

ICGEB

The ICGEB provides a centre of excellence for research, training and technology transfer in the field of biotechnology to promote sustainable global development

International
Centre for
Genetic
Engineering and
Biotechnology



80+ Signatory States, 60+ Member States

3 Components: Trieste (Italy) – New Delhi (India) - CapeTown (South Africa)
a network of 40+ Affiliated Centres

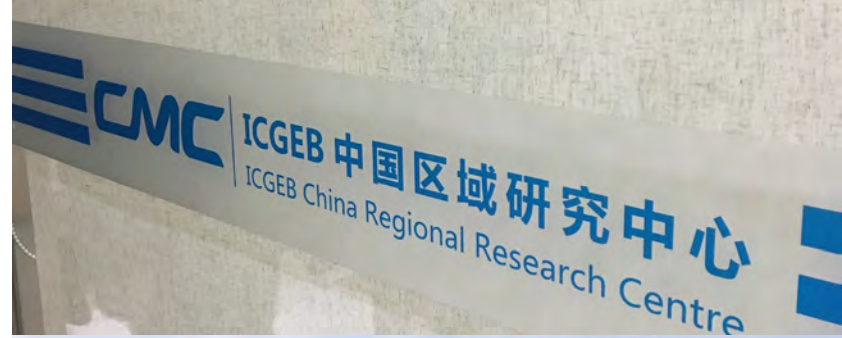
Developing knowledge

Ver. NOV19



ICGEB RRC CHINA China Medical City Taizhou

3000 square meters for three research
Subject virology: vaccine research and
development,
biological drugs and diagnostics.





ICGEB mandate

- **Promote** international cooperation in biotechnology and applying peaceful uses of genetic engineering and biotechnology for the benefit of its member states
- **Assist** member states in strengthening their scientific and technological capacities in the fields of genetic engineering and biotechnology

ICGEB action

- 1) **Cutting-edge scientific research** in its laboratories in Trieste, New Delhi and Cape Town;
- 2) Technology transfer to industry in Member Countries for the production of biotherapeutics and diagnostics;
- 3) Advanced scientific education for scientists from Member Countries at the doctoral and post-doctoral level;
- 4) Organisation of Meetings, Courses and Workshops;
- 5) Competitive research grants for scientists in Member Countries, including Early Career Return Grants;
- 6) Provision of technical assistance and capacity enhancement in the regulation of biotechnology and its products.

Research: Macro-Areas and Groups

1. Infectious Diseases (11 Groups)

VIROLOGY

Alessandro Marcello (TS)
Sujatha Sunil (ND)
Anmole Chandele (ND)
Oscar Burrone (TS)



PARASITIC DISEASES

Frank Brombacher (CT)
Pawan Malhotra (ND)
Asif Mohammed (ND)
Renu Tuteja (ND)
Dinkar Sahal (ND)
Amit Sharma (ND)
Neel Sarovar Bhavesh (ND)



CARDIOVASCULAR DISORDERS

Mauro Giacca (TS)
Serena Zacchigna (TS)
Francesco Loffredo (TS)



NEUROBIOLOGY

Emanuele Buratti (TS)
Fabian Feiguin (TS)



2. Non-Communicable Diseases (16 Groups)

IMMUNOLOGY

Dinakar Salunke (ND)
Federica Benvenuti (TS)
Dhiraj Kumar (ND)



MOLECULAR GENETICS

Francisco Baralle (TS)
Andrés Muro (TS)
Franco Pagani (TS)



CANCER

Lawrence Banks (TS)
Luiz Zerbini (CT)
Dimitar Efremov (TS)
Mike Myers (TS)



Research: Macro-Areas and Groups

1. Infectious Diseases (11 Groups)

VIROLOGY

HIV
HPV, HCV
Dengue, Zika
Tick-borne encephalitis
Chikungunya
Rotavirus



Amit Sharma (ND)
Neel Sarovar Bhavesh (ND)



Malaria
Trypanosomiasis
Leishmaniosis
Helminthic infections



2. Non-Communicable Diseases (16 Groups)

CARDIOVASCULAR

Regeneration
Angiogenesis
Cardiac hypertrophy
Ageing



NEUROBIOLOGY

TDP43
Neurodegeneration



IMMUNOLOGY

Dinakar Salunke (ND)

Dendritic cells and cancer
Antibody engineering



MOLECULAR GENETICS

Splicing variants in ALS
Gene therapy of
Crigler-Najjar
Syndrome
AAV vectors

Baralle (TS)
ro (TS)
gani (TS)



CANCER

Lawrence Banks (TS)
Luiz Zerbini (CT)

Cervical carcinoma, HPV
Chronic lymphocytic leukemia
Prostate cancer

D
M



Research: Macro-Areas and Groups

3. Medical Biotechnology (3)

BIOSIMILAR DRUGS

Natasa Skoko (TS)



RECOMBINANT DIAGNOSTICS AND VACCINES

Navin Khanna (ND)
Ranjan Nanda (ND)



4. Industrial Biotechnology (7)

BIOFUELS AND INDUSTRIAL BIOTECHNOLOGY

Syed Shams Yazdani (ND)
Naseem Gaur (ND)
Pavan Jutur (ND)
Shireesh Srivastava (ND)
Shashi Kumar Rhode (ND)
Dinesh Gupta (ND)
Giuliano Degrassi (Buenos Aires)



5. Plant Biology & Biotechnology (8)

CROP IMPROVEMENT

M.K. Reddy (ND)
Tanushri Kaul (ND)
S. Leelavathi (ND)
Vittorio Venturi (TS)



BIOTIC AND ABIOTIC STRESS

Suresh Nair (ND)
Niveti Sanan-Mishra (ND)
Sneh Laha
Singla-Pravek (ND)
Denis Obonyo Njoro (ICT)



