

The last category to be decided in the fifth edition of this award family

The Drugs for Neglected Diseases initiative (DNDi) takes the BBVA Foundation Frontiers of Knowledge Award in the Development Cooperation category

- DNDi, in the words of the jury, has “developed and delivered new, effective and affordable treatments for poverty related diseases”
- In the last ten years, DNDi has developed six new treatments for malaria, Chagas disease, sleeping sickness and leishmaniasis and made them available through Latin America, Asia and Africa.
- A mere ten percent of the world's health research expenditure is spent on diseases accounting for 90 percent of the global health burden.

Madrid, February 26, 2013.- The BBVA Foundation Frontiers of Knowledge Award in the Development Cooperation category goes in this fifth edition to the Drugs for Neglected Diseases initiative (DNDi) for “developing and delivering new, effective and affordable treatments for poverty related diseases including Chagas disease, sleeping sickness, malaria and leishmaniasis affecting the world's most vulnerable populations,” according to the award citation. DNDi, in the jury's judgment, “represents an institutional model of good practice, translating scientific research to development cooperation, through knowledge management and delivery of results to disadvantaged populations suffering from neglected diseases.”

Informed of the award, DNDi's Executive Director Bernard Pécoul expressed his delight “for the organization, but also for those suffering neglected diseases, who are what this initiative is all about.”

“Despite the major progress achieved in global health over the last century, there remains a significant equity gap and many diseases affecting the poorest populations are still neglected,” the citation continues. “This represents shortcomings of market incentives resulting in only 10% of the world research

expenditure being spent on diseases that account for 90% of the global health burden. Controlling and eliminating these diseases is a vital component of the strategy to alleviate poverty."

"A neglected disease is one that affects many people, but whose victims who do not constitute a lucrative market and therefore fail to attract private-sector investment. They are also diseases which kill or which, like sleeping sickness for instance, prevent their young sufferers from working. And this imposes a heavy economic as well as personal burden on families and communities. **In places where these conditions are widely prevalent, economic development is seriously impaired,**" Bernard Pécoul explains.

It is reckoned that over a billion people – almost one in six of the world's inhabitants – are infected with one of the 17 diseases listed by the WHO as neglected tropical diseases, and, of this number, 500 million are children. These conditions moreover cause half a million deaths a year. And if we include other poverty related diseases like malaria, the affected population swells to three billion.

The awardee organization is a Product Development Partnership (PDP), a model which, the jury affirms, has proved its effectiveness over the last ten years: "It has successfully worked with academia, industry, NGOs and governments around the world, to develop and implement six new drugs against malaria, Chagas, sleeping sickness, and leishmaniasis. These diseases potentially affect more than 3 billion people. Some of their new products have been registered in more than 30 countries in Africa, Asia and Latin America, and, as an example, over 150 million doses of their antimalarial drugs have already been delivered."

Drugs for Neglected Diseases is a not-for-profit organization founded in 2003 on the combined initiative of seven public and private institutions: Médecins Sans Frontières/Doctors Without Borders, the Indian Council for Medical Research, the Kenya Medical Research Institute, the Malaysian Ministry of Health, France's Institut Pasteur, Brazil's Oswaldo Cruz Foundation (Fiocruz), and the Special Program for Research and Training in Tropical Diseases of the World Health Organization.

A 120-strong team working out of its offices in Switzerland, Brazil, the Democratic Republic of the Congo, Kenya, India, Malaysia, the United States and Japan, coordinate a partnership network of around 600 engaged individuals who liaise with the public and private institutions involved in each project.

Its mission is to discover and develop new treatments for neglected diseases and other poverty related conditions, and to ensure that patients in the most vulnerable countries enjoy equitable access to the results. In view of the circumstances of this target public, the "ideal" treatment should be oral, safe, effective, low cost, and short course. "Diagnosis should be simple," Pécoul points out, "while the idea that treatments should preferably be oral and short course is so patients do not have to travel for hours or even days to have the drug administered in a hospital center."

