
GLOSSARY OF TECHNICAL TERMS

This glossary of technical terms contains explanations of certain technical terms used in this document in connection with our Company and our business. Such terminology and meanings may not correspond to standard industry meanings or usages of those terms.

“ADMET” or “absorption, distribution, metabolism, excretion, toxicity”	a set of pharmacokinetic and pharmacodynamic properties used to evaluate the behavior of a compound in a living organism
“AGV module” or “automated guided vehicle module”	a standardized embodied intelligence unit that uses SLAM navigation to transport samples or materials autonomously within a self-driving laboratory
“AI” or “artificial intelligence”	the technology that enables machines to perform tasks requiring human-like intelligence, such as learning, reasoning, and decision-making
“AI brain” or “artificial intelligence brain”	the decision-making component of a self-driving laboratory, comprising specialized industry-specific AI models built on a multi-modal hybrid architecture that enables autonomous experimental design, real-time analysis, and adaptive optimization
“bayesian optimization”	a sequential model-based optimization method that uses probabilistic models to efficiently search for optimal experimental conditions or parameters while minimizing the number of required trials
“BIM” or “building information modeling”	a digital process that creates an intelligent, data-rich 3D model of a building, containing both geometric information (shape, size, location) and non-geometric data (materials, costs, schedules, maintenance records), enabling all project stakeholders (architects, engineers, contractors, owners) to collaboratively plan, design, construct, and manage a building from a single, shared source of truth
“chromatographic-mass spectrometric fingerprinting”	an analytical technique that combines chromatography and mass spectrometry to generate characteristic profiles of samples for identification, detection, traceability and quality analysis
“cleanroom”	a controlled environment with low levels of airborne particles, used in laboratories and manufacturing to maintain strict cleanliness for sensitive experiments and production processes
“digital twin”	a virtual replica of a physical laboratory that mirrors real-time conditions, enabling simulation, monitoring, and remote control of laboratory systems and equipment
“digital twin management platform”	a software system that creates a virtual replica of a physical laboratory, enabling real-time monitoring and management of the laboratory’s layout, rooms, instruments, and environmental systems through a visual interface
“Dyna Arms”	the embodied intelligence execution component of our self-driving laboratory solution, comprising multi-form robotic modules that execute laboratory tasks such as visual recognition, sample handling, instrument operation, error correction, and data processing with precision and adaptability

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“ <i>Dyna Brain</i> ”	the decision-making component of our self-driving laboratory solution, built on specialized industry-specific AI models and a multi-modal hybrid AI architecture to enable autonomous experimental design, real-time analysis, intelligent scheduling, and adaptive optimization
“ <i>Dyna Data</i> ”	the high-quality data component of our self-driving laboratory solution, consisting of standardized, structured and traceable experimental, instrument, equipment operating condition and environmental data that are automatically generated and fed back to support AI model training, decision-making and closed-loop optimization
“edge computing”	a distributed computing paradigm that processes data near the source of generation, such as sensors or robots, reducing latency and enabling real-time responses in laboratory automation
“embodied intelligence”	the integration of AI with physical robotic systems that perceive, act, and adapt to the environment, enabling robots to perform laboratory tasks such as visual recognition, error correction, instrument operation, and sample handling
“embodied intelligence modules”	standardized, interchangeable robotic units that perform specific laboratory tasks, including automatic cap opening, liquid preparation, sample loading, mixing, detection, and transportation
“formulation optimization engine”	an AI-driven engine used to explore, test and optimize formulation and process parameter combinations to identify optimal solutions in self-driving laboratory workflows
“GB/T”	national standards of the People’s Republic of China (Guobiao/Tuijian), non-mandatory technical guidelines for product quality, testing methods, and system requirements
“Genesis Mission”	a national initiative in the United States that supports AI-driven scientific research across disciplines including materials science and new energy
“graph neural network”	a type of neural network that processes data structured as graphs, used in biopharmaceutical AI models to learn drug-target interaction mechanisms from molecular fingerprints and protein sequences
“high-fidelity datasets”	comprehensive experimental data that accurately capture process logs, outcome metrics, and interaction records, serving as the foundation for AI model training and closed-loop optimization
“high-throughput screening”	an automated experimental method that rapidly tests thousands of samples or compounds, used in new materials and catalyst development to identify promising candidates with minimal manual intervention
“HVAC” or “heating, ventilation and air conditioning”	the environmental control system that maintains temperature, humidity, and air quality within a laboratory
“industry-specific AI models”	tailored AI systems developed for sectors including new materials, catalysts, biopharmaceuticals, daily chemicals, and food safety, built on a multi-modal hybrid architecture that integrates domain scientific knowledge with data-driven learning

