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innovative medicines initiative

Innovative Medicines Initiative Highlights 2014

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Foreword

Since its launch in 2008, the Innovative Medicines Initiative (IMI) has launched Calls for proposals which will eventually result in the establishment of over 50 projects. The successes of these projects mean that IMI is now recognised worldwide as a model public-private partnership (PPP) in healthcare. As IMI embarks on its second phase, it is timely to look back on what the organisation has achieved in its short existence.

As this report demonstrates, the projects supported by IMI continue to address issues of great relevance to European citizens such as antimicrobial resistance, dementia and diabetes. More broadly, by creating new relationships between the multiple stakeholders in healthcare, IMI exerts a significant influence on pharmaceutical research and development for the common benefit of industry and society.

On this solid basis, IMI has now embarked on its second phase, IMI 2. IMI 2 is the new PPP dedicated to research and innovation in healthcare under Horizon 2020. With its efficient and highly-motivated staff, the IMI Executive Office is fully committed to continuing its mission of facilitator to achieve the ambitious goals set for IMI 2, which should result in concrete improvements in the standard of care across the EU.

All this has been and will be possible thanks to the efficient collaboration between the EC services and the European Federation of Pharmaceutical Industries and Associations (EFPIA), together with the essential support of the IMI Scientific Committee and the IMI States Representatives Group (SRG).

Finally, tribute should be paid to the 6 000 scientists who every day contribute to IMI's reputation as a European flagship for pharmaceutical research.

Michel Goldman, MD, PhD
IMI Executive Director

Introducing IMI

The Innovative Medicines Initiative (IMI) was launched in 2008 with the goal of speeding up the development of safer and more effective medicines through a public-private partnership (PPP). Today, IMI has established itself as a pioneer of open collaboration, a novel way of working that is radically changing the shape of the pharmaceutical research and development (R&D) landscape. The benefits of this approach are evident from the many significant results generated by IMI's projects, which are delivering scientifically-excellent results that are helping to address some of the biggest challenges in health research and boost the competitiveness of Europe's pharmaceutical sector.

A collaborative community

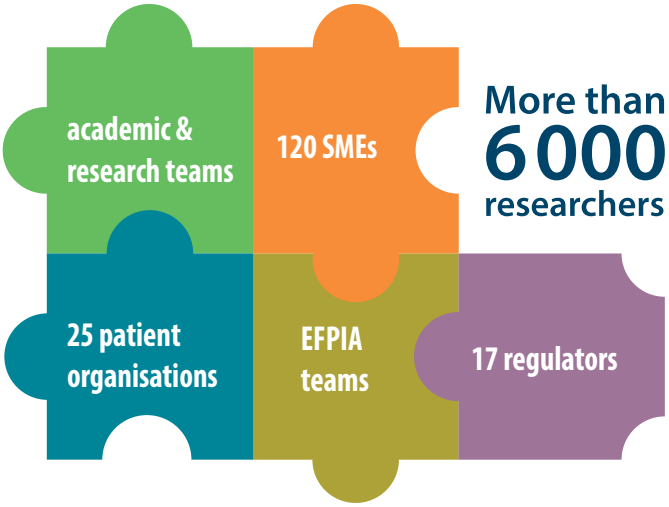
Collaboration is key to IMI's success. IMI's projects represent a community of over 6 000 researchers from academic teams, pharmaceutical companies, SMEs, patient groups and regulators from across Europe and beyond. Through IMI, they are working together to tackle some of the biggest challenges in health research – challenges that are simply too big for any single company, university or even country to take on alone. IMI facilitates these collaborations by acting as a neutral third party, providing impartial advice and support to all partners before, during and after the project.

Getting to grips with intellectual property

Intellectual property (IP) represents a challenging area for collaborations involving so many diverse stakeholders. IMI's IP policy has proven effective at protecting project partners' interests while encouraging the sharing and exploitation of knowledge. The IP policy's strength lies in its flexibility; this allows it to be readily adapted to the needs of each project. Thanks to the IP policy, project partners are sharing compounds, data and knowledge with one another in an unprecedented way.

Follow the money

Its €5 billion budget makes IMI the world's biggest public-private partnership in health research. The EU contributes half of this from its research programmes - the Seventh Framework Programme (FP7) and Horizon 2020. This goes to the universities, small and medium-sized enterprises (SMEs), patient groups, regulatory bodies, and other public organisations participating in IMI projects. The rest comes from pharmaceutical companies that are members of the European Federation of Pharmaceutical Industries and Associations (EFPIA).