DNDi's strategy is to detect the need for a particular treatment, then coordinate and synergize the efforts of public and private partners – including pharmaceutical companies – in its development, production and distribution. Pécoul talks about its relationship with the pharma industry: “We have signed contracts with numerous laboratories, some of them at quite early development stages, and I can say that these relationships have worked well. They know that they're not going to make a profit, but the projects are supported by the people in their own teams and they are also aware that the countries affected are the market of the future.”

Since it was founded, DNDi has come up with six new treatments for forgotten patients by improving, reformulating or combining existing drugs.

These include two treatments against malaria – ASAQ, developed in partnership with Sanofi, manufactured in Africa and distributed in 32 countries, and ASMQ, based on a technology transferred from Brazil to India; one to combat sleeping sickness – NECT, replacing previous toxic or more expensive treatments; a further two against visceral leishmaniasis – of shorter duration and now being distributed in East Africa and Asia; and a sixth against Chagas disease – a new pediatric dosage form of an existing treatment developed with a public laboratory in Brazil.

Pécoul is especially proud of the new sleeping sickness treatment: “It has meant a huge change. I spent over 20 years with Médecins Sans Frontières, and it was tough walking into a hospital and knowing that the drug in use – an arsenic derivative – was so toxic that it killed 5 percent of the patients it was supposed to cure. But we had no alternative because the disease killed 100 percent.”

The jury stressed that DNDi's work encompasses the design, evaluation, registration, production and implementation of drugs under the strictest standards of quality and safety, and collaborating with public and private organizations on the ground to ensure a successful delivery.

Pécoul highlights a recent shift in the flow of research. “It used to be that research was generated in the north then applied in the south. But we have now extended our model to enable more interaction between the countries of the south, so they help each other mutually. In the future, this could mean, for instance, that the solution for Chagas patients in Spain comes from Brazil or Argentina.”

DNDi is currently promoting research in two other conditions: filarial parasitic worm diseases and pediatric HIV. It also has 30 projects at different stages of the development pipeline, 11 of which are totally new drug candidates.

“We are working on a one-week oral treatment for sleeping sickness which it seems could also be effective against leishmaniasis and Chagas,” informs the DNDi director. “If things go well, we may one day have a single drug for these three poverty related conditions at far below the current cost.”

DNDi draws its funding in equal measure from public agents – governments and institutions – and the private sector – foundations, NGOs and other organizations.

“The situation in Europe is worrying in this respect. That's why we are seeking to diversify, so if a particular government can no longer help, we have other sources on hand to support our activity.”

BBVA Foundation Frontiers of Knowledge Awards

The BBVA Foundation primarily engages in the generation and diffusion of scientific knowledge and culture, through ongoing programs in the areas of basic sciences, biomedicine, ecology and conservation biology, social sciences, literary and musical creation, and the visual arts.

Its focus on the core concerns of today's society, like health or the environment, has materialized in major research projects, including those involving the study of cancer. The Foundation's support for research, advanced training and knowledge dissemination is also manifest in a series of award families which not only honor the winners' contributions but also shed a wider light on their fields of work, the values they represent and the combined endeavors of the research and creative communities.

The BBVA Foundation established its Frontiers of Knowledge Awards in 2008 to recognize the authors of outstanding contributions and radical advances in a broad range of scientific and technological areas characteristic of our times. They are in this sense a prize family congruent with the knowledge map and central challenges of the 21st century.

The nominations received from leading universities and research and cultural centers all round the world, the independence and objectivity of the prize juries formed by reputed specialists in their respective fields, and the excellence of the laureates in their earlier editions have earned these awards, devised and organized from Spain, a firm place among the world's foremost award schemes. The BBVA Foundation is assisted in this initiative by the country's premier multidisciplinary research organization, the Spanish National Research Council (CSIC), and by the presence of Spanish scientists and creative practitioners on the international juries.

