

ILLUMINA VENTURES

Portfolio Company Spotlight

Pioneering a new approach to digital PCR

November 2019 – Fascinating life science innovations are emerging from young, entrepreneurial teams of scientists in Europe today, including in and around Paris. Illumina Ventures has recently invested in Paris-based, Stilla Technologies, a company pioneering a new approach to digital PCR.

Polymerase chain reaction (PCR) was a method developed in the early 1980s to make copies of segments of DNA. Quantitative PCR (qPCR) methods were later developed to enable the estimation of a sequence of DNA in a particular sample and digital PCR (dPCR) has evolved as a much more precise measure of DNA in a given sample. However, up until now, dPCR was cumbersome and complicated, and the available solutions on the market had experienced very little innovation.

“Stilla’s Crystal digital PCR™ system takes a technology that can be complex to handle and makes it completely automatic,” said Tom Willis, Partner at Illumina Ventures. “We are delighted to partner with Stilla to bring their next-generation genetic analysis to the mainstream.”

What separates dPCR from traditional quantitative PCR is the partitioning of a sample into thousands of individual reactions. The company has taken advantage of cutting-edge microfluidic innovations to create a dPCR system highly sensitive while easier to use. The Naica™ System is fast and automated, integrating droplet crystal formation and amplification into a single instrument and has three-color readout capabilities to enable multiplexing. The firm is also developing six-color capabilities for the system to further increase multiplexing. Lab technicians with limited PCR experience can become experts in digital PCR after just a day’s training. And labs using the Naica System generate results in just two and a half hours.

The Naica System supports a wide range of nucleic acid quantification and molecular biology assays, including liquid biopsy tests for cancer diagnostics, viral load quantification, pre-natal testing and GMO detection. With the ability for absolute DNA and RNA quantification, whole genome amplification, and droplet recovery for downstream assays the system can also be used for next-generation sequencing library preparation, calibration, and validation

“The Naica System is simpler to use than traditional qPCR, with the advantage of higher sensitivity, accuracy and reliability to quickly detect rare molecules in complex samples,” said Rémi Dangla, CEO and co-founder of Stilla Technologies. “This ability to accelerate research results may ultimately lead to improving the management of disease and human health.”

Stilla has plans to continue to make upgrades to the Naica System. In addition to introducing six-color multiplexing and improving throughput, the company intends to

launch upgraded consumables over the next year. With support from Illumina Ventures, the company will continue these product upgrades while focusing on commercializing the Naica System in the Americas. In addition to expanding its Paris team, Stilla recently launched a U.S. subsidiary in order to enable direct commercial operations and customer support in the Americas. The new U.S. headquarters in Beverly, Massachusetts is run by life science veteran Ruth Szebries and will include a demo lab and training center for American customers. In the long run, Stilla is looking to develop clinical panels to be used on the system, especially in oncology.

“We are very excited to partner with a deep syndicate of European firms to invest in Stilla,” said Nick Naclerio, Founding Partner of Illumina Ventures. “The Stilla team has done an amazing job developing and launching the Naica system in Europe and Asia, and we believe that with additional resources the company can become the de facto dPCR instrument in labs around the globe.”