Working for

- Collective intelligence networks
- Improved R&D productivity
- Innovative approaches for unmet medical needs

These companies do not receive any funding from IMI, but contribute to the projects 'in kind', for example by donating their researchers' time, or providing access to research facilities or resources. An analysis of the IMI project portfolio reveals that over a third of IMI's funding goes to research into infectious diseases. Projects here are tackling issues such as antimicrobial resistance, and vaccine safety and efficacy. Other priorities include drug discovery (which covers projects on drug development and drug efficacy), brain disorders (including Alzheimer's disease, autism, schizophrenia, depression, and chronic pain), and metabolic disorders (such as diabetes). The projects cover the full spectrum of drug discovery and development, from understanding the underlying causes of disease and identifying potential drugs and drug targets, through testing potential drugs for safety and efficacy, to clinical trial design, and monitoring the benefits and risks of medicines and vaccines once they are in use.

IMI funding by research area (2008-2013 figures)

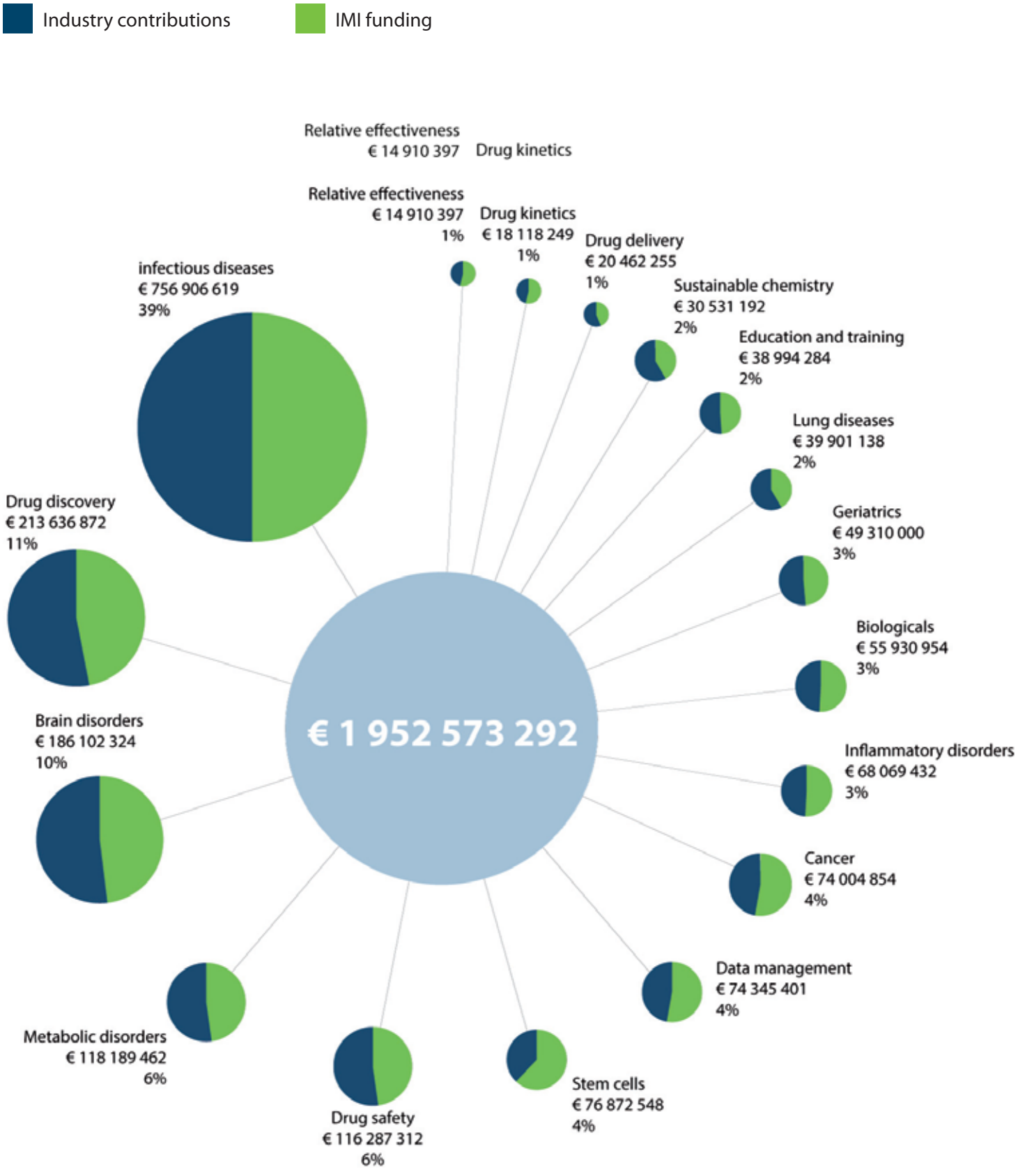


Diagram adapted from 'Infectious disease leads in first phase of Europe's IMI effort', Nature Medicine, published online on 7 January 2014.

Collaborating for cures – IMI tackles unmet needs in medicine

Although medical research has saved countless lives over the years, there are still many diseases for which there is no cure, or where treatments are only effective in some patients. Very often, these diseases are so complex, that only a collaborative effort uniting all stakeholders involved in health research can hope to make progress, and that's where IMI comes in.

