Report

CONSORTIUM ASSEMBLY

Paris, 15-16 October 2025

IRDiRC

INTERNATIONAL
RARE DISEASES RESEARCH
CONSORTIUM

MEETING REPORT CONTENTS

Executive Summary

The International Rare Diseases Research Consortium (IRDiRC) Consortium Assembly convened in Paris on 15-16 October 2025 for two days of discussions bringing together representatives from the Funders, Companies, and Patient Advocacy Constituent Committees (FCC, CCC, PACC), and the Chairs and Vice Chairs of Scientific Committees. The meeting reviewed progress achieved since the previous Assembly and defined priorities for the 2026 Roadmap.

Key Highlights

- **Members:**
    - Election of the new FCC Chair: Stefano Benvenuti, Fondazione Telethon.
    - New European Commission representative: Mrs. Maria Pilar Agua Fernández, Director at the Directorate, People, Health and Society.
- **Cross-Committee Collaboration:**
    - *FCC-led session* on closing translational gaps in rare-disease research.
    - *CCC-led RealiseD initiative* to harmonise clinical-trial methods for ultra-rare conditions.
    - *PACC-led session* reaffirming patient co-leadership in research governance.
- **IRDiRC Strategies:**
    - Strong publication pipeline, updated communications plan, and refreshed website to increase outreach and visibility.

Topic sessions and Roadmap presentation

- **International Perspectives:** Presentation of China national rare-disease framework integrating 419 hospitals, AI-assisted diagnosis, and a 1.75 million-sample biobank.
- **Awareness and Advocacy:** Creative approaches using art and storytelling as tools for awareness and discovery.
- **Diagnostics and Innovation:** Harmonization of laboratory quality standards (ISO 15189) and responsible integration of new sequencing technologies.
- **Drug Repurposing:** Presentations from *REPO4EU* and *REMEDi4ALL* showcased complementary infrastructures for systematic and sustainable repurposing.
- **Roadmap 2026:** Presentation of four new proposals — *Models of Care*, *Digital Twins*, *Data Sources & Registries*, and *Digital Biomarkers* — to advance integration of research and care.

The Report

1. Membership:

- Mrs. Maria Pilar Agua Fernández, Director of the Directorate, People, Health and Society, replaces Mrs. Irene Norstedt.

2. Parallel sessions

Funders Constituent Committee (FCC)

- The FCC session began with the announcement of the formal election of the new chair, Stefano Benvenuti, Fondazione Telethon.
- Dr. Naveed Aziz, Genome Canada is candidate for the Vice-Chair role and an electronic vote will be opened in the next weeks.

- **State-of-Play**
  - The next edition of the State-of-Play should cover global RD research development from 2022 to 2024.
  - The report serves not only as a mapping exercise but also as a strategic tool for identifying funding overlaps, gaps, and opportunities for synergy.
  - Data on research project funding is partially missing, and the FCC discussed the questions that the report should answer.
  - It was agreed that the report should present (1) major numbers / RD metrics, (2) a presentation of funders' programs and collaborations in the last three years, and (3) bring together the work of IRDiRC (publications) from the last years.

- **Patient Partnerships in Funding**
  - This initiative is a collaborative effort to document and promote models where patients are actively engaged in funding decision-making processes. Patient engagement must evolve from consultation to co-design to ensure sustainable impact. The working group is preparing a publication summarizing case studies from various IRDiRC funders.

