The New Infrastructure of Medicine: A Digital, Automated, and AI-Driven Chemistry Platform for Scalable Drug Discovery

Boston, Massachusetts May 15, 2026 (Issuewire.com) - In an era where biopharma R&D faces unprecedented pressure—soaring costs, shrinking product lifecycles, and a mere 4.1% IRR for top pharma companies—the need for transformative change has never been more urgent. Drug discovery, long hampered by inefficient chemical synthesis workflows, is ripe for innovation. At XtalPi, we're not just optimizing processes—we're building the new infrastructure of medicine: a fully integrated, digital, automated, and AI-driven chemistry platform that redefines what's possible in scalable drug discovery.

Since launching our chemical synthesis services in early 2021, we've grown from a pioneering team to a global force of nearly 400 experts, serving over 200 biopharmaceutical clients worldwide. Our 90%+ client retention rate over the past two years isn't just a metric—it's a testament to our ability to deliver consistent value by merging cutting-edge technology with deep scientific expertise. We empower biopharma enterprises with end-to-end chemical services, including medicinal chemistry, synthetic chemistry, analytical chemistry, and compound management, all designed to accelerate innovation and redefine R&D efficiency.

Breaking the Bottlenecks That Slow Drug Discovery

The greatest barrier to faster, more cost-effective drug discovery lies in two critical efficiency bottlenecks—ones that have plagued synthetic chemistry for decades:

- **Vertical Bottlenecks**: The speed of synthesizing a single molecule, hindered by complex route

design, time-consuming post-reaction purification, limited analytical resources, and cumbersome documentation.
- **Horizontal Bottlenecks**: The number of synthetic routes a single researcher can advance simultaneously, constrained by disjointed workflows, unstandardized processes, variable expertise, and a lack of collaborative tools.

These bottlenecks aren't just inefficiencies—they're barriers to life-changing therapies. With the global AI in chemicals market projected to grow to $6.4 billion by 2033, it's clear that technology is the only path forward. XtalPi's platform is built to change the current paradigm, turning these challenges into opportunities for speed and innovation.

Our Solution: A Unified Digital, Automated, and AI-Driven Platform

At the core of our approach is a simple yet powerful vision: leverage digitalization, automation, and AI to reimagine synthetic chemistry workflows. We don't just add technology to existing processes—we rebuild them from the ground up, with a two-pronged strategy:

- **Short-Term: Break Horizontal Bottlenecks**: Our Orbit digital platform creates collaborative, specialized workflows that boosts productivity by working side-by-side with researchers, letting teams advance more projects at once without sacrificing quality.
- **Long-Term: Overcome Vertical Bottlenecks**: We're developing the next-generation automated experimental equipment and AI algorithms to cut down the time needed to synthesize each molecule, turning weeks of work into days.

Our comprehensive platform spans the entire chemical synthesis workflow—from preparation to final report—with over 30 dedicated tools and intelligent capabilities designed to eliminate friction at every step:

End-to-End Workflow Excellence

- **Preparation**: AI-powered synthesizability prediction, reaction condition recommendations, and interactive retrosynthesis tools lay the groundwork for success, reducing trial-and-error from the start.
- **Reaction**: Our Synthesis-LCMS Integrated Workstation enables high-throughput reaction execution (8mL×72/40mL × 36) with automated sample preparation and seamless data capture—extending researchers' capabilities beyond manual limits.
- **Monitor & Workup**: Real-time analysis queue monitoring, AI-driven LC-MS spectrum reading, and centralized, automated post-workup cut down processing time by 30%.
- **Purification & Freeze-Drying**: Factory-style centralized purification platforms (with "1+3" models controlling 10-12 column machines) and one-code traceability ensure consistency and speed—even with unattended nighttime operations.
- **QC & Delivery**: Batch inspection, full lifecycle traceability via our PAD (Purification-Analysis-Delivery) one-code solution, and digitalized shipping streamlining the final steps, with 60% of deliveries moving through our streamlined pipeline.
- **Final Report**: Automated Electronic Lab Notebook (ELN) record verification and report writing eliminate tedious documentation, letting researchers focus on science, not paperwork.

