Enabling a Healthier World

Lonza
Small Molecules

AI-Enabled Route Scouting Service

Accelerate route selection, process development and commercial viability for the synthesis of your API

Small molecule active pharmaceutical ingredients (APIs) are becoming more molecularly complex, resulting in formidable challenges for small and emerging biotechs. Lonza's AI-enabled Route Scouting Service is an advanced approach to retrosynthetic analysis that provides drug development partners with clinically and commercially viable synthesis pathways towards an API.

Lonza's service harnesses advanced computer-aided synthesis planning (CASP) technologies to identify optimal synthetic pathways. CASP enables enhanced route prediction capabilities by calculating the shortest and highest-probability-of-success routes for breaking down a target API into relevant starting materials. Lonza has integrated its proprietary supply chain database with a leading AI-enabled CASP technology platform. This powerful combination allows Lonza to tailor its performance precisely to development needs, delivering superior route predictions and supporting accelerated project timelines.

Lonza's AI-enabled Route Scouting Service can be split into two stages, building into a third optional stage (see figure 1, on the following page).

Innovative technologies to accelerate route selection and process development

Stage 01
Develop and prioritize synthetic route options based on predefined process goals. Using Lonza's predictive cheminformatics and expert knowledge, efficient pathways are defined.

Stage 02
Consolidate sourcing intelligence, enabling strategic decisions for the most promising routes, both technically and commercially.

Stage 03 (optional)
Lonza's Process R&D team evaluates the top process route candidates using high-throughput experimentation (HTE) and extensive development experience to minimize risks, costs, impurities and cycle times.

This method ensures resilient supply chains, efficient synthetic processes, and cost-effective API production.

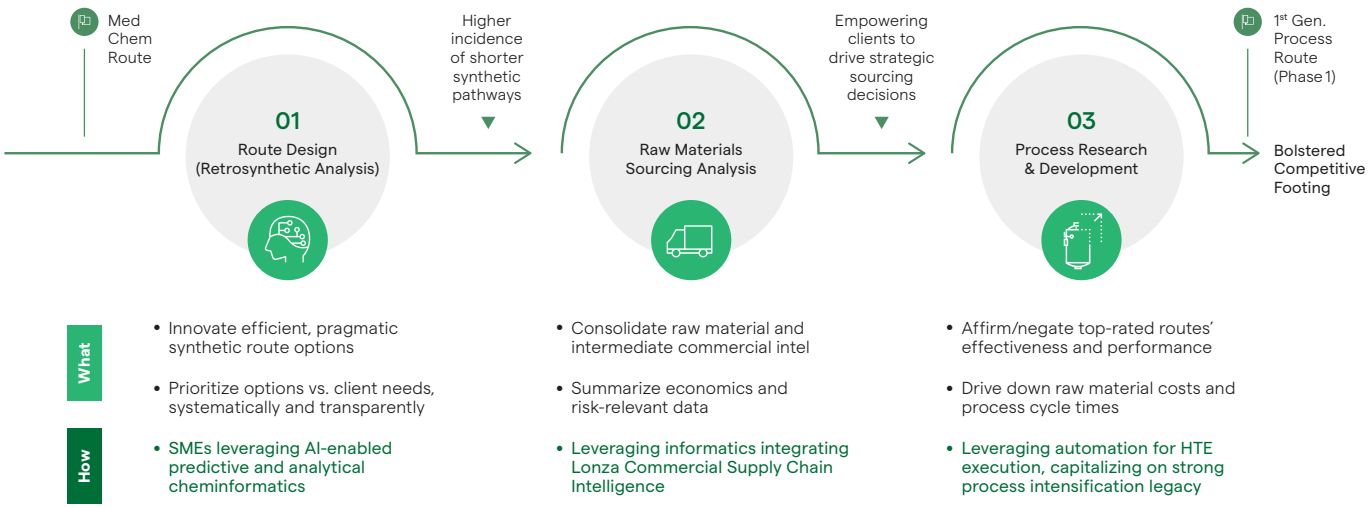

Figure 1. Inputs required for optimal enabling technology selection

What can Lonza's AI-enabled Route Scouting Service do for drug developers?

Increased synthesis efficiency
Complex molecules often extend development timelines due to the need for extensive optimization before scale-up. Lonza's approach streamlines route optimization and development, providing access to shorter synthetic pathways and minimizing lead times with comprehensive global supply chain data, ultimately speeding up the process of bringing new drugs to the clinic.

Improved supply chain security
Integrating detailed supply chain data into synthetic route design allows developers to create primary, secondary, and tertiary supply options. This approach enables quick adjustments if supply disruptions occur, reducing the risk of drug shortages and delayed timelines.

Reduced cost of goods (COGS)
Supply chain–aware retrosynthetic analysis tools provide significant economic benefits for drug developers and consumers. By optimizing synthesis routes considering factors like raw material costs, availability, scalability, and reaction efficiency, developers can design cost-effective pathways. These savings can lower production costs and make drugs more affordable for patients.

Using advanced analytical methods at every stage of drug development can reduce risk for developers helping to bring new drugs to market faster. The integration of Lonza's expertise with AI technology accelerates process development, benefiting both drug developers and patients.

Learn more about our offering and how we can help de-risk your early phase development program.

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Get in touch with the Small Molecules team to learn more. We work as one.

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06.2024.1