Progress on brain disorders

Brain disorders affect 1 in 3 Europeans and cost the economy almost €800 billion annually. There are very few effective treatments for brain disorders, and because the brain is such a complex organ, developing new drugs for brain disorders costs more and takes longer than for other disease areas. IMI has a number of projects in this area, and between them they are demonstrating that by collaborating, progress in this challenging area is possible.

- People with **autism** experience difficulties in social interaction and communication, and often have unusual repetitive behaviours. Although autism affects 1 child in 110 and is a lifelong condition, there are no drugs designed specifically to treat the main symptoms. **IMI's EU-AIMS project** is generating tools that will enhance our understanding of autism, and ultimately pave the way for the development of new, safe and effective treatments for use in both children and adults. EU-AIMS has already made a number of important discoveries. Among other things, it has found that some of the brain changes associated with autism could be reversible, and revealed that autism affects men's and women's brains differently. Elsewhere, the project is contributing to new treatment guidelines being compiled by the European Medicines Agency, and setting up two of the largest ever clinical studies of autism. The first study looks at the risk of autism in a younger brother or sister of a child with autism, while the second is tracking how symptoms change with age.

- There is an urgent need for new treatments for **Alzheimer's disease**. The number of people affected worldwide is expected to reach 100 million by 2050, yet there is still no cure for Alzheimer's and little in the way of treatments. IMI's **Pharma-Cog project** is testing a matrix of biological markers to determine whether they can be used in tests to determine the efficacy of new Alzheimer's treatments. Elsewhere, the **EMIF-AD project** is linking up data from a variety of sources such as patient health records, research cohorts, biobanks, registries, epidemiology studies and biomarker research, including drug and disease history, test results, and gene sequencing. It will then analyse this data with the goal of pinpointing biological markers that could help researchers and doctors identify people at risk of developing Alzheimer's before any symptoms emerge.
  Another project, **AETIONOMY**, is paving the way towards a new approach to the classification of neurodegenerative diseases, particularly Alzheimer's and Parkinson's diseases, thereby improving drug development and increasing patients' chances of receiving a treatment that works for them.

The scourge of antimicrobial resistance

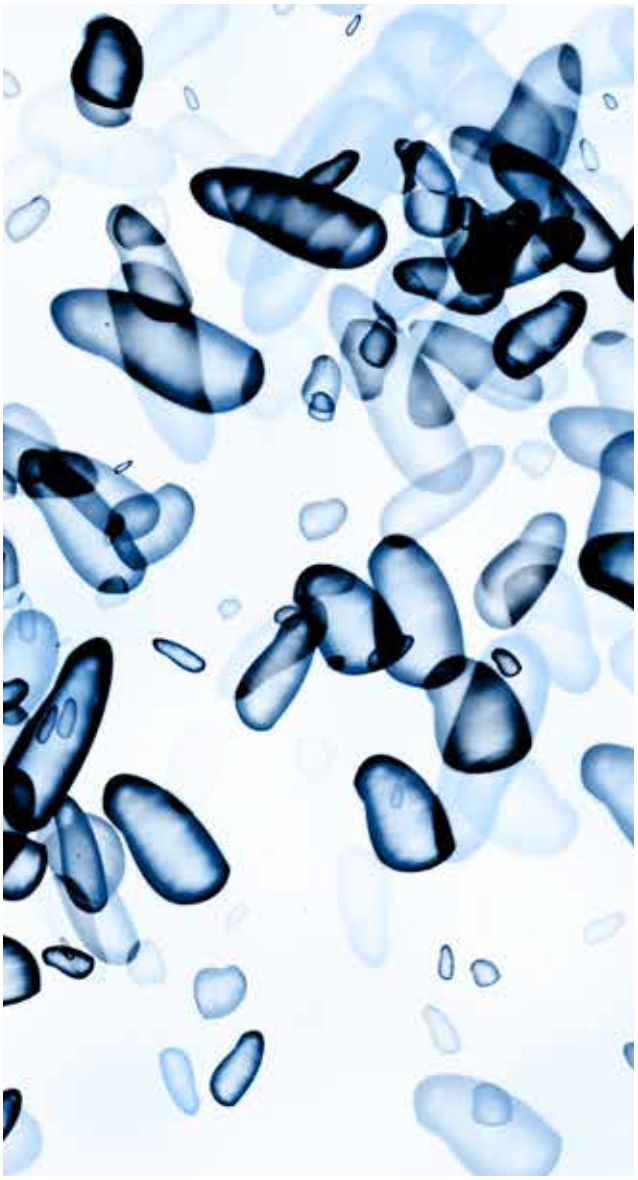
Antibiotic-resistant bacteria kill 25 000 people in the EU every year, and cost the economy €1.5 billion. IMI's New Drugs 4 Bad Bugs (ND4BB) programme represents an unprecedented partnership between industry, academia and biotech organisations to combat antibiotic resistance in Europe by tackling the scientific, regulatory, and business challenges that are hampering the development of new antibiotics.

