Minsky™ DrugDiscovery

AI-Powered End-to-End Drug Development Intelligence

From disease hypothesis to clinical-ready candidate…faster, smarter, de-risked.

THE CHALLENGE WE SOLVE

Traditional drug discovery is expensive, slow, and failure-prone. Over 90% of drug candidates fail before reaching the market, costing billions and years of effort. **Minsky™ DrugDiscovery** changes the equation by uniting generative AI, molecular simulation, systems biology, and real-world lab feedback into a single, continuously improving intelligence platform.

12+	360°	Real-time	Enterprise
AI Modules	Drug Lifecycle Coverage	Active Learning Loop	GMP & Regulatory Ready

CORE PLATFORM CAPABILITIES

Target Discovery

Multi-omics analysis across genomics, proteomics & transcriptomics to identify validated, druggable targets with confidence scoring.

Generative Chemistry

Transformer, diffusion & RL models generate novel molecules with novelty scores and synthetic feasibility-built in.

Binding Simulation

Molecular docking and free energy calculations deliver IC50, KD values, binding poses and interaction maps.

ADMET & Toxicology

Full pharmacokinetic profiling including CYP450 interactions, hepatotoxicity and cardiotoxicity prediction.

Systems Biology

Pathway-level simulation of drug-target effects, downstream disruptions and off-target risks.

Manufacturing Readiness

GMP readiness assessment, supply chain risk analysis and cost-at-scale modeling before a single batch is made.

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END-TO-END WORKFLOW

From input disease to clinical-ready candidate, every stage is covered:

- Disease input → Target identification with multi-omics scoring
- Generative chemistry → Novel molecule design with SMILES & 3D conformers
- Binding & ADMET simulation → Affinity, toxicity, and PK profiling
- Multi-objective optimization → Pareto-ranked candidates with go/no-go signals
- Retrosynthesis → Step-by-step, cost-optimised synthesis routes
- Manufacturing feasibility → GMP readiness and supply chain risk
- Clinical simulation → Phase I/II/III success probability modeling
- Active learning loop → Models retrain on your experimental data

Built for Enterprise Integration

- REST & GraphQL APIs for all 12 modules
- LIMS and ELN integration for lab feedback loops
- ChEMBL, PDB, KEGG, Reactome, ClinicalTrials.gov
- OpenFDA adverse event & approval data
- USPTO/WIPO patent analysis & FTO assessment
- AWS & Azure deployment with Kubernetes orchestration
- Role-based dashboards for scientists, CMC, and leadership

Who Is It For?

- Pharmaceutical manufacturers seeking pipeline acceleration
- Biotech firms reducing wet-lab trial-and-error
- Research institutions bridging discovery and development
- CDMOs evaluating manufacturing feasibility early

COMMERCIAL & STRATEGIC INTELLIGENCE

IP Intelligence Module

Automated patent landscape analysis identifies freedom-to-operate risks, competitor white space, and novel composition-of-matter opportunities — before you invest in synthesis.

Clinical Pathway Modeling

Simulate Phase I, II, and III outcomes with cohort selection, endpoint optimization, and comparative benchmarking against ClinicalTrials.gov data.

Commercial Modeling Module

Built-in COGS modeling, pricing strategy analysis, ROI projections, and market sizing so business decisions align with science from day one.

Continuous Learning Architecture

Every experimental result fed back into the platform improves prediction accuracy via Bayesian optimization and automated retraining pipelines.

"Minsky™ DrugDiscovery is not just a computational tool — it is a living intelligence layer that grows smarter with every experiment your team runs."

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