NEW YORK (GenomeWeb) – Paradigm Diagnostics announced this week that it has opened a new registry study in which it will collect data on the health and outcomes of patients tested using its comprehensive multi-omics test in collaboration with clinicians and researchers employing the test in their practices.

Paradigm launched its test in 2014, working under a "white-label" data-sharing approach, where it has partnered with individual oncology practices and networks to offer its Paradigm Cancer Diagnostic (PCDx) service, which includes DNA sequencing, mRNA expression analysis, and immunohistochemical assays covering a broad panel of proteins.

Registries have become important tools for many molecular testing companies in persuading customers of the accuracy of their tests, and payors of their economic value.

Genomic Health, for example, continues to glean information from large-scale cancer epidemiology registries that support both validity and health economic claims for its tests.

Drugmakers, labs, clinicians, and regulators have also begun to recognize that registries can also help meet more fundamental discovery and validation needs — by providing clinical data in volumes necessary for the study of increasingly rare or minute biomarker-defined populations.

Recent moves in this vein include the American Society of Clinical Oncology’s Targeted Agent and Profiling Utilization Registry (TAPUR) and the Molecular Evidence Development Consortium’s N1N Registry for patients with non-small cell lung cancer.

The genomics field is also increasingly rallying behind large-scale datasharing efforts — like the American Association for Cancer Research’s Project GENIE — that amass clinical data across multiple centers into a single registry to create even larger volumes of matched genomic and clinical information.

According to Paradigm CEO David Mallery, his firm is hoping that its new registry will yield both a continuation of the utility data it has published in smaller patient sets, and hopefully also new insights into DNA, RNA, or protein signals that predict patient outcomes or drug response.

The registry builds on an independent prospective study led by researchers at the Indiana
University School of Medicine. Published last year, the results indicated that genomically guided therapy (informed by the PCDx test) improved progression-free survival significantly more than therapy not guided by the genomic results.

While the registry data will certainly expand on the IU findings and other utility data that other customers of the test have collected in their own siloed efforts, Mallery also argued that the registry will offer a unique platform for researching new predictive associations.

The firm’s testing strategy of coupling DNA sequencing with added analysis of mRNA and protein expression is different than most of the genomic profiling assays currently in use.

The company initially used Thermo Fisher Scientific’s Ion Torrent PGM for its targeted next-generation sequencing, but has since transitioned to Illumina’s NextSeq. "We use a standard pipeline but with a proprietary library creation process and analytics," Paradigm Cofounder and CSO Scott Morris said.

The test targets cancer-associated mutations in more than 40 genes and copy number variation in 26. To this, it adds analysis of mRNA expression of 50 genes, and IHC assays that measure protein expression of a set of about 20 genes.

According to the company, many of the patients who demonstrated exceptional responses in the IU study, for example, were treated based on mRNA and protein expression findings specifically.

The firm has also seen exciting results in studies of pediatric cancer patients, Mallery said.

Childhood cancers rarely manifest the same DNA driver mutations that confer response to targeted therapy in adults. But the company has seen "extraordinary results," with its multi-omic approach, he said.

So far, Paradigm hasn’t disclosed participants in the registry beyond St. Luke’s Cancer Institute in Kansas City, Missouri, whose Janakiraman Subramanian is a co-principal investigator for the project.

The company did report, though, that it is working on collaborations with other large community oncology networks and academic health systems.

Mallery said that the firm expects to collect data on about 5,000 patients over the next two to three years. "In our collaboration with the Kansas City network alone we're targeting over 700 patients in two years and we're probably going to add four or five networks in the near term to the registry," he added.

Access to registry could also serve as an incentive for clinical researchers considering adoption of Paradigm’s test — something other firms have sought to take advantage of.

GenomeDx, for example, has said that the registry program it launched for its array-based prostate cancer test Decipher has been significantly beneficial to its business.

Under GenomeDx’s model for its Decipher Genomics Resource Information Database (Decipher GRID), any physician who orders a test can sign a user agreement to investigate the database containing information on the tens of thousands of patients who have received the test.
Research under this model yielded a new predictive gene expression signature for response to radiation therapy late last year that GenomeDx said it was working toward incorporating into its clinical test reports.

According to Morris, Paradigm's registry stands apart from many other approaches that companies have taken in that it is designed around an open-source, physician-driven model.

"There has been frustration in collaborative research approaches where companies were trying to own the data," Mallery said.

"Everyone wants the data from the registry, but no one wants to contribute," Morris added.

Under Paradigm's model, participants who add data to the collection retain a certain amount of ownership over that data. If another researcher wants to access it, they have to contact the participant in question. In this way, individual investigators can make sure they are credited the way they want to be in others' investigations, or aren't scooped on their ongoing research by competing teams.

Paradigm has created a digital platform and graphical interface, but is also providing paper forms to help people get onboard initially, Morris said.

To support its own research interests Paradigm has set a minimum dataset requirement for the registry, which includes information on cancer staging, patients' previous treatments, and their outcomes.

"We've actually focused a lot on toxicity because we've gotten a lot of feedback from clients that toxicity can be just as important as progression-free survival if a patient is really sick."

If researchers have richer clinical data that they want to include, or want others to include, they can create sub-registries that go beyond the required minimum input.

"We've tried to design it so it doesn't conflict with deeper existing studies, but will augment them," Morris said.

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