- The **COMBACTE project** focuses on addressing the barriers to clinical development. A key outcome of the project will be a high quality, pan-European clinical trial network. Dubbed COMBACTE CLIN-Net, it will be capable of recruiting sufficient patients into multinational trials at all stages of development. Alongside this, the project will also establish a pan-European laboratory network (COMBACTE LAB-Net), which will deliver epidemiological information and data from microbial surveillance work to guide the selection of clinical trial sites. Crucially, the COMBACTE team aims to generate innovative trial designs to facilitate the registration of novel antibacterial agents. It will also design and validate tests to support the diagnosis of patients, identify the most appropriate treatments, and monitor the patient's response.

- **TRANSLOCATION** aims to enhance our understanding of how to get antibiotics into multi-resistant Gram-negative bacteria such as Escherichia coli and how to stop the bacteria from ejecting the drug. In sharing the knowledge and data discovered, TRANSLOCATION will develop guidelines for designing and developing new drugs to tackle antibiotic resistance and create an information centre for pre-existing and on-going antibacterial research data which will be used to establish best practices for future antibacterial drug discovery efforts.

- The **ENABLE project** is establishing a drug discovery platform for testing and optimising molecules that are still in the earlier stages of drug discovery but have the potential to become future drug candidates capable of treating resistant Gram-negative infections. Once up and running, the platform will be able to run several drug discovery programmes in parallel.

Further projects are in the pipeline, including one which will develop concrete recommendations for new commercial models that provide industry with an incentive to invest in this area while ensuring that new antibiotics are used wisely.



Diabetes

Diabetes is a chronic disease in which patients' blood sugar levels are elevated because the beta cells in the pancreas fail to produce enough insulin. It is estimated that diabetes affects around 366 million people worldwide, and that figure is likely to rise to 552 million by 2030.

Patients are at risk of serious complications, including heart disease and stroke, and damage to the blood vessels, kidneys, and eyes. Diabetes therefore has a major impact on sufferers' quality of life. Currently there is no cure for diabetes, and treatment options are limited.

- For many years, a major challenge for diabetes researchers was the lack of a human pancreatic beta cell line that survived (and so could be studied) in the lab; instead, scientists had to use rodent beta cell lines. Now, researchers from IMI's **IMIDIA project** have developed a human pancreatic beta cell line that not only survives in the lab, but also behaves in much the same way as beta cells in the body. The result has been hailed as a breakthrough for diabetes research.

- The **SUMMIT project** is addressing the urgent need for new treatments to tackle the complications associated with diabetes, such as eye, kidney, and blood vessel problems. It has developed a revolutionary ultrasound device that identifies diabetic and other patients at imminent risk of a heart attack or stroke. The device is the subject of a patent application.

- The **DIRECT project** takes a personalised medicine approach to diabetes, as it is working to identify different varieties of diabetes and effective treatments to tackle them.

IMI accelerates patient access to new treatments

Once a new drug has been developed, it must pass through a number of clinical trials and meet the approval of both regulatory authorities (such as the European Medicines Agency) and the organisations that pay for healthcare, such as insurance companies and national health authorities. IMI has a number of projects designed to speed up these procedures, so that newly-developed drugs can reach patients faster.

Towards improved clinical trial design

In a traditional clinical trial, patients receive either a potential drug or a placebo for a fixed length of time, after which the impact on the patients' condition is evaluated. This approach requires large numbers of patients, many of whom will not even benefit from a potential drug as they are getting the placebo, and are extremely expensive. A number of IMI projects are working to improve clinical trial design to make the trials more beneficial to patients and to ensure they deliver more reliable results for researchers.

- **Schizophrenia** affects around 24 million people globally, yet few truly game-changing medications have reached the market in the last few years. Enter the **NEWMEDS project**, where the companies involved in the project have pooled their data to create the largest-known database of studies on schizophrenia, including information on over 23 000 patients from 67 studies in over 25 countries.
  Clinical trials in which patients on active treatment are compared to patients taking a placebo normally take six weeks. However, by analysing their immense database, NEWMEDS researchers have found that these trials could be shortened by a week or two. NEWMEDS research also suggests that more women should be included in trials; currently they account for under a third of trial participants yet they respond less to placebos than men. The project has also found that so-called negative schizophrenia symptoms (e.g. an inability to feel pleasure or act spontaneously) could respond better in these studies than was previously thought, something that has been largely overlooked before.

