Network of International Exchange of Microbes under ACM (Asian Consortium for the Conservation and sustainable Use of Microbial Resources)

A transfer and exchange system of microbes for microbial resource centers for non-commercial purposes according to the CBD and the Nagoya Protocol

by MMT-TF members in ACM

Katsuhiko Ando¹*, Tae Eun Jin², Rie Funabiki¹, Linhuan Wu³, Honglada Thoetkiattikul⁴, Jung-Sook Lee², Bubpha Techapattaraporn⁵ and Tanit Changthavorn⁶
Concept of NIEMA System

(1) Biological Resources covered by the NIEMA is limited to MICROBIAL STRAINS.

(2) Transfer and Exchange of strains can be done only among NIEMA member Microbial Resource Centers (MRCs).

(3) Distribution of strains to 3rd parties can be done only for the purpose of non-commercial research use.

(4) Each NIEMA member MRC shall report a transfer record of NIEMA strain to NIEMA-CH and make available to the public.

(5) NIEMA-CH makes the list of NIEMA MRC and NIEMA strains available to the public.
NIEMA Membership (Criteria of NIEMA member)

MRCs that belong to the ACM and satisfy all of the following conditions may apply for the NIEMA membership.
1. MRC that is registered in the World Data Centre of Microorganisms (WDCM).
2. The MRC that possesses acquisition and preservation function of microbes.
3. The MRC that possesses distribution function of microbes to third parties.

A MRC that wishes to become a member of the NIEMA, shall register online and submit the signed registration form (Annex 1: Online Registration Form for NIEMA Membership) to the NIEMA-Clearing House (NIEMA-CH) and the NIEMA secretariat. The granting of the membership will be deliberated in an annual meeting of the ACM. After approval, the MRC receives a certificate of NIEMA (Annex 2: Certificate of NIEMA Membership) from the NIEMA secretariat and is registered in a database of NIEMA Member MRCs in the NIEMA-CH.

If any NIEMA MRC violates the NIEMA Code of Conduct, the NIEMA secretariat shall have the right to exclude the MRC from the NIEMA MRC by giving a written notice to the MRC of such breach and intention of exclusion. Unless the MRC cures such breach within thirty (30) days after the receipt of the written notice of breach and intention of exclusion, the MRC shall be automatically excluded from the NIEMA MRCs. Also, the NIEMA MRC shall inform the NIEMA secretariat without undue delay, when the MRC cannot carry out the NIEMA Code of Conduct anymore. Upon receipt of that information, the NIEMA shall remove the MRC concerned from the member list and the database of NIEMA Member MRCs in the NIEMA-CH.
NIEMA Code of Conduct

for microbial resource centres governing
the acquisition, distribution and transfer of microbial strains

Under this NIEMA Code of Conduct, the NIEMA (Network of International Exchange of Microbes under ACM) Member MRC (Microbial Resource Centre) (NIEMA MRC) commits itself with regard to acquiring, distributing, and transferring microbial strains to act on the basis of the principles of the “Convention on Biological Diversity” (CBD) and the “Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits arising from their Utilization to the CBD” (NP). In addition, the MRC will comply with the relevant national and international laws and regulations.
The biological resources subjected to the NIEMA will be restricted to microbial strains including bacteria, archaea, fungi and algae. The microbial strains under the NIEMA which are to be distributed by NIEMA MRCs to the third parties shall be used for non-commercial research purposes only.

A. Criteria of NIEMA Strains

Not all the microbial strain of a MRC that is NIEMA MRC is automatically to be entered into NIEMA. Microbial strain entering the NIEMA means only microbe that was acquired without restrictions in respect of its use or its distribution to third parties may enter the NIEMA and be exchanged within MRC.

C. Numbering of the NIEMA strain

The Primary-MRC has to assign a NIEMA number to the strain. The NIEMA number consists of a headline of the NIEMA (NIEM), an acronym of the country of origin (ISO 3166 Alpha-2 code, a two-letter code), an acronym of a Primary-MRC (Code used in the World Data Centre for Microorganism, World Federation for Culture Collection), and an identification number of the strain used in the Primary-MRC.

Ex. NIEM JP NBRC 105312
B. Registration of NIEMA strains
The MRC that initially registers microbial strain to NIEMA will be referred to as a Primary-MRC of the NIEMA strain. There is two type of registration of NIEMA strain. One is an internal registration of NIEMA strain and the other is an external registration of NIEMA strain. In the internal registration, the microbial strain to be registered to NIEMA should be originated from the same country with the Primary-MRC. In the external registration, the microbial strain to be registered to NIEMA should be originated from a country different from that of the Primary-MRC.

B-1 Internal Registration of NIEMA strains
The Primary-MRC that wishes to register preserved strain into NIEMA system shall register the strain using an Internal Registration Form of NIEMA Strain (Annex 3) with signature and submit it online to the NIEMA-CH. The strain will be generated automatically listed in the database of NIEMA Strain Catalogue in the NIEMA-CH and made available to the public.