Research: Macro-Areas and Groups

3. Medical Biotechnology (3)

BIOSIMILAR DRUGS

Nataša Skoko (TS)

Biosimilars
Recombinant antibodies

RECOMBINANT DIAGNOSTICS AND VACCINES

Navin Khanna (ND)
Ranjan Nanda (ND)



Dengue vaccine
Diagnostics both serology and molecular

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Giuliano Degrassi (Buenos Aires)



Biofuels
Microalgae
Cellulases, xylanases
Bioremediation



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Crop improvement by CRISPR/Cas9
Insect and virus resistance
Plant-associated bacteria
Salinity, drought resistance

Infectious disease publications' highlights 2019



ARTICLE

<https://doi.org/10.1038/s41467-019-11663-2>

OPEN

Viral priming of cell intrinsic innate antiviral signaling by the unfolded protein response

Tea Carletti^{1,4}, Mohammad Khalid Zakaria^{1,3,4}, Valentina Faoro¹, Laura Reale¹, Yvette Kazungu Danilo Licastro² & Alessandro Marcello¹



Role of Capsid Anchor in the Morphogenesis of Zika Virus

Jyoti Rana,^a José Luis Slon Campos,^{a*} Gabriella Leccese,^a Maura Francolini,^b Marco Bestagno,^{a*} Monica Poggianella,^a Oscar R. Burrone^a

Posttranscriptional Regulation of HIV-1 Gene Expression during Replication and Reactivation from Latency by Nuclear Matrix Protein MATR3

Ambra Sarracino,^a Lavina Gharu,^{a*} Anna Kula,^{b,c} Alexander O. Pasternak,^d Veronique Avettand-Fenoel,^e Christine Rouzioux,^e Maryana Bardina,^a Stéphane De Wit,^f Moncef Benkirane,^g Ben Berkhout,^d Carine Van Lint,^b



RESEARCH ARTICLE

The HPV-18 E7 CKII phospho acceptor site is required for maintaining the transformed phenotype of cervical tumour-derived cells

Om Basukala^b, Suruchi Mittal, Paola Massimi^b, Marco Bestagno^b, Lawrence Banks^{b*}

International Centre for Genetic Engineering and Biotechnology, Trieste, Italy



RESEARCH ARTICLE

Aedes aegypti microRNA, miR-2944b-5p interacts with 3'UTR of chikungunya virus and cellular target vps-13 to regulate viral replication

Sunil Kumar Dubey, Jatin Shrinet, Sujatha Sunil*

Vector Borne Diseases Group, International Centre for Genetic Engineering and Biotechnology (ICGEB), Aruna Asaf Ali Marg, New Delhi, India



Infection and Immunity

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Cellular Microbiology: Pathogen-Host Cell Molecular Interactions

Plasmodium falciparum Clag9 associated PfrhopH complex is involved in merozoite binding to human erythrocytes.

Bishwanath Kumar Choudhury, Anusuditya Deshmukh, Indrajit Kaur, Gourab Paul, Ashutosh Panda, Sumit Rathore, Sushree K. Singh, Michael Theisen, Asif Mohammed, Pawan Malhotra

DOI: 10.1128/IAI.00504-19

Impact of research in 2019:
>200 publications



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Technology Transfer: Vaccines & Infectious Disease

Sun Pharma and ICGEB to develop novel dengue vaccine

Sun Pharma and ICGEB signed an agreement to develop a vaccine targeted against all four serotypes of dengue virus

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Arijit Paladhi



Sun Pharma and ICGEB had, in May, announced another partnership for development of a

Patents

- Dengue subunit vaccine quadrivalent candidate DSV against all four DENV serotypes (PCT/IB2015/056352 – Khanna N. et al.)
- Anti dengue activity of *Cissampelos pariera* extracts (PCT/IB2010/050299 - Bhatnager, P.K. et al.)

Home BioTech Novavax, CPL Biologicals, ICGEB join hands for malaria research

India 20 July 2012 News By BioSpectrum Bureau

Novavax, CPL Biologicals, ICGEB join hands for malaria research

BILL & MELINDA GATES foundation

The Economist

World politics Business & finance Economics Science & technology Culture

Do you yield?

Growing anti-malaria drugs in tobacco plants

How to increase the supply of artemisinin

Oct 22nd 2016

[Timekeeper](#)

[Like](#) 462

[Tweet](#)



ONE of the most valuable weapons in the war on malaria is artemisinin, a drug c from the leaves of sweet wormwood. Its discovery, inspired by wormwood's use