Companies Constituent Committee (CCC)

- The CCC discussion was focused on the persistent gap between the development of initiatives related to patient consent and their limited implementation in practice, highlighting the need to address the broader challenges surrounding registries and data management. Although some registries, such as those for neuromuscular diseases, are well established, many countries struggle with access to patient data due to regulatory and ethical constraints. CCC members also emphasized the importance of including ethnicity data, improving interoperability, and creating standardized outcome measures to ensure registries are both practical and impactful.
- Another theme of discussion was the fragmentation of health data systems across Europe and globally, which hinders progress in rare disease research and digital health innovation. Patient experience data collection, particularly in multicenter and multilingual contexts, remains fragmented due to logistical, regulatory, and operational limitations. Collaboration between initiatives such as Innovative Health Initiative (IHI) and IRDiRC could address these issues through shared frameworks and globalized standards.
- Next action points: (1) strengthen data governance and usability. A set of guiding principles should be developed to ensure patient-generated data is meaningful, reusable, and integrated into health systems. Efforts should also focus on (2) promoting data interoperability, identifying good practices for digital endpoints, and incorporating AI tools. (3) A survey will be circulated to industry stakeholders to identify regulatory and operational challenges.

3. Cross-Committee Discussions

The cross-committee discussions featured representatives from the Funders (FCC), the Companies (CCC), and the Patient Advocacy Constituent Committee (PACC). Each session examined different but complementary aspects of the rare disease ecosystem.

FCC-led Session – "Closing the Gaps"

- The FCC discussed the results of an IRDiRC study on productivity and attrition in rare disease drug development. The analysis identified key bottlenecks across the development pipeline, from early discovery to clinical translation.
- Despite increased funding over the past decade, a disproportionate number of projects looking at developing advanced innovative therapies fail to reach clinical validation, largely due to resource fragmentation and insufficient coordination between public and private sectors.
- These results stress the importance of building mechanisms that connect preclinical research to clinical implementation and regulatory review.

- Funders should play a critical role in bridging scientific silos, supporting translational projects, and encouraging cross-sector partnerships to accelerate the delivery of new therapies.

CCC-led Session – RealiseD Initiative

- The RealiseD Initiative was presented as a major partnership under the Innovative Health Initiative (2025–2029), focused on improving clinical trial design and data quality for ultra-rare diseases.
- The program's goals are to develop new frameworks for trial certification, methodological harmonization, and site accreditation across Europe. The project aims to streamline the set-up of clinical studies and enhance patient recruitment through standardized digital tools and transparent governance.
- Discussion among participants centered on the importance of interoperable data standards and the involvement of patient representatives in early trial design. Several attendees highlighted the potential of RealiseD to become a reference model for global collaboration in rare disease trials.
- The session emphasized the need for harmonized trial methodologies, cross-border collaboration, and patient engagement from trial inception. RealiseD was recognized as a major step toward sustainable and efficient rare disease research infrastructure.

PACC-led Session – Strengthening Patient Advocacy and Co-Leadership

- The PACC reflected on challenges and opportunities for deeper engagement across IRDiRC structures. It was acknowledged that limited information flow and resource constraints have hindered the committee's ability to provide timely feedback but reiterated a strong commitment to collaboration.
- The discussion underscored the need to institutionalize patient participation in decision-making processes within IRDiRC's committees and task forces. Participants agreed that sustainable patient involvement requires dedicated resources, recognition of expertise, and continuous communication channels between patient groups and scientific committees.
- The PACC reaffirmed its objective to strengthen collaboration and co-leadership. The discussion highlighted the need for structural support and ongoing dialogue to ensure meaningful patient participation in IRDiRC activities.

4. IRDiRC Strategies and Updates

- IRDiRC's strategic updates, focusing on communication, publication output, and forthcoming events were presented. The publications produced by IRDiRC bodies in 2025 were presented and several manuscripts are under development.
- Progress on the redesign of the IRDiRC website to enhance accessibility, user experience, and visibility of outputs was reported.
- An updated calendar of upcoming events, including IRDiRC's participation in the World Orphan Drug Congress 2025 (27-29 October, Amsterdam, Netherlands), and the 2nd Conference on Clinical Research Networks (9-10 December 2025, Heidelberg, Germany).

