

Corning Life Sciences 3D Cell Culture User Day 2020 – Virtual Edition

24 September, 2020 | Live Stream

Agenda

Time	Topic	Speaker	Institution
8:45	Welcome and Introduction	Elodie Deprez	Corning Life Sciences
9:00	Presentation: Organoids for modelling cell-to-cell interactions occurring in PDAC	Vincenzo Corbo	University of Verona
9:35	Presentation: Interaction between the environment and the intestinal epithelium: The organoids play the game	Audrey Ferrand	CR1 INSERM, Institute for Research in Digestive Health
10:10	Product demonstration	Application Scientist	Corning Life Sciences
10:40	Presentation: Patient-derived organoids from normal and tumour colorectal tissue for Vitamin D effect studies and drugs assays	Antonio Barbáchano	Biomedical Research Institute, IIBm-CIBERONC
11:15	Presentation: Multicellular tumor cultures for screening and identification of context-dependent vulnerabilities	Mårten Fryknäs	Uppsala University
11:50	Workshop: 3D cell culture and screening approaches	Corning Life Sciences	–
12:20	Lunch		
13:30	Presentation: 3D matrix unveils Ets-1 key role in breast cancer cell crosstalk with its environment	Alessandro Furlan	PhLAM Laboratory of Physics of Lasers, Atoms and Molecules
14:05	Presentation: Translating stem cells to study health and diseases: a step into the organoid world	Maxime Mahé	INSERM (CRCN) Nantes
14:40	Presentation: Organoid-based functional genomics in development and carcinogenesis	Xavier Gidrol	CEA, IRIG, Grenoble
15:15	Product demonstration	Application specialist	Corning Life Sciences
15:45	Presentation: Viruses and host barriers	Pierre-Emmanuel Ceccaldi	Paris Diderot University at Institut Pasteur
16:20	Presentation: New tools for 3D research: Convenient culture of organoids and efficient scale-up of spheroids	Nicolas André	Corning Life Sciences
16:50	Workshop: Addressing questions from participants	Speakers	–
17:20	Closing remarks	Elodie Deprez	Corning Life Sciences
17:30	Networking: Opening of the virtual networking room	All attendees and speakers	–
18:00	Closing		

Speaker and Presentation Overview



Vincenzo Corbo

*Assistant Professor of Molecular Oncology, Dept. of Diagnostics and Public Health
University of Verona*

Organoids for modelling cell-to-cell interactions occurring in PDAC

Dr. Vincenzo Corbo is an Assistant Professor at the Dept. of Diagnostics and Public Health, University of Verona, Italy. He received his Ph.D. from the University of Verona in 2009. At Verona, he contributed to setting up next generations sequencing platforms in the lab of Professor Aldo Scarpa, where he participated in international efforts (ICGC, International Cancer Genome Consortium) to describe somatic alterations of pancreas cancers. He completed his postdoctoral training in the laboratory of Prof. David Tuveson at Cold Spring Harbor, where he participated in the development of a novel three-dimensional culture system to study pancreatic cancer. During his postdoctoral training he also developed a therapeutic platform availing of organoids and participated in the definition of a novel co-culture system. He is now co-PI of an international initiative for the generation and characterization of organoids from different diseases. His work focuses on the description of the role of molecular anomalies in tumorigenesis and maintenance of different pancreatic cancer types. Recently, he started research projects aimed at understanding the molecular processes leading to the specification of the different molecular subtypes of pancreatic cancer.



Audrey Ferrand

*Ph.D. in Pharmacology and Cell Biology, Group Leader CR1 INSERM
Institute for Research in Digestive Health
INSERM u1220, INRA u1416, Paul Sabatier University, National Veterinary School of Toulouse*

Interaction between the environment and the intestinal epithelium: The organoids play the game

Audrey Ferrand obtained her Ph.D. in Pharmacology from the University of Toulouse in 2004. Her research interest in the laboratory of Digestive Biology (INSERM U531) was to decipher the signaling pathways mediating the pro-tumoral roles of the gastrin peptides in colon and pancreas cancers. In 2005, she joined the laboratory of Jeffrey Settleman at the Massachusetts General Hospital (MGH) Cancer Center, Harvard Medical School, where she characterized the differential drug response of mutated EGFR in non-small cell lung cancer. In 2006, she moved to the Surgery dept. at the University of Melbourne where she identified the crucial role of gastrin precursors in the tumor-initiating capacity of CD133-positive colon cancer cells. In 2009, she was recruited as a junior assistant professor (INSERM CRCN) to establish a research program aiming to identify therapeutic targets in colorectal. Since 2018, she's been leading a research group at the IRSD studying the interactions between the intestinal epithelium and the environment. By combining morphological, functional, pharmacological, and microfluidic approaches to 3D cell primocultures of colorectal organoids and fibroblasts, coupled to orthotopic grafting on murine models, they study the interactions between normal or cancer stem cells and fibroblasts in the various stages of colorectal tumorigenesis.