Working Group on Zika Virus

ICGEB - Diagnostic kits



ICGEB - Diagnostic kits

Point-of-care testing (POC-T)
Lateral flow strip test for Dengue



POC testing for resource-limited settings

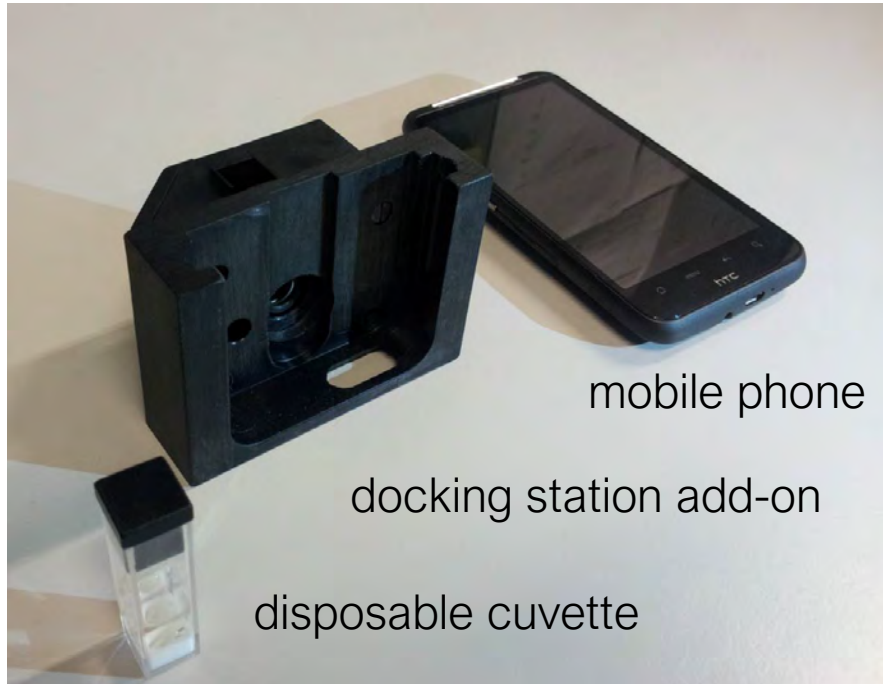
“Accurate diagnostics have the potential to affect health care decisions to a degree well out of proportion to their cost. It has been estimated that diagnostics account only 2% of the cost of health care, but affect 60-70% of treatment decisions. **In resource-limited settings, the impact of diagnostic tests that can be provided at the immediate point-of-care (a point-of-care test, or POCT) is potentially even greater, because the alternative to a POCT may be no diagnostic support at all**”.

Bringing the lab to the patient: developing POC diagnostics for resource-limited settings. A report from the American Academy of Microbiology (2011).



WHO criteria for the ideal diagnostic test ASSURED: Affordable, Sensitive, Specific, User-friendly, Rapid and Robust, Equipment-free (or minimal) and Deliverable to end users.

FLAVIPOC: development of a label-free bio-CHIP for antigen and antibody detection



A mobile smartphone-based prototype:
Docking station with no active components. All operations are performed by the smartphone hardware (LED, CCD, Wi-Fi connection) and software (image acquisition, data analysis, user interface).

FLAVIPOC Regional Project from the Regione Friuli FVG (PAR FSC 2007-2013) in collaboration with Euroclone SpA, ICGEB, University of Trieste, CBM and Burlo Garofolo Children Hospital.

Tagliabue et al. A label-free immunoassay for Flavivirus detection by the Reflective Phantom Interface technology. BBRC 2017.

ZIDECHIP: development of a miniaturized portable RT PCR device for the simultaneous detection of Zika, Dengue and Chikungunya



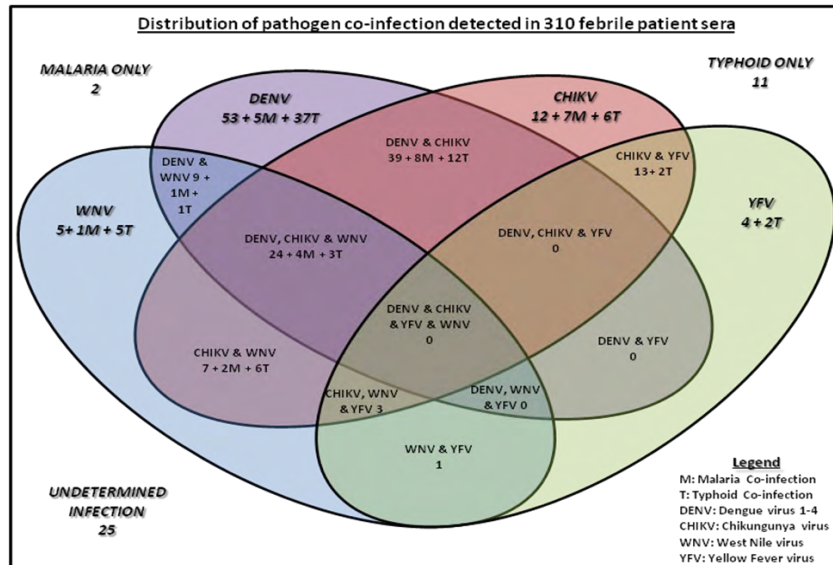
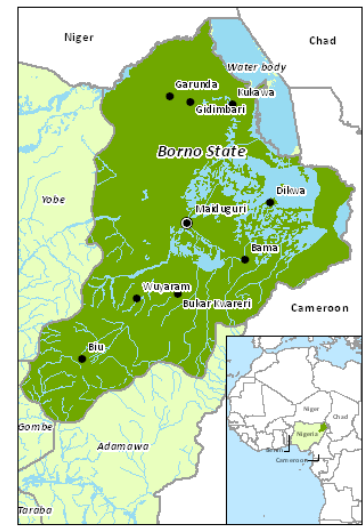
"Data gaps undermine our ability to target resources, develop policies and track accountability. Without good data, we're flying blind. If you can't see it, you can't solve it" Kofi Annan, UN

AIM

Establishment of a reference laboratory for Arbovirus infection surveillance at the WHO National Polio Laboratory, University of Maiduguri Teaching Hospital, Borno State, NIGERIA (Head: Professor Marycelin M. Baba)

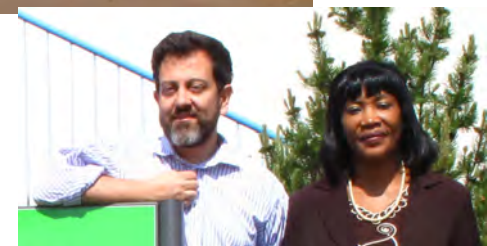
ACHIEVEMENTS

- Collaboration (ICGEB CRP Grant) on the biotechnology transfer of virological assays for Arbovirus surveillance (IgM/IgG ELISA, RT-PCR, PRNT);
- Exchange of knowhow and researchers (ICGEB ST Fellowships);
- Survey of Arbovirus sero-prevalence in suspected febrile Malaria and Typhoid patients in Nigeria;



REFERENCES

- Baba, M et al. Virological point-of-care testing for the developing world. *Future Virology*, 9(6), 595-603 (2014).
- Baba, M et al. Evidence of arbovirus co-infection in suspected febrile malaria and typhoid patients in Nigeria. *J Infect Dev Ctries* 7, 51-9 (2013).
- Baba, M et al. A survey for neutralizing antibodies to the three types of poliovirus among children in Maiduguri, Nigeria. *J Med Virol* 84, 691-6 (2012).