Publications 2025

- **From roadmap to a sustainable end-to-end individualized therapy pathway.** Anneliene H. Jonker, Elena-Alexandra Tataru, et al. Therapeutic Advances in Rare Disease, 2025.
- **Drug-device combinations in rare diseases: Challenges and opportunities.** Elena-Alexandra Tataru, Marc Dooms, Claudia Gonzaga-Jauregui, Anna Maria Gerdina Pasmooij, Daniel J. O'Connor, Anneliene H. Jonker
- **What matters ethically about how the UDN has changed since its inception.** David Pearce, Elena-Alexandra Tataru
- **Regulatory Sandboxes: A New Frontier for Rare Disease Therapies.** Galliano Zanello, Violeta Stoyanova-Beninska, Oxana Iliach, Daniel Scherman, Samantha Parker, David A Pearce
- **Applying the international rare disease research consortium (IRDiRC) N-of-1 therapy task force eligibility criteria for individualised therapies use case: Duchenne muscular dystrophy.** Annemieke Aartsma-Rus, Anneliene H Jonker, Daniel O'Connor

Under Review

- **Orphan Drugs Development: Productivity and Probability of Success.** Samantha Parker, Jida El Hajjar, Anneliene H. Jonker, Sue Kahn, Persefoni Kritikou, Christina Kyryiakopoulou, Anthony Haight
- **Orphan drug approvals across the world: Types of evidence required and time to approval.** Anne R. Pariser, Violeta Stoyanova-Beninska, Oxana Iliach, Reda Jundi, Kerry Jo Lee, Hanako Morikawa, Samantha Parker, Caroline Pothet, Marco Rizzi, Julie Vaillancourt, Ana Hidalgo-Simon
- **The roadmap for the development of the Human Variome – Development of functional multi-omics analyses for the understanding of human biology**. Birute Tumiene, David Adams, Gareth Baynam et al.
- **Translating multi-omics into healthcare: Requisites for scalable and equitable implementation.** Birute Tumiene, David Adams, Gareth Baynam et al.

- **Challenges and opportunities for the use of telehealth in rare disease diagnosis, treatment, research, education: Key Opinion Leader Interviews by the IRDiRC Telehealth Task Force.** Melissa Parisi, Adam Hartman, Faye Chen et al.

Communication

The internal communication platform is hosted on MS Teams, where each committee and Task Force has its own dedicated channel, managed by the ERDERA Coordination Team. A strategic communication planning guideline is under development in collaboration with the Teamit Communication team. Communication collaboration with Teamit has been further strengthened through regular bi-weekly meetings and their ongoing support in preparing for key events, including the CA, WODC, and CRN Conference.

As of October 2025, the newsletter has 766 subscribers, a 22.6% opening rate, and four editions published. On social media, the LinkedIn page has 3,010 followers, an increase of 1,989 over the past year, while Twitter has 3,059 followers. Throughout 2025, the organization participated in several key events, including the 4th ERICA General Assembly & ERN Research Conference, the RE(ACT) Congress and IRDiRC Conference, the World Orphan Drug Congress (USA and Europe), the International Rare Diseases Conference of China, the International Drug Repurposing Conference (iDR25), and the Second International Clinical Research Networks Conference.

5. Special topics sessions

The Chinese Approach to Rare Diseases

- China's comprehensive national framework for rare diseases was presented. The strategy integrates clinical care, research, policy, and innovation through a coordinated network of 419 hospitals. This system connects clinical specialists, diagnostic laboratories, and policymakers under a shared data and governance structure.
- Central to this effort is the PUMCH Genesis platform, an AI-assisted diagnostic engine that aggregates genomic, imaging, and clinical data to accelerate rare disease identification. The Genesis platform uses more than 12,000 genetic algorithms and continuously improves through real-world feedback loops from hospitals nationwide.
- The presentation outlined China's National Biobank for Rare Diseases, now containing over 1.75 million samples. It serves as a foundation for genomic studies, phenotypic mapping, and treatment-response analysis. Since 2019, this coordinated approach has reduced the average diagnostic delay from four years to four weeks and cut treatment-related costs by over 90 percent.
- During this discussion, participants asked about data governance and privacy protection. Queries also addressed regulatory pathways for orphan drug development and the definition of rare diseases in China (prevalence ≤ 0.1 percent of China's population).

