
Mutualistic AI: The Future of Agentic AI for Scientific Discovery

Empowering Domain
Experts to Think Faster,
Work Smarter, and
Discover Deeper.



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The Problem

The Huge Need for AI in Domain-Intensive Work

Over recent decades, research-and-development (R&D)–intensive industries have grown enormously in both scale and complexity. Global R&D expenditures reached more than **US \$2.75 trillion in 2023**, having nearly quadrupled from around **US \$726 billion in 2000**.¹ Life sciences and pharmaceutical R&D exceeded **\$300 billion** globally in 2023, yet laboratory research operations remain constrained by fragmented data, manual experimentation, and siloed domain expertise.

Meanwhile, generative AI and enterprise analytics promise to drive the next wave of productivity gains and innovation. A recent study by McKinsey & Company estimates that AI could “double the pace of R&D” and unlock up to **US \$0.5 trillion** in value each year in sciences and industrial innovation.²

US \$2.75 T

spent on global R&D in 2023

Source: WIPO

~US \$160 B

is invested annually in life science research tools and technologies.

Source: Life Science Tools Market Research

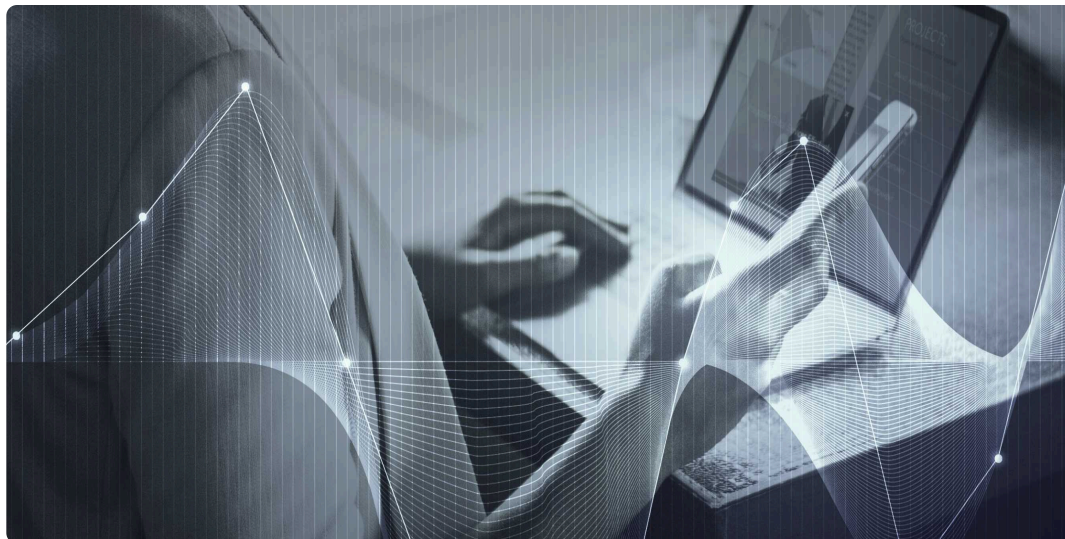
~US \$0.5 T

is the potential annual value that AI could unlock.

Source: McKinsey & Company

¹ World Intellectual Property Organization. (2024, December). End of Year Edition – Against All Odds, Global R&D Has Grown Close to USD 3 Trillion in 2023. Global Innovation Index.

² Singla, A., Sukharevsky, A., Berteletti, E., Yee, L., & Chui, M. (2025, June 20). *The next innovation revolution—powered by AI*. McKinsey & Company.



However, despite this scale of investment, many domain professionals, scientists, engineers, clinicians, and policy researchers remain constrained not by data or compute per se but by tool-and-workflow mismatches.

Only 45%

of researchers say they have enough time for research.

Source: Elsevier

41%

of time spent on low-value tasks that do not require workers' expertise.

Source: Harvard Business Review

>67%

of scientists' and engineers' work time is spent on non-R&D activity.

Source: NBER Digest

What blocks progress in domain-intensive work?



Coding bottlenecks

Domain experts require extensive developer support to implement ideas.



Fragmented workflows

Custom tools remain siloed, failing to work across different workflows and data formats.

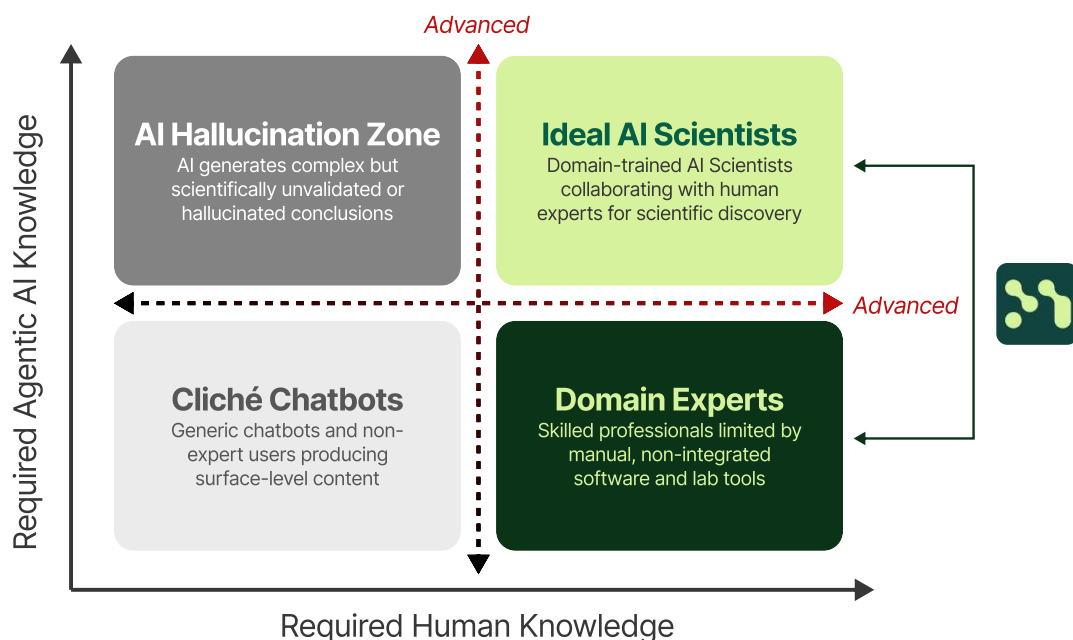


Generic AI

General AI models lack the specialized knowledge required for scientific work.