Biotechnology transfer

The transfer of technologies is one of the most relevant activities of ICGEB. Over 70 agreements have been concluded with **industrial partners** located in Argentina, Brazil, China, Cuba, Egypt, India, Iran, Pakistan, Russia, South Africa, Sri Lanka, Syria, Turkey, United Arab Emirates, United States of America, Uruguay and Venezuela.

The procedure to transfer ICGEB technologies foresees the finalization of a **Technology Transfer Agreement**, which usually provides for a period of training in the ICGEB laboratories by a number of industrial partners' employees, a supply of genetically modified strains and the protocols for the **production, purification and quality control** of a specific biotechnological product.

Products

- Recombinant Human Erythropoietin
- Recombinant Human Interferon α 2a
- Recombinant Granulocyte Colony Stimulating Factor
- Recombinant Human Insulin
- Recombinant Human β Interferon 1B
- Recombinant Pegylated Human Interferon α 2a
- Recombinant Pegylated Granulocyte Colony Stimulating Factor
- Recombinant Hepatitis B Surface Antigen (R-HBsAg)

New development: monoclonal antibodies



Monoclonal antibodies

Monoclonal antibodies for cancer treatment such as [trastuzumab \(Herceptin\)](#)

Monoclonal antibodies for the treatment of acute viral infections:

ZMapp, an antibody tested during the Ebola outbreak in West Africa from 2014 to 2016.

M 102.4, developed by Australian researches, which can neutralize the effects of the Nipah and Hendra viruses. Obtained for emergency use during last outbreak in Kerala, India (2018).

REGN-EB3, is a cocktail of three monoclonal antibodies against Ebola developed by Regeneron Pharmaceuticals of Tarrytown, New York.

mAB114, is derived from a single antibody recovered from the blood of a person who survived Ebola in the DRC in 1995 developed by the US National Institute of Allergy and Infectious Diseases (NIAID).

REGN-EB3 and **mAB114** are currently being tested in the last Ebola outbreak with superior activity over **Zmapp** or the antiviral drug Remdesivir.





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ICGEB training

The Arturo Falaschi ICGEB Fellowship Program offers long and short-term fellowships for scientists who are nationals of ICGEB Member States to perform research in Trieste, New Delhi or Cape Town.

ICGEB PhD: aim at the *Doctor Philosophiae* (PhD) degree in the life sciences. The title is awarded through a number of academic institutions of international standing: The Open University (UK), the International School for Advanced Studies (SISSA) in Trieste, the Jawaharlal Nehru University in New Delhi and the University of Cape Town in South Africa.

ICGEB postdoc: to highly motivated scientists wishing to pursue postdoctoral research in ICGEB laboratories.

Short-term fellowships: for Pre-doctoral and Postdoctoral studies in ICGEB laboratories to fund ongoing collaborative research between scientists from ICGEB Member States and research groups at ICGEB, with the aim of facilitating access to the latest research techniques and to strengthen capacity building.

Scientific Mobility for Advanced Research Training (SMART): to promote the mobility of researchers between ICGEB Member States (i.e. South-South collaborations).

ICGEB-DIC-MOST International Fellowship Program offers competitive short-term Fellowships Life Sciences to highly motivated scientists from ICGEB Member States wishing to pursue postgraduate research in China.



The Arturo Falaschi Fellowship Programme

Postdoctoral Fellowships



Mohammad Khalid ZAKARIA, Postdoc @ ICGEB Trieste

Trieste ITALY | New Delhi INDIA | Cape Town SOUTH AFRICA

ICGEB offers competitive **Postdoctoral Fellowships** in **Life Sciences** to highly motivated scientists wishing to pursue post-doctoral research in a **world-class scientific environment**.

The Fellowships comprise a very **competitive** package including stipend, travel provision, health insurance and additional benefits.

The most successful fellows will also be eligible to apply for **ICGEB Early Career Research Grants** to support their **own research** programmes as young PIs upon return to an ICGEB Member State.

Closing dates for applications:

31 March and 30 September 2019

Nationals from **ICGEB Member States** are encouraged to apply

Alghanistan, Algeria, Argentina, Bangladesh, Bhutan, Bosnia and Herzegovina, Brazil, Bulgaria, Burkina Faso, Burundi, Cameroon, Chile, China, Colombia, Costa Rica, Côte d'Ivoire, Croatia, Cuba, Ecuador, Egypt, Eritrea, FYR Macedonia, Hungary, India, Iran, Iraq, Italy, Jordan, Kenya, Kuwait, Kyrgyzstan, Liberia, Libya, Malaysia, Mauritius, Mexico, Montenegro, Morocco, Namibia, Nigeria, Pakistan, Panama, Peru, Qatar, Romania, Russian Federation, Saudi Arabia, Senegal, Serbia, Slovakia, Slovenia, South Africa, Sri Lanka, Sudan, Syrian Arab Republic, Trinidad and Tobago, Tunisia, Turkey, United Arab Emirates, United Republic of Tanzania, Uruguay, Venezuela, Viet Nam

www.icgeb.org/fellowships.html

ICGEB Information and Applications:
ICGEB CRP & Fellowships Unit
Loc. Padriciano, 99 - 34149 Trieste, ITALY
Tel.: +39-040-3757382/7347
Email: Fellowships@icgeb.org | www.icgeb.org



The Arturo Falaschi Fellowship Programme

PhD Fellowships



Hendrina Shisanga, former Student @ ICGEB Cape Town

Trieste ITALY | New Delhi INDIA | Cape Town SOUTH AFRICA

ICGEB offers competitive **PhD Fellowships** in **Life Sciences** to highly motivated scientists wishing to pursue PhD research studies in a **world-class scientific environment**.

