Charles River Highlights Effectiveness of VCGs in Toxicology

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Peer-reviewed evidence supports the use of Virtual Control Groups in nonclinical toxicology studies

WILMINGTON, Mass.--(BUSINESS WIRE)--Apr. 21, 2026-- Charles River Laboratories International, Inc. (NYSE: CRL) has shared the results of a retrospective analysis in Regulatory Toxicology and Pharmacology, showing that virtual control groups (VCGs) can preserve scientific integrity while reducing reliance on animal models. The review, which looked at 20 toxicology studies that replaced concurrent control groups (CCGs) with curated VCGs, and compared the outcomes across study-level decisions and detailed endpoints. There was 100 percent concordance in the No Observed Adverse Effect Level (NOAEL) across all studies, and although there was some minor endpoint-level variability between the CCG and VCG, the core study conclusions remained unchanged. Continued research with clients has been ongoing to enhance and refine models to address these variabilities. Charles River's VCG program is guided by the Alternative Methods Advancement Project™ (AMAP), an initiative focused on reducing the use of animals in research where scientifically appropriate.

"Virtual Control Groups show that scientific rigor and meaningful reductions in animal use are not mutually exclusive," said Dr. Namandjé N. Bumpus, Chief Science and Innovation Officer, Charles River. "By combining decades of curated historical data with advanced analytics, VCGs allow us to reduce animal use while preserving the highest commitment to scientific validity. This work demonstrates what's possible when innovation, ethics, and industry collaboration move forward together, and it opens the door to a more predictive and efficient future for safety assessment and reduced reliance on animal use in research."

Impact of VCGs
VCGs apply historical control data, advanced statistics, and AI-enabled analytics to digitally replace a portion of concurrent control animals in regulated safety studies. By reducing animal use and improving data interpretability, VCGs offer a modern, ethical, and scientifically robust alternative for developers seeking more efficient decision-making.

"Our focus has been on translating VCGs from concept to execution," added Laura Lotfi, Director of Digital Products at Charles River. "Working side by side with our clients, pathologists, toxicologists, and regulators, we are demonstrating how these data-driven approaches can enhance study efficiency, strengthen interpretation, and deliver regulatory-ready results in real programs today. VCGs are no longer a question of feasibility, but of defining when and how they can be optimally implemented."

Virtual Control Groups help accelerate timelines, enhance data quality, and meet evolving regulatory expectations for the 3Rs (replacement, reduction, refinement).

- Up to 25% reduction in control group animal use where scientifically appropriate, without compromising regulatory-grade rigor
- Greater statistical power, particularly for detecting rare spontaneous findings that may otherwise obscure study outcomes
- More consistent interpretation, leveraging large, curated historical datasets to contextualize unexpected results
- Improved study efficiency, freeing resources and enabling teams to focus on higher-value scientific questions

Charles River brings deep toxicology expertise and a long-standing commitment to alternative methods, highlighted through the formation of their Scientific Advisory Board, a global, cross-functional team focused on accelerating adoption and validation of New Alternative Methods (NAMs.)

Global Industry Collaboration
In 2025, Charles River joined the VICT3R Project, a public-private consortium funded by the Innovative Health Initiative (IHI), to help bring VCGs into mainstream toxicology. The VICT3R Project aims to modernize nonclinical safety assessment by building a comprehensive, global database and creating the frameworks required for future adoption of virtual control groups across the industry.

This type of industry collaboration led to the European Medicines Agency's recent draft qualification, focusing on the application of VCGs in dose-range finding (DRF) non-GLP repeated dose toxicity rat studies. This is an important step towards the regulatory acceptance of VCGs.

"Collaborating with the regulatory agencies is crucial as we progress validation work in alternatives like VCGs," added Bumpus. "Partnering to design qualification standards for data-sets and define acceptable use cases early on will help build the industry's confidence in VCGs and support their adoption once they are validated alternatives."

Charles River remains committed to advancing the validation and acceptance of NAMs. Together with clients, regulators, and the industry, NAMs provide a foundation for a future where more patients gain access to life-saving treatments—safely, swiftly, and with reduced reliance on animal use in research where scientifically appropriate.

About the Alternative Methods Advancement Project (AMAP)
The Alternative Methods Advancement Project (AMAP) is a Charles River-led initiative dedicated to developing New Approach Methodologies (NAMs) and exploring innovative scientific and technological solutions aimed at reducing reliance on traditional animal testing. As we enter the next frontier of drug development, AMAP™ enables strategic, purpose-driven investment to shape a future in which more patients can access the treatments and medicines they need safely, swiftly, and successfully. AMAP is supported by our global, cross-functional Scientific Advisory Board led by Dr. Namandjé N. Bumpus.

About Charles River
Charles River provides essential products and services to help pharmaceutical and biotechnology companies, government agencies and leading

academic institutions around the globe accelerate their research and drug development efforts. Our dedicated employees are focused on providing clients with exactly what they need to improve and expedite the discovery, early-stage development and safe manufacture of new therapies for the patients who need them. To learn more about our unique portfolio and breadth of services, visit www.criver.com.

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