The AI Landscape Today

While existing solutions fall short—generic chatbots lack depth, traditional tools remain fragmented, and advanced AI hallucinates on specialized tasks—MorphMind aims at the "Ideal AI Scientists" quadrant, combining deep domain knowledge with agentic capabilities to enable genuine human–AI collaboration in scientific discovery



Rapid Agentic AI Development and Persistent Limitations

In the past few years, generative AI and what is broadly referred to as agentic AI have seen **explosive growth**. McKinsey reports that **nearly 8 in 10 companies** now use some form of generative AI, yet only a small fraction are seeing meaningful business impact.³ Similarly, PwC found that while **66% of organizations using AI agents report higher productivity** and **57% report cost savings**, **fewer than half** have redesigned their operating models to fully integrate agents.⁴ Furthermore, according to Teradata, 85% of companies are exploring or piloting **agentic AI** for customer-experience use cases, but **only 9% have fully adopted it**.⁵

These numbers point to a gap: **“agentic AI” is available**, but for domain professionals, the fit remains imperfect.

“ In clinical research, general-purpose AI struggles to capture biomedical context or reason consistently, limiting its reliability and usefulness. Advancing agentic AI for biomedical discovery necessitates the development of novel domain-adaptive methodologies that can integrate expert knowledge, context, and consistent reasoning. ”

— Dr. Rui Zhang, Professor and Founding Chief
Division of Computational Health Sciences, Medical School, University of Minnesota

Existing tools often rely on foundation models trained on **broad internet corpora** and **workflows built for generic tasks**. They may excel at drafting emails, summarizing text, or surface-level analytics, but when deployed in heavily specialized domains, they frequently stumble. As a result, for domain professionals, the models **cannot always generate domain-specific insights** (e.g., novel wet-lab protocols, legacy instrument data, specific regulatory workflows).

58%

of researchers currently use AI tools in their work.

Source: Elsevier

Only 22%

truly believe that these AI tools are trustworthy.

Source: Elsevier

Another recurring pain point: many agentic tools operate like **hard-coded modules or traditional software** rather than adaptive systems. They **lack long-term learning** from the user's evolving needs and domain insights. Furthermore, typical vertical AI solutions **cost \$40k–\$500k+** and **take months to deploy**.

Finally, a key barrier resides in the **misalignment** between domain experts and AI tool builders. Domain experts often feel the AI does not understand domain nuance; AI developers often feel domain experts lack sufficient technical background.

“Compared with financial vertical AI solutions that we use on a daily basis, MorphMind's AgentLab offers greater flexibility, enabling investment teams to very quickly integrate their own proprietary research processes into AI workflows and flexibly enhance quality and performance through continuous feedback and iteration.”

— Jerry Z., Portfolio Manager, Global Investments

“As a startup helping health systems deploy AI solutions, we often see the same bottleneck: customizing for each domain demands more engineering effort than most startups can afford. The gap between domain expertise and what AI could do remains one of the biggest barriers to AI adoption.”

— Dr. Sun, Co-founder & CEO, Deployable AI

This misalignment, coupled with tool rigidity, hallucinatory behavior, and poor transparency (e.g., black-box embeddings, opaque retrieval systems) constrains domain professionals, despite massive spending and advanced AI capabilities.

³ Sukharevsky, A., Kerr, D., Hjartar., K., Hämäläinen, L., Bout, S., & Di Leo, V. (2025, June 13). *Seizing the agentic AI advantage: A CEO playbook to solve the gen AI paradox and unlock scalable impact with AI agents*. McKinsey & Company / QuantumBlack.

⁴ PwC. (2025, May 16). *PwC's AI Agent Survey*. PricewaterhouseCoopers.

⁵ Uppal, A. (2025, October 8). *New survey shows business leaders eager for AI agents in customer experience, but challenges stall adoption*. Teradata Corporation.

A New Approach

Why Domain Professionals Need a New Paradigm

We are entering a **new phase in AI**, moving from **large language models (LLMs)** to **agentic AI** systems that can take action and complete tasks on behalf of users. This marks a major shift in how humans and machines work together. However, for most experts in scientific, technical, and industry domains, this shift is still in its early stages. Today's agents follow instructions but **do not yet truly collaborate**. They behave more like automated performers whose actions are **fixed by prompts and model behavior**, rather than partners who **adapt and grow** alongside their human counterparts.

“

Just as humans used the first tools to crack open nuts and harness fire, AI is a powerful tool only if we approach it with clear eyes. We cannot ignore it, and we cannot blindly trust it. In cutting-edge R&D, AI and humans must work as intellectual peers, co-equal partners in discovery. ”



