charles river

Summary

The Charles River Chemistry team is comprised of more than 140 chemists and the team has been involved in the successful delivery of 80 preclinical candidates to date. Over 50% have completed further research to PhD and postdoctoral levels.

DISCOVERY

Integrated and Fee-for-Service Synthetic Chemistry Services

Click to learn more

Synthetic Chemistry Services

- Multi-stage synthesis
- Synthetic route validation
- Chiral synthesis
- Automated purification
- Analytical SFC
- Semi-prep SFC
- *In silico* chemistry
- Process and scale-up chemistry

Our chemists are skilled in the development of multi-stage synthetic routes to previously unknown scaffolds, chemical probes, and novel compounds and have demonstrated this up to kilogram scale. In addition to fee-for service and stand-alone projects, we offer integrated solutions – in-sourced chemistry collaborations where our own chemists are recognized as integral parts of our client's chemistry department.

Extensive Industry Experience

Charles River's chemists have an average of 17 years' industry experience gained in the pharmaceutical, drug discovery CRO, biotech, and agrochemical sectors. Our highly experienced scientists are self-motivated individuals who are focused on achieving challenging goals and delivering results for our customers. We prioritize keeping pace with recent advances in the field and place a high value on scientific knowledge sharing across the organization.

A Broad Range of Chemistries

Our chemists have deep expertise in the design, route identification, troubleshooting, and lead optimization of multi-step synthetic sequences. We combine the latest synthetic chemistry methodologies and technologies to ensure high productivity and maximum efficiency. We have experience in progressing innovative solutions across an extensive portfolio of diverse chemistry programs from small-scale hit ID and hit-to-lead campaigns, up to the synthesis of kilogram-scale APIs.

Close Coordination with the Pharmaceutics Department

Early assessment of solid state properties can help reduce the discovery-to-development transition time for our clients. Co-localization of the chemistry and pharmaceutics departments facilitates compound supply logistics, rapid data turnaround, and effective decision making.

Questions for our chemists?
Visit https://www.criver.com/consult-pi-ds-questions-for-our-chemists

EVERY STEP OF THE WAY

We Have Experience with

- small molecule drugs
- macrocycles and macromolecules
- chemical probes
- deuterium labelled compounds
- phospholipids, peptides and sugar conjugates
- ligands designed to interact with siRNA
- photoreactive cross-linking reagents for photo affinity labelling studies

Chiral Synthesis and Separation

Charles River regularly invests in equipment and lab technologies to facilitate efficient synthesis and productivity on even the most challenging projects. In addition to site-wide access to automated purification equipment, including flash and mass-directed high-performance liquid chromatography facilities (MDAP), a dedicated purification team can purify up to 100 g of compound using semi-prep supercritical fluid chromatography (SFC). Once compounds have been synthesized, they undergo purification, rigorous characterization, analysis, and structural determinations as required using the latest equipment.

Process and Scale-up Chemistry

The scale-up team at Charles River can apply large-scale synthesis capabilities at an early stage of the drug discovery process. This affords the opportunity to add scale-up expertise to a project and bridge the gap between medicinal chemistry and good manufacturing process (GMP). This early process chemistry involvement provides GMP-ready routes and non-GMP scale-up to ensure efficient transition from discovery to development for client programs. Our group of process chemists, with over 60 years of accumulated experience, troubleshoots, optimizes, and scales up the preparation of key intermediates or material to enable *in vivo* and pharmaceutics studies. The team is also able to supply material for efficacy and toxicology studies.

We provide synthetic chemistry services performed on 5 L, 10 L and 20 L purpose-built reactors at temperatures ranging from -20 °C to +150 °C. We have the capability to perform cryogenic (-70 °C) reactions using laboratory glassware up to 20 L. We have a 20 L evaporator for reaction work-up and, while chromatography will be designed out of a synthetic path at every opportunity, we do have large scale chromatography capabilities. Our large-scale synthesis capabilities (kg scale to non-GLP) help to reduce the discovery-to-development transition time for our clients.

Library and Parallel Synthesis

Charles River has over a decade of exclusive and non-exclusive focused library and parallel chemistry expertise built upon the success of the SoftFocus® compound libraries. SoftFocus® compound libraries have delivered outstanding results, as evidenced by numerous patents and published papers, and have led to several clinical candidates.

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