

Eastern Mediterranean Health Genomics and Biotechnology Network (EMGEN) after Four Years



Eastern Mediterranean Health Genomics and Biotechnology Network (EMGEN)

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1- History and Background:

Eastern Mediterranean Health Genomics and Biotechnology Network (EMGEN) was created in 2004 with collaboration of representatives of selected centres of excellence in (health related) molecular biology, biotechnology & genomics in the Eastern Mediterranean region by recommendation of WHO/EMRO efforts.



1-1- Summary of Early Steps:

- The settlement of the network secretariat in the Pasteur Institute of Iran
- Providing the infrastructure needed for the activities
- Recruitment of an employee for the sake of investigation, commands of secretariat
- Supplying and sketching website subjects, training for upload
- Devising the newsletters and preparing the material for them
- Hold various meetings at national and international level to coordinate the matters relating to the secretariat and its activities
- Consultation and appointment for Ad Hoc and Steering Committee Meeting and all the preparation for this meeting (visa, support, accommodation, coordination with EMRO for transportation, etc.)
- Informing and involving His Excellency Dr. Bagheri Lankarani, Minister of Health and Medical Education and/or Dr. Malek Afzali, (former) Deputy Minister for Research and Dr. Vasei of the Current position.
- Preparation of Strategic Plan and Bylaws draft

1-2- Secretariat:

The secretariat will remain at the Pasteur Institute, Teheran, Iran, until 2010, after which the secretariat will move (rotate) to another agreed upon location or would stay in Iran.

1-3- Visions:

- To create and sustain value by being recognized as a player in the international biopharmaceutical, genomics and biotechnological industry aiming at promoting health in the region
- Sustainable development of health genomics and biotechnology through facilitation of high quality R&D training and sharing information, experience distribution and technology transfer in order to meet common and regional health needs of member countries.

1-4- Missions:

- To induce collaboration in production, training, research and development to help EMRO countries to be self reliant in health genomics and biotechnology
- To facilitate cooperation between developed and developing countries to upgrade health standards

1-5- Goals:

- To promote regional common health objectives through R&D partnership and collaboration
- To facilitate capacity building in genomics and biotechnology through public awareness, promotion, training and educational programs
- To prioritize health related R&D in genomics and biotechnology
- To support production of specific and new products
- To meet internationally recognized standards in health genomics and biotechnology

2- Ad Hoc Committee:

An Ad hoc committee was established, with an interim secretariat at the Pasteur Institute, Tehran, Islamic Republic of Iran, August 2004. The Committee was assigned the task of initiating the regional genomics and biotechnology network; recommendations were made regarding the mandates of this committee.

The mandate of Ad Hoc Committee was:

- Promote advocacy for creation of national biotechnology networks and identify National focal persons for liaison
- Supervise the establishment of an EMGEN
- Develop a genomics and biotechnology country database
- Articulate EMGEN vision, goal, mission, terms of reference, guidelines, propose priorities and strategic action plan for collaboration
- Solicit appointment of a Steering Committee for the EMGEN

2-1- Members of the Ad Hoc Committee of EMGEN (2005-2007):



● **Dr. Soroush Sardari**, Director of EMGEN, Institute Pasteur, Iran

After Dr. Ali Haeri who was in the position for few months, Dr. Sardari has started to manage the EMGEN secretariat from Sep. 2005 with suggestion of Dr. Malek Afzali and Ad Hoc member and unanimous vote.



● **Dr. Shaikha El Arrayed**, Salmaniya Medical Complex, Bahrain



● **Dr. Ahmed Hamdi**, EGYTEC, Egypt



● **Dr. Fereidoun Mahboudi**, Director, Medical Biotechnology Network,
Islamic Republic of Iran



● **Prof. Mohammad Hassar**, Pasteur Institute, Morocco



● **Prof. Riad Bayoumi**, Sultan Qaboos University , Oman



● **Dr. Zahoor Ahmed**, Center for Applied Molecular Biology, Pakistan



● **Dr. Sultan Bahabri**, Jeddah BioCity, Saudi Arabia

3- Objectives:

- Promoting of health genomics and biotechnology development in member state
- Make better and prudent use of existing capacities and resources through mutual sharing of expertise and exchange of information
- Support the creation of national biotechnology bodies to formulate policies to hold (health) genomics and biotechnology moreover, its applicable in public health in the Member States
- Collaborate with other key stakeholders including industries, academia and related sectors of civil society
- Seek support of policy and decision makers for genomics and biotechnology development

Improve quality of research and development to address priorities.

3-1- Promoting of health genomics and biotechnology development in member state

Activities:

3-1-1-Congress

The 1st International Congress on Health Genomics and Biotechnology proudly took place during 24-26 Nov., 2007 in Tehran, Islamic Republic of Iran successfully by cooperation of EMGEN & Pasteur Institute of Iran.

The aims were to introduce the related new research findings in the region, recognition of the Genomics and Biotechnology potentials and capabilities in member countries, induce collaboration in production, training, Research and development also recognition of challenges and obstacles in advancement of Genomics and Biotechnology in the regional countries as well as the world.

Congress topics were as following:

- 1. Genomics and Biotechnology in non communicable diseases,**
- 2. Genetics of Human Pathogens,**
- 3. Biopharmaceutics and Genetic Technology,**

4. Bioethics, Bios

5. Safety in Genomics and Biotechnology Research and application and Policy and Regulation, Networking and Management.

It is notable to point out:

- More than 400 articles had been presented in oral and poster
- About 50 scientists on Health Genomics and Biotechnology and also EMRO Health Minister's representatives attending as invited speakers and special guests from different countries such as:

I.R. Iran, Tunisia, Guadeloupe, India, Morocco, Egypt, Malaysia, Germany, South Korea, Oman, Bangladesh, France, Belgium, Syria, Saudi Arabia, Bahrain, Lebanon, Cuba, Pakistan, Jordan, Qatar and Iranian scientists from USA and Canada.

- 50 international referees had reviewed the congress articles
- 45 stalls are devoted to different companies of:
 - **Pharmaceutical products**
 - **Biological products**
 - **Technical lab ware**

In this congress, there were people for selections in the EMGEN Steering Committee Election and each country had to hand in a nomination list well in advance.

3-1-2-Workshops

Six workshops have been sponsored by EMGEN in the side of "first International Congress on Health Genomics and Biotechnology" in following fields;

- Two Dimensional Electrophoresis & Proteomic
- Genetic Diagnosis of muscular Disorders
- Introduction to advanced molecular and cytogenetic techniques: Applications in clinic
- NF-kB Transcription factor activity assay by DNA-based ELISA

- Molecular epidemiology and population genetics of malaria parasites and vectors
- Immunoglobulin VH Gene Usage and Mutation Analysis in chronic lymphocytic Leukemia as a Strong Prognostic Factor

3-1-3-International Meetings

- Election of Steering Committee for EMGEN, Islamic Republic of Iran, 24. Nov, 2007
- The First Health Genomics and Biotechnology Networking Workshop, Islamic Republic of Iran, 9-10. Sep, 2007
- The RC53, WHO/EMRO-EMGEN–Side meeting which took place on the critical situation of the EMGEN network in Islamic Republic of Iran, 11. Sep, 2006, with presence of his Excellency Dr. Bagheri Lankarani, Minister of Health and Medical Education of Iran and Syrian Arab Republic, delegates from Bahrain, Egypt, Islamic Republic of Iran, Oman, Pakistan, Saudi Arabia, GCC office and WR as well. Also EMGEN participated in the RC53 exhibition (Annex 1)
- The 2nd meeting of the Ad Hoc committee for the Eastern Mediterranean Health Genomics and Biotechnology Network, Oman, 2-3 May 2006
- The 1st meeting of the Ad Hoc committee for the Eastern Mediterranean Health Genomics and Biotechnology Network, Islamic Republic of Iran, 18-20 February 2006
- The Eastern Mediterranean consultation for establishing a regional biotechnology network, Islamic Republic of Iran, 31 July -2 August 2004



**Early Meeting
31 July to-2 August 2004
Pasteur Institute of Iran**



**The First Ad Hoc Committee Meeting
Feb 18-20, 2006
Pasteur Institute of Iran**



**The 2nd Ad Hoc Meeting
from May 2-3, 2006
SQU-Oman**

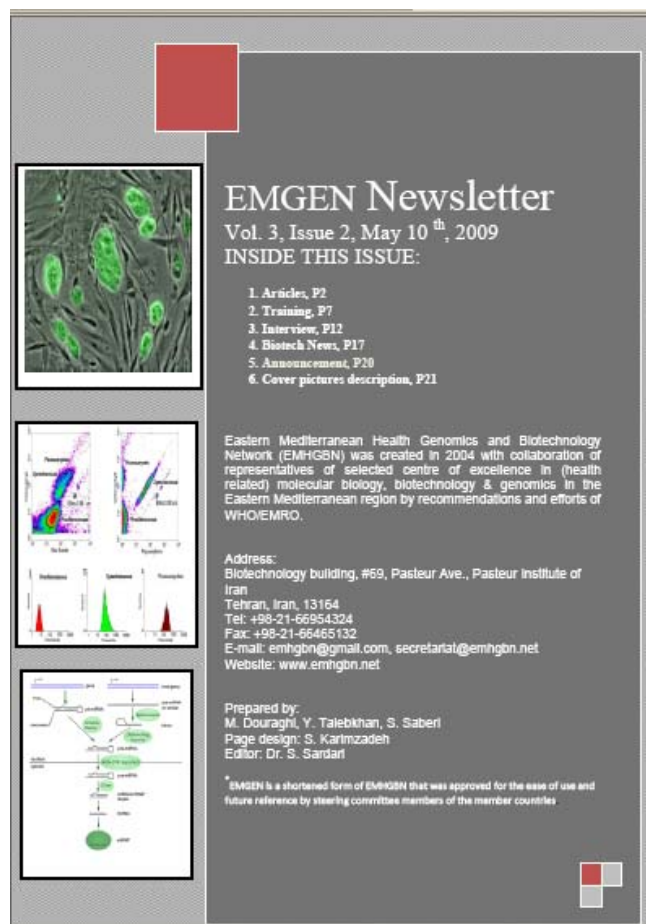
EMGEN have cooperation in holding several international workshops (Annex 2) through sending the information of the programs to the national and international database and also putting on the News and Events section of the EMGEN website

3-1-4-Newsletter

Regular issues of EMGEN newsletters including short news, articles on health genomics and biotechnology, constructive interviews with related brilliant scientist of Eastern Mediterranean countries and etc have been released online and are accessible via www.EMGEN.net. and www.EMGEN.net EMGEN newsletter4 in e-version is published two times a month. It is designed to give a broad view of various aspects of medical and pharmaceutical biotechnology with special focus on EMRO countries. EMGEN newsletter contains different sections which are following;

- **Articles**, in article section we are inviting scientists from EMRO countries to present their up-to-date research projects.
- **Training**, in this section we try to introduce an updated and versatile techniques and/or topics in biotechnology.
- **News**, in news section we reflect biotech news of EMRO countries and occasionally introduce regional biotech centers and bioparks.
- **Trends**, in this regard, our goal is to familiarize you with future trends in the field of biotechnology.
- **Cover picture** section although aesthetically attractive, it aims to give you an incentive to pursue various topics in biotechnology.

In brief, it is designed to both inform you about high-tech research and technology in biotech field and also to give the sense of confidence to EMRO scientists, students, investors and policy makers.



3-2- Make better and prudent use of existing capacities and resources through mutual sharing of expertise and exchange of information

Activities:

3-2-1- Database

A helpful and comprehensive database on the Research Centers/Institutes with representative scientists in Health Genomics and Biotechnology of the EMRO countries that could be a high-quality resource for regional progress in related areas which contains the name of more than 9,000 scientists including national and international scientists with their contact information.



A1	Country	Institute	Scientist
1	Bahrain	Ministry of Health	Al Arrayed, Shukha
2	Bahrain	Ministry of Health	Hassan Samed
3	Bahrain	Ministry of Health	Fowad Abdulla Moad Ah
4	Bahrain	Ministry of Health	Nabeel Jassen Hassan
5	Bahrain	House No 46	Nabeel Al Momen
6	Bahrain	Genetic Department, Salmanya Medical Complex	Shukha Al Arrayed
7	Bahrain	p.o. box 15138	samaya Ahmed Rashed Al Eastam
8	Egypt	National Research Center	Tentamy, Samia
9	Egypt	National Research Center	El Salam, Mouchira
10	Egypt	National Research Center	El Awady, Mostafa
11	Egypt	National Research Center	Zaki, MousheraE
12	Egypt	National Research Center	Megad, Nagwa
13	Egypt	National Research Center	Abdul Ezz, Eman
14	Egypt	National Research Center	Hussein Ibtesam
15	Egypt	National Research Center	Mohamed, Amal
16	Egypt	National Research Center	Fateen, Ekram
17	Egypt	National Research Center	Gad, Yehia
18	Egypt	National Research Center	Hosny, Hanan
19	Egypt	National Research Center	Elharouni, Ashraf
20	Egypt	National Research Center	Kamel, Alaa
21	Egypt	National Research Center	El Ruby, Mona, Omar
22	Egypt	National Research Center	Gaber, Khaled
23	Egypt	National Research Center	Elfat, Laila
24	Egypt	National Research Center	Hosny, Laila
25	Egypt	National Research Center	Momen, Essam

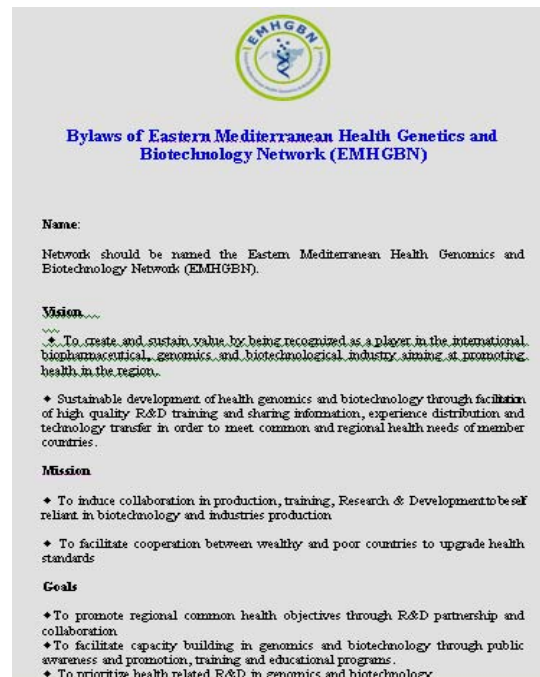
EMGEN Database

The EMGEN databases include names of Health Genomics and Biotechnology institutes, the representative scientists and their E-mail addresses, phone/fax numbers and addresses in the excel format. It has been provided by searching on the "staffs" parts of the research, the websites of the educational centers and the other resources which includes these data. Also correspondence with EMGEN database and introduction of this Network, request for the reciprocal link in our website and submit the newsletters are other activities in this regard.