Jie Ding

Professor, University of Minnesota
CEO of MorphMind

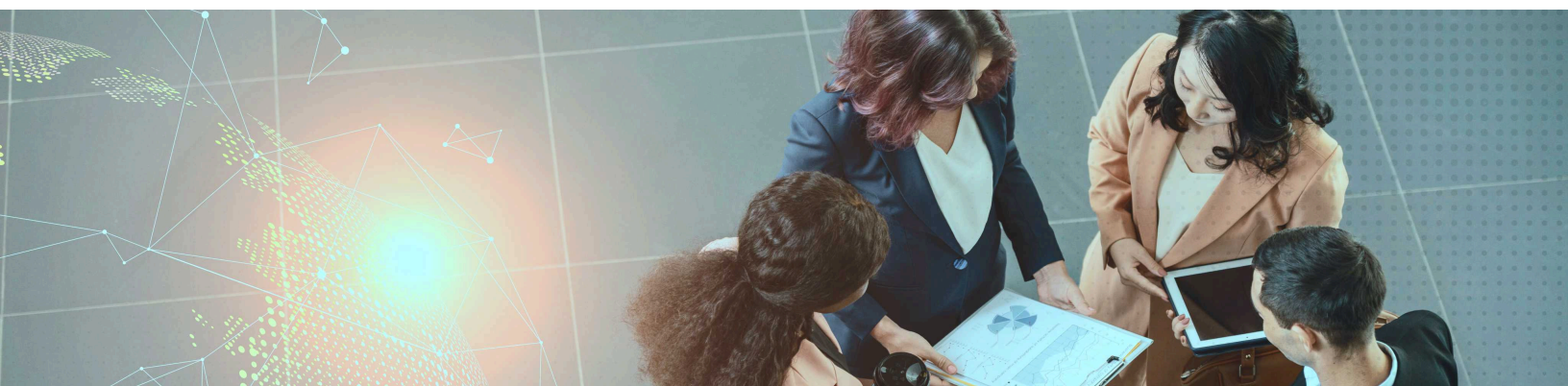
We propose a new paradigm, moving from

Agentic AI

to

Mutualistic AI

In this paradigm, humans and AI **learn together via continuous interaction**. Experts provide creativity, intuition, and domain judgment. AI contributes scale, pattern recognition, and rapid computation. Like mutualistic relationships in nature, each strengthens the other. The result is **a shared intelligence greater than what either party could achieve alone**.



From Agentic AI to Mutualistic AI

Unlike traditional automation system or agentic AI, mutualistic AI **learns continuously** with domain experts, allowing human judgment and machine reasoning to reinforce each other.

Traditional Automation System

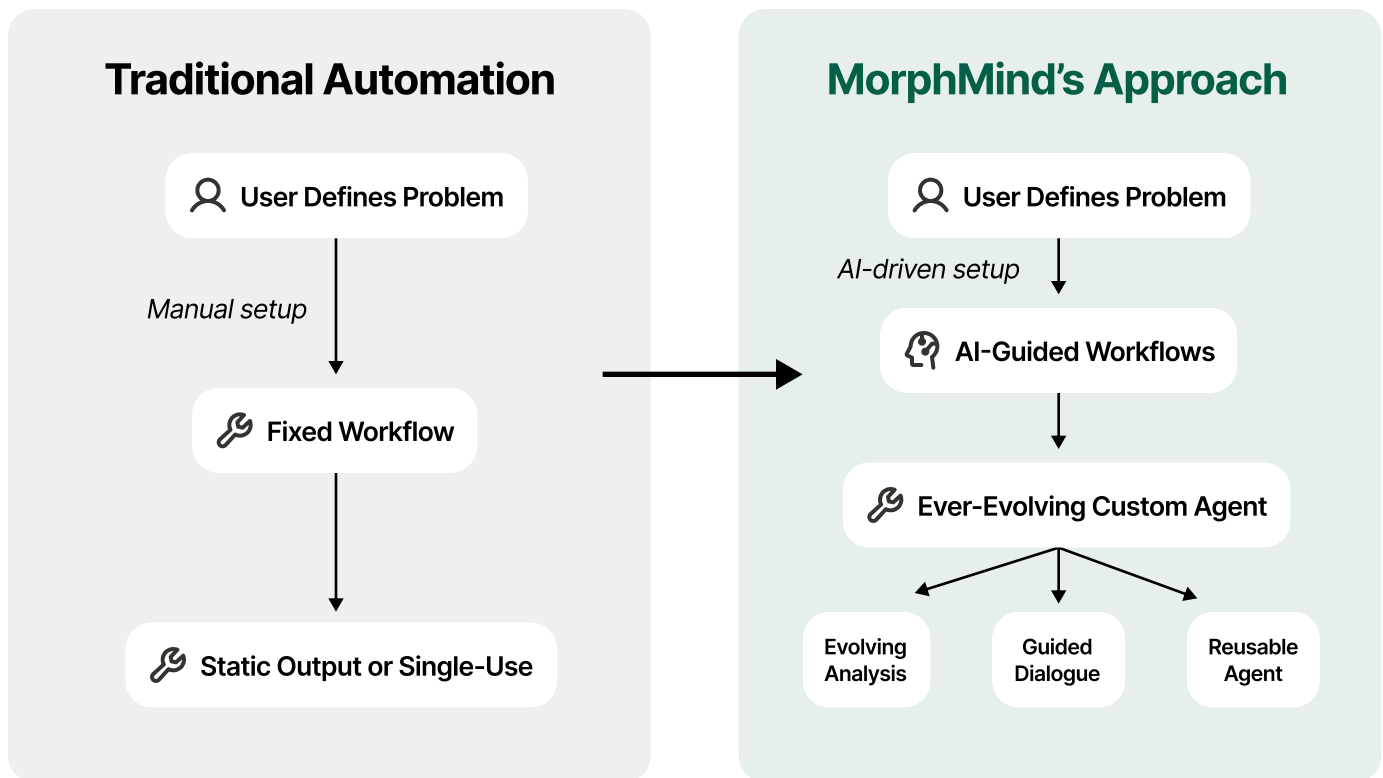
- Follows fixed, pre-programmed rules
- Takes input, runs predetermined logic, produces output
- Out of scope inputs fail or return an error
- Large engineering effort to build, update, and maintain
- No adaptation or learning over time

Agentic AI: Single-Shot Agents

- A step forward, but still limited
- Defined by static prompts and fixed model setup
- Human gives instructions, the agent executes, and then the interaction ends
- Human is mostly a consumer of outputs, not a collaborator

