

Connecting scientific computation to scientific decision-making for life sciences R&D

Causaly and Microsoft bring scientific computation and scientific interpretation together in a single, evidence-grounded workflow. Together, we help R&D teams move from raw internal data to cited, defensible scientific decisions — setting a new standard for speed, rigor, and provenance in drug discovery and development.

The bottleneck in modern R&D

Biopharma R&D organizations generate more computational signals than ever before, but the work that follows remains a major bottleneck. Manual synthesis, buried program history, and evidence that never reaches the reasoning loop cost discovery and development programs weeks or months they cannot afford. Horizontal AI tools widen the gap rather than close it, because they cannot meet the scientific and regulatory standards that biopharma decisions require.

The joint solution

Microsoft Discovery brings enterprise-scale analytics, prediction, and simulation. Causaly brings knowledge-graph reasoning across internal and external scientific sources. Together, they move R&D teams from computational signal to cited, defensible decisions without leaving a governed environment.

What changes for R&D teams



Faster iteration, fewer blind spots

The joint workflow takes a Microsoft Discovery signal directly into Causaly's knowledge-graph reasoning, returning a cited, evidence-grounded decision artifact in a single governed loop.



Internal and external evidence in one reasoning environment

Causaly's data fabric spans external biomedical evidence. Through private data integration, organizations bring their own scientific memory — internal reports, historical program decisions, negative results — into the same reasoning environment.



Decisions that hold up under scrutiny

Every output carries full provenance: traceable evidence objects, explicit citations, and surfaced contradictions. Outputs stand up to internal governance committees, regulators, payers, and KOLs.



Enterprise-grade from day one

The joint solution runs where your data already lives. Azure-native governance, tenant isolation, and IT-grade security let R&D and IT leadership deploy with confidence in regulated environments.

“Microsoft Discovery is designed to accelerate science and unlock insights hidden in an organization's internal scientific data. But insights are only as valuable as the decisions they support. Causaly provides the prior-knowledge intelligence to determine whether these insights are biologically meaningful and consistent with an organization's existing use cases and institutional knowledge. Together, we give biopharma R&D teams an end-to-end scientific workflow, from raw data to cited decision.”

ASEEM DATAR
CORPORATE VICE PRESIDENT, PRODUCT INNOVATION,
MICROSOFT DISCOVERY & QUANTUM

How the joint solution works in practice

Microsoft Discovery's agent securely calls Causaly's APIs to retrieve biomedical knowledge — including literature insights, gene–disease relationships, and mechanism-of-action data — in response to user or agent queries. High-confidence, cited results are injected into Microsoft Discovery's reasoning chain, grounding every analytical output in what science already knows. All integration follows enterprise security and compliance requirements: service-to-service authentication, tenant isolation, and governed data access. Causaly data is accessed exclusively via APIs to preserve provenance and citation integrity.

Applications across R&D workflows

The joint solution is built to support the workflows where biopharma teams lose the most time.

Target identification and prioritization

- Microsoft Discovery generates quantitatively supported candidate targets from internal datasets such as omics.
- Causaly evaluates each for mechanistic plausibility, translational credibility, competitive precedent, and safety liabilities, drawing on both external evidence and internal program history.

✔ **The result:** a cited target prioritization brief with evidence-for and evidence-against for every entry, safety flags, and recommended de-risking experiments in hours, not weeks.

Biomarker strategy

- Microsoft Discovery derives biomarker candidates from patient omics and clinical covariates via differential expression and pathway enrichment.
- Causaly contextualizes each candidate against clinical precedent, internal investigator brochure findings, mechanistic rationale, and contradiction flags.

✔ **The result:** a cited biomarker brief with translational plausibility assessment and next validation steps, ready for scientific review.

In silico prediction with prior-knowledge sense-checking

- Microsoft Discovery's predictive models and simulations run in the customer environment.
- Causaly sense-checks each output against known biological constraints, prior program learnings, and internal negative results that rarely appear in publications.

✔ **The result:** a prediction plausibility assessment with biological inconsistencies identified, provenance documented, and confirmatory experiments recommended.

Safety and MoA plausibility

- Microsoft Discovery generates mechanistic and pathway signals from internal experimental data and omics readouts.
- Causaly evaluates safety hypotheses and MoA questions against external mechanistic evidence and internal tox history, surfacing contradictions explicitly.

✔ **The result:** a defensible safety rationale with contradictions surfaced and provenance for regulatory review and cross-team alignment.

“Drug discovery does not suffer from a lack of data. It suffers from a lack of trustworthy interpretation. Microsoft Discovery runs scientific computation over enterprise data, and Causaly brings the prior knowledge, mechanistic reasoning, and provenance that turns those signals into decisions. This is how serious R&D gets done from here: governed, grounded, and accountable to scientific judgement.”

YIANNIS KIACHOPOULOS
CO-FOUNDER AND CEO, CAUSALY

Ready to see the joint solution in action?

→ Request a demo at causaly.com | Contact partnerships@causaly.com | Ask us about the pilot program