The CSIC collaborates in the appointment of Technical Evaluation Committees for each prize category made up of acknowledged experts in the relevant domain. This Committee undertakes an initial assessment of candidates and draws up a reasoned shortlist for the consideration of the juries.

In the Development Cooperation category, Committee members were Cristina de la Puente, Research Scientist in the Center for Humanities and Social Sciences (CCHS, CSIC) and coordinator of the Council's Humanities and Social Sciences Area; Javier Rojo, Research Scientist in the Institute of Materials Science of Madrid (ICMM,CSIC); Xavier Querol, Research Professor in the Institute of Environmental Assessment and Water Research (IDAEA, CSIC); Dolores Gonzalez-Pacanoska, Research Professor at IPBLN-CSIC and Pedro Serena, Research Professor at IMM-CSIC.

The Frontiers awards provide an international showcase for the best qualities of Spain and Spanish science, and have achieved the endorsement of the world

scientific community, whose members have served on the juries and put forward nominations from their posts in eminent Spanish and international academic and research institutions.

In their fifth edition, the BBVA Foundation Frontiers of Knowledge Awards wish to offer support and recognition to the individuals and teams working for a better future for people through the advancement of knowledge, innovation and culture and their dissemination to society; goals and practices that are also at the center of the BBVA Group culture.

In an economic context marked by a prolonged economic crisis and the adoption of short-term measures to tackle its multiple causes and manifestations, science, the environment and culture have dropped further down the list of public priorities. The BBVA Foundation Frontiers of Knowledge Awards, and the Foundation's broader program to foster scientific knowledge and culture, wish to drive home the message that these three areas are of transcendental importance for our collective wellbeing and individual opportunities.

The eight categories of the BBVA Foundation Frontiers of Knowledge Awards, each carrying prize money of 400,000 euros, respond to the knowledge map of the early 21st century, but also to key global challenges that have never before merited a specific honor on this scale, as with the two environmental categories – Ecology and Conservation Biology and Climate Change – and the category of Development Cooperation. These stand alongside the classic categories of Basic Sciences, Biomedicine and Economics, Finance and Management. Finally, the award family is completed by Contemporary Music, an art at the leading edge of cultural innovation to which the BBVA Foundation devotes a broad-ranging support program, and where Spain is home to a wide and talented community of authors, conductors and performers.

International jury

The jury in this category was chaired by **Pedro Alonso**, Director of the Barcelona Institute for Global Health (ISGlobal) of Hospital Clinic-University of Barcelona, with **José García Montalvo**, Vice President for Science Policy at Pompeu Fabra University, acting as secretary. Remaining members were **Maricela Daniel**, Representative in Spain of the United Nations High Commissioner for Refugees (UNHCR); **Vicente Larraga**, Research Professor in the Center for Biological Research of the Spanish National Research Council (CSIC); and **Francisco Pérez**, Professor of Economic Analysis at the University of Valencia and Research Director of the Valencian Institute of Economic Research (Ivie).

Last year's winner in this category was **Ciro de Quadros** for "leading the efforts to eliminate polio and measles from the western hemisphere and being one of the most important scientists in the eradication of smallpox around the world," in the words of the award citation. The award in the third edition went to the **International Rice Research Institute (IRRI)** for its contribution to "reducing poverty and hunger in the world by means of rice research and farmer training." In the second edition, the winner was the **Development Research Institute (DRI)** at New York University (United States) for "its contribution to the analysis of foreign aid

provision, and its challenge to the conventional wisdom in development assistance.” Finally, the inaugural award went to the **Poverty Action Lab at Massachusetts Institute of Technology (MIT)** (United States) for “promoting the use of scientific methods to assess the effectiveness of development assistance funding.”