EMGEN database has been divided to three parts:

- 1) National Database including more than 3000 Iranian scientists and growing
- 2) International Database including more than 16000 scientists and growing
- 3) International Industrial Database including more than 19000 Health Company and growing

3-2-2- Compilation the Strategic Plan (Annex 3) for the EMGEN Network and preparation the EMGEN Bylaws draft (Annex 4)



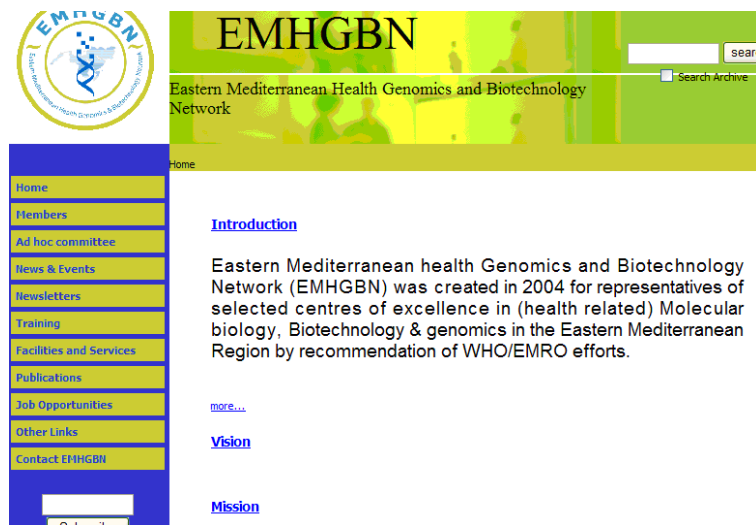
The Draft of EMGEN Bylaws

3-2-3- The Website and its components

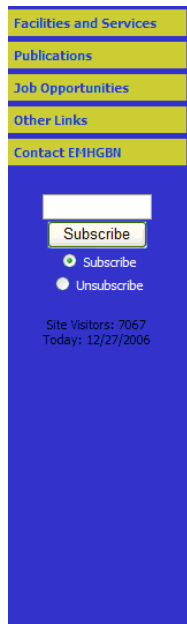
One of the key activities had been noted for the regional network in the WHO/EMRO document (WHO-EM/RPC/016/E), was developing a website with hyperlink to all other members of the network to share information. The Secretariat of EMGEN has tried to attain this purpose. For this reason, the secretariat developed a website on EMGEN that you can visit EMGEN websites; <http://www.EMGEN.net> and <http://www.EMHGBN.net>.

Components of EMHGBN website:

- 1) **HOME** section, that have been included some information about the Introduction, Vision, Mission and Goals of our network.



- 2) **MEMBERS** section, which including some pages have been allocated to WHO/EMRO members and their biotechnological institutes and scientists.



[Afghanistan](#)

[Bahrain](#)

[Djibouti](#)

- 3) **NEWS and EVENTS section**, that includes useful information about workshops and news in related areas.




Practical / Lecture Course
**WITH THE SUPPORT OF THE INSTITUTE PASTEUR OF PARIS
 & THE PASTEUR INSTITUTE OF IRAN**

**« Molecular Techniques in Diagnosis
 & Typing of Infectious Diseases »**

November 21-29th, 2006

- 4) **PUBLICATION section**, including the publications of the regional scientists.



EMHGBN

Eastern Mediterranean Health Genomics and Biotechnology Network

Home>Publications

Ethical guidelines in genetic and genomics an Islamic perspective

Review Articles
Ethical guidelines in genetics and genomics
An Islamic perspective

ABSTRACT

Aida I. Al-Aqeel, FRCP, FACMG.

We are at a time of unprecedented increase in knowledge of rapidly changing technology. Such biotechnology

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Ad hoc committee
News & Events
Steering Committee
Newsletters
Training
Facilities and Services
Publications
Job Opportunities
Other Links
Reports
Contact EMHGBN

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- 5) **TRAINING section**, including some e-training programs which have been released on line and is accessible via www.EMGEN.net.



EMHGBN

Eastern Mediterranean Health Genomics and Biotechnology Network

Home>Training

Docking With Arguslab Software

Docking
Receptor
Ligand

Antifungal Bioassay Test

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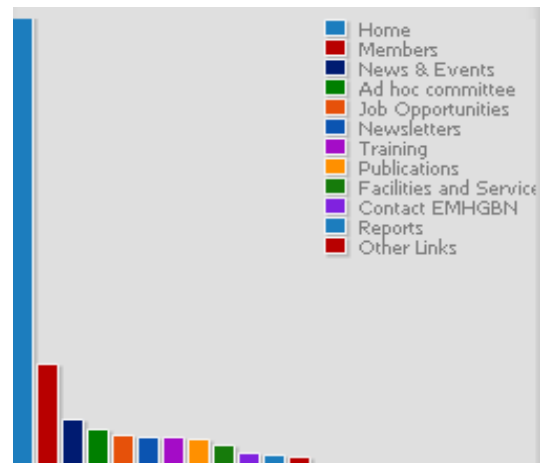
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The EMHGBN website also contains;

- **FACILITIES and SERVICES section**, that contains the available facilities, services and techniques for each scientist in the region
- **AD HOC COMMITTEE section**, to introduce Ad Hoc members and their mandates
- **OTHER LINKS section**, to provide links to some useful related websites of biotechnological institutes
- **NEWSLETTER section**, to have all issues of EMGEN newsletter

EMHGBN Website Hits so far (Sept,2005-Mar,2008)

Total Hits:	17585
Total Unique:	1997



Hits per Sections of the EMGEN Website

<i>Home</i>	<i>9251</i>
<i>Members</i>	<i>2456</i>
<i>Ad hoc committee</i>	<i>987</i>

<i>Facilities and Services</i>	692
<i>News and Events</i>	923
<i>Publications</i>	713
<i>Contact EMGEN</i>	486
<i>Job Opportunities</i>	629
<i>Newsletters</i>	597
<i>Other Links</i>	365
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search.msn.com	73	search.live.com	4
whois.sc	57	us.f527.mail.yahoo.com	4
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Domain References

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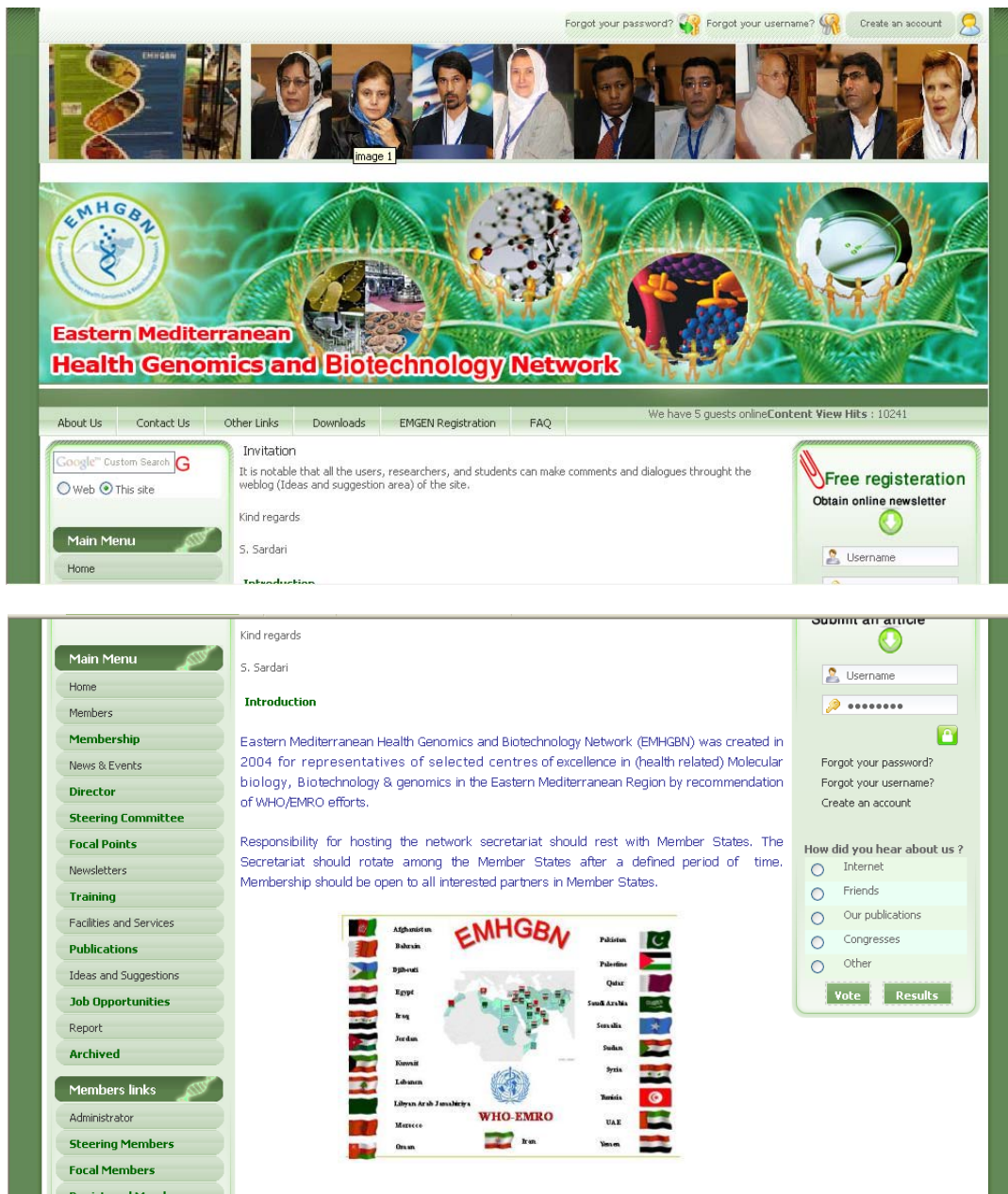
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22:00 - 23:00	332
21:00 - 22:00	182
20:00 - 21:00	226
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18:00 - 19:00	261
17:00 - 18:00	263
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15:00 - 16:00	408
14:00 - 15:00	525
13:00 - 14:00	511
12:00 - 13:00	544
11:00 - 12:00	539
10:00 - 11:00	641
9:00 - 10:00	595
8:00 - 9:00	310
7:00 - 8:00	552
6:00 - 7:00	540
5:00 - 6:00	716
4:00 - 5:00	663
3:00 - 4:00	716
2:00 - 3:00	848
1:00 - 2:00	545
0:00 - 1:00	518

WHO has launched a Website (<http://www.emro.who.int/rpc>) which depicts comprehensive information on EMGEN in;

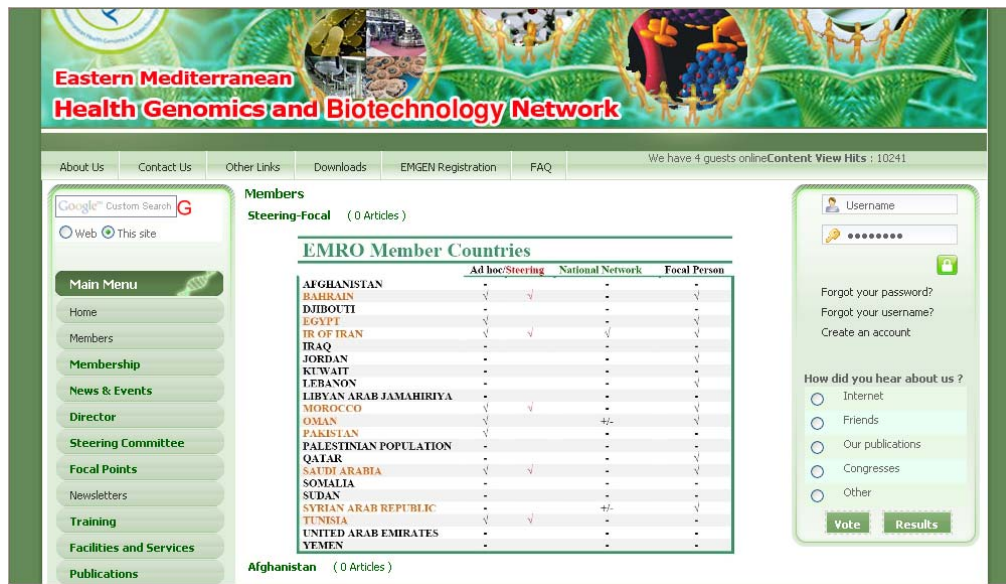
(http://www.emro.who.int/rpc/Biotechnology_Genomicsnetwork.htm).