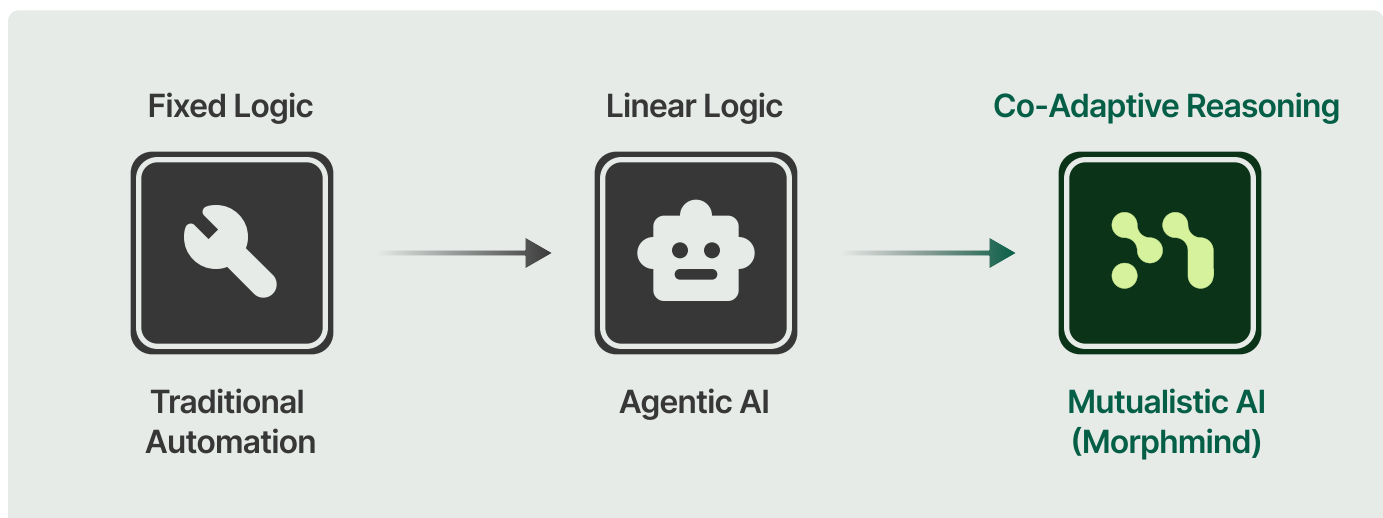
Mutualistic AI: Co-Adaptive Collaborators

- A new paradigm based on continuous two-way interaction
- System learns from human decisions, preferences, and reasoning patterns
- Tool evolves into a collaborative partner
- This co-adaptive relationship redefines what “intelligence” means in scientific and industrial practice: not static automation, but dynamic mutualism



Mathematical Foundation

Traditional automation systems, such as workflow orchestration or rule-based pipelines, represent an **early stage** of intelligent process design. To clarify the conceptual difference, we contrast three types of systems: **Traditional automation**, **Agentic AI**, and **Mutualistic AI**.



Traditional Automation System (Static Automation)

A traditional automation system executes predefined rules or data transformations without reasoning or adaptation. Formally, it maps an input x_0 to an output y_0 through a deterministic or pre-scripted function $y = f(x)$.

$$y = f(x)$$



The mapping is static: once deployed, the system cannot generalize beyond its original configuration. Even when connected to external APIs or automation graphs, it remains non-adaptive.

Agentic AI (Reactive Intelligence)

Given an initial prompt x_0 , the system generates an output y_0 . If the user provides follow-up inputs x_1, x_2, \dots , the model continues to respond, producing y_1, y_2, \dots .

The process can be viewed as a sequence of stochastic information channels.

$$p(y_t \mid x_{0:t}, y_{0:t-1})$$

$$\begin{aligned} x_{0:t} &= (x_0, \dots, x_t) \\ y_{0:t-1} &= (y_0, \dots, y_{t-1}) \end{aligned}$$



Intuitively, the model reacts to human stimuli but does not internalize why the stimuli were chosen.

The agent defines a probability distribution over outputs, conditioned on the sequence of prior user inputs and previous agent responses (text, data, documents, code, etc.).

Mutualistic AI Agent (Co-Adaptive Intelligence)

A mutualistic agent introduces a domain state D_t that evolves through human–AI interaction. This domain state acts as a latent cognitive memory capturing the agent’s accumulated understanding of context, goals, and methods. Unlike a workflow, which executes fixed rules, or an agentic model, which reacts to surface-level prompts, the mutualistic agent learns to reason by updating D_t based on human interaction.

At the outset, K_0 encodes the prior knowledge from the agent’s initial setup.

At each time step $t = 0, 1, \dots$

$$p_{\theta}(y_t \mid x_{0:t}, y_{0:t-1}, K_{t-1})$$

and the domain knowledge updates as:

$$K_t \sim q_{\beta}(K_{t-1}, x_t, y_t)$$

which represents the cognitive assimilation process. Both θ and β are learnable parameters to reflect how human feedback and AI outputs jointly modify the shared domain understanding.

When an agent crafted by Scientist A is transferred to Scientist B, Scientist B inherits the domain-specific K^A . The resulting agent operates as:

$$p_{\theta}(y_t \mid x_{0:t}, y_{0:t-1}, K_{t-1}^A)$$

thus embedding Scientist A’s accumulated expertise into Scientist B’s environment.

“MorphMind’s architecture enables domain experts to compose specialized agents from modular capabilities without engineering support. Rather than rigid, single-purpose tools, experts can create cross-disciplinary workflows, reducing innovation cycles from months to days.”



Xun Xian,
AI Research Lead @ MorphMind

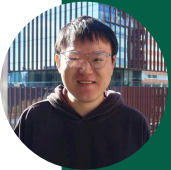
Our Mission

MorphMind's mission is to **enable researchers to build AI research partners** that accelerate their work, preserve their expertise, and scale their impact—with complete transparency and control.

For enterprises, this preserves competitive advantage while accelerating internal R&D.

For academia, it accelerates research timelines and enables reproducible, cumulative science.

“ Our mutualistic AI learns continuously from human-AI interactions. As researchers make decisions, correct errors, and refine approaches, the system captures not just what works, but *why*. This creates a virtuous cycle: experts build better agents, which in turn help them reason more effectively, leading to even stronger agents over time. ”



Jin Du, Product Lead @ MorphMind

The Technology Blueprint: Co-IQ Approach

At the technical core lies **Co-IQ (Collaborative Inference and Quantification)**, a framework where human-AI interactions continuously update a shared domain model. The system maintains alignment between **expert reasoning** and **agent behavior** across knowledge, process, and reasoning patterns.



Adaptive Comprehension



Solves: Bridging the Knowledge Gap

Through continuous online search and domain expansion, the system augments its knowledge base by integrating new research articles, datasets, and publications as guided by human feedback. This adaptive loop captures field-specific reasoning and closes the gap between generic AI and specialized expertise.



Dynamic Generalization



Solves: Overcoming Rigid Workflows

Once instantiated, an agent can be shared and reused across projects while remaining adaptable to new data distributions and research goals. Its logic evolves rather than resets, making it a transferable yet living workflow.



