



Stilla Positions Six-Color Digital PCR System for Use in Oncology, Virology, GMO Testing

Jun 17, 2020 | [Justin Petrone](#)

NEW YORK — Stilla Technologies expects that its new six-color digital PCR system, the first of its kind, will find use in a variety of applications, including oncology, infectious disease testing and monitoring GMOs.

The launch of the company's Prism system earlier this month should support the development of an accompanying menu of tests to serve diverse users, according to CEO Rémi Dangla.

"I think our assay portfolio is something that will increase in the near future because we now have mature applications for which customers are ... looking to design their own assays, especially in oncology," Dangla said. "When you have a six-color system, I think you can provide generic assays that cover a range of mutations, targets, and serve a wide range of needs," he said. "Growing our assay business is linked to the introduction of the six-color system."

Stilla was founded in 2013 to commercialize technology developed at the Ecole Polytechnique France. Based in Villejuif, a suburb of Paris, the company rolled out its Naica digital PCR system in 2016, featuring a Geode instrument that supports droplet formation and thermal cycling on an array, as well as the Prism3 instrument to automate three-color fluorescent imaging readout. Stilla's new instrument, the Prism, can replace the Prism3 in the workflow and provide a six-color readout, therefore supporting higher-complexity assays.

The system has been in development for at least three years, an R&D labor of love. During that time, the company honed the product and several assays to demonstrate the six-color Prism would be a marketable technology. The new system will face off against other commercial digital PCR systems, particularly from Bio-Rad and Thermo Fisher Scientific, neither of which offers quite the same level of multiplexing. Dangla declined to discuss pricing at this time.

"It was a challenge," said Dangla. "If you want to do high-plex assays in PCR, it's a bit of a nightmare to optimize all of the reactions and align all the temperatures," he said. "Yet what we have found is that in digital PCR, because you have isolated the nucleic acids in different compartments, it's much easier to develop those assays," he said. "We think six-color digital PCR will really enable high-plex PCR, and [we] see huge opportunities in life sciences and diagnostics."

The instrument has been validated for use with a six-color lung cancer panel for EGFR mutation quantification. Together with academic collaborators, the company [published a paper](#) in *Oncotarget* in 2019 describing the lung cancer assay. Assays for colorectal cancer and breast cancer have also been developed as part of Stilla's participation in Liquid Biopsies and Imaging for Improved Cancer Care (LIMA), a European project led by Royal Philips funded through Horizon 2020.

The colorectal cancer and breast cancer assays will be evaluated in clinical trials as part of LIMA next year, Dangla said. All assays are for the time being for research use only, but the company intends to eventually obtain a CE-IVD mark, he noted.

Infectious disease testing is another opportunity. Stilla separately this month announced that it had collaborated with academic researchers to develop and validate an approach to conduct pool testing of samples for SARS-CoV-2 on the Naica system. While its COVID-19 work relied on the Prism3, Dangla

said there is no reason why the pool testing approach couldn't work on the new six-color system or in other infectious disease applications.

"You can use three more channels to detect more viruses, so with pool testing you can have a similar approach to screen more viruses or other respiratory viruses in a single assay," he said.

Another potential market is food testing. One user is Alexandra Bogožalec Košir, a researcher at the University of Slovenia in Ljubljana. Bogožalec Košir said that she and fellow researchers at the university have used the three-color Naica system in the past to develop duplex, one-step digital real-time PCR assays to quantify different pepino mosaic virus genotypes. The work was [featured in a paper](#) in *Plants* earlier this year.

At the moment, Bogožalec Košir and colleagues are in the final stages of developing a six-plex assay for the quantification of five EU-authorized GM soybean lines using the Naica six-color system, she said. While quantitative PCR remains the most commonly used approach in her lab, she said that Stilla's digital PCR has some advantages.

"Although qPCR is regarded as the gold standard in many fields, digital PCR is the method of choice when it comes to precise copy number quantification, especially in complex samples," Bogožalec Košir wrote in an email. "When we talk about the Naica platform specifically, one of the advantages is very little hands-on time, which is comparable to qPCR and of course the very high multiplexing potential," she said. "From a metrological point of view, one of the advantages is also [the] simple droplet volume determination," she added.

Stilla is currently well funded to support the international rollout of its new system. The company raised \$22 million in a [Series B round](#) in February, which included Chinese investors. Its platform has been adopted in China and the US, and the company established a subsidiary in Boston last year to support its North American sales and marketing activities. Dangla described China and the US as "key markets" for Stilla going forward.

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