Monday, 27 November

8.30 Registration

9.00 Welcome by Dr. Francesc Posas (IRB Barcelona, Director) and organizers (Dr. Direna Alonso-Curbelo and Dr. Tuomas Tammela)

Session I: From mechanism to phenotype: emerging concepts and technologies
Chair: Dr. Ángela Nieto, Institute of Neurosciences of Alicante- UMH (Elche, Alicante)

9.15 What makes a cell competent to cause cancer?
Dr. Richard White, Ludwig Institute for Cancer Research (Oxford, UK)

9.50 Lessons from the past to predict the future: epigenetic memory in chronic lymphocytic leukemia
Dr. Iñaki Martin-Subero, IDIBAPS/ICREA (Barcelona, Spain)

10.25 Short talk 1: In vivo screening of tumor-hepatocyte interactions identifies Plexin B2 as a gatekeeper of liver metastasis
Costanza Borrelli, ETH Zurich (Basel, Switzerland)

10.40 - 11.15 Coffee break and poster session

11.15 Epigenetic influence of fatty acid metabolism on metastasis: consequences on cachexia
Dr. Salvador Aznar Benitah, IRB Barcelona/ICREA (Barcelona, Spain)
11:50  **Short talk 2**: Unraveling the role of cancer-associated small open reading frames using an in vivo CRISPR screen  
Fabiola Valdivia-Francia, Institute For Regenerative Medicine, University of Zurich (Zurich, Switzerland)

12.05  **Short talk 3**: Functional Dissection of the Basal Cell State in Pancreatic Cancer  
Dr. Anupriya Singhal, Memorial Sloan Kettering Cancer Center (New York, NY, USA)

12.20  Investigating tumor evolution and tumor-immune interactions using genetically engineered mouse models of cancer  
Dr. Tyler Jacks, Koch Institute for Integrative Cancer Research at MIT (Cambridge, MA, USA)

12.55 -14.00  **Lunch and poster session**

Session II: Evolutionary trajectories in premalignancy and cancer  
Chair: Dr. Eduard Batlle, IRB Barcelona/ICREA (Barcelona, Spain)

14.00  Somatic mutation landscapes in large human cohorts  
Dr. Iñigo Martincorena, Wellcome Sanger Institute (Cambridge, UK)

14.35  Neoplastic co-option of cell and tissue plasticity in pancreatic tumorigenesis  
Dr. Direna Alonso-Curbelo, IRB Barcelona (Barcelona, Spain)

15.10  Evolutionary trajectories from premalignancy to cancer: lessons from the oesophagus  
Dr. Rebecca C. Fitzgerald, University of Cambridge (Cambridge, UK)

15.45 – 16.15  **Coffee break and poster session**

16.15  Life history of breast cancer and related clones  
Dr. Seishi Ogawa, Kyoto University (Kyoto, Japan)

16.50  **Panel Discussion/Colloquium: Placing cancer in context in the AI era**  
Panelists: Núria López-Bigas, Christina Curtis, Ido Amit, Logan Walsh  
Moderators: Tuomas Tammela, Direna Alonso-Curbelo

17.45  **End of session**
Tuesday, 28 November

Session III: Cellular origins and hallmarks of neoplastic identity
Chair: Dr. Direna Alonso-Curbelo, IRB Barcelona (Barcelona, Spain)

9.00 Altering chromatin accessibility - implications for development and tumorigenesis
   Dr. Alexandra Avgustinova, IRB Barcelona/ Institut de Recerca Sant Joan de Déu (Barcelona, Spain)

9.35 Stem cells, immune evasion and metastasis in colorectal cancer
   Dr. Eduard Batlle, IRB Barcelona/ICREA (Barcelona, Spain)

10.10 -10.40 Coffee break and poster session

10:40 Impact of aging on lung plasticity and tumorigenesis
   Dr. Tuomas Tammela, Memorial Sloan Kettering Cancer Center (New York, NY, USA)

11.15 Short talk 4: Development and cancer: regulatory elements in pancreatic cancer onset
   Dr. Luis Arnes, University of Copenhagen (Copenhagen, Denmark)