Transparent Decision Pathways



Solves: The Black-Box Effect

Experts shape the agent's behavior through guided iterations, while developers gain a transparent view of domain constraints. As a result, every inference is fully auditable. It makes the execution trace and codes open-source to show experts how conclusions are derived. The result is verifiable reasoning: no hallucination, no hidden heuristics.

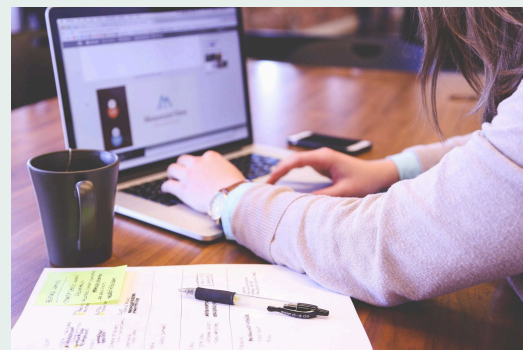
Together, these create a platform where scientists can **easily build and share agents**. Each use strengthens the alignment between human expertise and machine capability, making domain knowledge **explicit and transferable**.

Who We're Building For

The **Mutualistic AI framework** has already drawn early adopters who see it not as automation, but as cognitive amplification: a way to extend expert reasoning and accelerate discovery.

PhD Students and Postdocs

Agents assist researchers in generating hypotheses, designing experiments, deploying on private cloud, monitoring execution, and analyzing results. The outcome is **faster publication cycles, smoother graduation timelines, and higher-quality research.**

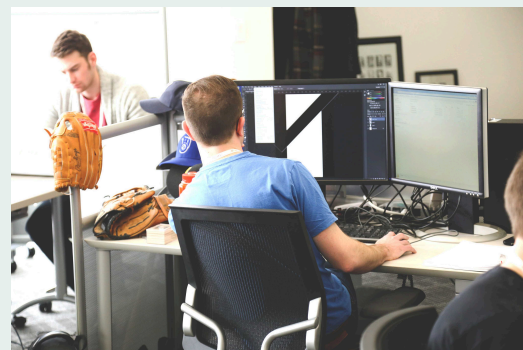


Principal Investigators and Research Labs

Institutionalize lab knowledge into **reusable agents** that onboard newcomers faster, ensure reproducible research, and enable transparent decision-making. These agents streamline grant writing, facilitate collaboration, and provide auditable documentation for publications and reviews.

Startups and SMEs

Leverage **pre-built domain agents** rather than hiring large AI engineering teams. This enables them to focus on innovation instead of infrastructure. Partnering with domain-expert-built agents strengthens go-to-market credibility and accelerates product development.



Enterprises and Industrial R&D Teams

Build **in-house knowledge agents** that capture organizational expertise, support auditable decision-making, and meet regulatory expectations. This approach preserves institutional knowledge during personnel transitions, accelerates onboarding, and ensures consistent methodology across teams.

Wet-Lab Sciences

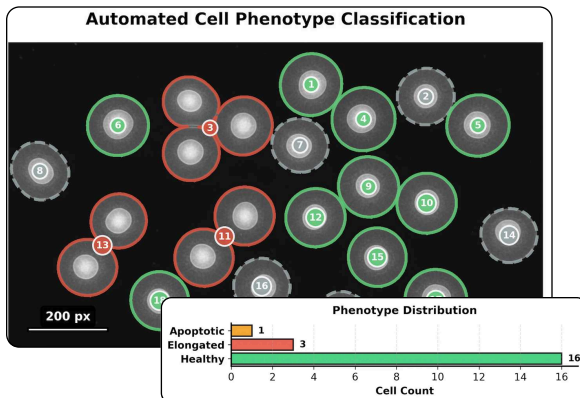
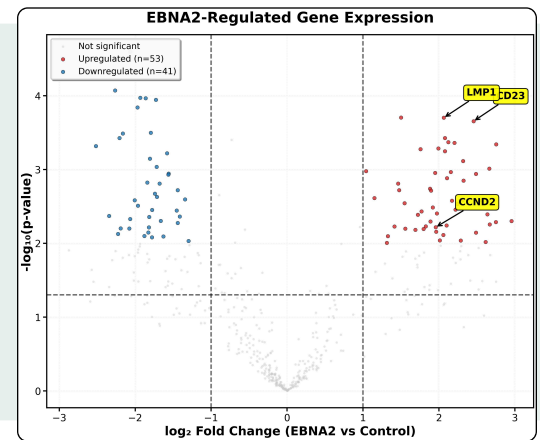
Wet labs face fragmented protocols, undocumented tribal knowledge, and expensive reagent waste. MorphMind agents become persistent **lab partners** that learn experimental preferences, troubleshoot failures, and transfer expertise between researchers.



RNA-seq EBNA2 Data Analyst

EBNA2 transcription factor studies generate complex multi-omics datasets requiring specialized expertise. This agent combines RNA-seq and proteomics data to automatically flag differentially expressed genes and annotate biological pathways.

Image produced by MorphMind's AgentLab



PhenoScope: Automated Cell Phenotype Classification

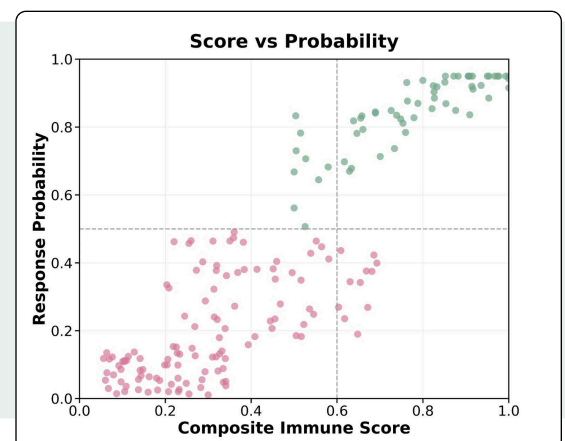
Automatically classifies cell phenotypes in microscopy images (healthy, elongated, apoptotic) and flags ambiguous cases for expert review, reducing hours of manual work to seconds.

Image: AgentLab

Precision Immunotherapy Analyst

Agent reviews patient cohorts to identify immune biomarkers linked to therapy response. Generates instant responder and non-responder insights with statistical validation.