- In a project that is still under development, researchers will test a new way of running early clinical trials for **Alzheimer's disease** treatments. Currently, companies carry out these trials individually. Each trial costs a lot of money, lasts several years, and may require thousands of patients, half of whom are treated with a placebo. The new project will test a new way of runing these proof of concept trials, in which several candidate drugs are simultaneously compared to a placebo.
  In this scenario, only about 20% of patients are in the placebo group, compared to 50% in conventional trials. Furthermore, this novel 'adaptive' trial design allows researchers to adapt the trial design in response to emerging results. For example, if a candidate medicine appears to be particularly effective in only certain categories of people, then assignment of that medicine can be preferentially directed to those people to confirm this finding. Similarly, new candidate drugs can be added to the trial and medicines that prove ineffective can be dropped. In addition, this design allows researchers to test both individual drugs and combinations of different medicines. This innovative trial design has already been found to be effective for testing new treatments for breast cancer. This will be the first time such an approach will be used for Alzheimer's disease.

Bridging the data gap

Once a new drug has been developed, it must be reviewed by both the regulators (for the decision on marketing authorisation) and health technology assessment (HTA) bodies (for the decision on access to patients). The regulators draw on data, mostly from clinical trials, to determine if a drug is safe and works well enough to be authorised for use in patients. For their part, HTA organisations assess more broadly the value of a new drug for a given healthcare system. For this, they need data to support the assessment of 'relative effectiveness': that is the extent to which a treatment does more good than harm when compared.

However, while there are clear, detailed guidelines on how to carry out clinical trials, there is little guidance on how to generate real world data and integrate this into drug development before launch. This is a serious issue in drug development – even if a drug is approved as safe and effective by the regulators, insufficient evidence supporting relative effectiveness at the time of launch may delay or restrict patient access to new treatments.

- The goal of the **GETREAL project** is to develop new ways of incorporating real-life clinical data into drug development. Among other things, the project will generate a decision-making framework to help pharmaceutical companies design drug development strategies. The framework would include ideas for the design of trials and studies capable of providing information on the real world effectiveness of medicines, including relative effectiveness. By bringing together all key stakeholder groups (namely industry, academia, regulatory agencies, HTA bodies, reimbursement agencies, healthcare budget holders, and patient groups) to share their insights and know-how, GETREAL will help to generate a consensus on best practice in the timing, performance and use of real life clinical studies in regulatory and reimbursement decision-making. It will also help to create a strong platform for the communication of results and for future discussions in this important area.

Forging links with regulators

Many IMI projects are developing novel tools and tests for use in drug development. In many cases, these tools need to be checked and approved by regulators to ensure they are accurate and can be used in decision making. IMI encourages its projects to form strong links with regulators, and half of all IMI projects involve regulators on their advisory committees. Regulators are also directly involved in a number of projects as project partners, carrying out research alongside experts from academia, industry, and patient groups.

Spotlight on safety - IMI works to improve the safety of new and existing treatments

Ensuring the safety of new and existing medicines and vaccines is a major issue for the healthcare sector. IMI projects are developing tests to improve the detection of toxicity issues both during drug development, and once medicines are on the market.

Detecting safety issues early in drug development

A major challenge in drug development is identifying potential drugs that may have unintended, harmful side effects by damaging vital organs such as the heart, liver, or kidneys. All too often, toxicity issues are picked up very late in development, when vast amounts of time and money have been spent on a potential drug. With this in mind, many IMI projects are developing tools and methodologies to detect drug safety issues much earlier in drug development.

- Scientists in the **eTOX project** have developed a computer model to test whether potential medicines could damage the heart. Users simply have to enter the molecular formula of the compound into the tool, and the system generates a simulated ECG (electrocardiograph). Clinicians routinely use ECGs to diagnose heart problems in their patients; in the same way, users can study the simulated ECG generated by the eTOX system to determine whether or not a compound is toxic to the heart. According to the project team, it provides better results than the currently-used computational systems.

- The **SAFE-T project** has evaluated 153 potential biological markers for drug-induced injury of the kidney, liver, and vascular system. Of these, 79 have been selected for further studies and the project is now working with the European Medicines Agency and the US Food and Drug Administration to obtain regulatory acceptance of these biological markers as reliable tools for use in drug development.

Assessing the benefits and risks of medicines on the market

Once a medicine has been approved for use in patients, its safety record (and effectiveness) must still be monitored. IMI projects are developing new techniques to monitor the benefits and risks of vaccines and medicines once they are in use in the general population. These tools will allow health policy makers to access the most accurate and up to date information and so help them to take better informed decisions.

- The **PROTECT project** has compiled two key databases that represent useful resources for both scientists and health authorities. The inventory of Drug Consumption Databases in Europe provides information on drug consumption in Europe, while the PROTECT ADR database lists all adverse drug reactions (ADRs) listed in the Summary of Product Characteristics (SPC) of medicinal products authorised in the EU. The project has also issued recommendations on the methodologies used to assess and visualise risks and benefits.

