Science, Demographic Change and Wellbeing in Horizon 2020

"L'Europa e la Salute: le politiche sanitarie e le diseguaglianze sociali in sanità", Regione Basilicata

Matera, 28 maggio 2014

Rosanna D'Amario
Commissione europea
Direzione Generale Ricerca e Innovazione
Unità "Strategie" della Direzione Salute

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Overview

- **Health research programme during 2007-2013 (FP7)**
- **Introduction to Horizon 2020**
- **Societal challenge 'Health, demographic change and wellbeing'**

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Building on experience

FP7 (2007-2013) 'Health' – the largest multi-national fund…

- ✓ …for collaborative research, global consortia, and public-private co-operation
- ✓ …to fund excellent applied health and ageing research and innovation
- ✓ …to bring together leading players from Europe and across the globe
- ✓ …to tackle key European and global health challenges

Health programme in FP7 (2007-2013)

Key figures

5,4 b € invested to date

1052 projects

12 332 participations

3 613 organisations

124 countries

Preliminary outcomes

10 332 publications

3,2 average SJR* publication

203 patent applications

29 spin-offs created

8 international initiatives

* SCImago Journal Ranking

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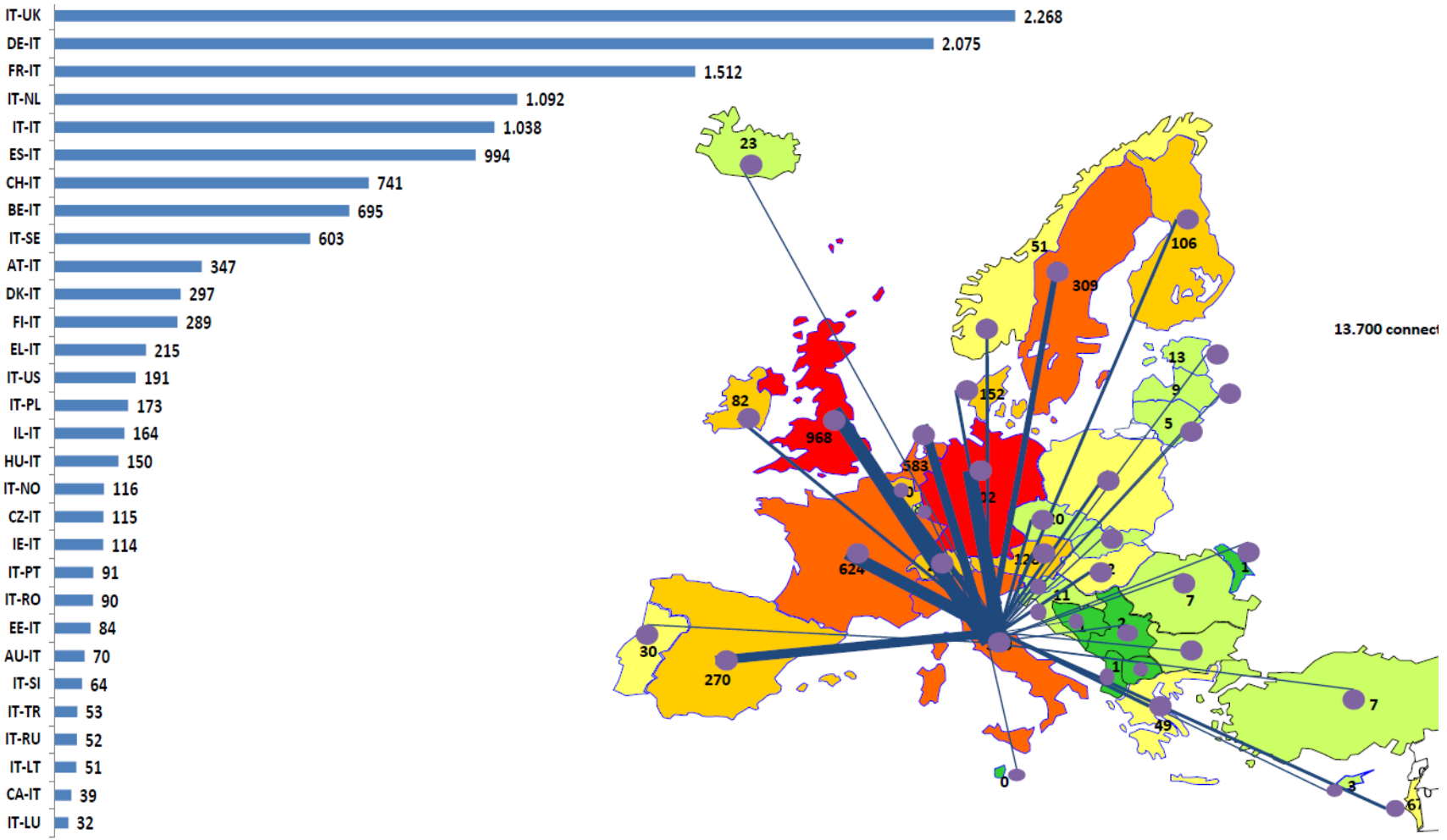
Connections of Italy vs other countries in FP7-Health