Image: AgentLab





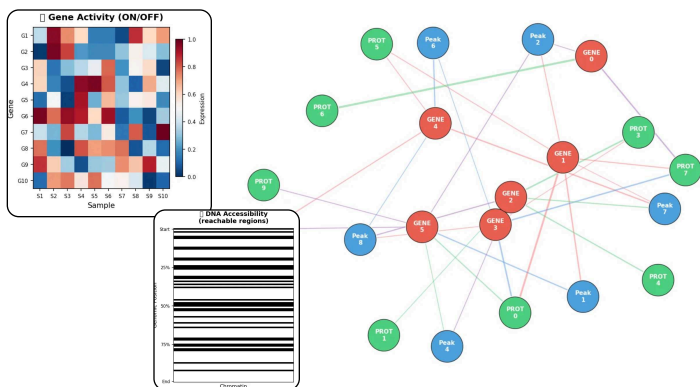
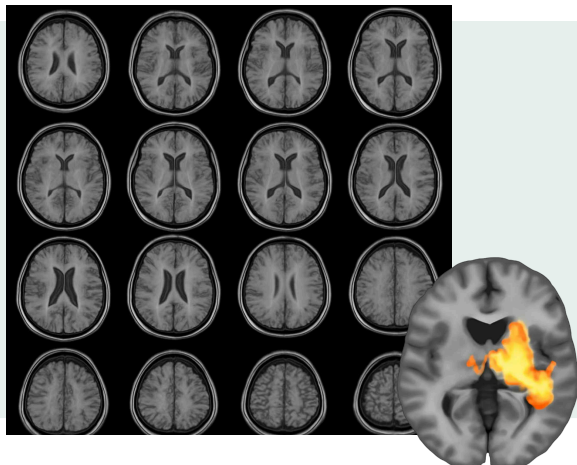
Computational Neuroscience & Bioinformatics

Bioinformaticians spend lots of time debugging pipelines. MorphMind agents learn analytical preferences and adapt to new data types, allowing researchers to focus on discovery instead of infrastructure.

Neuro Experiment Designer

Turns neuroscience hypotheses into ready-to-run, reproducible analysis pipelines. Handles modeling, statistical testing, and documentation automatically, freeing researchers to focus on biological insight rather than code.

Image produced by MorphMind's AgentLab.



OmicsWeaver — Multi-Omics Integration Assistant

This agent combines three layers of biological measurements, including gene activity (RNA-seq), DNA accessibility (ATAC-seq), and protein levels (proteomics), to uncover how cellular processes are connected.

Image: AgentLab

Genome Annotator

Accelerates genome annotation for novel organisms by combining homology, expression, and literature evidence. Continuously learns from the researcher's manual corrections, continuously improving its prediction logic.

Image: AgentLab

gene_0001
ATGCCCTGTTTACGGAGATCCCGTTA...
gene_0002
TTTACGACCGGAAGCTTTGAACCTGAA...
gene_0003
AACGTGACCTTAGGATCTGCCCGATTTC...

| Gene ID | Predicted Function | Confidence | BLAST Identity |
|-----------|----------------------|------------|----------------|
| gene_0001 | ATP synthase subunit | 0.92 | 86% |
| gene_0002 | Hypothetical protein | 0.44 | 61% |
| gene_0003 | DNA repair enzyme | 0.88 | 82% |
| gene_0004 | Transporter | 0.75 | 78% |
| gene_0005 | Transcription factor | 0.81 | 84% |

Pharmaceutical Discovery

Drug discovery discards 90% of candidates and costs over \$2.6B per approved therapy. MorphMind agents act as molecular design partners that learn medicinal chemistry principles, predict synthetic feasibility, and integrate cross-functional data, potentially reducing discovery cycles by 50-75% while improving candidate quality.



TargetDiscovery Compass for Drug Discovery

TargetDiscovery Compass integrates literature, omics, and structural data to map KRAS-driven pathway rewiring and surface overlooked, tractable targets such as ATM. Evidence strength and pathway interactions are computed automatically across thousands of data sources.

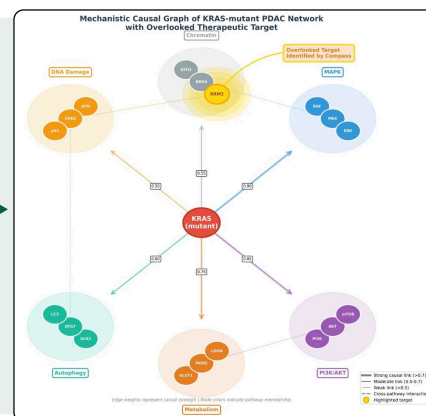
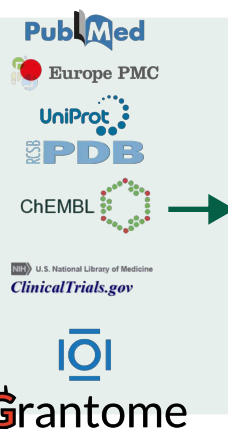


Image: AgentLab

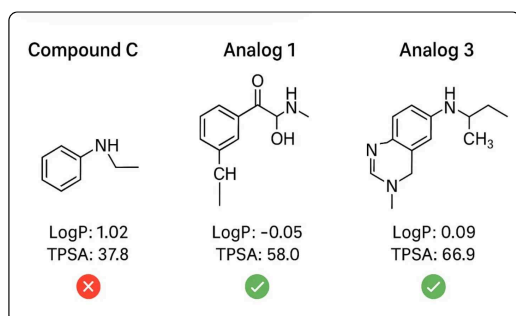


Image: AgentLab

ADMET Prediction for Lead Optimization

The ADMET Optimization Agent learns SAR patterns from project chemistry to predict solubility, permeability, hERG risk, metabolic liabilities, and synthetic tractability. It proposes targeted structural modifications with mechanistic justification and dramatically accelerates hit-to-lead cycles by reducing months of trial-and-error.

FDA Submission Readiness Companion

The FDA Submission Readiness Companion reviews draft preclinical and CMC documents, checks them against FDA and ICH expectations, and identifies gaps that could delay an IND.

