



INFRAFRONTIER
mouse disease models



INFRAFRONTIER / IMPC Stakeholder Advancing Personalised Medicine with animal models

Athens, Royal Olympic Hotel, November 14-16



Advancing Personalised Medicine with Animal Models



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mouse disease models



IMPC



"ALEXANDER FLEMING"
Biomedical Sciences Research Center

INFRAFRONTIER / IMPC Stakeholder Meeting
November 14th -16th 2017
Athens, Royal Olympic Hotel





Advancing Personalised Medicine with Animal Models

David Valle @ ILAR Roundtable

Model organisms and precision medicine:

- Confirm causation
- Understanding pathophysiology
- Surrogates for treatment studies



Advancing Disease Modeling in Animal-Based Research in Support of Precision Medicine

A Workshop of the Roundtable on Science and Welfare in Laboratory Animal Use
with support from the Office of Research Infrastructure Programs,
National Institutes of Health



October 5-6, 2017
2100 C Street NW, Washington, DC
Historic National Academies of Sciences Building
Fred Kavli Auditorium



Advancing Personalised Medicine with Animal Models

EDITORIAL | PRECISION MEDICINE

Animal-based studies will be essential for precision medicine

K. C. Kent Lloyd, Peter N. Robinson and Calum A. MacRae

+ See all authors and affiliations

Science Translational Medicine 17 Aug 2016:
Vol. 8, Issue 352, pp. 352ed12



- Models must reflect –omic variation in patients and discriminate causal from correlative factors at relevant efficiency
- Effectively link –omic data with environmental, behavioral, and lifestyle information to identify actionable findings
- Incorporate computational reasoning and semantic mapping efforts to enable cross-species phenotype comparisons



Advancing Personalised Medicine with Animal Models

Objectives - INFRAFROTIER/IMPC Stakeholder Meeting

- Raising awareness of INFRAFRONTIER / IMPC platforms among Personalised Medicine initiatives, funders and policy makers
- Share advances in CRISPR/Cas9 technology to model human conditions
- Present use cases for the utility of animal models for identifying targets for precision therapies
- Strengthen interactions with Personalised Medicine initiatives and Rare Disease consortia
- Responsible research: Discuss ethical aspects of genome-editing and data quality and reproducibility in preclinical research



Advancing Personalised Medicine with Animal Models

Organisers - INFRAFROTIER/IMPC Stakeholder Meeting

➤ BSRC “Alexander Fleming”

INFRAFRONTIER partner

Coordinator of INFRAFRONTIER-GR/Phenotypos

Host of the Stakeholder meeting



➤ INFRAFRONTIER Research Infrastructure



➤ International Mouse Phenotyping Consortium





Advancing Personalised Medicine with Animal Models

Participants - INFRAFROTIER/IMPC Stakeholder Meeting

- INFRAFRONTIER-GR/Phenotypos partners
- INFRAFRONTIER partners / Evaluation Committee members
- International Mouse Phenotyping Consortium (IMPC)
- Panel of Scientific Consultants (IMPC)
- EU networks: EurOPDX, RD-Connect, CORBEL
- Regulator: European Medicines Agency
- Funders: NIH, IC-PerMed, IRDiRC
- Industry: Genentech, Metabolon, Sable Systems, Sonidel, Biomedcode, AYOXXA, EFPIA
- Travel grant recipients (Young Investigators)



Advancing Personalised Medicine with Animal Models

➤ 194 Participants

➤ 22 countries

➤ 5 continents



Advancing Personalised Medicine with Animal Models

Martin Hrabè de Angelis, Helmholtz Zentrum München

George Kollias, BSRC Fleming

Dimitris Kontoyiannis, BSRC Fleming

Jason Heaney, Baylor College of Medicine

Radislav Sedlacek, Czech Centre for Phenogenomics

Soren Warming, Genentech

Tomoji Mashimo, University of Osaka

Channabasavaiah Gurumurthy, University of Nebraska

Yann Herault, Phenomin-ICS

Nadia Rosenthal, JAX

Steve Brown, MRC Harwell

Damian Smedley, Genomics England

Rob Burgess, JAX

Cat Lutz, JAX

Jos Jonkers, Netherlands Cancer Institute

Enzo Medico, University of Torino

Andreas Roos, University of Newcastle

Jerry Lanfear, ELIXIR

Marisa Papaluca, European Medicines Agency

Colin Fletcher, NIH

Monika Frenzel, IC-PerMed

Paul Lasko, IRDiRC

First day only



Advancing Personalised Medicine with Animal Models

Welcome address



Dr Maria Christoula

INFRAFRONTIER / IMPC Stakeholder Meeting
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Head of Cabinet

Office of the Secretary General,
General Secretariat for Research &
Technology





Advancing Personalised Medicine with Animal Models

Program in a nutshell

The Stakeholder Meeting is structured into 3 main themes

1) Advancing Personalised Medicine with Animal Models

- CRISPR/Cas9 based approaches to model human conditions
- Use cases for the utility of animal models for identifying targets for precision therapies
- Policy, regulatory and funder perspectives

2) International Mouse Phenotyping Consortium

- IMPC CRISPR/Cas9 mouse production updates, and assessments of phenotyping pipelines and platforms
- IMPC data and program integration, outreach and dissemination

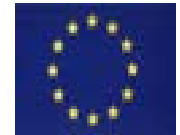
3) Responsible Research

- Editing mammalian genomes: ethical considerations
 - Reproducibility in experimental animal research
 - Stakeholder presentations
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Advancing Personalised Medicine with Animal Models

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