11.30 Short talk 5: Pdgfra-expressing stroma responds promptly to intestinal epithelial overgrowth
   Dr. Elisa Manieri, Dana-Farber Cancer Institute (Boston, USA)

11.45 EMT and cell plasticity trajectories in cancer progression
   Dr. Ángela Nieto, Institute of Neurosciences of Alicante- UMH (Elche, Alicante)

12:20-13.20 Lunch and poster session

Session IV: Crosstalk within normal and malignant ecosystems
Chair: Dr. Núria López-Bigas, IRB Barcelona/ ICREA (Barcelona, Spain)

13.20 Resolving site-specific immune barriers to metastasis
   Dr. Ana Luisa Correia, Champalimaud Foundation (Lisboa, Portugal)

13.55 Single-cell spatial landscapes of the lung and brain tumour immune microenvironment
   Dr. Logan Walsh, McGill University (Montreal, Quebec, Canada)

14.30 Short talk 6: Spatial differences in the molecular organisation of tumours along the proximal-to-distal axis of the colon are linked to interactions within the tumour ecosystem
   Dr. Martin H. Schaefer, European Institute of Oncology (Milano, Italy)
14.45  **Organoid cellular cancer immunity models in motion**  
Dr. Anne Rios, Princess Máxima Center for Pediatric Oncology (Utrecht, The Netherlands)

15.20- 16.00  **Coffee break and poster session**

16.00  **Malignant networks in brain tumors (and how to disconnect them)**  
Dr. Frank Winkler, DKFZ Heidelberg (Heidelberg, Germany)

16:35  **Short talk 7: An interactive cellular ecosystem blocks epithelial transformation in naked mole-rat**  
Dr. Mikaela Behm, DKFZ Heidelberg (Heidelberg, Germany)

16.50  **A senescent tumour microenvironment promotes lung cancer initiation and progression**  
Dr. Daniel Munoz-Espin, Early Cancer Institute, University of Cambridge (Cambridge, UK)

17.25  **The power of ONE: Immunology in the age of single cell genomics**  
Dr. Ido Amit, Weizmann Institute of Science (Rehovot, Israel)

18.00  **End of session**

20.30  **Speakers dinner (Restaurant Can Pineda) (Sant Joan de Malta, 55)**

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**Wednesday, 29 November**

**Session V: Challenges and opportunities for clinical translation**  
Chair: Dr. Alexandra Avgustinova, IRB Barcelona/ Institut de Recerca Sant Joan de Déu (Bcn, Spain)

9.00  **Genetic and non-genetic features of tumor immunity: mismatch repair deficiency as a model system**  
Dr. Luis Diaz, Memorial Sloan Kettering Cancer Center (New York, NY, USA)

9.35  **Short talk 8: Genome-wide CRISPR screens identify novel co-dependencies with KRAS inhibition**  
Bettina Sajtos, Research Institute of Molecular Pathology (Vienna, Austria)

9.50  **Short talk 9: Methylation of the epigenetic regulator KMT2D by SMYD2 contributes to therapeutic response in hormone-dependent breast cancer**  
Dr. Eneda Toska, Johns Hopkins University School of Medicine (Baltimore, Maryland, USA)

10.05  **Clonal selection in normal tissues and its relation to cancer risk**  
Dr. Núria López-Bigas, IRB Barcelona/ ICREA (Barcelona, Spain)
10.40 -11.20  *Coffee break and poster session*

11.20  Exploring evolutionary contingencies and constraints by rewinding the tape of malignant transformation  
Dr. Samra Turajlic, The Francis Crick Institute (London, UK)

11.55  **Short talk 10: Origin of second malignancies in pediatric patients**  
Dr. Mònica Sánchez-Guixé, IRB Barcelona (Barcelona, Spain)

12.10  **Short talk 11: Epithelioids: Self-sustaining long-term 3D cultures reveal drivers of clonal expansion in esophageal epithelium**  
Dr. Albert Herms, Universitat de Barcelona, Barcelona, Spain

12.25  **Genomic, host and microenvironmental determinants of cancer progression**  
Dr. Christina Curtis, Stanford University School of Medicine (Stanford, CA, USA)

13.00  *Concluding remarks and end of conference*