Image: AgentLab

MODULE 4: NONCLINICAL TOXICOLOGY

Neuralyn

4.2.3.2 Repeat-Dose Toxicity

| Study | Species | Duration | NOAEL | Findings |
|---------------|---------|----------|--------------|-----------------------------|
| Oral toxicity | Rat | 28 days | 50 mg/kg/day | No adverse effects |
| Oral toxicity | Dog | 28 days | 25 mg/kg/day | Mild GI effects at 75 mg/kg |

4.2.3.5.1 Embryo-Fetal Development

Embryo-fetal development study in rats showed no teratogenic effects up to 100 mg/kg/day.

4.2.3.7 Genotoxicity

Negative in Ames test, in vitro chromosomal aberration, and in vivo micronucleus assay.

Proposed Clinical Starting Dose Justification

Based on dog NOAEL of 25 mg/kg/day and 10-fold safety margin, proposed clinical starting dose is 50 mg for a 70 kg human (~0.7 mg/kg), providing approximately 35-fold margin.



Healthcare

Clinicians face 100+ alerts/day, 40% admin burden, and diagnostic errors in 5-10% of cases. MorphMind agents become clinical reasoning partners that learn individual diagnostic patterns, reduce documentation time, and surface overlooked findings, restoring clinicians' focus to patient care.

Emergency Medicine Specialist

Agent that mimics physician clinical workflow with evidence-based citations: conducts systematic patient assessment, generates differential diagnoses using dual-inference reasoning, and provides treatment recommendations with proper medical literature sources.

| EMERGENCY DEPARTMENT CLINICAL SUMMARY | | |
|---|--|---|
| <p>DATE/TIME: 11/14/2025 08:58 PATIENT: Test Case Patient MRN: TC-12345678 AGE/SEX: 58 / M ARIIVAL MODE: Walk-in ACUITY: URGENT - Timely assessment required</p> <p>CHIEF COMPLAINT Chest pain, shortness of breath, and abdominal pain</p> <p>HISTORY OF PRESENT ILLNESS 58-year-old male with history of hypertension, type 2 diabetes, and presents to the ED with acute onset chest pain, shortness of breath, abdominal discomfort.</p> | <p>VITAL SIGNS (INITIAL)</p> <p>Temperature: 98.2°F Heart Rate: 105 bpm (TACHYCARDIC) Blood Pressure: 145/92 mmHg (ELEVATED) Respiratory Rate: 24/min (TACHYPNEIC) Oxygen Saturation: 92% on room air (BORDERLINE HYPOXIA) Pain Scale: 7/10</p> <p>PHYSICAL EXAMINATION</p> <p>GENERAL APPEARANCE: - Anxious-appearing male in moderate distress - Diaphoretic, appears uncomfortable</p> <p>AIRWAY: Patent, no stridor or obstruction</p> <p>BREATHING: - Respiratory Rate: 24/min (tachypneic) - Speaking in full sentences, mild dyspnea - Lung sounds: Clear bilaterally, no wheezes/rales/rhonchi - No accessory muscle use - SPO2: 92% on room air</p> | <p>CRITICAL DIAGNOSES TO RULE OUT</p> <ul style="list-style-type: none"> ▲ Pulmonary Embolism ▲ Acute Coronary Syndrome / Myocardial Infarction ▲ Pneumothorax <p>RECOMMENDED DIAGNOSTIC WORKUP</p> <p>IMMEDIATE (STAT):</p> <ul style="list-style-type: none"> / 12-Lead ECG (obtain within 10 minutes) Baseline 2025 AMA/ACC Chest Pain Guidelines, Class I recommendation / Cardiac Biomarkers - Troponin I/T at 0 and 3 hours - Serial troponin protocol per 2025 ACC/AHA ACS Guidelines / D-dimer (if PE suspected, based on Wells criteria) Source: 2019 ESC Pulmonary Embolism Guidelines <p>LABORATORY STUDIES:</p> <ul style="list-style-type: none"> - Complete Blood Count (CBC) - Basic Metabolic Panel (BMP) - Troponin I (serial, 0h-3h) |

Images produced by MorphMind's AgentLab.

Doctor: Tell me what brings you in today.

Patient: I've been coughing for about a week...

Doctor: Any fever?

Patient: Yes, around 101 yesterday...

Doctor: Any shortness of breath?

Patient: Some when walking upstairs...

Doctor: Do you smoke?

Patient: Quit 10 years ago, 5 pack-year history...

| CLINICAL NOTE SUMMARY |
|---|
| <p>Chief Complaint</p> <p>Chest pain, shortness of breath, abdominal pain</p> |
| <p>HPI</p> <p>58-year-old male with HTN, DM2, HLD presenting with exertional chest pain x2 hrs, diaphoresis, dyspnea.</p> |
| <p>Key Findings (Auto-Detected)</p> <ul style="list-style-type: none"> • Diaphoresis • Exertional symptoms • Risk factors: HTN, DM2, HLD, smoking history |

Clinical Documentation Copilot

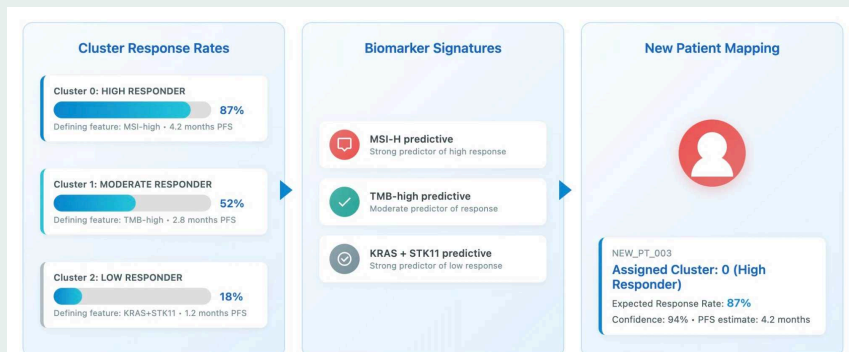
Eliminate documentation burden during clinical encounters using a clinician-personalized note generator that learns from each provider's style, vocabulary, and specialty norms.