Components of EMGEN website:

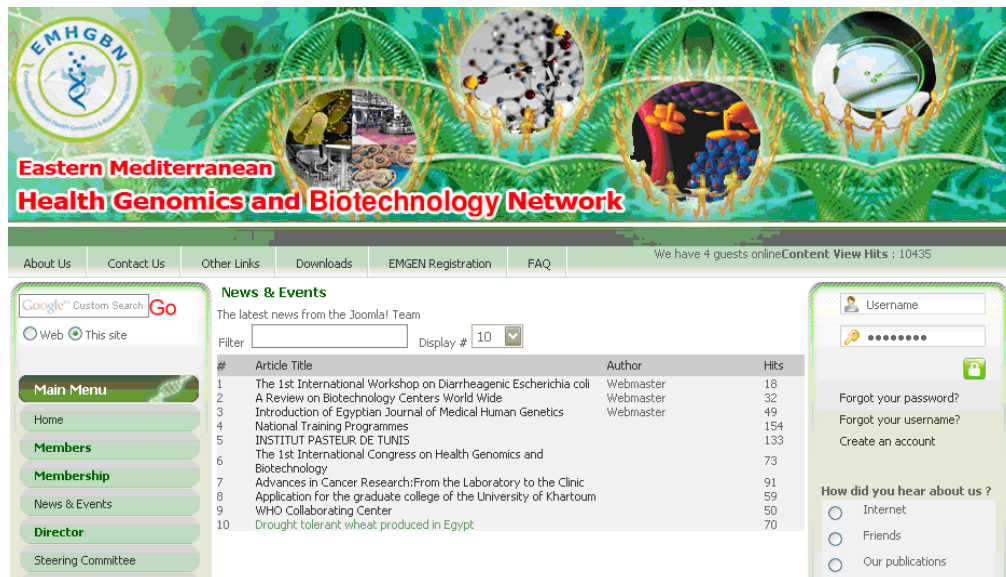
- 1) **HOME** section, that have been included some information about the Introduction, Vision, Mission and Goals of our network.



- 2) **MEMBERS** section, which including some pages have been allocated to WHO/EMRO members and their biotechnological institutes and scientists.



3) **NEWS and EVENTS** section, that includes useful information about workshops and news in related areas.



4) **PUBLICATION** section, including the publications of the regional scientists.

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Publications (with download)

Publications (with download)

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#	Article Title	Author	Hits
1	Conference Summary and Report of 2nd Conference of the Middle East and North Africa Newborn Screening Initiative		77
2	MONTHLY STATISTICAL BULLETIN, Sultanate of Oman, Ministry of National Economy-Vol. 19, Issue 5- MAY 2008		84
3	NAJAH NEWSLETTER- August 08, Issue 16		67
4	NAJAH NEWSLETTER- July 08, Issue 15		72
5	High-tech biomedical research: lessons from Iran's experience		73
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☐ Friends
☐ Our publications
☐ Congresses
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5) **TRAINING** section, including some e-training programs which have been released on line and is accessible via www.EMGEN.net.

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Training

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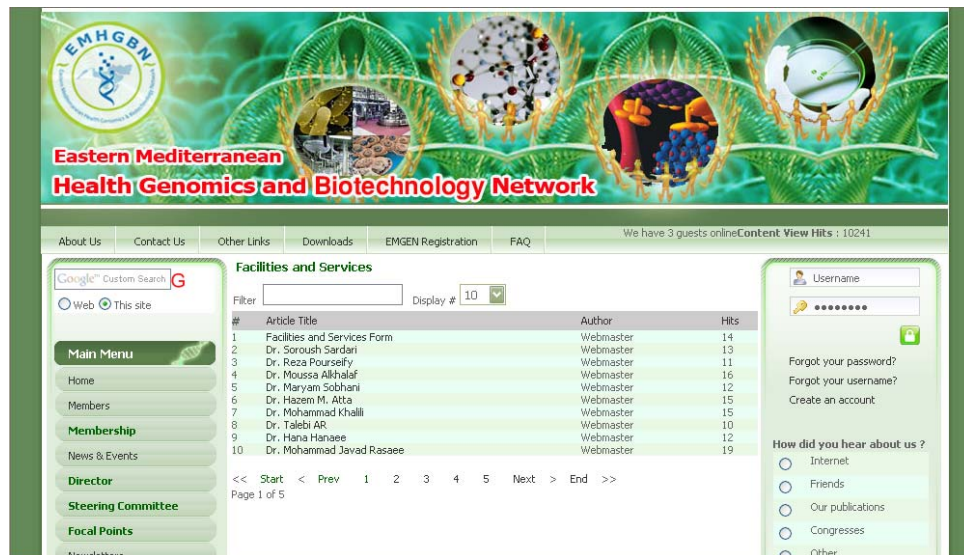
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1	Gene Targeting in Mice Brain		120
2	Workshop on: Proteomics		107
3	Workshop on: NF- κ B Transcription Factor Activity Assay by DNA-based ELISA		162
4	Workshop on: Molecular Epidemiology and Population Genetics of Malaria Parasites and Vectors		112
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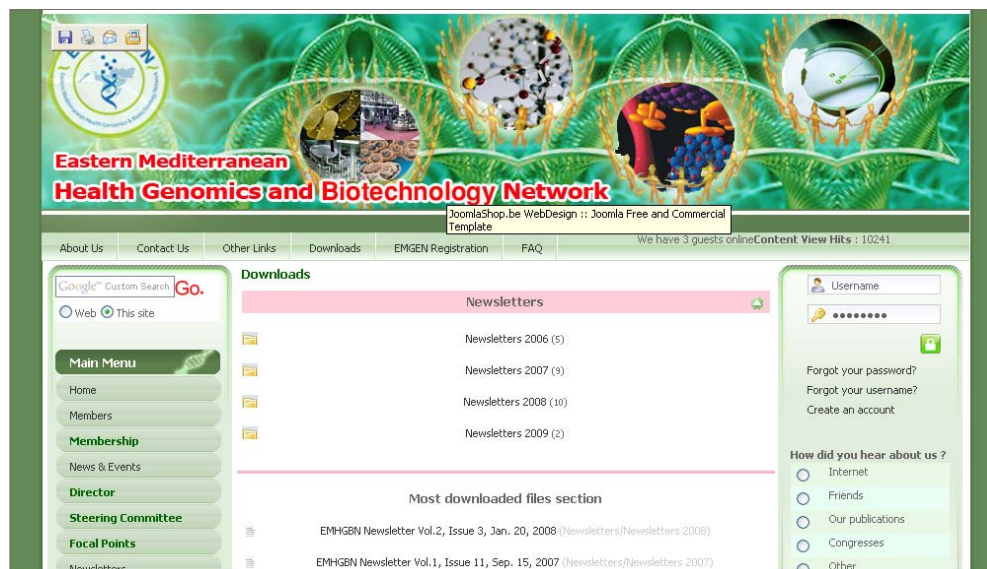
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☐ Other

- 6) **FACILITIES and SERVICES** section, that contains the available facilities, services and techniques for each scientist in the region



- 7) **NEWSLETTER** section, to have all issues of EMGEN newsletters



The EMGEN website also contains;

- **Director section**
- **AD HOC committee and Focal Points sections**, to introduce Ad Hoc members and focal points plus their mandates
- **Job Opportunities**
- **Ideas and suggestions**

3-2-4- Catalogue and Poster

In this direction, EMGEN has prepared the EMGEN poster and catalogue which was sent through post to the national scientists to make public awareness.

3-3- Support the creation of national biotechnology bodies to formulate policies to hold (health) genomics and biotechnology; moreover, it's applicable in public health in the Member States.

Activities:

3-3-1- workshops

Secretariat was organized a training workshop named " Health Genomics and Biotechnology Networking Workshop" which was held at Pasteur Institute of Iran during Sept. 9-10th , 2007 for the focal persons of Health Ministries from the countries located in the Eastern Mediterranean Region which six of them including Egypt, Jordan, Lebanon, Oman, Syria and Saudi Arabia attended.

The purpose of the workshop was to instruct and encourage participants to establish and operate National Genomics and Biotechnology Networks in their countries.

3-3-2- Focal persons

The regional network also could arrange a side meeting in the RC53 WHO-EMRO meeting, Isfahan-Iran, Sep. 11, 2006 with presence of several EMRO Health Ministers and/or their representatives. In this meeting, the network could draw the attention and help of regional policy and decision makers and most critical achievement of the meeting was developing linkages with the identified national focal persons in genomics and biotechnology. EMGEN has 11 focal persons from Egypt, Syria, Lebanon, Jordan, Saudi Arabia, Qatar and Oman which have been introduced by their honorable health ministers that some of them have been elected as EMGEN steering committee members and realized the importance of this project with kind contribution to Pasteur Institute of Iran.

3-3-3- Correspondence

- Frequent correspondence with the Health Ministers (Annex5) of the EMRO countries and request for their focal persons and establishment of the national network in EMRO countries.
- Following up above letters, the receipt of Syrian, Egyptian, Oman, Qatar, Lebanon and Jordan (Annex 6) Health Ministers response regarding the introduction of two focal persons
- Correspondences with focal persons (Annex 7)

Sending letters to the international EMGEN database regarding the distribution of the networking culture in the region

3-4- Collaborate with other key stakeholders including industries, academia and related sectors of civil society

Activities:

3-4-1- Membership

There are two membership forms for the full and associated members of EMGEN that will be helpful for drawing the attention of institutions practicing state of the art research in human genomics and biotechnology, research and academic, public or private institutes and laboratories, reference group of scientists with quality publications performing relevant activities, biotechnology manufacturers or service providers. These forms are accessible in www.EMGEN.net.

3-4-2- Committees




3-4-2-1- Steering Committee:

EMGEN Steering Committee Election was held at the 1st International Congress on Health Genomics and Biotechnology, Tehran, Iran on Nov. 24, 2007 and the main out come of this election is involvement of 2 members from biotech industry of Iran and Tunisia as well as 5 members from academia.

3-4-2-2- Fundraising Committee:

As the result of meeting which was held in Pasteur Institute of Iran on Mar. 03 2008 with presence of Directors of Pasteur Institutes of Tunisia, Morocco, Iran, the central core of fundraising committee was established which are as follows;

- ✳ General Director of Pasteur Institute of Iran
- ✳ Director of Pasteur Institute, Morocco
- ✳ Director of Pasteur Institute, Tunisia
- ✳ Director of National Medical Biotechnology Network and steering committee member

<i>Steering Committee Members</i>	
<p>Dr. Sonia Abdelhak</p> 	<p>Molecular Investigation of Genetic Orphan Diseases Institute Pasteur de Tunis</p>
<p>Dr. Shaikha Salim Al Arrayed</p> 	<p>Genetic Department Salmaniya Medical Complex, Manama, Bahrain, Chairperson of the steering committee</p>
<p>Dr. Abdelhamid Barakat</p> 	<p>Molecular Human Genetic Unit, Institute Pasteur Du Maroc, Morocco</p>

<p>Dr. Habiba Chaabouni</p> 	<p>University of Tunis, Service de Maladies Congénitales et Héréditaires Hôpital Charles Nicolle, Tunisia</p>
<p>Dr. Mohammad Hassar</p> 	<p>Director Pasteur Institute of Morocco</p>
<p>Dr. Fereidoun Mahboudi</p> 	<p>28 Pasteur Institute of Iran & Director of Biotechnology Research Center, Iran</p>
<p>Dr. Anna Rajab</p> 	<p>Consultant Clinical Geneticist, Genetic Unit, DGHA, Ministry of Health, Sultanate of Oman</p>
<p>Dr Ali Mohammed Al-Shangiti</p> 	<p>Immunologist & Medical Laboratories Ministry of Health KSA</p>

Steering Committee Election, Nov. 24, 2007



The 1st meeting of Steering Committee, Nov. 25, 2007



3-5- Seek support of policy and decision makers for genomics and biotechnology development

Activities:

3-5-1- Request Letters have been sent to Dr. Hussein A. Gezairy, Regional Director, WHO Eastern Mediterranean Region regarding the promotion of focal persons selection in the rest of countries which have not introduced their representatives and also helping the formation of national networks

3-5-2- Several proposals have been provided to absorb and lead the budget from the national and international financial agencies in the direction of achievement to the network objectives

3-5-3- To induce collaboration in production, training, Research and development in the members states About 50 scientists on Health Genomics and Biotechnology and also EMRO Health Minister's representatives have been invited as the special guests from different countries such as:

**I.R. Iran
India
Malaysia
Oman
Belgium
Bahrain
Jordan**

**Tunisia
Morocco
Germany
Bangladesh
Syria
Lebanon
Qatar**

**Guadeloupe
Egypt
South Korea
France
Saudi Arabia
Pakistan
Iranian scientists from USA, Canada
and Cuba**

3-6- Improve quality of research and development to address priorities

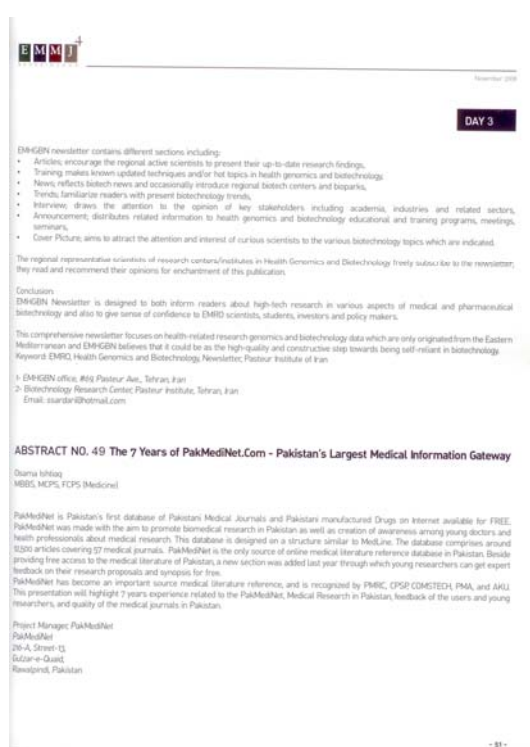
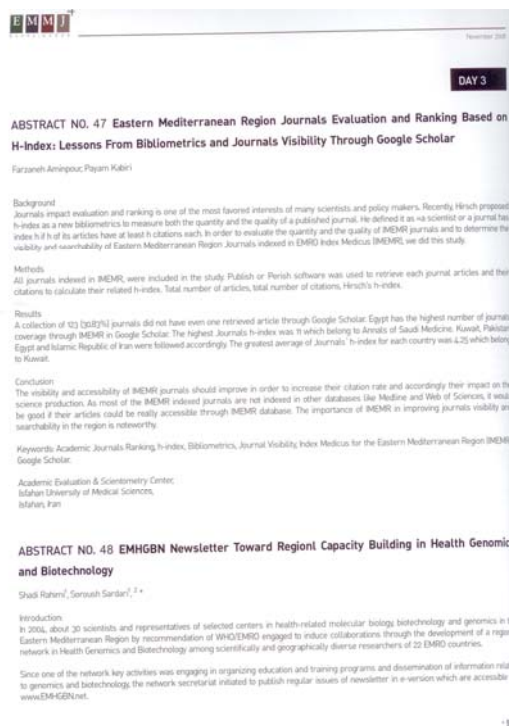
According to EMGEN goals in promoting of health genomics and biotechnology research among EMRO countries following activities were performed:

- Arranging of international training workshops and conferences related to research priorities in the region countries in the fields of:
 - **Genomics and Biotechnology in non communicable diseases,**
 - **Genetics of Human Pathogens,**
 - **Biopharmaceutics and Genetic Technology,**
 - **Bioethics, Biosafety in Genomics and Biotechnology Research and Application and Policy and Regulation, Networking and Management.**
- Disseminating of information related to workshops and educational courses
- Facilitation of national networks establishing to promote and organize the genetics and biotechnology activities and assignment of research priorities
- Also the introductory article was published in genetic engineering news, (2006), 26 (12) 55 in this regard.