- Vaccines are a highly-effective public health measure, saving some two to three million lives worldwide every year. However, in Europe, public distrust in immunisation programmes is limiting high vaccine uptake, resulting in outbreaks of vaccine-preventable infectious diseases. Bringing together the European Centre for Disease Prevention and Control and the European Medicines Agency, as well as national public health and regulatory bodies, vaccine manufacturers and academic experts, the **ADVANCE project** is developing and testing methods and guidelines to pave the way for a framework capable of rapidly delivering reliable data on the benefits and risks of vaccines that are on the market. This framework should both help regulators and public health authorities make decisions on vaccination strategies.

IMI supports SMEs

SMEs are key players in the pharmaceutical research sector, and this is reflected in the large numbers of SMEs involved in IMI's projects.

135 SMEs are involved in IMI's 46 ongoing projects from the first 8 Calls for proposals. The majority of these SMEs are **biotech companies**; of the rest, most are IT / data management companies, and a few work in project management.

SMEs account for **15% of IMI funding beneficiaries** and receive **18.4% of IMI's budget** under the first 8 Calls.

Participating in IMI projects delivers a number of benefits to SMEs:

- **Funding** – direct financial support for innovative research and development
- **Visibility** – greater visibility across Europe in the academic world and pharmaceutical industry
- **Knowledge** – greater understanding of the drug development process in both academia and industry
- **Access** – enhanced access to new markets, business opportunities and funding sources
- **Networking** – inclusion in open innovation networks, with direct contact to leading researchers in universities and the industry
- **Reputation** – SMEs involved in IMI projects are known for the excellence of their research, their open innovation attitude, and their strong networks

Patients – partners in research

Patients (and their families and carers) can contribute to medical research in diverse ways – by taking part in ethics and other committees, by advising on study design, and by participating as research subjects.

In total, 23 patient organisations are partners in IMI projects, and a survey of patient involvement in IMI revealed that around 60% of projects involve patients in their work in some way. IMI is keen to build on this and has set itself the following objectives:

- Improve patients' and the lay community's understanding of what IMI delivers and how it will impact their lives
- Improve the way IMI draws on patients' expertise by involving patients in the definition and execution of projects
- Provide a forum for discussion and interaction between patients, researchers and other interested stakeholders

IMI's flagship project for patients is **EUPATI**, which is establishing a European Patients' Academy on Therapeutic Innovation, with training courses, educational material and an online public library that will empower patients to engage more effectively in the development and approval of new treatments and become true partners in pharmaceutical R&D.

Another project with strong patient involvement is **U-BIOPRED**, which is paving the way for personalised medicine to treat **severe asthma**. Patients are heavily involved in the project; as well as taking part in the clinical study, they have provided advice on ethical, scientific, and communication issues, giving the patient's perspective throughout.

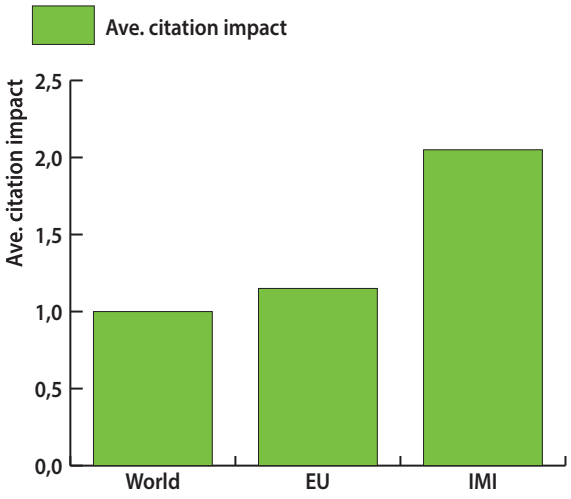
Quality collaborations - IMI promotes excellence in science

An analysis of the scientific papers coming out of IMI projects reveals that IMI is delivering research of a high quality, with many projects publishing in top journals. The study also reveals the power of collaboration, both between countries and between sectors.

An analysis of IMI projects' output by Thomson Reuters highlights both the quality and quantity of scientific papers produced by IMI projects. The study lists all publications that cite IMI as a funding source, and counts how many times each publication is cited in subsequent papers (the 'citation index'). The results reveal both the quality and quantity of the research coming out of IMI projects.

- By the end of 2013, IMI projects had delivered **over 600 scientific publications**.
- IMI projects published in over **300 journals**, including prestigious publications like Science, Nature, JAMA (the Journal of the American Medical Association), PNAS (the Proceedings of the National Academy of Sciences) and more.
- The citation index of papers from IMI projects is **twice the world average**, and higher than the EU average.
- Around a quarter of papers from IMI projects are 'highly-cited', that is, they are in the top 10% of papers for that journal category and year of publication, when ranked by number of citations received.
- IMI's citation impact is comparable to that of the **Wellcome Trust**.