Rare Disease Awareness

- Mechanisms/strategies to raise global awareness of rare diseases as a driver of discovery, equity, and inclusion were resented.
- While individually rare, collectively these conditions affect millions of people worldwide, yet remain poorly understood by the general public and many health professionals.
- Examples from Australia's *Rare Voices campaign* and the *HeART of Rare Disease project* were introduced, which merge art, storytelling, and science to connect communities and policy makers.
- Creative collaborations involving artists, geneticists, and patient families that transform medical data into visual and narrative forms, making rare diseases tangible to society.
- Participants discussed the role of awareness in early diagnosis**,** policy advocacy**,** and education of healthcare professionals, noting that improved public understanding directly influences the timeliness of referrals and the willingness of funders to invest in research.
- There was consensus that awareness, advocacy, and research should form a continuous cycle: visibility leads to funding, which fuels innovation, which in turn sustains awareness.

Standards and Quality in Diagnostic Laboratories & Technological Innovations

- A comprehensive overview of quality systems and technological progress in diagnostic genetics was presented.
- The rapid growth of sequencing technologies had not always been matched by consistent standards across laboratories.
- The presentation reviewed implementation of ISO 15189 accreditation among European and international laboratories. A survey of 85 diagnostic centres showed that while 72 percent participate in External Quality Assessment (EQA) programmes, fewer than half maintain full accreditation.
- Regional disparities were discussed: high adherence in northern Europe contrasts with limited coverage in parts of southern and eastern Europe, often linked to cost and staff turnover.
- Cumulative error mechanisms using the "Swiss cheese model" were illustrated: small oversights—such as incomplete phenotypic data, unvalidated bioinformatic pipelines, or misinterpreted variants—can align to produce a diagnostic failure.
- The session also explored technological innovation. Long-read sequencing and optical genome mapping now enable resolution of complex structural variants, improving diagnostic yield by 8–10 percent in pilot programmes.
- However, participants cautioned against unverified adoption without adequate training and quality frameworks.

- Discussion addressed the integration of artificial-intelligence tools for variant prioritisation; consensus emerged that algorithmic outputs must remain under professional clinical interpretation.
- Participants agreed that IRDiRC could act as a facilitator of international harmonisation, linking EQA providers, professional societies, and regulatory bodies to ensure consistent standards.

REPO4EU – Building a Sustainable Repurposing Ecosystem

- The session on REPO4EU introduced Europe's coordinated effort to institutionalise drug repurposing as a sustainable, open, and collaborative practice.
- The initiative's architecture was described. It is funded under Horizon Europe, which connects scientific, regulatory, and business components across Member States.
- The consortium's objectives are to:
  - Build a shared data platform integrating clinical, pharmacological, and real-world evidence for off-patent compounds;
  - Develop standard operating procedures (SOPs) and regulatory templates for repurposing pathways;
  - Establish public-private partnerships (PPPs) enabling SMEs, academic groups, and patient organisations to collaborate on development programmes.
- The REPO4EU Hub will host a searchable catalogue of candidate molecules, matched with disease indications and available datasets.
- During discussion, participants underlined the need for alignment with European Medicines Agency guidance and national competent authorities. Several members proposed leveraging IRDiRC's committee network to pilot regulatory-science dialogues.
- More information: https://repo4.eu/