The Article about EMHGBN In Genetic Engineering News (2006), 26 (12) 55



- Also the abstract that was published in abstract book of **The Fourth Regional Conference on Medical Journals in the Eastern Mediterranean Region Manama, Kingdom of Bahrain Nov. 5, 2008** in this regard.



4- Continuous EMGEN Activities:

- Further establishment of the secretariat of EMGEN network in Pasteur Institute of Iran
- Continual developing of the website with hyperlink to all other members of the network to share information
- Perpetual creation of Newsletter issues
- Additional development of the Database (national and international)
- Introducing the network to other countries by targeting popular publications
- Preparation and presentation of proposals in order to use budgets (such as JPRM) for EMGEN's goals

5- Reports by the EMGEN Secretariat:

- **Report on**
The first meeting of the Ad Hoc committee for the Eastern Mediterranean Health Genomics and Biotechnology Network
Tehran, Islamic Republic of Iran
18-20 February 2006
- **Report on**
The second meeting of the Ad Hoc committee for the Eastern Mediterranean Health Genomics and Biotechnology Network
College of Medicine Sultan University
2nd and 3rd Qaboos f May 2006
- **Report on**
The RC53, WHO/EMRO-EMGEN –Side meeting (Annex 1)
Isfahan, Islamic Republic of Iran
Sep. 11, 2006
- **Report on**
The Election of Steering Committee for EMGEN
Tehran, Islamic Republic of Iran
Nov. 24, 2007
- **Report on**
The First Health Genomics and Biotechnology Networking Workshop
Tehran, Islamic Republic of Iran
Nov. 25, 2007

- **Report on**
The Fourth Regional Conference on Medical Journals in the Eastern Mediterranean Region (Annex 8)
Manama, Kingdom of Bahrain
Nov. 5, 2008

6- Financial Means:

Achieved:

- WHO-JPRM budget
- Supreme National Biotech Council
- Pasteur Institute
- Member States (Iran Gov.)

On-going:

- Proposals to International Bodies

7- Achieved Contributions so far:

It is notable to draw your attention to several expenses of EMGEN that have been funded by Pasteur Institute of Iran which mentioned as following:

- Equipments such as Lap tops, Computers, Printers, Scanners, Direct Tel and Fax, Cabinet ... (16,500 USD)
- Human Resources (87,000 USD)
- Office (52,200 USD)
- Expenses of 4 meetings of Ad Hoc and Steering Committee (54,500 USD)
- PASTEUR INSTITUTE OF IRAN HAS TOTALLY SUPPORTED EMGEN 210,200 USD.

Also EMGEN has been financed by other National and International agencies which are following:

- Iran Government (130,500 USD)
- High Biotechnology Council Budget (18,500 USD)
- WHO- JPRM Budget (4,000 USD)

8- Future Actions of the EMGEN Network:

1. Development of the communication with the Focal Persons in Member states
2. Encouragement of the establishing national networks on the Health Genomics and Biotechnology in the region
3. Putting the membership on the EMGEN website
4. Development of the relationship with other countries in order to promote the Biotechnology and Health Genomics issues in the Regional Countries
5. Receiving the budget from the financial agencies to be able to support the research projects in the fields of Health Genomics and Biotechnology
6. Holding the international workshops and educational programs
7. Compilation of the Bylaws for EMGEN
8. Completing database with collaboration of Ad Hoc members (each members is collecting related information of her/his representing or neighboring country)

9- References:

- 1) Report on the Eastern Mediterranean consultation for establishing a regional biotechnology network (Document WHO-EM/RPC/016/E/03.05/150) Tehran, Islamic Republic of Iran 31 July-2 August, World Health Organization Regional Office for the Eastern Mediterranean, Cairo 2005
- 2) Sardari, S., Dezfulian, M. (2006) Advancing Collaborations in the Mid-East, Genetic Engineering News, Vol. 26/No. 12/ Page no. 55
- 3) Report on the RC53, WHO/EMRO-EMGEN- Side meeting (Document EMGEN-RC53/IR/06/Sept/11) Isfahan, Islamic Republic of Iran Sep. 11, 2006, Eastern Mediterranean Health Genomics and Biotechnology Network (EMGEN)
- 4) Report on the Election of Steering Committee for Eastern Mediterranean Health Genomics and Biotechnology Network (EMGEN) (Document EMGEN-ST/IR/07/NOV/24) 24 November, 2007, Coincided with the First International Congress on Health Genomics and Biotechnology, Summit Meeting Conference Hall, Tehran, Iran, Eastern Mediterranean Health Genomics and Biotechnology Network (EMGEN)

Annex 1: Report on the RC53, WHO/EMRO-EMGEN –Side meeting

Report on
The RC53, WHO/EMRO-EMGEN –Side meeting
EMRO-Isfahan-Iran Sept 9-12, 2006

Isfahan, Islamic Republic of Iran

Sep. 11, 2006



EASTERN MEDITERRANEAN HEALTH GENOMICS AND BIOTECHNOLOGY NETWORK

EMGEN

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Table of Contents

1. Executive Summary

2. Discussion

Annexes

1. Presentation of the side meeting

2. List of participants

EXECUTIVE SUMMARY:

A side meeting was held in the RC53, WHO/EMRO Meeting, Isfahan, Islamic Republic of Iran, on Monday, 11th of September 2006, (first coffee break), 10:00 to 10:30 with presence of His Excellency Dr. E. 40 i Lankarani, Minister of Health and Medical Education on the critical situation of the EMGEN network.

The main purpose of the side meeting was the introduction of the regional network and the efforts for the enhancement of collaboration **in production, training, research & development** in the countries that are covered by WHO/EMRO.

Delegates from Bahrain, Egypt, Islamic Republic of Iran, Oman, Pakistan, and Saudi Arabia, Health Minister of Syrian Arab Republic GCC office and WR attended the meeting.

At first, the meeting started by inaugural speech of Dr. Rouholamini Najafabadi, the Director of Pasteur Institute of Iran on the situation of research and development in Pasteur Institute and the networks activities in Iran. Then a short history of the national and regional networks was presented by Dr. Zeinali, Associate Director for Research at Pasteur Institute of Iran. Afterwards, Dr. Sardari, Director of EMGEN office presented the situation of the Eastern Mediterranean Health Genomics and Biotechnology Network (EMGEN) and its activities in detail.

The participants agreed on the need to:

- Making aware the Health Ministers of EMRO by letter concerning the establishment of this network and its activities in the direction of distribution of the networking culture in the region.
- Collaborative workshops in order to mutual exchange to focal persons to gather and make the activities more focused in the coming 14 months before the First International Congress on Health Genomics and Biotechnology to be held in 2007 by Pasteur Institute of Iran.
- Enhancement of the communication among the regional countries to facilitate the achievement for objectives of the regional network.
- Support the creation of national networks to formulate policies to support health genomics and biotechnology and its application in public health in the Member States.
- Mutual information exchange via the website portal.

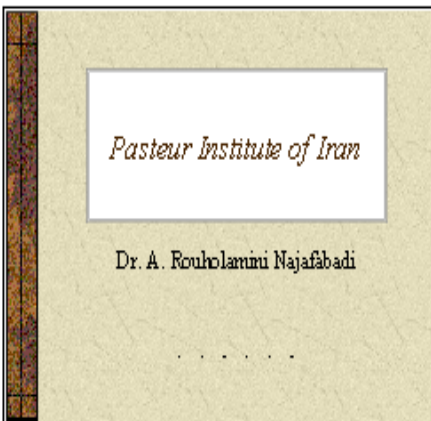
Presentation of the side meeting and list of participants are included as Annexes 1 and 2 respectively.

Discussion:

The delegate of Saudi Arabia acknowledged the establishment of regional network as an important initial step towards advancement of biotechnology and genomics in the region and also counted the established national committee in Saudi Arabia as a result of initiated progress in this field. It was emphasized to have other countries on the board. They requested the EMGEN office at Pasteur Institute of Iran to send them a

letter for reminder and mention to expand, and share their activities with others. As a suggestion, there can be workshops for preparation and mutual exchange to focal persons gather and make the activities more focused in the coming 14 months before the international meeting of Health Genomics and Biotechnology in Iran in Nov 2007. Iranian delegate added the importance of high-tech initiatives and its impact on developing countries, and to reach the target points desired in the regional network, more communication is needed. The development of state-of-the-art production facility in Karaj site of Pasteur Institute was looked as a good example in high-tech priority setting for developing countries. The honorable Syrian health minister agreed to the need for knowing each others, activities and welcomed the idea of collaborative workshops and to have plan for countries to finally reach what is desired. Iranian delegate asked the present countries to nominate one or more individuals for the network activities. The delegate from Bahrain mentioned about the specialization of such representatives to cover the task and best reach the goals. Oman delegate added the needs that ministry of health of the respected countries are to be informed of such activities or be the party for nominating the focal persons. Pakistan delegate mentioned on the information exchange via websites. The presence of several informative websites belongs to Pakistan academia or ministry was highlighted. Delegate of Iran added to the previous points that such network and initiative belong to all countries of the region and all have to think of it as theirs. However, to make the forward move easier, it is needed to have the endorsement of national networks and such cannot happen before having the national networks. The Egyptian delegate thanked the opportunity and to follow the needs asked for the letter of the EMGEN to be sent out and clearly list the items for action. At this point, it seemed that all the major issues were raised by respected parties and the meeting was adjourned by honorable health minister of Iran followed by a group photo.

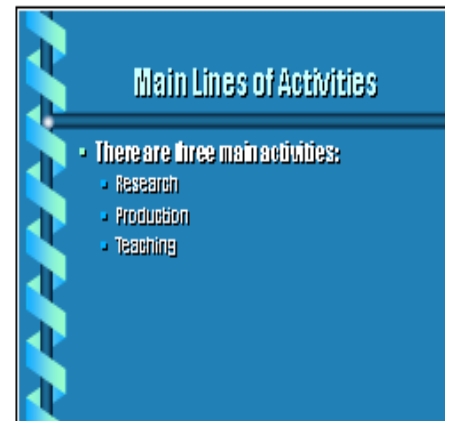
1-1- Presentation of RC53, WHO/EMRO-EMGEN –Side meeting



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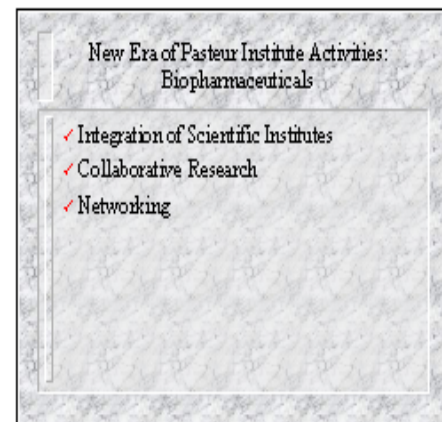
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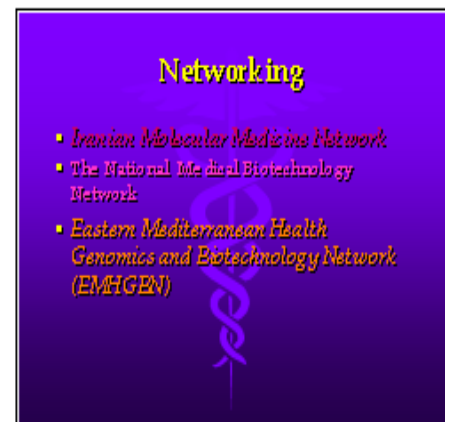
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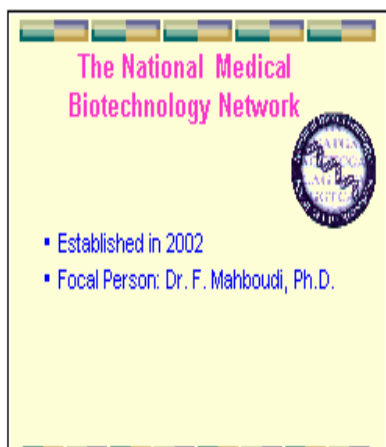
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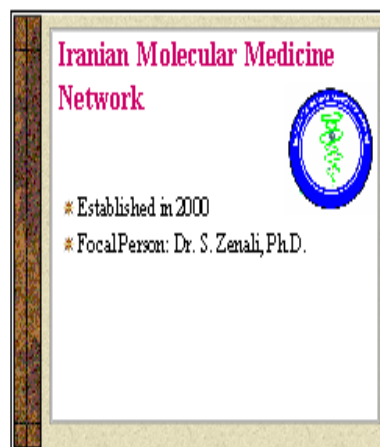
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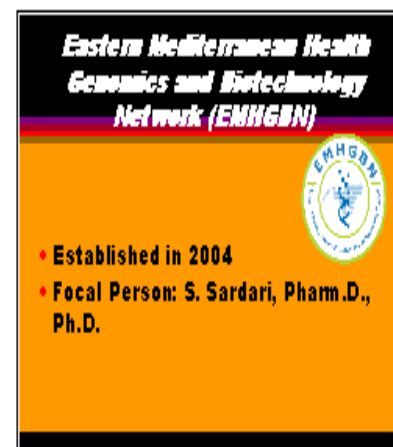
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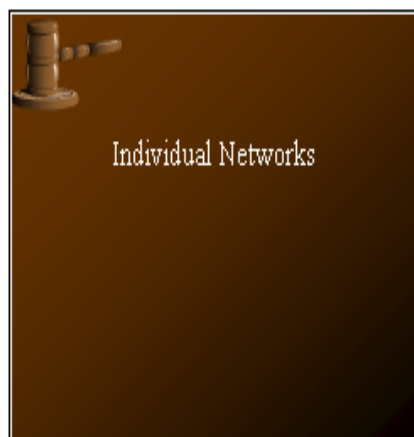
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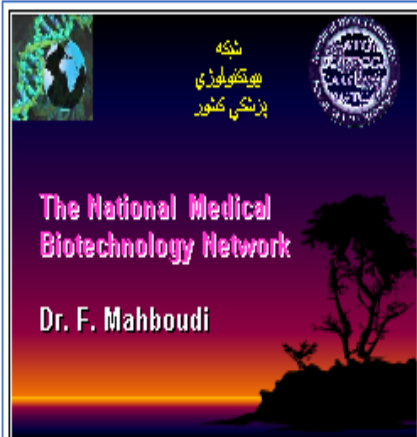
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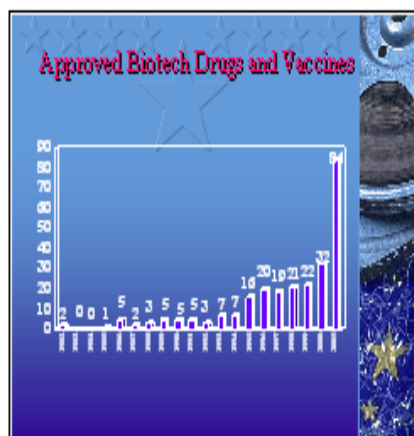
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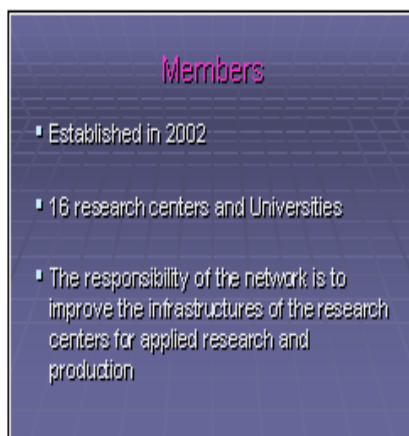
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Recombinant Proteins Market in Pharmaceutical Companies