Hilary Sherman

*Senior Scientist, Cell Biology
Corning Incorporated, Life Sciences*

Product Demonstrations: 3D organoids with Corning Elplasia® plates, and dome plating with Corning Matrigel® matrix.

Hilary Sherman is a Senior Scientist in the Corning Life Sciences Applications Lab in Kennebunk, ME. Hilary has been with Corning since 2005 and has worked with a wide variety of cell types including mammalian, insect, primary stem cells and organoids in a vast array of applications. Her key roles at Corning involve creating technical documents such as protocols and whitepapers, as well as providing technical support and training for both the Corning sales force and customers. In the last several years, Hilary has focused on 3D cell culture applications including human organoid culture.

Speaker and Presentation Overview (*continued*)



Antonio Barbáchano

Researcher

Alberto Sols Biomedical Research Institute, IIBm-CIBERONC

Member of the Health Research Institute of La Paz Hospital (IdiPAZ)

Member of Biomedical Research Networking Centres-Oncology (CIBERONC)

Patient-derived organoids from normal and tumour colorectal tissue for Vitamin D effect studies and drugs assays

Antonio Barbáchano is a researcher at the Alberto Sols Biomedical Research Institute (IIBm) in Madrid. He has a degree in Chemistry from the University of Alcalá de Henares and a degree in Biochemistry from the University Francisco de Vitoria. He began his scientific career in the laboratory of Dr. Julián Romero Paredes at the University Hospital Fundación de Alcorcón, then he joined to the laboratory of Prof. Alberto Muñoz at the IIBm for his Ph.D. Since 2012 his research has been focused on 3D cultures, briefly working in Dr. Eduard Batlle's laboratory at the Biomedical Research Institute (IRB) of Barcelona, as a pioneer and international leader in the isolation and 3D culture of healthy human intestinal stem and cancer stem cells (CSC). The knowledge he received from working in Dr. Battle's group, together with a collaborative network created between surgeons and pathologists of the General Surgery and Pathological Anatomy departments at the University Hospitals La Paz and Fundación Jiménez Díaz, has allowed him to establish a complete protocol for 3D culture of intestinal stem cells of healthy and tumour colon tissue from colorectal patients. These stem cells that grow in 3D structures and resemble the organ they derived from are called organoids. He uses this organoid technology to study the role of vitamin D in human colon tissue, and recently, his group has been the first to describe that calcitriol (active metabolite of vitamin D) contributes to maintain the stemness of normal colon organoids while it induces cell differentiation in tumour colon organoids, showing a protective action of vitamin D in colorectal cancer (FEBS J, 2019).

In 2018, he took a course "Applications of Organoid Technology", which has allowed updating and improving protocols and tuning of new techniques such as drug tests in regular use or in research. Later, his group developed a reproducible drug screening protocol for organoids that has been recently published in *Marine Drugs* (2019). He has also collaborated with Dr. Francisco X. Real's group of the National Cancer Research Centre (CNIO) in the generation of mouse bladder organoids. As a result of this collaboration, the findings were published in *Nature Communications* (2019).



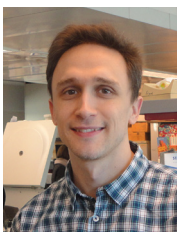
Mårten Fryknäs

Associate Professor and Senior Lecturer, Dept. of Medical Sciences

Uppsala University

Multicellular tumor cultures for screening and identification of context-dependent vulnerabilities

Mårten Fryknäs holds a position as an Associate Professor and a Senior Lecturer at the Dept. of Medical Sciences, Uppsala University. He received a MSc in pharmacy and earned a Ph.D. in medical genetics from Uppsala University. His thesis included bioinformatic and wet-lab approaches to identify and counteract resistance to anti-cancer drugs. He was a postdoctoral fellow at the department of genetics and pathology in Uppsala. During his postdoctoral studies he found and reported on connections between polycomb proteins, gene regulation, stem cells, and disease stages in multiple myeloma. Thereafter, he joined the Cancer Pharmacology and Computational Medicine group at Uppsala University, where he currently focuses on phenotypic screening, assay development and bioinformatic approaches to characterize the activities of small molecules. Mårten has published 59 original scientific articles and co-funded three biotech companies.



Alessandro Furlan

Contractual Researcher

Laboratory of Physics of Lasers, Atoms and Molecules

Young Researcher Award of the Region Hauts de France

3D matrix unveils Ets-1 key role in breast cancer cell crosstalk with its environment

Alessandro Furlan is currently a Contractual Researcher at the Laboratory of Physics of Lasers, Atoms and Molecules.