Differentiated Innovation: Where Digital, Automation, and AI Meet

What sets XtalPi apart is our ability to integrate digitalization, automation, and AI into every facet of the

workflow—creating a synergy that drives measurable results. Research shows that approx. 80% of biopharma executives believe AI will fundamentally transform R&D, and we're turning that belief into action:

Digitalization: Collaboration Reimagined

Our Orbit platform breaks down silos, with three core digital applications delivering tangible efficiency gains:

- **Centralized Post-Processing**: Dedicated team for centralized processing, standardized workflow with digital enablement and enhanced collaboration, boosting efficiency by ~30%.
- **Centralized Purification Platform**: Factory-style assembly lines enable remote monitoring and unattended operation, maximizing parallel workflow.
- **PAD One-Code Solution**: A unique QR code tracks samples through every stage, eliminating redundant data entry and ensuring full traceability.

The impact is clear: **30%** of post-synthesis tasks are centrally managed, **50%** of purification work is completed via centralized Medium Pressure Liquid Chromatography (MPLC) control, and **60%** of deliveries move through our streamlined PAD pipeline.

Automation: Extending Human Potential

Our Synthesis-LCMS Integrated Workstation is more than a tool—it's an extension of our chemists' expertise. Modular, high-throughput, and fully integrated with our ELN, it handles temperature control (RT to 140°C), automated sample preparation, and LC-MS injection, freeing researchers to focus on high-value innovation and discoveries.

AI: Reducing Trial-and-Error, Controlling Costs

Our AI models aren't just experimental—they're proven to deliver results:

- 23+ reaction types covered by our synthesizability prediction and reaction condition recommendation AI, with a success rate over 85%. Consistently expanding to scope to other reaction types.
- HTE-based AI models for reaction condition recommendation and yield prediction, now maturely applied in client projects.
- AI-driven LC-MS spectrum reading, enabling autonomous judgment and readout for over 70% of samples.

The Team and Infrastructure to Deliver on Our Promise

Technology is only as strong as the people behind it. Our 300+ synthetic chemists—**63%** with master's degrees or above, and **80%** with 4+ years of synthesis experience—bring deep expertise to every project. Supported by state-of-the-art R&D facilities (5000m^2 traditional lab + 4000m^2 automated lab across Shanghai and Shenzhen), we have the infrastructure to tackle even the most complex challenges.

We offer flexible service models (FTE and FFS) tailored to diverse client needs, covering everything

from building block and intermediate synthesis to custom synthesis for specialized modalities (ADC/RDC, PROTAC/Molecular glue, peptide, lipid) and special chemistry (chiral, photochemistry, organometallic, stable-isotope labeling).

Our AI-with-robotics-aided library synthesis combines AI, automation, and human expertise to deliver focused or diversity-oriented libraries—with flexible quantity and scale, backed by end-to-end compound management.

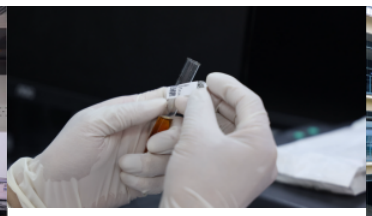
Why XtalPi? Because Your R&D Deserves the Future, Today

In a industry where 60% of executives agree that companies failing to scale AI will fall behind, XtalPi is your partner in staying ahead. Here's why global biopharma leaders choose us:

- **New Technology**: Our Orbit Digital Intelligence Platform, Synthesis-LCMS workstations, and AI models for 23+ reaction types redefine productivity in traditional synthetic chemistry.
- **Delivery Efficiency**: We outperform industry standards in quality and speed, helping you accelerate your pipeline and stay competitive.
- **Team Capabilities**: 300+ seasoned chemists with optimized division of labor to ensure on-time delivery, even for complex projects.
- **Hardware Facilities**: First-class automated labs and instrumentation provide the backbone for reliable, scalable research.
- **Business Solutions**: Market-competitive pricing ensures you get maximum value from your R&D investment.

Drug discovery doesn't have to be slow, costly, or inefficient. The new infrastructure of medicine is here—and it's driven by digital, automation, and AI. At XtalPi, we're proud to empower biopharma innovators to bring life-changing therapies to patients faster, more affordably, and more reliably.

Ready to transform your drug discovery pipeline? Connect with our team today to learn how our platform can unlock new possibilities for your R&D.

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