Fellowships include:

- Participation in a competitive **research programme**
- Access to state-of-the-art **facilities**
- Participation in **ICGEB Meetings, Seminars and Journal Clubs**
- A competitive **stipend**, travel provision plus full coverage of **tuition fees** and health insurance

Closing date for application:

31 March 2019

Nationals from **ICGEB Member States** are encouraged to apply

Alghanistan, Algeria, Argentina, Bangladesh, Bhutan, Bosnia and Herzegovina, Brazil, Bulgaria, Burkina Faso, Burundi, Cameroon, Chile, China, Colombia, Costa Rica, Côte d'Ivoire, Croatia, Cuba, Ecuador, Egypt, Eritrea, FYR Macedonia, Hungary, India, Iran, Iraq, Italy, Jordan, Kenya, Kuwait, Kyrgyzstan, Liberia, Libya, Malaysia, Mauritius, Mexico, Montenegro, Morocco, Namibia, Nigeria, Pakistan, Panama, Peru, Qatar, Romania, Russian Federation, Saudi Arabia, Senegal, Serbia, Slovakia, Slovenia, South Africa, Sri Lanka, Sudan, Syrian Arab Republic, Trinidad and Tobago, Tunisia, Turkey, United Arab Emirates, United Republic of Tanzania, Uruguay, Venezuela, Viet Nam

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ICGEB-DIC-MOST International Fellowship Programme

Short-term Fellowships



CHINA

International Fellowship Programme in **Life Sciences**

The **ICGEB-DIC-MOST** International Fellowship Programme (IFP) offers competitive **Short-term Fellowships** in **Life Sciences** to highly motivated scientists from eligible **ICGEB Member States** wishing to pursue postgraduate research in **China**.

The Programme supports the mobility of researchers to **prestigious Chinese laboratories** for a period of **6 or 12 months**, to benefit from the expertise and technologies available in the receiving laboratories. The IFP Call is managed by the **China National Center for Biotechnology Development (CNCBD)**, with the support of the **ICGEB**.

Closing date for application:

30 September 2019

Nationals from eligible **ICGEB Member States** are encouraged to apply

Algeria, Argentina, Bangladesh, Brazil, Bulgaria, Chile, Colombia, Costa Rica, Cote d'Ivoire, Croatia, Cuba, Ecuador, Egypt, Hungary, India, Iran, Jordan, Kyrgyzstan, Libya, Malaysia, Mexico, Montenegro, Morocco, Nigeria, North Macedonia, Panama, Pakistan, Peru, Romania, Saudi Arabia, Serbia, Slovakia, Slovenia, South Africa, Sri Lanka, Sudan, Syrian Arab Republic, Tunisia, Turkey, United Republic of Tanzania, Uruguay, Venezuela, Viet Nam

*Nationals from China are not eligible to apply

<https://www.icgeb.org/activities/fellowship/>

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ICGEB

International Centre for Genetic
Engineering and Biotechnology

Developing
Knowledge

ICGEB Meetings and Courses 2020

Call for Proposals

ICGEB provides support for the organisation of scientific events in the Life Sciences in ICGEB Member States.* Funding is available for **Meetings**, to be held in the three ICGEB Components (Trieste, Italy; New Delhi, India; Cape Town, South Africa); **Workshops**, co-sponsored by local organising institutes; **Courses**, providing theoretical and/or practical training. The **"Future of Science"** programme supports scientific events on currently hot scientific topics, with open communication to media and public. **Sponsorship** is also provided to scientific events relevant to the ICGEB mandate in the ICGEB Member States.

Closing date for applications: 28 February 2019

Scientific institutions located in **ICGEB Member States** are encouraged to apply

*Afghanistan, Algeria, Argentina, Bangladesh, Bhutan, Bosnia and Herzegovina, Brazil, Bulgaria, Burkina Faso, Burundi, Cameroon, Chile, China, Colombia, Costa Rica, Côte D'Ivoire, Croatia, Cuba, Ecuador, Egypt, Eritrea, Hungary, India, Iran, Iraq, Italy, Jordan, Kenya, Kuwait, Kyrgyzstan, Liberia, Libya, Malaysia, Mauritius, Mexico, Moldova, Montenegro, Morocco, Namibia, Nigeria, North Macedonia, Pakistan, Panama, Peru, Qatar, Romania, Russian Federation, Saudi Arabia, Senegal, Serbia, Slovakia, Slovenia, South Africa, Sri Lanka, Sudan, Syrian Arab Republic, Trinidad and Tobago, Tunisia, Turkey, United Arab Emirates, United Republic of Tanzania, Uruguay, Venezuela, Viet Nam, Zimbabwe.

