNA replication is initiated at a region on a chromosome called the origin of replication. The question how replication origins are organized to replicate the complex genome of eukaryotes is of general interest.

**Participating Laboratories**

- **Head of the eIMBL-DNA Replication Laboratory**
  Dr. Hisao Masai (Tokyo Metropolitan Inst. of Medical Science, Japan)

- **Core member**
  - Dr. Arturo Falaschi (ICGEB, Italy)
  - Dr. Tsutomu Katayama (Kyushu Univ., Japan)
  - Dr. Akira Shinohara (Osaka Univ., Japan)
  - Dr. Chun Liang (Hong Kong University of Science and Technology, Hong Kong)
  - Dr. Yoshi Watanabe (Tokyo Univ., Japan)
  - Dr. Zuxun Gong (Inst. of Molecular and Cell Biology, China)
  - Dr. Deog Su Hwang (Seoul National Univ., Korea)
  - Dr. Yeonsoo Seo (KAIST, Korea)
  - Dr. Byrappa Venkatesh (Inst. of Molecular and Cell Biology, Singapore)
  - Dr. Jun Kyu Lee (Seoul National Univ., Korea)
  - Dr. Akio Sugino (Osaka Univ., Japan)
Research interface of eIMBL labs: www.eimbl.org
Access Grid Equipment - 1
(Room type)

- Display machine
- Audio machine
- Video machine
- other equipments
  - Projector x 3, camera x 4, Echo canceller x 1, video control equipment x 1
- Network: KREONET
Access Grid Equipment - 1 (portable type)
Structure of Video conference

Participants using Advanced Network
- Australia
- Gwangju, Korea (GIST Node)
- Seoul, Korea (eIMBL Node 1)

Network enabled IP multicast

KISTI’s Venue Server

Network enabled IP Unicast

Participants Using normal Network
- Taipei (Desktop Node)
- Hong Kong (Desktop Node)
- Japan (Desktop Node)

KISTI’s Bridge Server

Backup solution for sharing powerpoint file

Backup solution for voice

Backup solution for voice

Backup solution for voice
AG Operation – 1
opening ceremony & symposium

- November 17, 2005
- Main Auditorium, International Vaccine Institute
- Program
  - Symposium One: Vision of eIMBL
  - Opening Ceremony
  - Symposium Two: eIMBL Outlook
- Participants
  - Japan, Hongkong, Australia, Taiwan, Korea (GIST)
- Video Conference using AG (Room type)
- Broadcasting Real-Time Video conference
AG Operation – 1
opening ceremony & symposium
AG Operation – 2
pandemic Influenza Preparedness and Response

- Friday 20 January, 2006
- 3rd Floor Conference Hall, International Vaccine Institute
- Participants
  - USA, Canada, Korea, Vietnam, Thailand, Singapore, China, Australia, Taipei, Philippines
- Video Conference using AG (Room type)
- Venue Server
  - https://
AG Operation – 2
opening ceremony & symposium
AG Operation – 3
63rd KSBMB Annual Meeting in 2006
May 25~26, 2006
Coex
AG Operation – 4
2006 Asia Pacific Summer School on Computational Biology

- July 6~10th, 2006
- APCTP headquarter, POSTECH, Pohang, Korea
- Participants
  - Korea(seoul), Japan, Australia, Korea(KISTI, Daejeon), Korea(GIST, Gwangju)
- Virtual Lectures using AG (Portable type)
- Venue Server
  - https://vv2.accessgrid.or.kr:8000/
AG Operation – 4
2006 Asia Pacific Summer School on Computational Biology
Technology Support

- 2006. 1. 27. “Workshop on Pan-Asian SNP Project” organized by KNIH
  Japan, Singapore, Taiwan, India, Korea

- 2006. 2. 16.~22. Live broadcast of the lecture series “Basic Principles and
  Application of Protein X-ray Crystallography”; by Dr. Robert Huber

- 2006. 3. 20. “International Conference on Strategic Alliance for Life
  Science in Asia Pacific Rim” Live Broadcast

- 2006. 10. 22~27 9th World Congress of NUCLEAR MEDICINE AND BIOLOGY

Supporting Institute:
  Seoul National University Hospital,
  National Genome Research Institute KNIH,
  Ministry of Health & welfare, etc.
Conclusion
(Dept. Problems to be solved through AG conference)

- Audio/Video communication problem due to unicast/low bandwidth
- Audience distraction by the delay in shared ppt presentation
- Presenter cannot handle ppt files by themselves
- Neither laser-pointer nor presenter-audience interaction