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DO-HEALTH

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When longevity rhymes with health and activity

Can we imagine old age and good health being the norm? We're living longer than any previous generation, but how will we spend our older years? Science can help us to partly control our future health by giving us the tools to be proactive and DO-HEALTH is set to deliver practical health advice that can be easily accessed and applied by older people.

LOOKING AT THE BIGGER PICTURE OF HEALTH

Dietary supplements or other lifestyle choices, such as exercise, are already recommended for the benefit of the whole population. It is hard however to measure their impact, especially for combined treatments. The DO-HEALTH research teams aim to look beyond one specific condition or type of treatment and see the combined effects of dietary supplements and exercise. They have designed their project to focus on the 3 types of intervention that have shown the most promising results in previous trials and large cohort studies: vitamin D supplements, omega 3 fatty acids and home exercise.

It's not just about 1+1+1=3; this study can monitor the impact of each intervention individually and the cumulative result of 2 together and all 3 of them. While vitamin D is linked to

THE FRIGHTENING FACTS:

By 2050 1 IN 3 people will be over 65.
As older age is fundamentally linked to chronic disease, this is imposing EXPONENTIAL RISES IN COSTS FOR HEALTHCARE SERVICE.
LONGEVITY may lead to incapacity, cognitive decline, and low quality of life in some elderly people.

- **VitaminD3-Omega3-Home Exercise- HeALTHy Ageing and Longevity Trial**
- **2 000 people aged over 70 years old across 5 countries and 7 cities**
- **20 participants, coordinated by Universitäts-Spital Zürich**
- http://do-health.eu/

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NeuroStemCell

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Remaking life

to conquer degenerative brain diseases

with the potential to become the type of cell that is needed to repair damaged organs. These are so-called 'pluripotent cells' and they lie at the heart of stem cell research. Embryonic stem cells have so far proved to be the purest form of natural stem cell material.

UNPRECEDENTED QUESTIONS

The NeuroStemCell project is dealing with some of the biggest and most fascinating issues and questions. First and foremost, what is the best possible way to produce pure stem cells? Is it even possible to take adult cells back

How is it possible to rewind life and take cells back to their embryonic state? Enter the world of stem cell generation and regenerative medicine! This field of science for medical treatment is at the forefront of technology and therapeutics, and is controversial. The potential to replace damaged cells in the brain, and even to enable recovery of lost functions, in devastating conditions such as Parkinson's disease and Huntington's disease, holds amazing hope for sufferers. The scientists involved in the NeuroStemCell project are faced with the daily challenge of big unanswered questions, together with pressing ethical issues.

Parkinson's and Huntington's diseases are both responsible for the death of specific neurons in the brain and for a progressive loss of cognitive and motor functions. A tantalising new future can, however, be opened up if brand new cells can be grown

THE FRIGHTENING FACTS:

Parkinson's disease and Huntington's disease are degenerative and incurable. Each year, in the EU, **1 IN 1 000 PATIENTS ARE DIAGNOSED WITH PARKINSON'S AND 1 IN 10 000 WITH HUNTINGTON'S.**

Carriers of Huntington's disease have to watch **HOW THIS DISEASE SLOWLY ROBS THEIR PARENTS AND SIBLINGS OF DIGNITY AND HOPE**, knowing that they will face the same fate.

Early attempts to transplant foetal cells into the brain have shown good results in some Parkinson's patients, but **WE SIMPLY DON'T KNOW ENOUGH YET** about how the latest generation of transplanted cells derived from stem cells will perform in the human brain.