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“intelligent control platform”	a centralized software system that visualizes issues and resolution status from laboratory environment, support, and instrument management systems, generating aggregated reports to assist user decision-making
“intelligent laboratory solutions”	laboratory solutions that integrate intelligent environment management, support infrastructure, instrument connectivity, and centralized control platforms to optimize workflows and operational conditions. As the context may require, the term may specifically exclude self-driving laboratory solutions
“inverse design”	an AI-driven approach that starts with desired material properties and works backward to predict the optimal composition or structure, accelerating materials discovery
“IoT” or “internet of things”	a network of physical devices embedded with sensors and software that collect and exchange data, used in intelligent laboratories to monitor environmental parameters, equipment status, and resource consumption in real time
“ISO 14001”	an international standard for environmental management systems, certifying that an organization minimizes its environmental impact and complies with applicable regulations
“knowledge graph”	a structured representation of entities and their relationships
“LIMS” or “laboratory information management system”	a software platform that manages samples, associated data, and laboratory workflows, ensuring data integrity, traceability, and regulatory compliance
“machine-vision-guided intelligent operation”	a robotic operation technology that integrates high-resolution cameras and computer vision algorithms to recognize laboratory objects, achieve precise positioning, track movements and automatically correct posture
“micro pipettor”	a precision laboratory device used to aspirate and dispense small volumes of liquid samples in automated liquid transfer workflows
“microservice architecture”	a software design approach that structures an application as a collection of loosely coupled, independently deployable services, used in the unified software management and scheduling platform to enable flexible laboratory automation
“molecular dynamics simulations”	computer simulations that model the physical movements of atoms and molecules over time, used in new materials AI models to predict material properties and accelerate research cycles
“multi-modal data collectors”	data acquisition devices that collect different types of laboratory data, including instrument data, equipment operating condition data and environmental data, for standardized processing and analysis
“multi-modal hybrid AI architecture”	an AI framework that integrates multiple data types, such as text, images, and numerical data, combining data-driven learning with domain knowledge to enable autonomous experimental design and real-time analysis

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“multi-modal perception and fusion technology”	a technology that collects, standardizes and integrates laboratory data from different instruments, equipment, operating conditions and environmental sources to support self-driving laboratory operations
“multi-protocol compatible control platform”	a control platform capable of communicating with and controlling laboratory instruments or devices operating under different communication protocols
“multi-robot collaborative scheduling system”	a scheduling system that coordinates multiple robotic modules in laboratory environments, including task allocation, path planning and resource usage, to reduce conflicts and improve operating efficiency
“near-infrared spectroscopy”	an analytical technique using near-infrared light to identify or measure the composition and properties of samples, commonly used in quality inspection and food safety detection
“new materials CRO platform”	a contract research organization platform focusing on new materials, which translates academic synthetic chemistry research into reproducible, data-rich automated processes
“PLC” or “programmable logic controller”	an industrial computer that controls automation equipment such as robotic modules and conveyor systems in a self-driving laboratory
“PLC smart scheduling”	an intelligent task coordination system that integrates with programmable logic controllers to automate batch recognition, liquid preparation, and other laboratory workflows, improving efficiency and reducing manual intervention
“predictive maintenance monitoring”	an automated system that continuously tracks the operational status, runtime, and performance curves of laboratory instruments, automatically generating maintenance schedules and performing preventative maintenance before failures occur
“prefabricated functional modules”	pre-engineered, factory-assembled laboratory components or systems that can be transported and installed on-site, reducing construction time and ensuring consistent quality
“protocol conversion gateways”	devices or software components that convert data or commands between different communication protocols, enabling instruments and systems using different standards to connect and communicate
“reinforcement learning”	a machine learning method in which an AI model improves decision-making by learning from feedback generated through interaction with an environment or experimental process
“RFID” or “radio-frequency identification”	a wireless technology that uses electromagnetic fields to automatically identify and track tags attached to objects, used in sample loading modules for automated sample bottle identification and binding
“self-driving laboratory” or “SLS”	an automated laboratory solution that operates without any human presence, integrating embodied intelligence robots and an AI-powered operating system to autonomously design, execute, and optimize experiments
“SLAM” or “simultaneous localization and mapping”	a navigation technology used by AGVs to construct a map of an unknown environment while simultaneously tracking their position within it, enabling autonomous transportation in laboratories

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“smart doorplate”	an intelligent terminal installed at laboratory entrances that integrates access control, alarm display, and personnel information, triggering alerts upon detection of hazardous gas leaks or other safety events
“solenoid valves”	an electrically controlled valve used to regulate the flow of liquids or gases in automated laboratory systems
“stage-gate review”	a project management checkpoint that evaluates whether an R&D project meets predefined functional and performance benchmarks before advancing to the next development stage
“structure-activity relationship”	a modeling approach that analyzes the relationship between the chemical or structural characteristics of a substance and its biological, chemical or catalytic activity
“transfer learning”	a machine learning technique that applies knowledge gained from one task or domain to improve learning efficiency and performance in a related but different task or domain
“UDI stack”	our unified device interface protocol that enables laboratory instruments from different manufacturers and communication standards to connect through a single standardized interface
“unified software management and scheduling platform”	a central command hub built on microservice architecture that receives execution tasks from laboratory environment, support, and instrument management systems, monitoring and uniformly scheduling them through cloud-edge collaboration