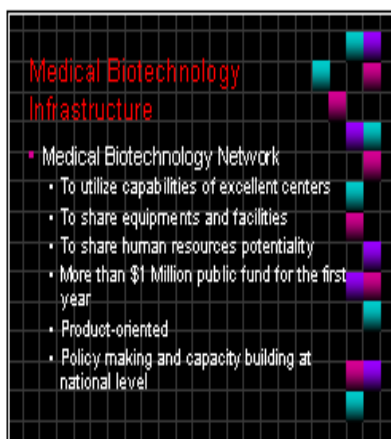
Year	Total Sales	Toxicologic Use	Total Weight
1999	30 \$		1,170 kg
2005	43 \$	602 \$	6,597 kg
2010	110 \$	342 \$	

- More Than 300 Recombinant Proteins Which Can be Used in Pharmaceuticals Have Been Cloned
- More Than 100 Is in Different Phases of Clinical Trial

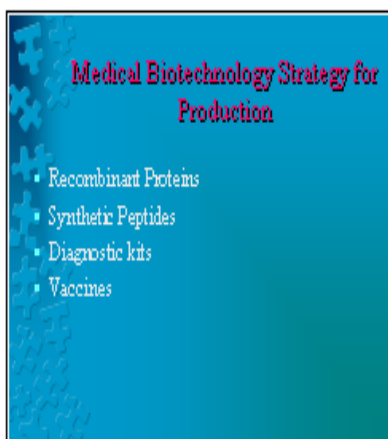
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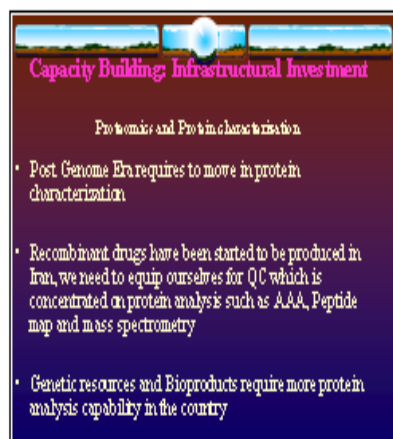
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Infrastructural Priorities: Gene Bank

- Gene Bank: Prokaryotic and eukaryotic gene expression vectors and hosts (Plasmides, bacterial strains, yeast)
- More than 50 recombinant expression vectors and hosts have been deposited so far

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Infrastructural Investment Human Resources: E- Workshops

- Industrial Protein Purification
 - 300 Participants, Online for one month
 - 40 Experimental training for one week
- Amino Acid Analysis
 - 200 Online participants for one month
- Cloning and Hybridization
 - 450 Participants
- Monoclonal Antibody

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Achievements

- Approval of *H. pylori* diagnostic kit based on ELISA technique
- Final form of HTLV1 (leading to National Reference Laboratory)
- Final form of Ferretin (leading to National Reference Laboratory)
- Establishing gene bank for recombinant DNA technology

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Future plans

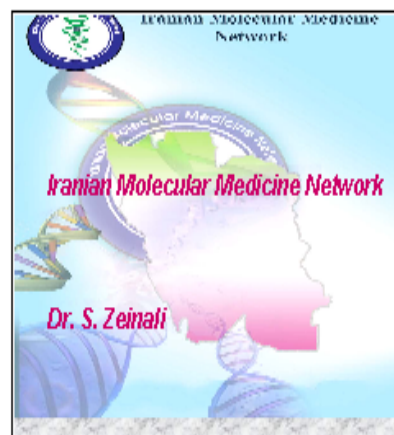
- To define a biopharmaceutical project so that the majority of the members will participate
- A project that helps the technology development and capacity building
- A project that will be considered as the priority in the area of health

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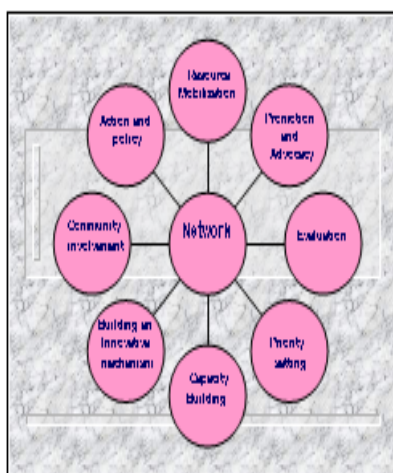
Future Plans

- t-PA and XI anti coagulant factor are the candidates that can be split to different centers
 - Expression in transgenic animals
 - Expression in transgenic plant
 - Expression in *P. pastoris*
 - Expression in *E. coli*
 - Expression in *L. lactis*

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Introduction

Iranian Molecular Medicine Network is a virtual network which has gathered different research centres under a unique umbrella. The network was formed in order to define and coordinate major policies and activities in the field of Molecular Medicine. The aims are promoting status of health level in Iran through prevention, diagnosis, treatment and eradication of diseases.

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Mission

Organization and Capacity Building in the field of applied research mostly in Molecular Medicine. Through this we are trying to promote level of health in Iran and to obtain the final goals.

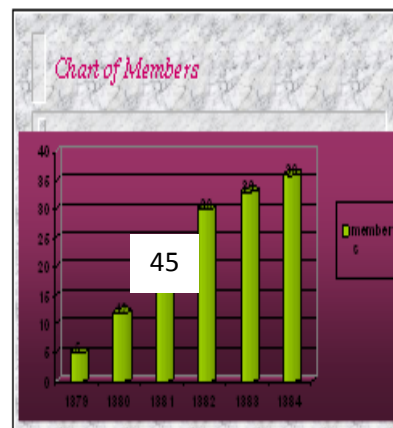


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Objectives (Goals)

- Establishing a Data Bank of Research Centres, scientists, etc.
- Capacity Building .
- Supporting and enforcement of team working.
- Development of internal and external communications.
- Promoting the utilization to research results.
- Promotion of research logics.
- Qualitative and quantitative development of related researchers.
- Assignment of research priorities.
- Collection of ethical codes based on international standards, with an emphasis on Iranian cultural and legal standings

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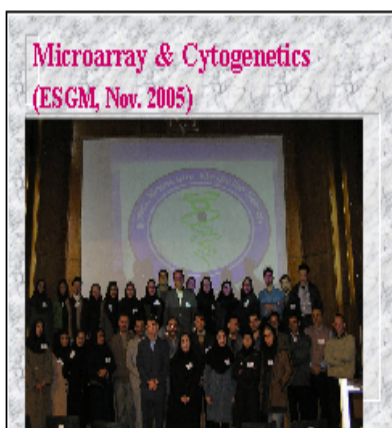


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Activities

- Strategic Planning, (Revision every year during annual meetings)
- Priority settings.
- Putting regular meetings in each centre now and then.
- Evaluating each centre's activities.
- Research Capacity Building.
- Project evaluation before, during and after.
- Training workshops, and support of congress and workshops in molecular medicine.

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Some Achievements in Biotechnology and Genetics

(National Banks)

- National Cell Bank
- National DNA Repository (genetic disorder DNA banks).
- National HLA Bank (bone marrow donor bank).
- National Cord Blood Stem Cell Bank

Initiation of several new projects in Gene therapy Transgenics, Stem Cell Therapy

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Towards the Future

- Gene Therapy
- Transgenic
- Stem Cell Research
- Proteomics
- Disease Gene Identification
- Monoclonal Antibodies
- Genome Based Research
- Genotyping Genetic Disorders
- Molecular Microbiology including Drug Resistance
- Genotyping

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Contact us

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Jasour Institute of Iran,
#69, Jasour Ave.,
Tehran, Iran 13164

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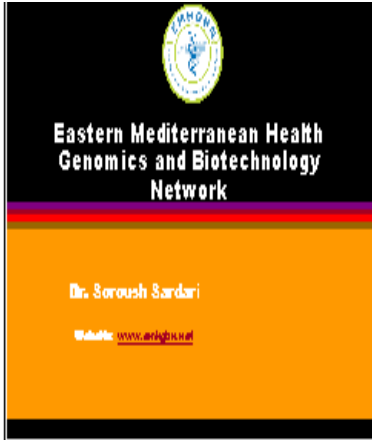
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shabake@jimdm.ir
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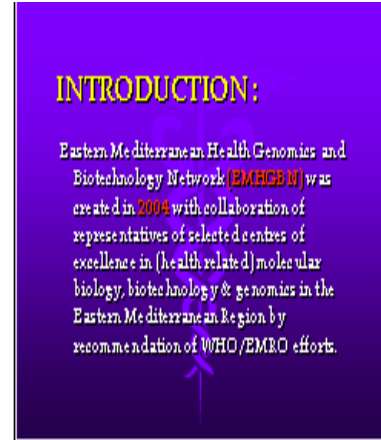
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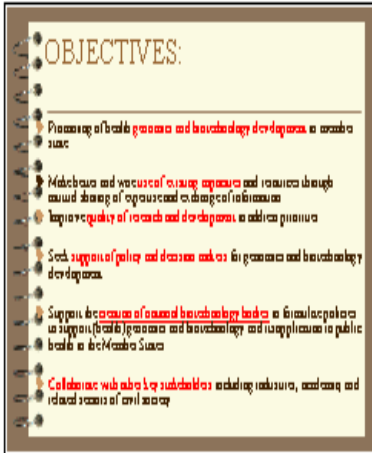
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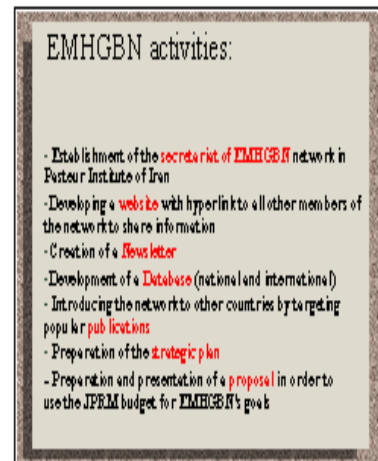
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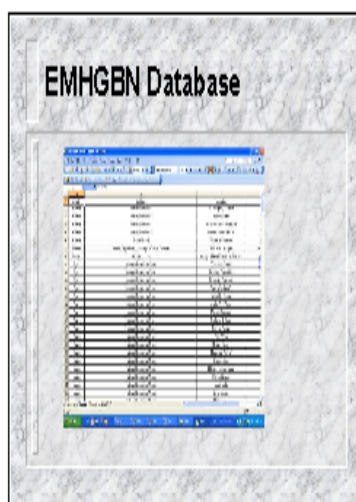
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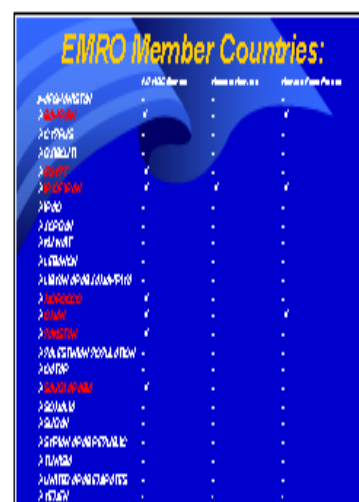
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Membership criteria for joining the regional network (EMHGBN)

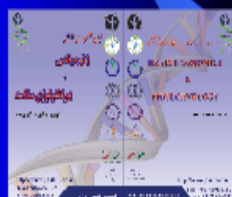
- 1- **Institutions** practicing state of the art research in human genomics and biotechnology.
- 2- Research & **academic**, public or private institutes or laboratories
- 3- **Reference group** of scientists with quality publications performing relevant activities
- 4- **Biotechnology manufacturers or service providers**



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The 1st International Congress on Health Genomics & Biotechnology

In the **6th International Health Genomics and Biotechnology Congress** (will be held by Pasteur Institute of Iran) there are many candidates and people for relative in the steering committee and each country will have to hand in a nomination list well in advance.