- **European Consortium for Stem Cell Therapy for Neurodegenerative Diseases**
- **Stem cells for patients with Parkinsons's and Huntington's diseases**
- **16 partners coordinated by University of Milano**
- http://www.neurostemcell.org/

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Horizon 2020 and Europe 2020…

- ✓ **75% employment rate (% of population aged 20-64 years)**
- ✓ **3% investment in R&D (% of EU's GDP)**
- ✓ **"20/20/20" climate/energy targets**
- ✓ **School drop-out rates lower than 10% and at least 40% of the population aged 30-34 having completed tertiary education**
- ✓ **Reducing those at risk of poverty or exclusion by at least 20 million**

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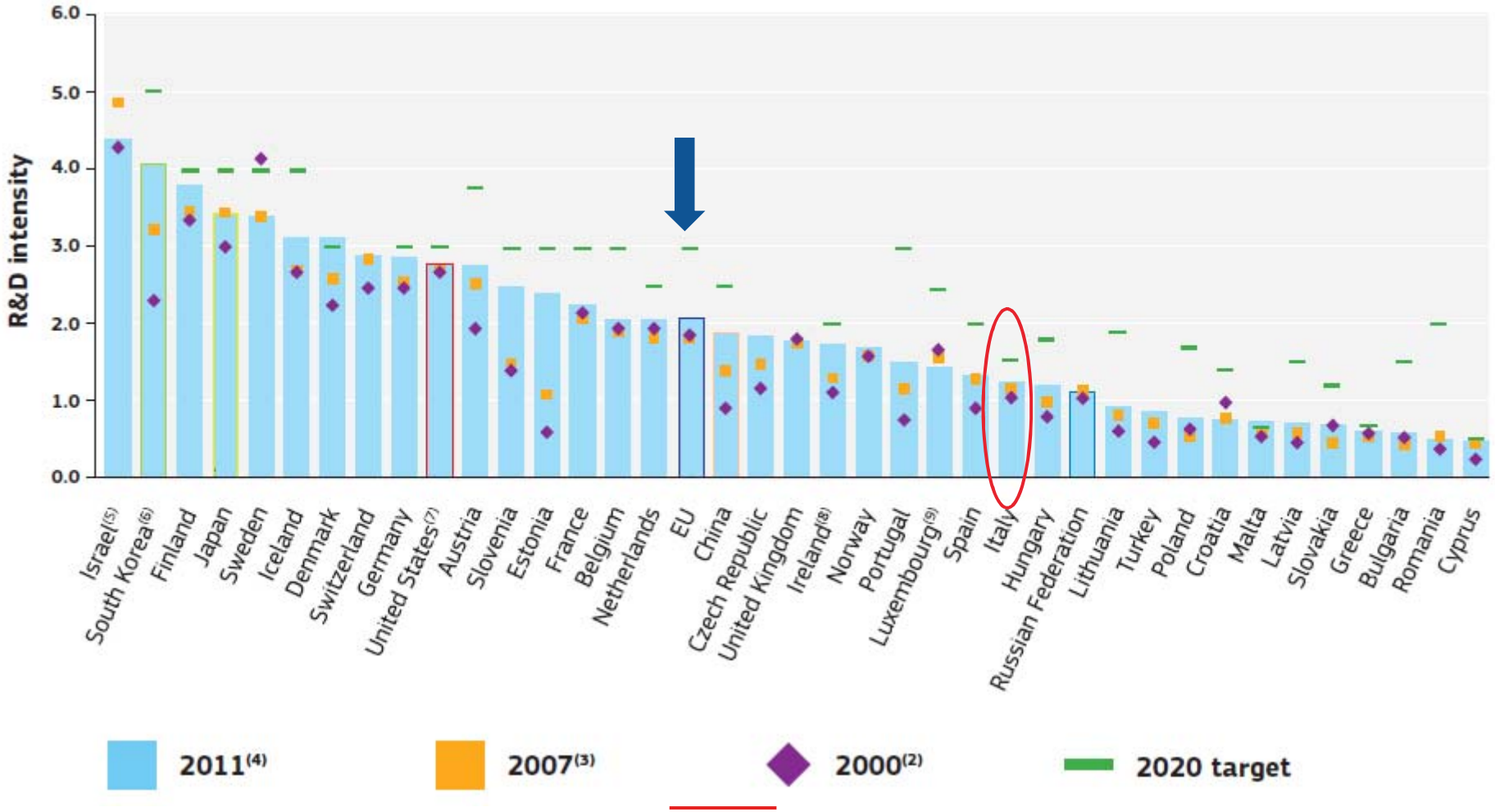
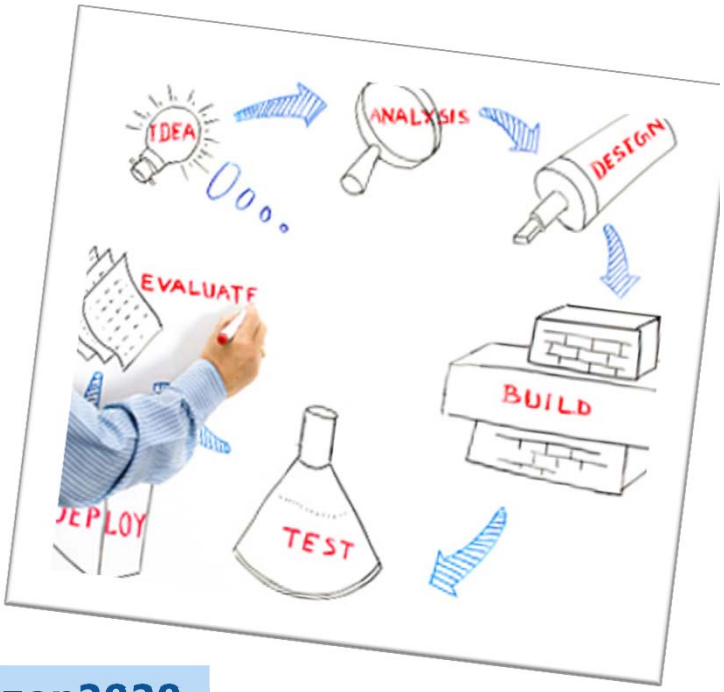
R&D intensity 2000, 2007, 2011 and 2020 target