Images: AgentLab

OncolInsight: Biomarker & Response Pattern Analyzer

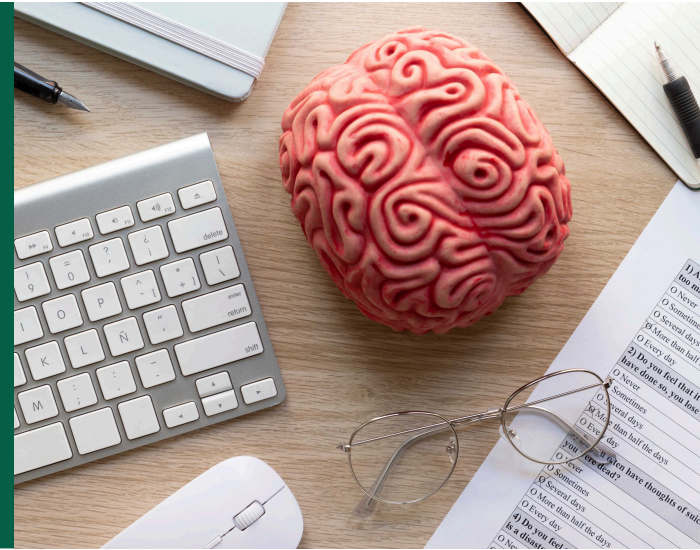
OncolInsight analyzes molecular profiles against historical outcome datasets to uncover biomarker patterns, similarity clusters, and treatment-response trends that support translational research and precision oncology insights.

Images: AgentLab



Social Sciences

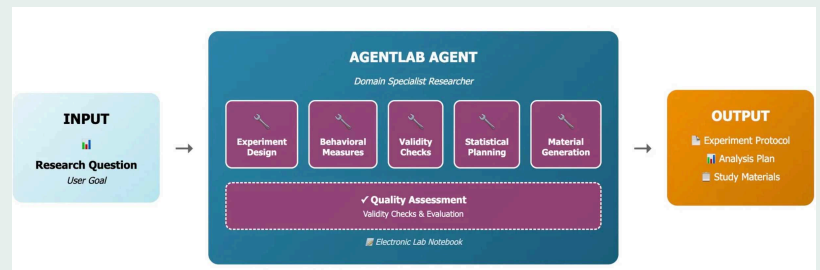
Social scientists spend a significant amount of research time on literature review, data cleaning, and qualitative coding. AI agents become research accelerators that allow researchers to focus on interpretation and hypotheses.



Experiment Designer

The agent helps researchers build rigorous behavioral and cognitive studies from a single research question. It generates publication-ready protocols, power analyses, and deployable surveys for rapid experimentation.

Image produced by MorphMind's AgentLab.



TRUST

4 mentions (16.0%)

Keywords: trust, manager, make, decisions, fair

"I really trust my manager to make fair decisions about promotions..."

LEADERSHIP

4 mentions (16.0%)

Keywords: manager, clear, trust, expectations

"My supervisor communicates expectations clearly and provides..."

STRESS

5 mentions (20.0%)

Keywords: work-life, balance, terrible, overwhelmed

"The work-life balance here is terrible, I'm always stressed..."

"My supervisor communicates expectations provides constructive feedback..."

LEADERSHIP (89% conf.) COMMUNICATION (91% conf.)

"The collaborative culture here makes work productive..."

TEAMWORK (87% conf.) ORGANIZATIONAL_CULTURE (83% conf.)

"I'm concerned about the company's financial what it means for my job..."

ANXIETY (71% conf.) JOB_SECURITY (68% conf.)

Why flagged: Confidence scores below 75% threshold. Human verification recommended.

QualCode: Qualitative Research & Interview Analysis

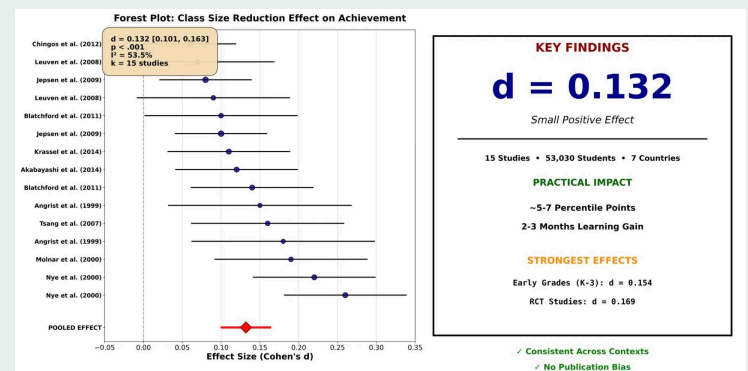
QualCode transforms qualitative data analysis from a months-long coding marathon into an iterative, AI-assisted process. It learns your coding framework from initial examples, applies it consistently across hundreds of transcripts, and improves through researcher feedback.

Images: AgentLab

MetaSynth: Lit Review and Meta Analysis Agent

MetaSynth automates systematic reviews end-to-end: screen 1,000+ papers, extract data, calculate pooled effects, and generate publication-ready forest plots in minutes instead of months. The agent learns your criteria, maintains >95% sensitivity, and flags borderline studies for human review.

Image: AgentLab



To use these agents, please visit <https://agentlab.morphmind.ai>.

The Future of AI

Leading research teams are finding that AI accelerates discovery most effectively when it is **adaptive, transparent, and collaborative**. While larger models continue to improve, we believe the next breakthrough lies in mutualistic systems where AI learns through sustained interaction with domain experts and experimental feedback.

“Agentic AI is reshaping how laboratory science is done. Current AI systems lack the adaptability, reproducibility, and domain expertise that research demands. Our goal is to design AI that partners with humans, not automates them: agents that learn from individual scientists' methodological reasoning, enabling them to scale their impact across more projects while maintaining full transparency and control.”

— Jia Liu, Professor of Bioengineering @ Harvard University; Co-Founder of MorphMind



Building More Than a Platform

MorphMind partners with **research institutions, universities, student programs, and educational initiatives** to democratize access to advanced AI capabilities. From high school STEM programs to PhD research labs, we enable learners and researchers at all levels to create, share, and improve domain-specific AI research scientists.

Let's accelerate discovery together.

Reach out to the MorphMind team at info@morphmind.ai.