REMEDi4ALL – Advancing Systematic Drug Repurposing

- Following the REPO4EU session, the REMEDi4ALL consortium presented complementary work to develop a digital and methodological backbone for repurposing.
- The platform aggregates omics, literature, and clinical data using machine-learning tools to prioritise repurposing candidates. It provides end-to-end support from hypothesis generation to clinical-trial design.
- Key focus areas include:
  - A Knowledge Graph linking 30 million scientific records and drug–target interactions;
  - A Sandbox environment where researchers can test predictive models;

    - Development of common legal templates to streamline data-sharing agreements.
- Three ongoing pilot projects were showcased:
    - Repurposing of a metabolic modulator for Friedreich's ataxia;
    - Evaluation of anti-inflammatory agents in ultra-rare autoinflammatory syndromes;
    - Repositioning of an oncology compound for a neuromuscular indication.
- Speakers stressed the importance of patient involvement in prioritisation and noted that co-defining unmet needs increased the likelihood of clinically relevant outcomes.
- More information: https://remedi4all.org/

6. IRDiRC Roadmap 2026–2028: Task Force and Working Group Proposals

Four new initiatives were presented as part of IRDiRC's forthcoming strategic roadmap. Each proposal outlines a targeted area where collaborative task forces can accelerate translation and reduce fragmentation.

Task Force – Models of Care

- **Background:** Fragmentation of care for people living with rare diseases remains a major barrier to equitable treatment.
- **Objectives:** Identify scalable, patient-centred models that integrate research and healthcare delivery; document successful national frameworks; and propose metrics for coordinated care pathways.
- **Expected Impact:** Evidence-based policy recommendations to reduce inequalities and strengthen integration between clinical centres and research infrastructures.
- During discussion, participants stressed cross-border applicability and links to the European Reference Networks.

Task Force – Digital Twins

- **Background:** Digital-twin technology enables in-silico simulation of individual disease trajectories.
- **Objectives:** Define technical and ethical frameworks for constructing validated digital-twin models in rare diseases.
- **Expected Impact:** Enhanced predictive modelling, reduced clinical-trial burden, and improved personalised treatment strategies.
- Members highlighted regulatory challenges and the need for interoperable data standards.

Task Force – Data Sources and Registries

- **Background:** Data fragmentation remains a persistent obstacle to rare-disease research.

- **Objectives:** Map existing registries, develop minimal common data elements, and propose governance templates aligned with FAIR principles.
- **Expected Impact:** Interoperable, high-quality datasets supporting clinical research and policy evaluation.
- Committee members endorsed leveraging the Orphanet and EJP-RD infrastructures to avoid duplication.

Working Group – Digital Biomarkers

- **Background:** Digital endpoints derived from wearables and sensors can transform evidence generation.
- **Objectives:** Validate digital biomarkers for regulatory acceptance and create best-practice guidance for their integration in clinical trials.
- **Expected Impact:** Accelerated, patient-friendly monitoring of disease progression and treatment efficacy.
- Participants called for alignment with the European Medicines Agency's digital-health initiatives.

Abbreviations

ATMPs - Advanced therapy medicinal products
CA – Consortium Assembly
CCC – Companies Constituent Committee
CRN – Clinical Research Network
DSC – Diagnostics Scientific Committee
EQA - External Quality Assessment
ERDERA – European Rare Diseases Research Alliance
EU – European Union
FCC – Funders Constituent Committee
IHI – Innovative Health Initiative
IRDiRC – International Rare Diseases Research Consortium
iDR25 - International Drug Repurposing Conference 2025
ISC – Interdisciplinary Scientific Committee
LMIC – Low-Medium Income Country
PACC – Patient Advocacy Constituent Committee
PE – Patient Engagement
PLWRD – Persons Living With a Rare Disease
PUMCH – Peking Union Medical College Hospital
RD – Rare Disease
RSC – Regulatory Scientific Committee
RWD – Real World Data
SC – Scientific Committee
SoC – Standard of Care
SOP – Standard Operating Procedures

TF – Task Force
TSC – Therapies Scientific Committee
WODC – World Orphan Drug Congress

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