What is Horizon 2020?

The European Union's 2014-20 programme for research & innovation

A core part of Europe 2020, Innovation Union & European Research Area



Three priorities:

1. **Excellent science (24,4 bn €)**
2. **Industrial leadership (17,0 bn €)**
3. **Societal challenges (29,7 bn €)**

+ Other activities (5,9 bn €)

http://ec.europa.eu/research/horizon2020

Three priorities

- European Research Council
- Future and Emerging Technologies
- Marie Skłodowska-Curie actions
- Research infrastructures

- Leadership in enabling and industrial technologies
- Access to risk finance
- Innovation in SMEs

- Health, demographic change and wellbeing
- Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the Bioeconomy
- Secure, clean and efficient energy
- Smart, green and integrated transport
- Climate action, environment, resource efficiency and raw materials
- Inclusive, innovative and reflective societies
- Secure societies

http://ec.europa.eu/research/participants/portal/desktop/en/home.html

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Horizon 2020 - Societal Challenge 1

- **Translating science to benefit citizens**
- **Improve health outcomes**
- **Support a competitive health & care sector**
- **Test and demonstrate new health & care models, approaches and tools**
- **Promote healthy and active ageing**

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The Work Programme (2014) 2015

Call 'personalising health and care'

34 topics (15 in 2014, 17 in 2015, 2 open in both years)

Call for 'co-ordination activities'

16 topics (10 in 2014, 6 in 2015)

€ 1,21 billion

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7 focus areas in (2014) 2015

- Understanding health, ageing & disease
- Effective health promotion, disease prevention, preparedness and screening
- Improving diagnosis
- Innovative treatments and technologies
- Advancing active and healthy ageing
- Integrated, sustainable, citizen-centred care
- Improving health information, data exploitation and providing an evidence base for health policies and regulation

- + co-ordination activities

and Strategic initiatives:

imi

EDCTP

AAL
AMBIENT ASSISTED LIVING

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Some of the topics for end 2014 call

- **PHC 3*:** Understanding **common mechanisms of diseases** and their relevance
- **PHC 9*: Vaccine development** for poverty-related and neglected infectious diseases: **HIV/AIDS**
- **PHC 12*:** Clinical research for the **validation of biomarkers** and/or diagnostic medical devices
- **PHC 21*:** Advancing **active and healthy ageing with ICT**: Early risk detection and intervention
- **HCO 11**:** Collaboration and alignment of national programmes and activities in the area of **brain-related diseases** and disorders of the nervous system

