X-CHEM

TAKE THE LEAD. DRIVE DISCOVERY.

Covalent Library Selection

X-Chem has the know-how and the track record to drive your irreversible hit discovery

DNA-Encoded Chemical Library Screening: A Great Method for Identifying Covalent Irreversible Inhibitors and Accelerating Your Drug Discovery

Irreversible inhibitors are a powerful modality in drug discovery. By forming a covalent bond with the protein target, these inhibitors can exhibit great potency and prolonged duration of action. In addition, irreversible inhibitors offer other advantages such as targeting therapeutically relevant mutations or addressing difficult-to-drug targets.

Following recent FDA approvals of several game-changing covalent drugs, this class of therapeutics is making an impact on patients' health. Consequently, interest in covalent drugs and in covalent screening techniques is high. DNA-encoded libraries (DELs) currently provide the only method for screening billions of electrophilic compounds capable of forming a covalent bond with a protein target.

Versatile DEL Technology to Discover Novel Covalent Hits

X-Chem has pioneered the use of DEL technology for covalent hit discovery. We synthesized the world's first electrophilic DELs, and we invented the methods for screening these libraries to discover specific irreversible compounds. With over 100 billion compounds in our collection, X-Chem's covalent DEL collection is the largest screening library for covalent hit discovery.

X-Chem's irreversible selection methodology was developed to identify potent and selective covalent ligands. Our proprietary methods drive an exponential reduction of background binders, which enhances signal and increases the odds of success.

X-CHEM

TAKE THE LEAD. DRIVE DISCOVERY.

BENEFITS OF WORKING WITH X-CHEM FOR COVALENT DISCOVERY PROJECTS:

- Discover leads for novel and previously intractable targets
- Identify leads with novel mechanisms of action
- Increased selectivity and biochemical efficiency
- Select leads based on optimal structure-activity relationships
- Gain prolonged duration of action
- Covalent library of over 100 billion compounds
- Optimize the safety and efficacy of covalent drugs
- Spans the same broad scope of chemical diversity as our traditional libraries
- Displays over 40 electrophilic "warheads" that can react with a variety of protein side chains
- Span lead-like, drug-like and peptidic property profiles

Our irreversible selection platform has been validated against several challenging target classes, including, among others:

- **Cysteine mutants**
- **E3 ligases**
- **Kinases**

If your difficult biological target could yield to an irreversible inhibitor, X-Chem is the partner you need. For an example of a successful project see our publication in Bioorganic & Medicinal Chemistry.

Partner With X-Chem to Fast-track Early Drug Design

X-Chem's DEL technology can radically transform your covalent drug discovery program. We not only discover DEL hits, we use the SAR and selectivity data generated in the selection experiment to accelerate hit-to-lead medicinal chemistry. X-Chem's experts understand how to optimize the affinity, ADME and pharmacokinetic parameters in challenging covalent drug discovery programs. For more information on our flexible and powerful medicinal chemistry services, see our Medicinal Chemistry insert sheet.

X-Chem is the partner you need to unlock exponential possibilities in your covalent drug discovery.

Find Your Next Covalent Drug Molecule With X-Chem

ABOUT X-CHEM

X-Chem, Inc. is the leader in small molecule discovery science, providing pharmaceutical and biotech companies a complete, seamless solution for screening, hit validation and lead optimization. As pioneers of DNA-encoded chemical library (DEL) technology, the company leverages its market-leading DEL platform to discover novel small molecule leads against challenging, high-value therapeutic targets. In-house lead optimization services enable clients to progress their compounds directly for even higher quality outputs. Our expertise in medicinal chemistry, custom synthesis and scale-up process chemistry enables us to support all aspects of drug discovery, supporting lead optimization through candidate identification.

781.419.6900 | info@x-chemrx.com

x-chemrx.com