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Future Actions:

- Completion of the **System** for **EMHGBN**
- Completing **database** with collaboration of **All members** (each members is collecting related information of her/his representing or neighbor country)
- **Hosting the next meeting** to the International Genetics Congress satellite (at the same time) in **early of 2007**
- Putting the **membership** on the **EMHGBN** web
- **Developing the relation** with all of the **WHO** members

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Tehran, Iran 13164

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WEBSITE: WWW.EMHGBN.NET

E-MAIL: EMHGBN@gmail.com

SECRETARIAT@

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1-2- List of Side meeting participants



EMGEN side meeting



Pasteur and EMGEN booth

Bahrain

Dr. Ghazi Saeed Zeera

Dr. Muna Al Musawi

Egypt

Dr. Mohamed Omar Gad

Islamic Republic of Iran

Dr. K. Bagheri Lankarani (Minister of Health)

Dr. R. Dinarvand

Dr. A. Haeri

Dr. M. Rouholamini-Najafabadi (Pasteur Institute of Iran)

Dr. S. Zeinali (Pasteur Institute of Iran)

Dr. S. Sardari (EMGEN and Pasteur Institute of Iran)

Dr. S. Talebian

Oman

Dr. Anna Rajal

Pakistan

Dr. Ashfeq Ahmed

Saudi Arabia

Dr. Yagob Y. Al Mazrou

Syrian Arab Republic

Dr. Al-Housami Maher

GCC Office

Dr. Tawfik A.M. Khota

WHO/Iran

Dr. Arezoo Ibn Ahmady

Annex 2: Computational Biology Workshop Muscat – Oman

13-24 January 2007

Computational Biology Workshop

Muscat – Oman

13-24 January 2007

1) Dates: 13-24 January 2007

2) Workshop Objectives:

Our aim is to present a hands-on approach to Computational Biology software for computing novices. We will provide an overview of available software, discuss some of the ideas behind the approaches and tackle some common tasks. The workshop has many practical examples and these try to follow typical mini projects so that the relevance is apparent.

Computers are part of our every day lives. Everywhere you go they are used to keep track of data, process transactions and support communication. The Human Genome Project (and other genome sequencing projects) is producing data at an astounding rate; currently sequence entries are being added to the EMBL sequence database faster than we can read their one-line descriptions on average, one new sequence per second.

The task of processing all this data and converting sequences into gene and protein predictions would be impossible without the development of computer based analysis tools. The last few years have seen a rapid acceleration in the development of new bioinformatics approaches, and a dramatic increase in the number of researchers involved in this field.

So why do we need to learn computational Analysis? At the very least, we will need to identify whether a gene of interest has already been sequenced, and whether there are related sequences. If we aren't working on humans, or one of the other organisms that is being sequenced, there will be fewer pre-prepared resources available to us, although this discrepancy is narrowing, as more and more Genome projects are completed.

Objectives of the Workshop

The course focuses on the applications of Computational Biology in various areas of biological sciences. Main objectives of the workshop will be to:

- Provide an insight into the newly emerging field of Computational Biology
- Upgrade knowledge and refine skills in the field.
- Provide a forum to the participants to exchange views and experiences.

Topics

- Introduction to bioinformatics (Ensembl Browser).
- The increasing role of bioinformatics in the understanding of the processes of biology.
- Communication and analysis of biological data.
- Basic DNA Sequence Analysis
- Sequence comparison (I): Basic concepts: identity, homology and mutation matrices.
- Principles of Sequence Similarity A thorough explanation of the basis for sequence comparison
- Determining Protein Structure from Sequence using Computational Approaches.
- The machine Learning Approach. Automation of workflow: Database basics, manipulation, survey of data sets.
- Small and large scale expression analysis, Genome data analysis.
- Phylogenetic Analysis.
- Molecular Databases.
- Scoring Matrices
- Linkage Analysis
- Micro-array analysis

3)Sponsors

The Conference of Islamic Countries (COMSTECH) and Sultan Qaboos University, Muscat, Oman.

4)Candidates: Total 30 [Software Developers and Software Users]

Mathematicians, Statisticians, Computer Science Candidates, Software Developers, Biologists, Geneticists and Physicians from Islamic Countries. Level of experience preferred: Masters or Doctoral Degrees. Evidence of involvement in research in Computational Biology or related fields must be provided.

5)Organization :

Professor Riad Bayoumi, Department of Biochemistry, College of Medicine & Health Sciences, Sultan Qaboos University, Muscat, Oman.

6)Travel and Accommodation:

Candidates from Islamic Countries selected for the course will receive a travel grant from the Conference of Islamic Countries (COMSTECH) to cover cost of travel from home countries to Oman and back. Free accommodation will be provided at Sultan Qaboos University Faculty Club, for the duration of the workshop 12-25th January 2007.

7) Course venue

Annex Building Computer Facility.

College of Medicine & Health Sciences, Sultan Qaboos University, Muscat, Oman.

8) Program

I- Ensembl : [The genome Browser]
BioMart: [Data Mining Tool]

API: [Developers kit for customizing Ensembl]

This will last for 2½ days. Developers and users will use separate rooms. The users will do Ensembl while Developers will do BioMart and API.

II- Phylogeny: A 2½ day session, in which the 2 groups will also split and work separately. Software such as TOPALI will be used.

III- Linkage Analysis: A 2½ day session in which biologists and Software developers work together in pairs.

IV- Micro-arrays: A 2½ day session in which candidates also work in pairs (Developers and users). Expression profiles and other statistical packages for micro array analysis will be used. Pathway and network analysis is included.

9) Tutors

- 1) Professor Riad Bayoumi , Sultan Qaboos University, Oman
- 2) Mr. David Judge, Department of Genetics, University of Cambridge, UK
- 3) Dr. Lisa Mullan, European Bioinformatics Institute, Cambridge, UK
- 4) Mr. Frank Dudbridge, MRC Biostatistics Unit, Cambridge University, UK
- 5) Mr. Joaquin Dopazo, University of Cambridge, UK
- 6) Mr. Xose Fernandes, University of Cambridge, UK

10) Registration

Registration is needed (Use Attached Form).

Please also send a CV and supporting evidence of involvement in research, to

EMGEN office (Eastern Mediterranean Health Genomics and Biotechnology Network):

Dr. Soroush Sardari

Biotechnology building,

**#69, Pasteur Ave., Pasteur Institute of Iran
Tehran, Iran 13164**

Tel: 0098 21 66954324

Fax: 0098 21 66465132

E-mail: EMGEN@gmail.com

secretariat@EMGEN.com

Website: <http://www.EMGEN.net>

11) Candidate Selection

Registration Forms, CVs and supporting evidence have to be returned before 15th September 2006. Candidates will be selected and informed by 15th October 2006. Visa requirements and travel arrangements will be communicated to successful candidates by 1st November 2006.

REGISTRATION FORM

Computational Biology Workshop

13-24 January 2007

To be returned by 15th September 2006.

Mrs.

☐

Mr.

☐

Surname:

First Name:

Profession:

Mailing address:

Private ☐

Professional ☐

Professional Address:

.....

Post Code/ City:.....

Phone : Fax :

e-mail:

Private Address:

.....

Post Code/ City:

Phone:Fax :

e-mail:

Date and Place:

Signature

Annex 3: Strategic plan of EMGEN

Strategic plan of Eastern Mediterranean Health Genomics and Biotechnology Network (EMGEN)*



EASTERN MEDITERRANEAN HEALTH GENOMICS AND BIOTECHNOLOGY NETWORK

EMGEN

* Prepared by the secretariat of the EMGEN, developed by the ad hoc committee in Iran meeting of Feb, 2006 and Oman meeting May, 2006.

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1. Vision

- ◆ To create and sustain value by being recognized as a player in the international biopharmaceutical, genomics and biotechnological industry aiming at promoting health in the region.
- ◆ Sustainable development of health genomics and biotechnology through facilitation of high quality Research and Development training and sharing information, experience distribution and technology transfer in order to meet common and regional health needs of member countries.

2. Mission

- ◆ To induce collaboration in production, training, Research and Development to be self reliant in biotechnology and industries production.
- ◆ To facilitate cooperation between wealthy and poor countries to upgrade health standards.

3. Goals

- ◆ To promote regional common health objectives through Research and Development partnership and collaboration.
- ◆ To facilitate capacity building in genomics and biotechnology through public awareness and promotion, training and educational programs.
- ◆ To prioritize health related Research and Development in genomics and biotechnology.
- ◆ To support production of specific and new products.
- ◆ To meet internationally recognized standards in health genomics and biotechnology.

4. SWOT analysis

4.1) Internal Environment

4.1.1) Strengths:

- 1- Membership of some experienced research manpower in *Ad Hoc Committee*.
- 2- Involvement of a number of public decision makers in establishing the network.
- 3- Experience in creating National Biotechnology networks among member countries.

4.1.2) Weaknesses:

- 1- Uncertain financial resources.

- 2- Limited number of trained/expert manpower especially in the area of development and commercialization of the research outcomes among members.
- 3- Lack of effective prioritization of biotechnology research topics and communication among scientists and policy makers.
- 4- Lack of recognition of Genomics and Biotechnology potentials and capabilities in the member countries, such as human resources, laboratories, instruments, and etc.
- 5- Lack of advocacy of the research and Genomics and Biotechnology priorities among members.
- 6- Separation of the academia from economic world in the region and cost-benefit data.

4.2) External Environment

4.2.1) Opportunities:

- 1- Special support of WHO/EMRO in establishing these networks.
- 2-The international bodies such as, COMSTECH (OIC Standing Committee on Scientific & Technological Cooperation), Islamic Developing Bank (IDB), TWAS (the academy of sciences for the developing world) and etc, which support research and development activities in the developing countries
- 3-A great regional or worldwide market for the products derived from biotechnology processes carried out or initiated in the network
- 4- The possibility to carry out the necessary clinical trials in ethnic groups to develop new products in the member states according to Ethics.
- 5- Biodiversity and genetic variability of resources and diseases in member countries.

4.2.2) Threats:

- 1- The problem of brain drain among the member states
- 2- Political instability in some member states.
- 3-Limitations international collaboration in technology transfer and Research and Development activities
- 4- Paucity of knowledge towards Genomics and Biotechnology applications in dealing with the public health issues in the member states
- 5- Poor infrastructures for standardization and quality management
- 6-Inappropriate regulations/implementation and registration in IP system and biotech products in the member states.

7- Inexistence of strategic alliances and underdeveloped collaboration culture among the member countries institutes/companies/organizations.

5. Strategies:

1- Taking the necessary steps for resource mobilization supporting the network operation and accomplishments.

2- Priority setting in Research and Development activities based on specific and common needs of the members.

3- Managing research and development projects in order to elevate the collaborative efforts among the member states for reaching a particular technology.

4- Strengthening the infrastructure to consolidate intellectual property right of network activities in order for technology licensing and to be able transfer and avoid any conflict among the members.

5- Collaboration with and accepting the membership of product developing centers including the companies involved in the clinical trial and commercial sectors.

6- Establishing common and integrated standard and quality control protocols in all research, development and production activities in the member countries.

7- Establishing national networks in all member countries in order to achieve recognize and attract maximum potentials and capabilities.

8- Implementing particular training programs to increase the research, development and commercialization capability of the members.

9- Setting Information and awareness programs for Genomics and Biotechnology applications designed for high-ranking managers, policymakers, international institutes, higher education students and the public.

10- Assessment and control of activities and resource allocations through establishing indicators and regulations.

11- To update the state of development of medical genetic services and the major lines of research in medical genetics, taking place in the region.

12- To facilitate participation or collaboration of other key stakeholders including industries, academia and related sectors in civil society, on Health Genomics and Biotechnology.

13- To help in building capacity and developing human resources in Health Genomics and Biotechnology.

14- To serve as a resource to provide support for research and training in Health Genomics and Biotechnology.

- 15- To seek for collaborative partnerships of scientific institutions and industries in member states in the field of Health Genomics and Biotechnology.
- 16- To transfer technology from Eastern Mediterranean Health Genomics and Biotechnology Network to other countries.
- 17- To involve in planning, management and active participation in Genomics and Biotechnological research pertaining to health-related problems.
- 18- Collaborative linking with different local or regional organizations including universities, other institutions, national and international agencies, on Health Genomics and Biotechnology.
- 19- Effective coordination in getting key partners (National/ International) for planned commitments in ensuring that the research projects meet identified milestones.
- 20- To encourage and motivate establishment of infrastructure and practices aimed at product oriented research.
- 21- To facilitate interaction among scientists through meetings, seminars, courses, databases, web tools and other means.
- 22- Providing advocacy support for the network to the national governments, and providing technical support to research activities carried out in the partner's institutions.
- 23- To identify priorities for applied Genetics and Biotechnology research on disease diagnostics, prevention, treatment and bioinformatics.
- 24- To create projects in research, development and manufacturing to produce a high economic return for the prosperity of people and to serve the community.
- 25- To improve efficiency and avoid overlaps by promoting collaborative research projects in academic institutions and prioritizing research projects on diseases of impact and significance to the public's health.
- 26- To harness funds for research development projects on Health Genomics and Biotechnology through national government and international donors and organizations within (and outside) the region.
- 27- To facilitate the exchange of information and experience.
- 28- To make more cost effective use of existing capacities and resources on Health Genomics and Biotechnology through mutual sharing of expertise and exchange of information.

Annex 4: Bylaws of EMGEN



Bylaws of Eastern Mediterranean Health Genetics and Biotechnology Network (EMGEN)

Name:

Network should be named the Eastern Mediterranean Health Genomics and Biotechnology Network (EMHGBN) or EMGEN for easier pronunciation.

Vision

- ◆ To create and sustain value by being recognized as a player in the international biopharmaceutical, genomics and biotechnological industry aiming at promoting health in the region.
- ◆ Sustainable development of health genomics and biotechnology through facilitation of high quality R&D training and sharing information, experience distribution and technology transfer in order to meet common and regional health needs of member countries.