*** PHC = Personalising Health and Care; ** HCO = Health Co-ordination activities**

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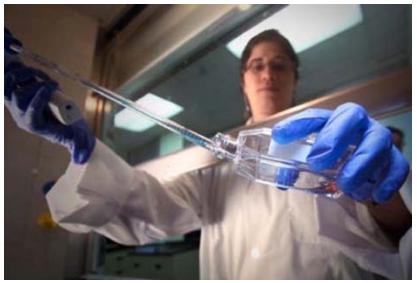
A few points to remember

- **1b€/year devoted to health research in Horizon 2020**
- **One rule: Minimum 3 partners from 3 EU countries + anyone else from anywhere in the world**
- **Funding: 3-12 m€ per project 100%+25% reimbursement rate**
- **Project duration: 3-5 years**



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Innovative Medicines Initiative

Innovative Medicines Initiative 2 (IMI2)

- ✓ **Up to €3,3 billion, shared equally between EU and industry**
- ✓ **World class research & innovation**
- ✓ **Breakthrough vaccines, medicines and treatments**
- ✓ **Vital public health benefits**

http://www.imi.europa.eu/

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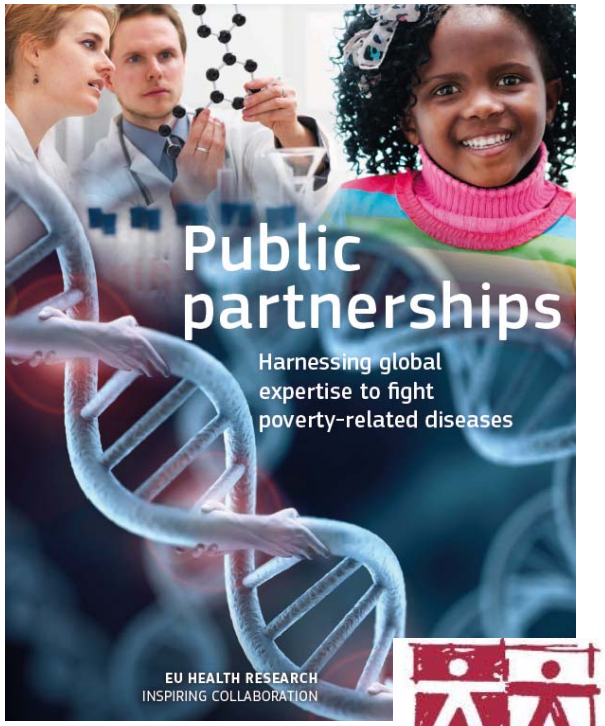
European and Developing Countries Clinical Trials Partnership 2 (EDCTP2)



EDCTP

- **EU contribution up to €683 million – to be matched by participating EU/associated countries**
- **Broader scope: including neglected infectious diseases, all clinical phases, diagnostics and delivery optimisation**
- **Longer duration: 10 years**

http://www.edctp.org/

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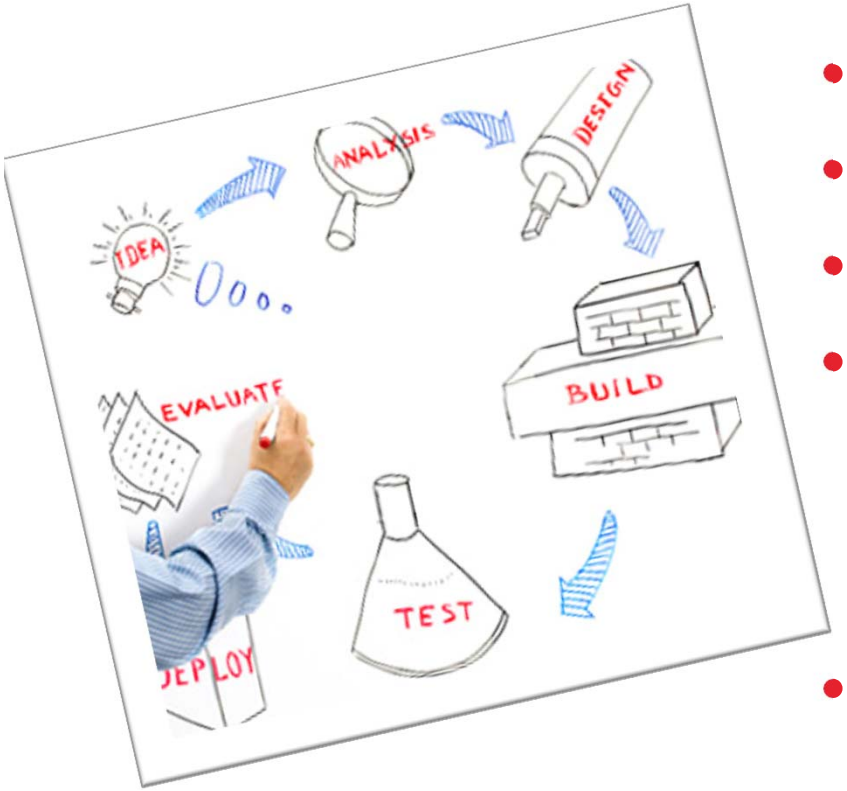
Special support for SMEs in Horizon 2020