ICGEB **Information:**
ICGEB Meetings and Courses Unit
Loc. Padriciano, 99 - 34149 Trieste, ITALY
Tel: +39-040-3757332/7333
Email: MeetingOrganisers@icgeb.org

<https://www.icgeb.org/activities/meeting-and-courses/>





Meetings and Courses 2019

Trieste, ITALY
 Course "US imaging in cardiac and vascular medicine: from pre-clinical to clinical studies" *in collaboration with Fujifilm VisualSonics*
 (21-22 Feb)
 Course "Mouse genetics; models for human diseases"
 (25-28 Mar)
 Course "Flow cytometry: from basic principles to advanced applications - CytoFluo@ICGEB"
 (8-10 May)
 Course "Bioinformatics: computer methods in molecular and systems biology"
 (24-28 Jun)
The Arturo Falaschi Conference Series 2019 "ICGEB DNA Tumour Virus Meeting - 50th Anniversary"
 (9-14 Jul)
 Workshop "Genome editing applications and beyond"
 (22-25 Oct)

Belgrade, SERBIA
 ICGEB Sponsored session "Management of oral mucositis in oncological patients"
 (29-30 Nov)

Varadero, CUBA
 ICGEB Sponsored Event "Animal Models and preclinical research (AniMod 2019)"
 (5-9 May)

Bled, SLOVENIA
 ICGEB-TRAIN Workshop on "High content imaging and data science for virtual screening and drug discovery"
 (13-17 May)

S. Martin na Muri, CROATIA
 ICGEB Sponsored Event "Power of microbes in industry and environment 2019"
 (15-18 May)

Bratislava, SLOVAKIA
 Workshop "Trends in medicinal and pharma biotechnologies in Europe: towards strengthening regional cooperation including CEE countries"
 (3-4 Jun)

Bucharest, ROMANIA
 Workshop "Modern Biotechnological Advances for Human Health - BAHH"
 (28-31 May)

Abu Dhabi, UAE
 ICGEB Sponsored Event "Nuclear and cytoplasmic molecular machines at work"
 (8-10 Apr)

Islamabad, PAKISTAN
 Workshop "Use of genome editing and other new breeding technologies for global food security"
 (8-10 Apr)

Hanoi, VIETNAM
 ICGEB Sponsored Event "South-East Asia Region, ICGEB-IMBT Workshop on plant endophytes and their roles in controlling plant health"
 (5-6 Nov)

New Delhi, INDIA
 Course "Development of enzymes and microbial technologies for clean energy"
 (18-22 Feb)
 Workshop "Plant stress biology and food security"
 (18-20 Apr)
 Course "Fluorescence Microscopy - FluoMicro@ICGEB"
 (2-4 Oct)

Colombo, SRI LANKA
 Course "Hybridoma technology for monoclonal antibody production: applications in immunodiagnosics"
 (7-14 Aug)

Abuja, Ibadan, NIGERIA
 ICGEB Sponsored Event "Workshop on Drosophila melanogaster in African biomedical research"
 (15-20 Sep)
 Course "Basic laboratory training on GMO analysis"
 (15-21 Sep)

Cape Town, SOUTH AFRICA
 Workshop "Epigenetics of infectious and non-communicable diseases"
 (16-19 Sep)

Rosario, B. Aires, ARGENTINA
 Course "Control mechanisms of gene expression in eukaryotic model organisms"
 (22-26 Oct)
 ICGEB Sponsored Event "10th Meeting of the Latin American Society for Developmental Biology - LASDB"
 (28-31 Oct)

Bogotá, COLOMBIA
 Course "Second Soil Microbial Ecology International Course, an integrated and functional view for its application in agriculture"
 (16-20 Sep)

Lima, PERU
 Course "Bioinformatics applications to support the analysis of plant biotechnological research"
 (4-15 Mar)
 ICGEB Sponsored Event "First Annual Meeting of the Peruvian Society of Biochemistry and Molecular Biology - SPBBM 2019"
 (16-17 Jul)

Montevideo, URUGUAY
 Course "Redox chemistry and biology of thiols"
 (18-28 Feb)

Santiago, Puerto Varas, CHILE
 Course "Optics, forces & development"
 (25 Mar-5 Apr)
 ICGEB Sponsored Event "Molecular biosystems conference on eukaryotic gene regulation and functional genomics"
 (30 Sep-4 Oct)





International Centre for Genetic
Engineering and Biotechnology

Developing Knowledge



ICGEB-JRC Workshop on
“Genome editing applications and beyond”
19-22 November 2019 | Trieste, ITALY



9-13
November

Workshop “Emerging infectious diseases: biology, prevention and treatment”

São Paulo, BRAZIL

In collaboration with:



Organisers:

Sandra Coccuzzo (Instituto Butantan, São Paulo, Brazil)
Rodrigo Calado (Universidade de São Paulo, Brazil)



ICGEB

International Centre for Genetic
Engineering and Biotechnology

Developing
Knowledge

ICGEB Research Grants 2019

CRP - Collaborative Research Programme

ICGEB offers a dedicated source of **funding for outstanding projects** in ICGEB Member States, with the goal of promoting collaboration, training of young scientists and the development of research facilities.

The programme provides support for research activities in **basic life sciences, human healthcare, industrial and agricultural biotechnology and bioenergy**.

Applicants should hold positions at **Universities or Research Institutes** in any of the **ICGEB Member States***

A new special category, Early Career **Return Grants**, funds young researchers, who have spent a minimum of 2 years abroad and who have recently returned to an ICGEB Member State to establish an independent laboratory.

Closing date for submission:

30 April 2019

ICGEB Member States

Afghanistan, Algeria, Argentina, Bangladesh, Bhutan, Bosnia and Herzegovina, Brazil, Bulgaria, Burkina Faso, Burundi, Cameroon, Chile, China, Colombia, Costa Rica, Côte D'Ivoire, Croatia, Cuba, Ecuador, Egypt, Eritrea, Hungary, India, Iran, Iraq, Italy*, Jordan, Kenya, Kuwait, Kyrgyzstan, Liberia, Libya, Malaysia, Mauritius, Mexico, Moldova, Montenegro, Morocco, Namibia, North Macedonia, Nigeria, Pakistan, Panama, Peru, Qatar, Romania, Russian Federation, Saudi Arabia, Senegal, Serbia, Slovakia, Slovenia, South Africa, Sri Lanka, Sudan, Syrian Arab Republic, Trinidad and Tobago, Tunisia, Turkey, United Arab Emirates, United Republic of Tanzania, Uruguay, Venezuela, Vietnam, Zimbabwe.