Diagram:
- NIEMA MRC
- Primary-MRC
- NIEMA Clearing House
- Database of NIEMA Strain Catalogue
- NIEMA Online mail
B-2 External Registration of NIEMA strains
1. If an organisation such as institute, university, etc. that is located in a country where no functional MRC exists, would like to register their strain into NIEMA system, it shall send the strain to a NIEMA MRC with the related data of the strain and an authorized permission which states that the deposited strain will be NIEMA strains and distribution to third parties under the NIEMA system, confirming the laws and regulations of the country of origin of the strain.
2. A NIEMA MRC shall become the Primary-MRC of the deposited strain and shall register it as NIEMA strain according to the procedure of the Internal Registration of NIEMA strains.
3. After the registration of the strain, the Primary-MRC shall inform the institute or university about registered NIEMA strain in Confirmation of NIEMA Strain Registration (Annex 4) in which newly granted NIEMA strain number is stated.
2. Transfer of NIEMA strains from Primary-MRC to NIEMA MRCs

1. When a NIEMA strain is transferred from Primary-MRC to NIEMA MRC upon request from the MRC using an Online Request Form of NIEMA Strain for NIEMA MRC (Annex 5), such strain shall be transferred to the MRC with a Transfer Form from Primary-MRC to NIEMA MRC (Annex 6). Then the recipient MRC shall send a Receipt from MRC to Primary-MRC (Annex 7) online to the Primary-MRC and the NIEMA-CH within 3 weeks after the receipt. The transfer record shall be reflected in the database of NIEMA Strain transfer from Primary MRC to NIEMA MRC in the NIEMA-CH and made available to the public.

2. The NIEMA strains have to be transferred ONLY from its Primary-MRC to other NIEMA MRCs and the Primary-MRC shall not transfer NIEMA strains to non-NIEMA Member MRC. Under NIEMA system, the NIEMA MRC shall not transfer NIEMA strains to other NIEMA MRC.
3. Distribution of NIEMA strains from NIEMA MRC to third parties

1. Material Transfer Agreement (MTA) makes an integral part of the Online Request Form from User (Annex 8). Users who agree with all the terms and conditions in the provisions of the MTA may make a request by online for the distribution of a NIEMA strain directly to a NIEMA MRC by submitting the completed Request Form.

2. The MRC shall confirm the status of the requested NIEMA strain and send the strain to the user with a Distribution Form from NIEMA MRC to User (Annex 9).

3. The user shall send an Online Receipt from User (Annex 10) to the provider NIEMA MRC through online within 3 weeks after the receipt of NIEMA strain. Then, the provider MRC shall send a copy of such receipt to the Primary-MRC of the strain once a year through online.

4. In the event of any emerging commercialization prospect, including the application for patents or other intellectual property rights arising from the use of the distributed NIEMA strain, the users shall obtain Prior Informed Consent (PIC) and Mutually Agreed Terms (MAT) for a new scope of utilization of the strain from the country of origin of the microbial strain by themselves. This event is out of the scope of the NIEMA system.
1. For the purposes of conserving biological diversity, supporting scientific study, education and benefit-sharing, the NIEMA MRC will make best efforts to ensure the preservation and distribution of the microbial strains entrusted to them and to securely keep the relevant information, especially the records under which the microbial strains were acquired.

2. The NIEMA-CH is hereby established in the ACM as part of its clearing house mechanism to share information related to the transfer of microbial strains between the Primary-MRC and NIEMA MRC. There are four main databases; a database of NIEMA Member MRCs, a database of NIEMA Strain Catalogue; a database of transferred NIEMA Strains and a database of number of distribution cases to 3rd parties in the NIEMA-CH. Without prejudice to the protection of confidential information, each of the NIEMA MRCs shall make available to the NIEMA-CH any information required by this Code of Conduct.

3. The NIEMA-CH shall provide by annual report documented those information such as 1. Member list of NIEMA MRC, 2. New NIEMA strains deposited, and 3. Number of NIEMA strains transferred from Primary-MRC to NIEMA MRC, to the NIEMA secretariat of the MMT-TF in ACM and also to the ACM annual meeting, and made available to the public.
Action 1: Registration of NIEMA Strain
Action 2: Transfer of NIEMA Strain
Action 3: Distribution of NIEMA Strain
Action 4: NIEMA Clearing House

Country of Origin
MRC-A
MRC-B
MRC-C
MRC-D
Primary-MRC
NIEMA MRC Members

User
User
User

Commercialization of the Microbes
Out of NIEMA

Information
NIEMA Clearing House in ACM
Database of NIEMA Member MRCs
Database of NIEMA Strains Catalogue
Database of transfer of NIEMA Strains

ACM Annual Meeting
NIEMA Secretariat

Internationally recognized Certificate
Microbes
Acknowledgements

Dr. Juncai Ma of Institute of Microbiology, Chinese Academy of Sciences (IMCAS) in China,

Dr. Seizo Sumida of Japan Bioindustry Association in Japan and of Biological Resource Center of National Institute of Technology and Evaluation (NBRC) in Japan

Dr. Jeong Su Oh of Korea Research Institute of Bioscience and Biotechnology (KRRIB) in Korea,

Dr. Yuguang Zhou of IMCAS in China,

Ms. Suwanee Chunhametha of National Center for Genetic Engineering and Biotechnology, National Science and Technology Development Agency (BIOTEC) in Thailand

all participants in the MMT-TF for their considerable efforts in developing the best practices and,

World Data Centre for Microorganisms (WDCM) of World Federation of Culture Collection (WFCC), BIOTEC in Thailand, KRRIB in Korea, and NBRC in Japan for financial and/or logistical supports.
Thank you