- **~5 billion EUR in H2020**
- **Challenge driven, bottom up**
- **A single company can be funded**
- **3 phases / 3 entry points:**
  - Concept and feasibility assessment
  - R&D, demonstration, market replication
  - Commercialization
- http://ec.europa.eu/research/participants/portal/desktop/en/funding/sme_participation.html

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Multi-lateral health research activities: an experience that will continue

International K.O. Mouse Consortium

Global Alliance for Chronic Diseases

International Human Epigenome Consortium

International Rare Disease Research Consortium

International Cancer Genomics Consortium

International Initiative for Traumatic Brain Injury Research

International Human Microbiome Consortium

New! Global Research Collaboration for Infectious Disease Preparedness

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International Rare Diseases Research Consortium (IRDiRC)

200 New Therapies

Means to Diagnose Most Rare Diseases

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IRDiRC
INTERNATIONAL
RARE DISEASES RESEARCH
CONSORTIUM

Committed members

Europe

E-RARE 2 Consortium (EU)

European Commission

EURORDIS (EU)

Academy of Finland

French Muscular Dystrophy Association

French National Research Agency

French Foundation for Rare Diseases

Children's New Hospitals Management Group (GE)

German Federal Ministry of Education and research

Italian Higher Institute of Health Research

Italian Telethon Foundation

Lysogene (FR)

Netherlands Organisation for Health Research and Development

Prosensa (NL)

Spanish Carlos III Health Institute

UK National Institute for Health Research

Australia

Western Australian Dept. of Health

Asia

BGI (CN)

Chinese Rare Disease Consortium

Korea National Institute of Health

North America

Canadian Institutes for Health Research

Genome Canada

FDA Orphan Products Grants Program

Genetic Alliance (US)

Genzyme (US)

Isis Pharmaceuticals (US)

Mendelian Disorders Genome Centres (US NIH)

National Centre for Translational Sciences (US NIH)

National Cancer Institute (US NIH)

National Institute of Neurological Disorders and Stroke (US NIH)

National Institute of Arthritis and Musculoskeletal and Skin Diseases (US NIH)

National Institute of Child Health and Human Development (US NIH)

National Eye Institute (US NIH)

NKT Therapeutics (US)

NORD (US)

Office of Rare Diseases (US NIH)

PTC Therapeutics (US)

Sanford Research (US)

Shire (US)

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Global Research Collaboration for Infectious Disease Preparedness

Objective: to coordinate and initiate research efforts addressing infectious epidemic within 48 hours after an outbreak

- Launched in Brussels February 2013
- Current participating countries: Australia, Brazil, Canada, China, France, South Africa, Sweden, UK, US
- Contact point: RTD-Unit F.3 Infectious Diseases and Public Health, Line Matthiessen, Head of Unit

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Other programmes where health research may be funded

- **Frontier research (European Research Council)**
- **Marie Skłodowska-Curie actions**
- **Leadership in enabling and industrial technologies**
- **Search by key-word @**

https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/search/search_topics.html

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More info @

- **Health Challenge:**

http://ec.europa.eu/programmes/horizon2020/en/h2020-section/health-demographic-change-and-wellbeing

- **Info Day (information for proposers):**

http://ec.europa.eu/research/health/horizon-2020-health-open-info-days_en.html

- **Examples of projects funded in previous programmes:**

http://ec.europa.eu/research/health/index_en.html

- **National contact points**

http://ec.europa.eu/research/participants/portal/desktop/en/support/national_contact_points.html

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Grazie dell'attenzione!

Rosanna.D'Amario@ec.europa.eu

http://ec.europa.eu/research/health

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