** Laboratories in Italy are excluded from the call*

ICGEB Information and Submission:

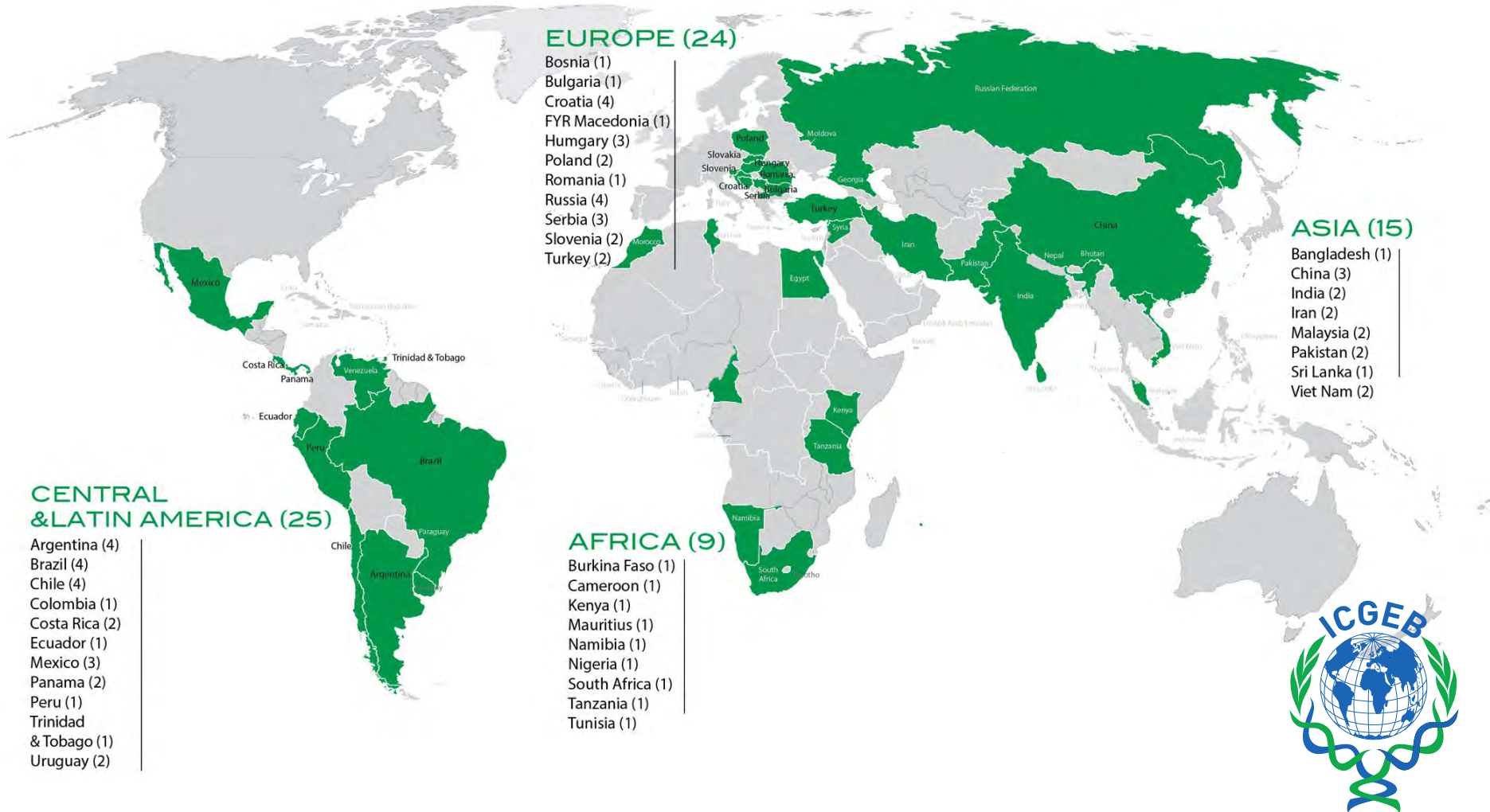
ICGEB Research Grants - CRP & Fellowships Unit
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Tel.: +39-040-3757382
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<http://www.icgeb.org/research-grants.html>



CRP – ICGEB Research Grants

Ongoing Projects (73)





ICGEB mandate

- **Promote** international cooperation in biotechnology and applying peaceful uses of genetic engineering and biotechnology for the benefit of its member states
- **Assist** member states in strengthening their scientific and technological capacities in the fields of genetic engineering and biotechnology

ICGEB action

- 1) **Cutting-edge scientific research** in its laboratories in Trieste, New Delhi and Cape Town;
- 2) **Technology transfer** to industry in Member Countries for the production of biotherapeutics and diagnostics;
- 3) Advanced **scientific education** for scientists from Member Countries at the doctoral and post-doctoral level;
- 4) Organisation of **Meetings, Courses and Workshops**;
- 5) Competitive **research grants** for scientists in Member Countries, including Early Career Return Grants;
- 6) Provision of **technical assistance and capacity enhancement** in the regulation of biotechnology and its products.



ICGEB Capacity Building Project for sub-Saharan Africa



Assisting the development of effective safety and regulatory systems for the products of modern biotechnology in selected countries of sub-Saharan Africa (SSA)

A 4-year project focussing on enhancing the ability of regulatory authorities in SSA to regulate the development &/or commercialisation of the products of modern agro-biotechnology, by the formation of a solid bedrock of African expertise through which regulatory systems can be manned effectively and sustainably.