Mission

- ◆ To induce collaboration in production, training, research and development to help EMRO countries to be self reliant in health genomics and biotechnology
- ◆ To facilitate cooperation between wealthy and poor countries to upgrade health standards

Goals

- ◆ To promote regional common health objectives through R&D partnership and collaboration
- ◆ To facilitate capacity building in genomics and biotechnology through public awareness and promotion, training and educational programs.
- ◆ To prioritize health related R&D in genomics and biotechnology
- ◆ To support production of specific and new products
- ◆ To meet internationally recognized standards in health genomics and biotechnology

Membership criteria for joining the regional network (EMGEN):

- Institutions practicing state of the art research in human genomics and biotechnology.
- Research and development & academic, public or private institutes, laboratories or firms.
- Reference group of scientists with quality publications performing relevant activities
- Private and public Biotechnology manufacturers or product development companies and service providers

EMGEN membership:

- Full member will participate as (university, hospital, research institutions, biotech companies private or public, R and D institutes)
- Associate members are only for individuals.
- The commitment of the institution must be approved by their respected president.
- Members of the society will be associate members and the societies will be honorary.
- Societies are joined as honorary membership and will only be supporting the network. Honorary members e.g., WHO.
- In the network website, formatted forms are established as application form for submission or admission.
- The executive board can give submitted membership applications a provisional acceptance but the general assembly will have the final approval.
- The honorary members can not be in the steering committee but can be as acting members which can support the network e.g. the help of EMRO.
- Requests for membership should be submitted to the secretary general.
- The associate members will have no voting power, but full members will have a say as national members.
- Full members will participate in the voting but associates will benefit only at scientific level.
- A fee should be passed to show commitments to the committee.

- For institution need approval from the national network but individuals can go directly to the steering committee.
- Eligible candidate institutes from areas with no network can still be considered for membership. The countries that are not represented have to be informed. These countries need to be helped by WHO to establish a network.

Key activities of the regional network:

- Engage in organizing education and training programs, meetings, seminars and dissemination of information related to health genomics and biotechnology.
- Engage in constructive dialogue with stakeholders such as private sector, industries, health managers and related social sectors.
- Provide technical support to partners for developing skills and capacity strengthening in research and development for health care technologies.
- Encourage and facilitate national networks in the member states.

EMGEN Reference group:

An EMGEN reference group should be established to ensure adequate input from and outreach to a range of stakeholders and experts. It should comprise health researchers, and other experts, representatives of relevant ministries of Health and other relevant government, industry groups, public and private departments, and community stakeholder groups. The principle role of the EMGEN reference group should be to ensure the projects, themes and activities of EMGEN are properly informed by full and accurate accounts of the issues and technicalities involved. The EMGEN reference group will advise the steering committee and assist in planning research projects.

Steering committee member criteria and election:

- 1) Upon the election for the members the delivery of the work to the permanent steering committee will be carried out.
- 2) It should be by institution and also at individual level. A rule should be passed not to have more than one individual per institution will be carried out.
- 3) In Iran meeting there are more candidates so there will be more people for selections in the steering committee and each country will have to hand in a nomination list well in advance.
- 4) The actual steering committee is not established yet. So the election must be attached to a scientific congress thus the congress held in Iran is the most appropriate place, which is agreed by all.
- 5) If for some reasons, not held in Iran, it will be held in Oman 2008. One international symposium can be planned in Oman soon after the meeting in Iran.
- 6) The steering committee composition would be two from industry and 5 scientists. Among the seven members no two should be from the same country.
- 7) Opening of memberships could be through national election from each country and from these countries to elect 7 people.

- 8) Steering committee can be alternating every 3 years to have active members.
- 9) The host will be allowed secretary general out of the seven people.
- 10) The chairman will be selected through consensus or open vote.
- 11) Steering committee selection would be done through voting, one should be from the host country and 2 from the industry.
- 12) The countries that will vote are the present people and not active only.
- 13) National networks should be established before selecting the steering committee thus communication should be done through the network of a national member rather than individual contact.
- 14) Steering committee will only have a link to the national network, but will have nothing to do with it.

The Steering Committee Structure:

- 1- The steering committee is comprised of 7 members.
- 2- The seven members are elected by the general assembly, which is comprised of national and international institutions
- 3- Two members of the committee will be from the biotechnology industry.
- 4- The chairman is elected by the members of the steering committee.
- 5- A vice chairman and a treasurer are elected from members of steering committee by the members.
- 6- The hosting country can include two members, out of which one is director of the secretariat.

Steering committee selection procedure:

All the 22 countries have to come up with representatives

WHO can help by requesting the countries to make their own national networks and also to encourage selection in the network and recommend to ministries of health to fund the network and also the positions involved.

Overall, this can be done through WHO/EMRO, small meetings by WHO/EMRO in each country to catalyze this process.

Nomination will be made for executive board of the congress and further discussion is needed to find out what is expected from the members in the congress.

There will be a representative of the network in the Iran genomics and biotechnology congress executive committee, to help in organizing the meeting.

Notes:

- ◆ There is a need for general secretary (Director of the secretariat) and should be in place for at least three years.

Officers attached to the secretariat division:

A. The officers and Executive Committee of the Division shall consist of:

1. Chief officer who arranges and coordinates meetings, programs, symposia, etc. and chairs any general meeting of the Division.

2. Treasurer who maintains membership lists, financial records, and sends out announcements. The Treasurer will serve for 1-3 years.

5. Newsletter Editor (or Co-Editor) who publishes the Division Newsletter.

6. Members-at-Large (2) who serve on the Executive Committee (Staggered terms).

7. Student Representative who provides representation from student's perspectives, provides leadership for divisional student activities, and serves as a student liaison to the EMGEN. The Student Representative will serve for one year.

8. Secretary who runs the general duties of the secretariat.

9. Secretary general or Director of the secretariat, who also chairs the executive committee.

10. Technical assistant who is running and managing the computer system, website, database maintenance, video conferencing and other related duties.

The Secretary General:

- ◆ The network is administered by the general secretary, who is from the country hosting the secretariat.
- ◆ He/She is nominated by the host country and approved by the steering committee.

Notes:

- ◆ Possibility to have two individuals from one country as they are not going to represent their country, they will represent the group.
- ◆ Formulate council members to meet every three years from all interested personnel in each country

◆ There will be a meeting hosted by Iran (more than 200 persons from the area) will be meeting in Tehran. That meeting will be held in Nov. 2007 called the First International Congress on Health Genomics & Biotechnology. One or two representatives from each country could attend that meeting and at that stage the formulation of steering committee, could be considered. Ad Hoc committee decided to join their meeting with the expected meeting for Biotechnology which will be held in Iran Nov. 2007, but Ad Hoc members will need any brochures for that meeting, which was promised to be sent to the group as soon as it is ready.

◆ Every two years Iran is having their meetings in genetics and Biotechnology.

◆ Letter to be drafted to all institutes and manufacturers to offer them possibility of joining the group. A form for joining the group will be designed, then at that time the Ad Hoc members will be in a better position to start looking into moving toward choosing Steering Committee.

Action Plan:

◆ General assembly to be held in one year as a satellite to a scientific meeting (Self financing by participating members)

◆ National workshops in countries to develop/establish national networks

- WHO to solicit the national networks to countries

◆ Technical genomics and biotechnology training workshops by at least three or more member countries

◆ Oman-Iran-Egypt: Bioinformatics (introductory and advanced)

◆ Iran-Oman-Pakistan: Real-time PCR and Gene expression for recombinant proteins

◆ Countries may start joint projects on the following subjects: Genomic analysis of chromosomal abnormalities among the different countries involved.

Financial Policies:

◆ Member States should allocate specific funds in the biennial regular budget (JPRM planning) to support the EMGEN.

◆ EMGEN should harness funds for research and development projects through national governments and international donors and organizations within (and outside) the region such as COMSTECH, ISESCO, LDB, GCC, TWAS, ICGEB, Global Fund etc.

◆ WHO is our partners and will continue financing this group and advocate.

◆ The host country should be responsible for the financial aspects of running EMGEN secretariats.

◆ WHO representative in each of the countries allocate funds for running the network.

Funding:

‣ The Ad Hoc can start to approach funding agencies like Islamic Bank, WHO.

- The Ad Hoc committee will appoint someone to follow up on the matter.
- Prof. Hassar as the chairman will address people on this matter.
- Secretary General will amend the document together with the chairman.

Dues

Section 1. Members of the Division shall pay annual dues, the exact amount to be decided annually by the Steering Committee, based upon funds in the treasury and anticipated expenditures.

Section 2. Division Affiliates and National Affiliates shall pay annual dues, the exact amount to be determined by the Executive or the steering Committee.

Available Financial Resources:

◆ Dr. Rouholamini Najafabadi (of the host country and the head of Pasteur Institute of Iran) will commit 15,000,000 Tomans (Iran Currency, about €15,000) for personnel and other costs of the secretariat during 2006.

Collaboration and Partnership:

- ✓EMGEN should harness funds for research and development projects through national governments and international donors and organizations within (and outside) the Region such as COMSTECH, ISESCO, IDB, GCC, TWAS, ICGEB, Global Fund etc.
- ✓Technical genomics and biotechnology training workshops by at least three or more member countries
- ✓Countries may start joint projects on the following subjects: Genomic analysis of chromosomal abnormalities among the different countries involved.
- ✓A great regional or worldwide market for the products derived from biotechnology processes carried out or initiated in the network
- ✓ International collaboration in technology transfer and R&D activities

Advantages of membership in the EMGEN network:

- Sharing knowledge
- Collaborative Research
- Collaborative workshops
- Applying Grant
- Training Personnel
- Take advantages of industrial set ups

- Help in registering intellectual Property
- Commercialize products
- Take advantages of scientific networking
- Experience distribution
- Technology transfer
- Cooperation between poor and wealthy countries
- Promotion of the Research capacity building in Genomics and Biotechnology in the region
- Joining Projects and governing and supervising the projects
- Promotion in the field of utilizing research's result
- Development of international relationships

Privileges of membership in the network will include the following:

Receipt of 1) periodic newsletters regarding elections, programs, news items, etc.; 2) abstracts of papers to be presented before the Division at each National Meeting of the SOCIETY; 3) reduced rates for publications sponsored by the Division; 4) a reduced rate for the Abstracts of Papers presented at a network sponsored meetings.

Meetings

Section 1. The Network shall meet at least annually unless the Executive Committee votes otherwise, provided the requirements for a minimum number of meetings as specified in the Network Bylaws shall be met.

Section. 2. The Annual Meeting of the Network shall be held at the time of proposed in the pervious meeting. Division business requiring a vote of the membership shall be conducted only at this meeting, except as provided elsewhere in these bylaws. The order of business shall be as follows:

Report of the Executive Committee

Report of the Secretary

Report of the Treasurer

Report of Committees (Steering, etc)

Unfinished Business

New Business

Election of Officers

Annex 5: Frequent correspondence with of the Health Ministers EMRO countries

Nov. 13, 2006

Dear Honorable Health Minister of Oman,

Please kindly note, the Eastern Mediterranean Health Genomics and Biotechnology Network was created in 2004 with collaboration of representatives of selected centres of excellence in (health related) molecular biology, biotechnology & genomics in the Eastern Mediterranean region by recommendation of WHO/EMRO efforts.

The ultimate goals of this network are to induce collaboration in production, training, research & development to be self-reliant in biotechnology and to facilitate cooperation between wealthy and poor countries to upgrade health standards.

One of the EMGEN network's key activities that was mentioned in the Report on Eastern Mediterranean consultation for establishing a regional biotechnology network (Document WHO-EM/RPC/016/E/03.05/150) was facilitation of development and support of national networks in health biotechnology in the Member States. In fact, regional network intends to form links between the national networks that will be created in each country; although Islamic Republic of Iran has two related national networks among the member states which are named Iranian Molecular Medicine Network and Biotechnology Network. The critical responsibility of these networks will be the promotion and organization of the genetics and biotechnology activities in the respected country.

We will appreciate you to make known to us one or two focal persons of your country that we could have communications and coordination with.

Your kind consideration to this request will be greatly respected.

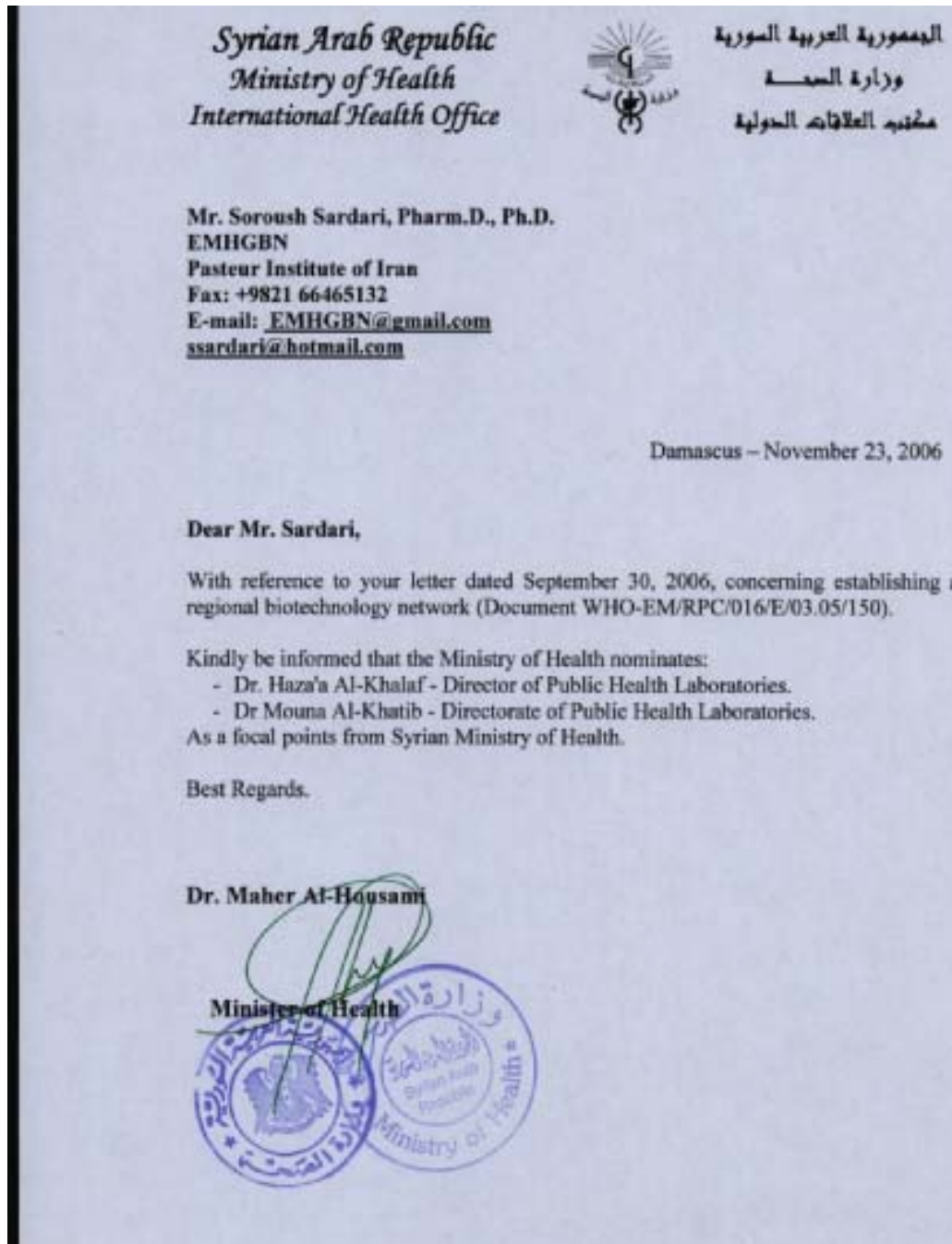
We are very much thankful to you/your delegation attendance in EMGEN side meeting of RC53, WHO/EMRO that was held in Isfahan.

