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Broad Institute Rebrands Clinical Lab Services to Be 'a Little Bit More Out There'

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This article has been updated to clarify that the Mass General Brigham Laboratory for Molecular Medicine (LMM) is doing genome interpretation for the BabySeq2 study.

Broad Institute of MIT and Harvard, Cambridge, Massachusetts. Credit: Madcoverboy/Wikimedia Commons

NEW YORK – Having recently rebranded its Clinical Research Sequencing Platform as Broad Clinical Labs (BCL), the Broad Institute is hoping to raise the profile of its clinical lab service offerings among potential customers.

"In the past, to work with Broad's clinical lab, you had to know that it existed," said Niall Lennon, CSO and chair of the board of the newly minted BCL. "Whereas now, we are going to be a little bit more out there."

According to Lennon, the rebranding effort expresses Broad's desire to continue offering clinical assays at a competitive cost by leveraging economies of scale post-COVID. From a practical standpoint, Lennon said BCL is also "a little bit more deliberate" name compared with Clinical Research Sequencing Platform, which was "not very intuitive."

"It had research in the name, so that was confusing for people who were looking at clinical tests," he explained. "It had sequencing in the name, but some of our tests did not even use sequencing; and it had platform in the name, which, unless you are at the Broad, does not necessarily mean something."

Despite the name change, BCL remains a CLIA-licensed, CAP-accredited, wholly owned subsidiary of the Broad, Lennon said. The lab also continues to be the main interface between the Broad and all external omics data generation and analysis needs, meaning all service requests — whether for research or clinical applications — will still be handled by BCL, he noted.

On the research side, Lennon said BCL currently offers a slew of multiomics services ranging from single-cell analysis using the 10x Genomics instrument to plasma proteomic profiling on the Olink platform. Additionally, the lab offers whole-genome, whole-exome, and transcriptome sequencing using various long-read and short-read technologies.

According to BCL's website, 30X short-read human WGS on the Illumina NovaSeq X Plus platform can be as low as $350 per sample while 24X long-read WGS on the PacBio Revio sequencer starts at $1,600 per sample.

Lennon said BCL currently operates five Illumina NovaSeq X Plus sequencers, over 20 NovaSeq 6000, three NextSeqs, 10 Pacific Biosciences Revio systems, three Element Biosciences Aviti platforms, and

three Ultima Genomics sequencers, as well as the PromethION platform from Oxford Nanopore Technologies.

BCL will also continue to offer the so-called walk-up sequencing service, which allows researchers from the Broad and affiliated institutes to sequence their own libraries on their platform of choice.

For clinical tests, BCL has been advertising its $1,000 end-to-end short-read Illumina WGS with variant interpretation service since this spring, which is carried out in partnership with genome analysis company Fabric Genomics.

Lennon said one significant improvement in the Broad's clinical service has been its capacity for variant analysis and reporting. Prior to COVID, the team primarily handled sample processing, sequencing, and some data processing for customers, and results were mostly transferred to a third-party lab or to the end users, who would perform variant interpretation and create a clinical report.

Now, the Broad has invested in building out a team of board-certified geneticists, genetic counselors, and variant analysts who can interpret results and sign out clinical reports in-house, Lennon noted.

While BCL aims to become more public-facing, Lennon said the center does not intend to become a standard-of-care diagnostic test provider. Instead, it still considers institutional or industrial partners as its target customers, who desire genomic testing services on a large scale for clinical or translational research.

"We are not really aiming for every doctor's office sending a test to Broad Clinical Labs; that's not necessarily the place we think we add the most value," Lennon said. "From the very beginning, when we started the clinical lab, the board of the Broad was clear that it is not the mission within our clinical lab to become Foundation Medicine or Quest Diagnostics."

As such, Lennon said BCL currently does not deal with third-party billing and cannot accept health insurance. "Not to say we might never do it, but based on where we think our value is added today, [insurance billing] is not like the top priority for us," he said.

Robert Green, a professor at Harvard Medical School and co-PI of the BabySeq2 study, said the project picked the Broad lab as its sequencing provider, while the Mass General Brigham Laboratory for Molecular Medicine (LMM) is doing the genome interpretation. The project, which is currently recruiting, intends to enroll between 500 and 2,000 families over multiple years, with half the infants having their genomes sequenced.

Green said he has also cofounded a startup that will offer sequencing of newborns and children. For this, BCL will be the clinical testing provider, doing both the sequencing and interpretation, because of its "high-quality testing service" and ability to scale. He said the team is "quite pleased" with BCL's service so far and appreciates its ability to "customize the data reporting structure as well as the turnaround time."

However, BCL is not the only player in the market who is targeting the clinical and translation research space. In recent years, many academic institutions have also established clinical labs or spinoff enterprises, such as the Jackson Laboratory's Advanced Precision Medicine Laboratory or Baylor Genetics, to offer genomic testing services at scale to outside customers.

Meanwhile, commercial clinical testing companies are also actively forging partnerships in the research realm to provide clinical sequencing services for large-scale studies. Invitae, for instance, has teamed up with Children's National Hospital to form the Pediatric Mendelian Genomic Research Center, which was funded by the National Human Genome Research Institute.

Lennon said the main selling points of BCL are that it can operate at scale and cost-efficiently and that it is a "trusted partner with the data."

"We don't have a mission to go and sell that data behind the scenes or use it for some other commercial purpose," he said. "That is an example of an application area where we think the Broad Clinical Labs could be a really good player."

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