Streamlining the Selection and Qualification of Biomarker Laboratories

Research Report

October 2021

Authored by Julie Neild
Contributors: Jay Turpen, Ian Macholl

DILIGENT® QUALIFICATION PLATFORM

Streamlining the Selection and Qualification of Biomarker Laboratories

October 2021

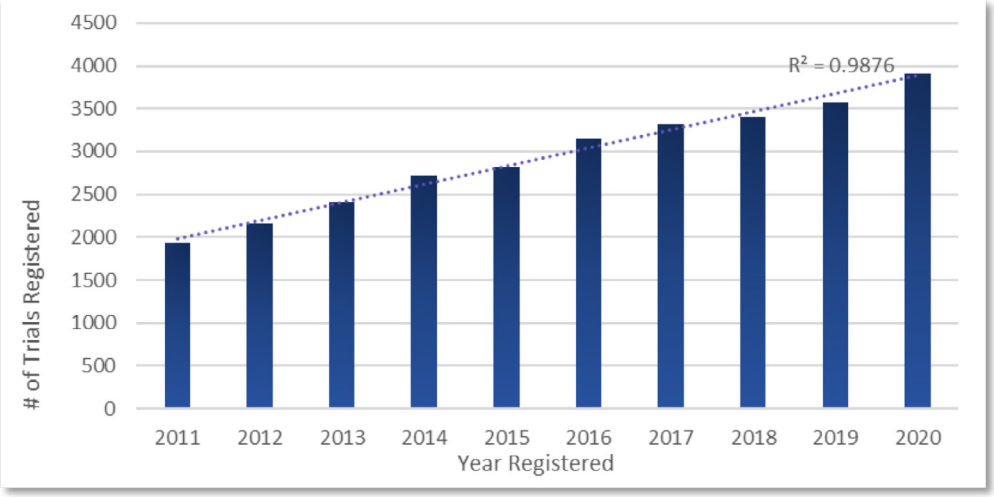
The Demands and Challenges of Biomarker Research

3915
worldwide clinical trials used 1 or more biomarkers in 2020

The number of clinical trials involving biomarkers has risen consistently in the last 10 years (Figure 1) and the global biomarkers market is projected to grow 12.1% through 2026 (USD $97.51 billion).[1] Sponsors and CROs are leveraging clinically useful biomarkers to select the most favorable drug candidates and enable development decisions. Biomarkers are also used to facilitate the regulatory review process and increase the likelihood of approval from Phase 1.

Over half of drug approvals at the Food and Drug Administration (FDA) and the European Medicines Agency (EMA) have been supported by biomarker data during at least one stage of development (2015 to 2019).[2] Drug development programs with trials employing patient preselection biomarkers have a 2-fold higher likelihood of approval (15.9%) than those that do not (7.6%).[3]

Figure 1: Clinical Trials Involving Biomarkers 2011 through 2020



(Sources: WHO International Clinical Trials Registry Platform,[4] ClinicalTrials.gov,[5] International Standard Randomised Controlled Trial Number,[6] and Australia New Zealand Clinical Trials[7])

Drug development programs using biomarkers are

2X

as likely to be approved

New Biomarkers are continually being discovered

Biomarkers are crucial tools in the drug development and approval process, but biomarker development presents unique challenges during drug development:

- New biomarkers are continually being discovered and need to be developed and validated before they can be used clinically
- Biomarker trial strategy has become more complex over time; biomarker trials using 2 or more biomarkers has risen consistently over time.[8,9]
- Biomarkers are often associated with additional testing requirements, while validation and qualification processes and regulations are continually evolving.[2]
- Finally, a biomarker lab that focuses on novel assay development for a new biomarker may not meet all the GCLP requirements for the intended purpose of evaluating clinical trial samples for the biomarker (eg, GCP standards for a primary endpoint in a clinical trial) or may not wish to obtain appropriate certification. Sponsors need a "fit-for-purpose" approach to qualify each Biomarker Lab for their intended use in support of their drug development strategy

A Risk-Based Approach to Qualifying Biomarker Lab Providers

Regulators expect sponsors and CROs to use a formal risk-based approach to verify that their contracted vendors have the appropriate qualifications and processes (ICH E6 R2 and ICH Q10), but the vendor qualification process varies within and between companies.[10,11] Biomarkers carry a higher risk burden given the continually evolving biomarker qualification process and the unique scientific approach to each individual biomarker assay.

The Avoca Quality Consortium® (AQC) has developed a comprehensive set of qualification standards with the goal of improving effectiveness and reducing variability during the vendor qualification process.[12] AQC Qualification Standards are dynamic and are updated as regulatory requirements evolve. In addition to core standards that apply to all vendors, AQC developed a set of biomarker standards – last updated just a few months ago – that labs are expected to meet to comply with the increasing requirements of regulators and needs of the industry.