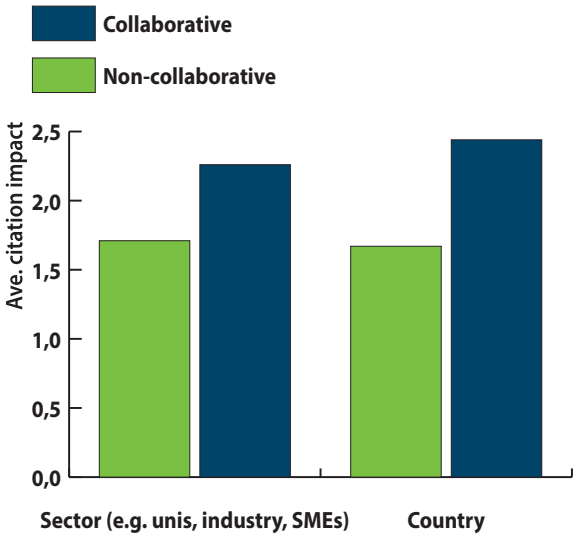
The average citation impact of IMI research is twice the world average



The analysis also highlights the impact of collaboration on citation impact.

- IMI project research is **collaborative**. Almost **two thirds** of IMI papers have authors from **different sectors** (e.g. universities, industry, small biotech companies). Just over **half** of IMI papers have authors from **different countries**.
- The citation impact of papers with authors from **different sectors** is **higher** than that of papers with authors from just one sector.
- The citation index of papers with co-authors from **different countries** is **higher** than that of papers with authors are from one country.

Collaborative research has a higher citation impact than non-collaborative research



IMI is training the next generation of experts in medicines development

IMI's education and training projects are developing courses and information materials to help both new and existing professionals stay abreast of the latest developments in medical and pharmaceutical research and so advance in their careers.

- **IMI's EMTRAIN project** has developed on-course®, Europe's most comprehensive biomedical and medicines research and development postgraduate course portal. The portal gathers together information on over 5 000 courses taught in 20 languages in 39 countries and covering over 60 scientific and therapeutic areas. Free and easy to use, on-course allows users to search for courses by type (Masters, PhD, short course), schedule (full or part time, modular), learning type (distance, face-to-face, mixed), language, location, and scientific / therapeutic area. Users can also search for courses delivered by IMI's Education & Training projects. For each course on the site, on-course® provides a course description, list of modules (if relevant), details of fees, contact information, and links to the course website. Finally, for people looking for courses while on the move, there is the on-course® app, which can be downloaded to smartphones for free.
- The **Eu2P project** offers courses in pharmacovigilance and pharmacoepidemiology with specialties in benefit assessment, regulatory aspects, risk quantification, public health and risk communication. Eu2P was awarded an education technology prize in the higher education category at the 2012 Salon Educatec-Educatice in Paris, France.
- The **SafeSciMET project** provides courses on safety sciences. Students can take individual short courses or follow a full programme to receive a Master of Advanced Safety Sciences of Medicines.
- Among other things, the **PharmaTrain project** has created the Cooperative European Medicines Development Course (CEMDC), a postgraduate qualification in medicines development run by a network of 10 universities. The universities involved in the CEMDC are located in Estonia, Hungary, Lithuania, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, and Turkey. The initiative therefore gives students from the central and Eastern European and Mediterranean regions the opportunity to benefit from the very best teaching offered jointly by all participating universities. The university network concept was developed because in small countries and countries with small pharmaceutical industries, only a network concept can guarantee long-lasting sustainability of the programme.

Ongoing IMI projects

Project acronym	Full project title	Website	Subject area
ABIRISK	Anti-biopharmaceutical immunization: prediction and analysis of clinical relevance to minimize the risk	www.abirisk.eu	**drug safety**
ADVANCE	Accelerated development of vaccine benefit-risk collaboration in Europe	www.advance-vaccines.eu	**vaccines**
AETIONOMY	Organising mechanistic knowledge about neurodegenerative diseases for the improvement of drug development and therapy	www.aetionomy.eu	**Alzheimer's disease and Parkinson's disease**
BioVacSafe	Biomarkers for enhanced vaccine safety	www.biovacsafe.eu	**vaccines**
BTCure	Be the cure	www.btcure.eu	**rheumatoid arthritis**
CHEM21	Chemical manufacturing methods for the 21st century pharmaceutical industries	www.chem21.eu	**green chemistry**
COMBACTE	Combatting bacterial resistance in Europe	www.combacte.com	**antimicrobial resistance**

Project acronym	Full project title	Website	Subject area
COMPACT	Collaboration on the optimisation of macromolecular pharmaceutical access to cellular targets	www.compact-research.org	**knowledge management**
DDMoRe	Drug disease model resources	www.ddmore.eu	**vaccines**
DIRECT	Diabetes research on patient stratification	www.direct-diabetes.org	**diabetes**
DRIVE-AB	Driving re-investment in R&D and responsible antibiotic use		**antimicrobial resistance**
EBiSC	European bank for induced pluripotent stem cells	www.ebisc.org	**stem cells**
EHR4CR	Electronic health record systems for clinical research	www.ehr4cr.eu	**knowledge management**
EMIF	European medical information framework	www.emif.eu	**knowledge management, Alzheimer's disease, metabolic syndromes**