Laureates in the eight award categories

Remaining winners in the fifth edition of the BBVA Foundation Frontiers of Knowledge Awards are as detailed below:

The BBVA Foundation Frontiers of Knowledge Award in the **Climate Change** category went to U.S. scientist **Susan Solomon** for her work on determining how human action alters the composition of the atmosphere and how these changes, in turn, affect the Earth’s climate, and for “having contributed, through her research and leadership, to the safeguarding of our planet,” in the words of the jury. “Her early research, fundamental to the understanding of stratospheric chemistry, led to the strengthening of the Montreal Protocol to curb the use of ozone-destroying substances.” In recent years, the citation adds, “her contributions and leadership within the IPCC and other forums is a role model of science for the public good.”

The BBVA Foundation Frontiers of Knowledge Award in the **Information and Communication Technologies (ICT)** category went to U.S. electrical engineer **Loffi A. Zadeh**, “for the invention and development of fuzzy logic.” This “revolutionary” breakthrough, affirms the jury in its citation, has enabled machines to work with imprecise concepts, in the same way humans do, and thus secure more efficient results more aligned with reality. In the last fifty years, this methodology has generated over 50,000 patents in Japan and the U.S. alone.

The BBVA Foundation Frontiers of Knowledge Award in the **Basic Sciences** category was shared by mathematicians **Ingrid Daubechies** and **David Mumford** for “their works in pure mathematics, which have strongly influenced diverse fields of application ranging from data compression to pattern recognition,” in the words of the jury’s citation. The two have formulated solutions to varied and complex problems starting from the vantage point of pure mathematics, but guided by a multidisciplinary approach.

The BBVA Foundation Frontiers of Knowledge Award in the **Biomedicine** category was granted jointly to chemist **Douglas Coleman** and physician **Jeffrey Friedman** for “revealing the existence of the genes involved in the regulation of appetite and body weight, a discovery crucial to our understanding of human pathologies such as obesity,” reads the award citation. Coleman and Friedman’s findings, in the view of the jury, have not only opened up a new era of research into the biological roots of obesity, but have also brought about a paradigm shift in social attitudes by showing that obesity is not due to “inappropriate behavior, but is the consequence of imbalance in a hormone-driven process.”

The BBVA Foundation Frontiers of Knowledge Award in **Ecology and Conservation Biology** went to U.S. marine ecologist **Jane Lubchenco** for her experimental work, which has advanced understanding of coastal ecosystems and laid the scientific groundwork for the design of marine reserves. Lubchenco, in the words of the jury's citation, "has been a leader in establishing marine reserves based on solid principles of ecological science. Her work established a scientific framework for defining the optimal locations, size, and connectivity of marine reserve networks, effectively integrating her scientific expertise into science-based principles for public policy."

The BBVA Foundation Frontiers of Knowledge Award in the **Contemporary Music** category went to French composer **Pierre Boulez**, in recognition that "he is not only an eminent composer, with a determinedly forward vision, but also a key figure engaging in every aspect of musical reflection and transmission," in the words of the award citation. "The sum of his activities," it concludes, "evidences an acute awareness of the artist's intellectual and social responsibility in the modern age."

The BBVA Foundation Frontiers of Knowledge Award in **Economics, Finance and Management** was granted to U.S. mathematician **Paul Milgrom** "for his seminal contributions to an unusually wide range of fields of economics including auctions, market design, contracts and incentives, industrial economics, economics of organizations, finance, and game theory," in the words of the jury. This breadth of vision encompasses a business focus that has led him to apply his theories in advisory work with governments and corporations. He is perhaps best known for his work on auction theory, the citation continues, where "he has explored issues of design, bidding and outcomes for auctions with different rules. Professor Milgrom has designed auctions for multiple complementary items, with an eye towards practical applications such as frequency spectrum auctions."

LAUREATE'S FIRST DECLARATIONS AND IMAGES

A video recording of the new laureate's first interview on receiving news of the award is available from the Atlas FTP with the following name and coordinates.

Server: **213.0.38.61**
Username: **agenciaatlas1**
Password: **amapola**

The name of the video is:
"FBBVA PREMIO COOPERACIÓN AL DESARROLLO"

In the event of connection difficulties, please contact Alejandro Martín at ATLAS:

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