Thank you in advance.

Best Regards,

Soroush Sardari, Pharm.D., Ph.D.
EMGEN
Pasteur Institute of Iran,
no.69, Pasteur Ave.,
Tehran, Iran 13164
TEL: 009821 66954324
FAX: 009821 66465132
WEBSITE: WWW.EMGEN.NET
E-MAIL: EMGEN@gmail.com
ssardari@hotmail.com

Annex 6: Health Ministers response regarding the introduction of two focal persons



Sultanate of Oman
Ministry of Health
Directorate General of Health Affairs
Office of the Director General

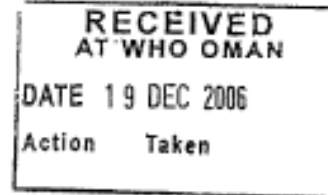


سلطنة عُمان
وزارة الصحة
مديرية العامة للشؤون الصحية
مكتب المدير العام

Ref: MH/DGHA/HQ/6/D/1/5687
Date: 16th December 2006

H.E Dr. Fatih El Samani
WHO Representative - Oman

After Compliments,



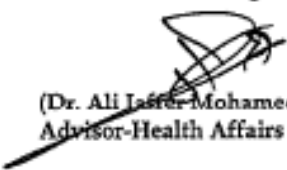
Sub: Institut Pasteur D'Iran

We refer to your letter WROMA.11.202 OMA/NCD (Genetics) dated 20th November 2006 to the Minister on the above subject.

In this regard, we would like to nominate the following people:-

1. Dr. Anna Rajab - Consultant Clinical Geneticist
2. Dr. Samir Al Azzawi, Head, Division of Medical Laboratories



With Thanks and Regards,



(Dr. Ali Jaffer Mohamed)
Advisor-Health Affairs and Supervising DGHA, Ministry Of Health

Cc: The Head, Office of H.E the Minister



/jn

Address  http://mail.google.com/mail/?auth=DQAAAGwAAAC1BNAqs7p2BAUJa68Q-5Ke_u-zML5sBd6-JGiwqu0EGWqj35-5y_3nPUVd0a-c  Go Links »

Foreign Health R. (HIA-Qatar) <hm_nahvamehann@yahoo.com> [Show details](#) Mar 14  Reply

Dr. Sorouch Sardari
Pasteur Institute of Iran
Tehran
Iran 13164

Dear Dr. Sardari,

Subject: EM Health Genomics and Biotechnology Network

Thank you for your letter dated 28.01.2007 regarding the above subject. In this regard, I would like to inform you that you can contact **Dr. Nasser Al-Ansary**, Asst Director, Medical Labs Department, Hamad Medical Corporation, at the following contact details:

Tel: +974-4391021, +974-4391022 or +974-4393694
Fax: +974-4312751

Wishing you all success, please accept my best regards.

Hitmi Mubarak Al-Hitmi
Act. Director, International Health Relations Dept
National Health Authority, Qatar

acts
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THE HASHEMITE KINGDOM
OF JORDAN
MINISTRY OF HEALTH

بسم الله الرحمن الرحيم



المملكة الأردنية الهاشمية

وزارة الصحة

Ref.No.

Date

الرقم ٣٠٣٩/٣١/١٤٢٨

التاريخ ١٤٢٨/١٢/١٨

الموافق ٢٠٠٧/١٢/١٨

سعادة ممثل منظمة الصحة العالمية

في الأردن

تحية طيبة وبعد،،،

اشارة لفاكسكم تاريخ ٢٠٠٧/٢/٢٥ ومرفقه من معهد باستور في ايران بخصوص
طلب تسمية ضابط ارتباط عدد (٢) للتعاون مع شبكة التكنولوجيا الحيوية
والجينومات في إقليم شرق المتوسط .

ارجو ان اعلمكم اننا نسمي الدكتورة اعتدال زيدان /رئيسة قسم المختبر في مستشفى
الأمير حمزه ، والدكتورة مناء سقف الحيط / رئيسة شعبة الامراض الوراثية لهذه

الغاية .

واقبلوا فائق احترامي ،،،

وزير الصحة

الدكتور سعد الخرابشه

نسخه/ مساعد الأمين العام للرعاية الصحية الأولية
نسخه/ مساعد الأمين العام للمستشفيات

Annex 7: Focal Persons of some of 22 EMRO countries

Focal Persons of some of 22 EMRO countries

Egypt:

- Dr Wagida Anwar, Director Ain Shams University Center for Molecular Biology, Biotechnology and Genomics, Abasseya, Cairo
- Dr Medhat Seif El Nasr, Director Engineering Research Institute for Molecular Biology, Biotechnology and Genomics, Mubarak City, Borg El Arab, Alexandria;

Jordan:

- Dr. Sana Sadeqfelheit
- Dr. Itidal Zaidan

Lebanon:

Dr. Andre Megarbane, MD, PHD
University of Saint Joseph
Unite de genetique medicale
Tel: +961 1 421252
Fax: +961 1 421021
E-mail: megarbane@usj.edu.lb

Oman:

- Dr. Anna Rajab- Consultant Clinical Geneticist
- Dr. Samir Al Azzawi, Head, Division of Medical Laboratories

Qatar:


Dr. Nasser Al-Ansary, Asst Director, Medica Labs Department, Hamad Medical Corporation
Tel: +974-4391021, +974-4391022 or +974-4393694
Fax: +974-4312751

Syria:

- Dr. Haza'a Al-Khalaf – Director of Public Health Laboratories
- Dr. Mouna Al- Khatib – Directorate of Public Health Laboratories

Annex 8: presentation in Manama, Kingdom of Bahrain

Side Meeting presentation in Manama, Kingdom of Bahrain



EMGEN 2004-2009
Eastern Mediterranean Region Health Genomics & Biotechnology for Member States
Saeedeh Sazdavi, Ph.D.

EMHGBN Office, Biotechnology Building,
 #69, Pasteur Institute of Iran, Pasteur Ave.,
 Tehran, Iran, 13164
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 Website: www.emhgbn.net, www.emgen.net



EMHGBN

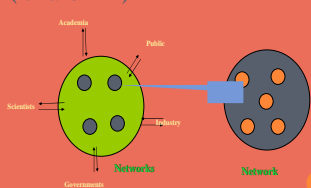
Member States: Afghanistan, Bahrain, Djibouti, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libyan Arab Jamahiriya, Morocco, Oman, Pakistan, Palestine, Qatar, Saudi Arabia, Somalia, Sudan, Syria, Tunisia, UAE, Yemen.

WHO-EMRO

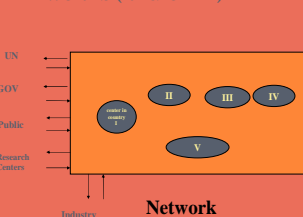
HISTORY AND BACKGROUND

Eastern Mediterranean Health Genomics and Biotechnology Network (EMHGBN) was created in 2004 with collaboration of representatives of selected centres of excellence in health related molecular biology, biotechnology and genomics in the Eastern Mediterranean Region by recommendation of WHO/EMRO efforts.

STRUCTURE A OF INTER- COUNTRY NETWORKS (REGIONAL)



STRUCTURE B OF INTER-COUNTRY NETWORKS (REGIONAL)



THE CONSULTATION MEETING JULY 31 THROUGH 2 AUGUST 2004 PASTEUR INST. IRAN



THE FIRST AD HOC COMMITTEE MEETING FEB 18 THROUGH 20- 2006 PASTEUR INST. IRAN



THE 2ND AD HOC MEETING FROM MAY 2 TO 3- 2006 SQU-OMAN



Steering Committee Election, Nov. 24, 2007



The 1st meeting of Steering Committee, Nov. 25, 2007



Vision

Visions of this network are:

- 1) To **create and sustain value** by being recognized as a player in the international biopharmaceutical, genomics and biotechnological industry aiming at **promoting health** in the region.
- 2) **Sustainable development** of health genomics and biotechnology through facilitation of high quality R&D training and sharing information, experience distribution and technology transfer in order to meet common and regional health needs of member countries.

Mission

- To induce **collaboration in production, training, research & development** to be self reliant in biotechnology
- To **facilitate cooperation** between developed and developing countries to upgrade health standards

Goals:

- To promote regional common health objectives through R&D partnership and collaboration
- To facilitate capacity building in genomics and biotechnology through public awareness, promotion, training and educational programs.
- To prioritize health related R&D in genomics and biotechnology
- To support production of specific and new products
- To meet internationally recognized standards in health genomics and biotechnology

SECRETARIAT

The secretariat will remain at the Pasteur Institute, Teheran, Iran, until 2010, after which the secretariat will move (rotate) to another agreed upon location or would stay in Iran.

Committees

- Steering Committee:**
EMHGBN Steering Committee Election was held at the First International Congress on Health Genomics and Biotechnology, Teheran, Iran in Nov. 24, 2007 and the main outcome of this election was involvement of 2 members from biotech industry of Iran and Tunisia, 5 members from academia of Bahrain, Egypt, Morocco, Oman, and Tunisia.
- Focal Persons:**
EMHGBN has 11 focal persons from Egypt, Syria, Lebanon, Jordan, Saudi Arabia, Qatar and Oman which have been introduced by their honorable health ministers that some of them have been elected as EMHGBN steering committee members and realized the importance of this project with kind contribution to Pasteur Institute of Iran.
- Fundraising Committee:**
 - The General Director of Pasteur Institute of Iran
 - Dr. Mohammad Hossain, Director of Pasteur Institute, Morocco
 - Dr. Hechmi Louir, Director of Pasteur Institute, Tunisia
 - Dr. Fereidoun Mahboudi, Director of National Medical Biotechnology Network and steering committee member

EMRO Member Countries:

Member Country	Genomics	Biotech	Health
Algeria			
Angola			
Argentina			
Australia			
Austria			
Bahrain			
Bangladesh			
Belarus			
Belize			
Bhutan			
Bolivia			
Brazil			
Bulgaria			
Burkina Faso			
Burundi			
Cameroon			
Canada			
Chad			
China			
Cote d'Ivoire			
Croatia			
Cuba			
Cyprus			
Czech Republic			
Dominican Republic			
DRC			
Egypt			
Ecuador			
Egypt			
El Salvador			
Equatorial Guinea			
Ethiopia			
Fiji			
Ghana			
Guatemala			
Honduras			
Hong Kong			
Hungary			
India			
Indonesia			
Iran			
Iraq			
Israel			
Italy			
Jamaica			
Japan			
Jordan			
Kazakhstan			
Kenya			
Korea			
Kuwait			
Laos			
Lebanon			
Lesotho			
Lithuania			
Luxembourg			
Macao			
Madagascar			
Mali			
Malta			
Mexico			
Moldova			
Morocco			
Mozambique			
Nepal			
Netherlands			
Nicaragua			
Niger			
Nigeria			
North Macedonia			
Oman			
Pakistan			
Panama			
Papua New Guinea			
Paraguay			
Peru			
Philippines			
Poland			
Portugal			
Romania			
Russia			
Saudi Arabia			
Senegal			
Serbia			
Seychelles			
Slovakia			
Slovenia			
Somalia			
South Africa			
Spain			
Sri Lanka			
Sudan			
Switzerland			
Taiwan			
Tanzania			
Togo			
Togo			
Tunisia			
Turkey			
Turkmenistan			
Uganda			
Ukraine			
United Kingdom			
United States			
Uruguay			
Uzbekistan			
Venezuela			
Vietnam			
Yemen			
Zambia			
Zimbabwe			

KEY ACTIVITIES

- Generating a **database** for each country including information and list of centers of excellence and scientists
- Developing a **website** with hyperlink to all other members of the network to share information
- Facilitating development and support of **national networks** in health biotechnology in the Member States
- Developing linkages with the identified **national focal persons** in genomics and biotechnology
- Establishing a **central repository** for the network
- Engaging in organizing education and training **programs**, meetings, seminars and dissemination of information related to health genomics and biotechnology
- Engaging in constructive dialogue with **stakeholders** such as private sector, industries, health managers and related social sectors
- Providing technical support to partners for **capacity building** and capacity strengthening in research and development for health care technologies



Announcements in EMHGBN.net and EMGEN.net

- EMHGBN Database** on the Research Centers/Institutes with representative scientists in Health Genomics and Biotechnology of the EMRO countries which contains the name of more than 12,000 scientists with their contact information.
- Recently more than 50,000 Industrial contacts.**

It is notable that the representative scientists of research centers/institutes in Health Genomics and Biotechnology of the EMR countries freely subscribe to the EMHGBN newsletters and they actually read them and recommend their opinions for enrichment of this publication.

Wrap up and Collaboration

- Settle down in your institute/country
- Mutual Benefit
 - A new arm for the sci./tech. into the region
 - Expansion of the network into the sci./tech.

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