Project dedicated URL:

www.icgeb.org/biosafety/projectforSSA/abouttheproject.html



www.facebook.com/pages/ICGEB-Biosafety-Capacity-Building/166333846846436



BILL & MELINDA
GATES foundation

eLearning portfolio



Currently – 7 modules
<https://showcase-icgeb.elearning.it/>

- Developed with funds from Bill & Melinda Gates Foundation
- Adopted by 6 African Regulatory Offices
- Transferring administration in SSA to AUDA-NEPAD
- Can be offered in other projects

The purpose of this **Biosafety & Biosecurity Module** is to:

- Provide an introduction to features and approaches similar to both biosafety and biosecurity;
- Provide a fundamental understanding of biosecurity and why it is important;
- Help identify risks depending on the commodities and activities of a facility to help allocate resources for securing them;
- Provide an overview of the components of a biosecurity program;
- Provide an overview of the dual-use risks associated with modern microbiology;

Upon completing this **Biosafety & Biosecurity Module**, you will:

- Be able to identify biological hazards and judge how important they are;
- Understand the complementarity between biosafety and biosecurity in biorisk management;
- Have an insight on biosecurity requirements that certain commodities demand in today's society;
- Be aware of risks and sources of risks related to biosecurity;
- Be provided with the fundamental tools for assessing such risk;
- Be aware of biosecurity measures, and where to apply them, based on identified risks;
- Know how to integrate biosecurity into biosafety and recognize potential conflicts.

ICGEB – BWC Challenges & Opportunities

Surveillance & Response to bio-threats either natural, accidental or criminal. Implementation of a multidisciplinary and multilateral approach for the development of cost-effective tools for surveillance and treatment:

- POC-T multiparametric diagnostic tools;
- Drugs and monoclonal antibodies;
- Collection and analysis of samples, integration with environmental, geographical and socio-economical data, forecasting tools.

Ongoing multilateral actions:

- EEA and Norway Grants Fund for Regional Cooperation – *TBFVnet: surveillance and research on tick-borne flaviviruses* – Norway, Sweden, Czech Republic, Slovakia, Russia and ICGEB. 2020-2004 2nd stage evaluation;
- BRICS-ICGEB draft agreement approved at the 3rd BRICS STI Working Group Meeting on Biotechnology and Biomedicine – Brazil 2019– *The ICGEB will support BRICS countries in establishing multilateral collaborations [...] special emphasis will be on infectious diseases, particularly on the development of new drugs, [...] in the investigation of drug resistance [...] and in the establishment of new tools based on big data collection and analysis of pathogen profiling and stratification for early diagnosis [...].* Brazil, China, India, Russia, South Africa and ICGEB.

ICGEB – BWC Challenges & Opportunities

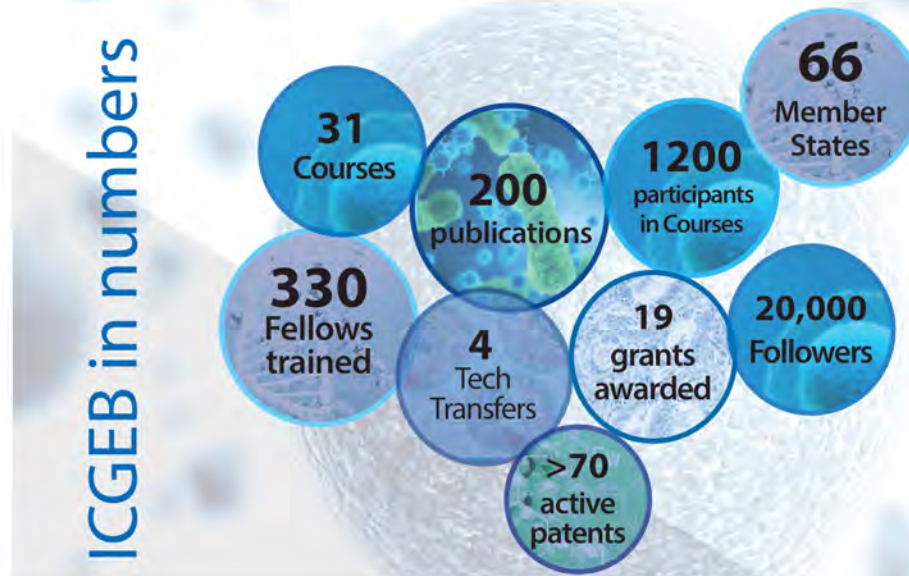
- **Training:** training schemes for ICGEB fellows from Member States for infectious disease surveillance and treatment, including concepts of biosecurity and dual use to improve the capillary dissemination of good practice also through E-learning modules for Biosecurity.
- **Advocacy and Outreach:** promote multilateral agreements for infectious disease surveillance and treatment. Promote safe use of biotechnology and dual use notion spread at national, regional, and international level by specific initiatives targeting different audience (practitioners, researchers but also ministries officials) within ICGEB Meetings and Courses;
- **Monitoring:** taking advantage of the existing network of the national, sub-regional and regional research and development centers affiliated to the ICGEB in its Member States to monitor progress towards infectious disease surveillance and treatment, and biorisk management;

Thank you

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Our impacts in 2019

- >200 **publications** in highly acclaimed scientific journals, including Nature, Science, Cell, Nature Reviews Cancer, Nature Medicine
- >330 **fellows trained**
- 31 **meetings and courses** held in 20 countries
- >1200 **participants** in meetings and courses
- 19 **grants** awarded to laboratories in developing countries (for a total of 914,000 Euro)
- >70 **active patents**
- 4 **agreements** with industry (Technology Transfer and R&D)
- 66 **Member States**
- 20,000 followers on **social media**



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