

# Accelerating Research in Genomic Oncology The International Cancer Genome Consortium 2019-2030

## **Background and Evolution**



- ICGC ARGO is the new phase of the International Cancer Genome Consortium project, which comprehensively mapped the structural aberrations of cancer genomes and advanced our understanding of the molecular basis of cancer
  - ICGC 25k project (<u>www.icgc.org</u>) ~ 21,000 cancer genomes of primary cancers
  - ICGC Pan-Cancer Analysis of Whole Genomes- ~2,600 whole cancer genomes (<a href="https://www.nature.com/collections/afdejfafdb/">https://www.nature.com/collections/afdejfafdb/</a>)
- Hundreds of seminal works arising from ICGC data, and landmark articles appearing in the world's elite scientific journals. No therapeutic is developed today without, in some way, applying the knowledge that ICGC has provided the world.
- In response to the realization of the potential of genomics in healthcare, in 2016 released a position "white paper" on the evolution of ICGC moving directly to impacting on human health



## Accelerating Research in Genomic Oncology

Vision: The ARGO project is the new phase of the ICGC; translating genomic knowledge to improve outcomes for people affected by cancer.

**Mission:** ICGC ARGO will analyse specimens from 100,000 cancer patients with high quality clinical data to **address outstanding questions** that are vital to our quest to defeat cancer. This data will made available to the research community in a rapid and responsible way.

#### **ICGC ARGO Data Features:**

- Comprehensive longitudinal annotation; clinical data describing lifestyle, comorbidity, diagnostics, response to therapy and survival
- High quality; using common quality standards for pathology and technology
- Harmonised; using central analysis and pipelines through regional data processing centres.



## Accelerating Research in Genomic Oncology

### **Key questions addressed by ARGO are:**

- 1. How do we use current treatments better?
- 2. How does a cancer change with time and treatment?
- 3. How do we translate this knowledge into improved health outcomes and more effective drug development?
- 4. How do we advance early detection and ultimately prevent cancer?

Weill Cornell Medicine

Weill Cornell Precision Medicine Program (USA, multiple cancers)



Swiss Oncology and Cancer Immunology Breakthrough Platform (Switzerland, multiple cancers)



Personalized Genomic Characterisatiopn of Korean Lung Cancers



Oesophageal Cancer Clinical and Molecular Stratification (UK)



Personalised Breast Cancer Program (United Kingdom)



Korean Multiple Myeloma Precision Medicine Project (Korea)



Pan Prostate Cancer Group (United Kingdom)



Korean Rare Cancers Project



Pancreatic Cancer Harmonized "Omics" analysis for Personalized Treatment (Canada)



BC Cancer personalised OncoGenomics Program (Canada, multiple cancers)



Papillary Thyroid Cancer Project (Saudi Arabia)

Precision Panc (UK, pancreatic cancer) 1000 Polyethnic Study (USA, multiple cancers) European Peripheral T Cell Lymphoma Study (Germany) China Diffuse Gastric Cancer Study (China) Non-Melanoma Skin



Chinese Cancer Genome Consortium (China, colorectal cancer)



Mutographs Study (UK, France, multiple cancers)







Oesophageal Squamous Cell Carcinoma Study



Genomic Medicine for Asia Prevalent Cancers (Japan, multiple cancers)

Cancer Project, (FRANCE)

Profiling Orphan Neoplasms for Treatment (Italy, multiple cancers)



Hong Kong Brain Metastasis Study, Colorectal and Lung Cancers (Chinese University of HK)



OLIGO Clinical Trial, (multiple cancers) University College London (UK)



**International Cancer Genome Consortium** 



Member programs as of December 2020. More details on member programs:

https://www.icgc-argo.org/page/89/project-list