He is in charge of a project to study the interactions within the transcriptional complex using fluorescence microscopy approaches and physical analysis tools. His project is particularly relevant to biological questions related to the cell cycle and the circadian cycle.

Alessandro studied at the University of Lille, where he did a thesis on the cellular physiology of breast cancer, thanks in particular to models of 3D culture in extracellular matrix. He completed his training by developing transgenic mouse models at IBDML in Marseille, to study *in vivo* cell signaling in embryonic development and tumors. Later, Alessandro joined the Collège de France in Paris to work on a project around 3D models of intercellular communication during angiogenesis. Then, for 2 years he managed a project on the cell survival-death balance at the Pasteur Institute of Lille, as a postdoctoral researcher. Strong from his experiences, Alessandro joined the University of Lille to study the transcription processes associated in particular with the cell cycle and the circadian cycle. During this experience he joined GDR Imabio where he is currently co-leading the working group on the imaging of organoids and 3D cultures.

Speaker and Presentation Overview (continued)



Maxime Mahé

Research Assistant Professor at INSERM (CRCN)
University of Nantes

Translating stem cells to study health and diseases: A step into the organoid world

Maxime Mahé obtained his Ph.D. in 2012 in neurogastroenterology at the University of Nantes. From 2012, he trained as a postdoctoral fellow working on intestinal stem cells and organoids at the Children's Hospital Medical Center in Cincinnati, Ohio. In 2015 he started his own group working on human intestinal organoids associated with the enteric nervous system. Since 2017, he has been recruited at INSERM-TENS Nantes to develop his research program on enteric nervous system interactions during gut development and microbiota colonization using innovative model systems.



Xavier Gidrol

Director of BGE-U1038 laboratory (CEA/INSERM/UGA)
Head of BIOMICS Laboratory
CEA, IRIG

Organoid-based functional genomics in development and carcinogenesis

Xavier Gidrol received his Ph.D. in Molecular and Cell Biology from Aix-Marseille University. He performed postdoctoral research at Harvard School of Public Health and at the Institute of Molecular and Cell Biology, Singapore. He specialized in transcriptional regulation of gene expression.

He got a tenure position at INRA France, and then served as Associate Director of R&D at Xenometrix Inc., a spin-off start-up from Harvard University, where he gained interest in global approaches and genomics. In 2000, he joined the newly created Functional Genomics Laboratory at France's Atomic Energy Commission (CEA) in Paris and managed it until 2008. This laboratory focused on large-scale functional genomics approaches to analyze proliferation/differentiation balance in oncology. In 2009, he was appointed director of a new laboratory, Biomics at CEA in Grenoble, to use microsystems for cell biology, where he focuses on 3D organoids, organs-on-chip, and RNAi-based functional genomics in oncology. Since 2015 he manages both the Biomics Laboratory and the Unité de Biologie à Grande Echelle at CEA Grenoble. Xavier Gidrol has authored or co-authored more than 130 publications.



Pierre-Emmanuel Ceccaldi

Professor
Paris Diderot University at Institut Pasteur

Viruses and host barriers

Pierre-Emmanuel Ceccaldi is a Professor at Université de Paris and Team Leader in the Epidemiology and Pathophysiology of Oncogenic Viruses Unit, Institut Pasteur, Paris. He is the co-director of the Fundamental Virology course at the Institut Pasteur.

He obtained his Ph.D. in Neuroscience at the Pierre and Marie Curie University, on the axonal transport of rabies virus, and then trained as an EMBO postdoctoral fellow in San Raffaele Institute, Milan, to study the regulation of neurotransmitter release. He joined Institut Pasteur in 1993, where he developed models to study the pathophysiology of different viruses (rabies, HTLV-1, influenza, West Nile, dengue, Chikungunya, Sindbis, and Zika viruses). His work is focused on the interactions of different viruses with host barriers (blood-brain barrier, intestinal barrier, etc.) and the neuromuscular system.



Nicolas André

Scientific Applications and Support Manager
Corning Incorporated, Life Sciences

New tools for 3D research: Convenient culture of organoids and efficient scale-up of spheroids

Nicolas André received his Ph.D. from the University of Frankfurt/Main in 2006 after studying membrane protein biochemistry at the Max Planck Institute of Biophysics, under the supervision of Hartmut Michel, 1988 recipient of Nobel Prize in Chemistry. He completed his training with a postdoctoral research project on membrane protein interaction at CNRS Marseille. Nicolas has held several positions within the Corning Life Sciences Team and he is now managing the Scientific Applications and Support Team.

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