The Diligent® Qualification Platform service builds on the AQC standards using a risk-based assessment of development program requirements.[13] This innovative approach helps companies to manage vendor risk effectively and to document their vendor qualifications as required by global health authority regulations. The opportunity for companies to outsource vendor qualification to Diligent reduces variability and improves compliance. Once assembled, request for information details (RFIs) and vendor qualification assessments (VQAs) can be used many times by multiple trial sponsors, thus reducing costs and cycle times.[14] Diligent can also customize the approach to assess biomarker labs including labs who want to develop biomarkers but may not want to participate in a clinical trial.

Conclusion

The Diligent Qualification Platform supports a risk-based assessment of biomarker labs against best in class industry standards

Qualification of biomarker lab providers is a foundational first step to realizing the benefits of biomarkers in drug development programs. The Diligent Qualification Platform service offers an effective approach that the industry can utilize to reduce variability, costs, and cycle times and effectively manage risk in selecting and qualifying biomarker lab providers.

References

1. Biomarkers Market Size, Share & Industry Analysis, By Indication (Oncology, Cardiology, Neurology, and Others), By End User (Pharmaceutical & Biotechnology Companies, Diagnostics & Research Laboratories, Hospitals & Specialty Clinics, and Others), and Regional Forecast, 2019-2026. Fortune Business Insights. https://www.fortunebusinessinsights.com/biomarkers-market-102173. Published February 2020. Accessed September 20, 2021.

2. Gromova M, Vaggelas A, Dallmann G, Seimetz D. Biomarkers: Opportunities and Challenges for Drug Development in the Current Regulatory Landscape. Biomark Insights. 2020;15:1177271920974652. Published December 8, 2020. doi:10.1177/1177271920974652

3. Thomas DW, Burns J, Audette J, Carroll A, Hay M. Clinical Development Success Rates 2006 through 2015. Biotechnology Innovation Organization. https://www.bio.org/sites/default/files/legacy/bioorg/docs/Clinical%20Development%20Success%20Rates%202006-2015%20-%20BIO,%20Biomedtracker,%20Amplion%202016.pdf. Published May 2016. Accessed 20 September 2021.

4. World Health Organization International Trial Registry Platform. https://trialsearch.who.int/Default.aspx. Version 3.6. Accessed September 22, 2021.

5. US National Library of Medicine. https://clinicaltrials.gov/. Accessed September 22, 2021.

6. International Standard Randomised Controlled Trial Number Registry. https://www.isrctn.com/. Accessed September 22, 2021.

7. Australia New Zealand Clinical Trials Registry. https://www.anzctr.org.au/. Accessed September 22, 2021.

8. Vadas A. Bilodeau T. Personalized Medicine Coalition. The Evolution of Biomarker Use in Clinical Trials for Cancer Treatments. Personalized Medicine Coalition. https://www.lek.com/insights/sr/evolution-biomarker-use-clinical-trials-cancer-treatments. Published November 26, 2019. Accessed September 20, 2021.

9. US Food and Drug Administration. Table of Pharmacogenomic Biomarkers in Drug Labeling. https://www.fda.gov/drugs/science-and-research-drugs/table-pharmacogenomic-biomarkers-drug-labeling. Updated August 20, 2021. Accessed September 21, 2021.

10. Getz K. Untapped Opportunity to Improve the Vendor Qualification Process. Applied Clinical Trials. 2020;29(3). https://www.appliedclinicaltrialsonline.com/view/untapped-opportunity-improve-vendor-qualification-process. Accessed September 21, 2021.

11. Getz K, Wilkinson M, Turpen J, et al. Benchmarking the Vendor Qualification Process. Therapeutic Innovation & Regulatory Science 2020;54(6):1349-1358. doi:10.1007/s43441-020-00157-9.

12. The Avoca Quality Consortium. https://www.theavocagroup.com/quality-consortium/. Accessed September 21, 2021.

13. Diligent Qualification Platform. https://www.diligentpharma.com/. Accessed September 21, 2021.

14. Turpen J. Clinical Development Vendor Qualification: "Check-The-Box" Exercise? Contract Pharma. https://www.contractpharma.com/issues/2020-03-01/view_features/clinical-development-vendor-qualification-check-the-box-exercise/. Published March 4, 2020. Accessed September 21, 2021.

15. Diligent Pharma. Unpublished internal data. September 2021.

DILIGENT is a registered trademark of Diligent Pharma LLC

AVOCA, AVOCA QUALITY CONSORTIUM and AQC are registered trademarks of The Avoca Group, Inc.