Project acronym	Full project title	Website	Subject area
EMTRAIN	European medicines research training network	www.emtrain.eu	**education and training**
ENABLE	European Gram-negative antibacterial engine	www.nd4bb-enable.eu	**antimicrobial resistance**
eTOX	Integrating bioinformatics and chemoinformatics approaches for the development of expert systems allowing the in silico prediction of toxicities	www.e-tox.net	**knowledge management**
eTRIKS	Delivering European translational information & knowledge management services	www.etriks.org	**diabetes**
Eu2P	European programme in pharmacovigilance and pharmacoepidemiology	www.eu2p.org	**education and training**
EU-AIMS	European autism interventions - a multicentre study for developing new medications	www.eu-aims.eu	**autism**
ELF	European Lead Factory	www.europeanleadfactory.eu	**drug discovery**

Project acronym	Full project title	Website	Subject area
EUPATI	European patients' academy on therapeutic innovation	www.patientsacademy.eu	**education and training**
Europain	Understanding chronic pain and improving its treatment	www.imieuropain.org	**chronic pain**
GetReal	Incorporating real-life clinical data into drug development	www.imi-getreal.eu	**relative effectiveness**
IMIDIA	Improving beta-cell function and identification of diagnostic biomarkers for treatment monitoring in diabetes	www.imidia.org	**diabetes**
K4DD	Kinetics for drug discovery	www.k4dd.eu	**drug discovery**
MARCAR	Biomarkers and molecular tumor classification for non-genotoxic carcinogenesis	www.imi-marcar.eu	**safety, cancer**
MIP-DILI	Mechanism-based integrated systems for the prediction of drug-induced liver injury	www.mip-dili.eu	**drug safety**

Project acronym	Full project title	Website	Subject area
NEWMEDS	Novel methods leading to new medications in depression and schizophrenia	www.newmeds-europe.com	**schizophrenia, depression**
OncoTrack	Methods for systematic next generation oncology biomarker development	www.oncotrack.eu	**cancer**
Open PHACTS	The open pharmacological concepts triple store	www.openphacts.org	**knowledge management**
OrBiTo	Oral biopharmaceutics tools	www.orbitoproject.eu	**drug delivery**
Pharma-Cog	Prediction of cognitive properties of new drug candidates for neurodegenerative diseases in the early clinical development	www.alzheimer-europe.org/Research/PharmaCog	**Alzheimer's disease**
PharmaTrain	Pharmaceutical medicine training programme	www.pharmatrain.eu	**education and training**
PRECISESADS	Molecular reclassification to find clinically useful biomarkers for systemic autoimmune diseases	www.precisesads.eu	**rheumatoid arthritis and lupus**

Project acronym	Full project title	Website	Subject area
PREDECT	New models for preclinical evaluation of drug efficacy in common solid tumours	www.predect.eu	**cancer**
PreDiCT-TB	Model-based preclinical development of anti-tuberculosis drug combinations	www.predict-tb.eu	**tuberculosis**
PROactive	Physical activity as a crucial patient reported outcome in COPD	www.proactivecopd.com	**chronic obstructive pulmonary disease (COPD)**
PROTECT	Pharmacoepidemiolocal research on outcomes of therapeutics by a European consortium	www.imi-protect.eu	**pharmacovigilance**
QuIC-ConCePT	Quantitative imaging in cancer: connecting cellular processes with therapy	www.quic-concept.eu	**cancer**
RAPP-ID	Development of rapid point-of-care test platforms for infectious diseases	www.rapp-id.eu	**infectious diseases**
SafeSciMET	European modular education and training programme in safety sciences for medicines	www.safescimet.eu	**education and training**

Project acronym	Full project title	Website	Subject area
SAFE-T	Safer and faster evidence-based translation	www.imi-safe-t.eu	**drug safety**
SPRINTT	Sarcopenia and physical frailty in older people: multi-component treatment strategies	www.mysprintt.eu	**geriatrics**
StemBANCC	Stem cells for biological assays of novel drugs and predictive toxicology	www.stembancc.org	**stem cells**
SUMMIT	Surrogate markers for vascular micro- and macrovascular hard endpoints for innovative diabetes tools	www.imi-summit.eu	**diabetes**
TRANSLOCATION	Molecular basis of the outer membrane permeability	www.translocation.eu	**antimicrobial resistance**
U-BIOPRED	Unbiased biomarkers for the prediction of respiratory disease outcomes	www.ubiopred.eu	**asthma**
WEB-RADR	Recognising adverse drug reactions		**drug safety**

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