



# High-Quality Protein Production for DNA-Encoded Libraries: A Bottleneck No More

Use X-Chem's experience to access high-quality proteins that **maximize hit rate and minimize false positives** in DNA-encoded library-based drug discovery.

## AVOID THE MAJOR FLAWS OF POOR PROTEIN PRODUCTION

- › Insufficient protein concentrations to drive binding equilibrium
- › Misfolded, aggregated or otherwise inappropriate proteinaceous material binds to target

If you are interested in a DNA-encoded library (DEL) screen but concerned with the time and expense of protein production, our advice is: Leave it to us! Our experts can work with you from Day 1 to design, produce and qualify the optimal protein reagents for your DEL screen.

### Where Other DNA-Encoded Libraries Go Wrong

DEL screening adheres to the truism of "garbage in, garbage out." You can see it best in DEL's need for high-quality protein reagents. DEL selection is, at its root, a binding assay in which compound libraries are exposed to high concentrations of protein reagents and allowed to enter a binding equilibrium. If protein reagents are not of sufficient quality, the selection experiment is likely to fail for two major reasons:

**First, the concentration of appropriately folded proteins will be lower than expected and insufficient to drive the binding equilibrium.**

**Second, the screen will uncover binders to misfolded, aggregated or otherwise inappropriate material that can obfuscate the identification of bona fide binders and modulators.**

Over the many years we have conducted DEL selection, X-Chem has observed that protein quality is one of the primary determinants of screening success and the main driver of false positives. Correspondingly, we have seen many cases where a simple improvement in protein reagent quality turns a failing project into a successful one.

### Exponential Expertise in Small Molecule Drug Discovery

Acquisition of high-quality proteins is a key obstacle to a successful DEL screen. Overcoming this barrier can be a challenging proposition to a small molecule drug discovery company on a tight budget with an aggressive timeline. Fortunately, X-Chem can help.

### EXPERT PROTEIN PRODUCTION FOR DEL

- › High-quality protein production and isolation
- › Optimized for DEL conditions
- › Customized to your disease, protein and mechanism-of-action

### X-CHEM ADVISES ON MAJOR POTENTIAL SOURCES OF FRUSTRATION

- › Tag location
- › Protein complexes
- › Cofactors
- › Likely off-targets and mitigating strategies

Our experts design and source optimal reagents for DEL selection. With over a decade of experience, we can advise on variables like tag choice and location, buffer conditions and domain design to meet the needs of your discovery program. We also have extensive experience handling protein complexes, cofactors and off-targets, all of which can make the difference between a disappointing screen and a productive one.

### Powerful Protein Science Partnerships Enhance Your Drug Discovery Process

When it comes time to produce the required protein reagents in your drug discovery process, X-Chem has it covered. Working with our network of providers, we can manage the procurement of the optimal DEL reagents and route them straight into our QC and selection processes.

Our partners are experts at producing the highest quality protein samples that drive DEL screening success. Our track record demonstrates that bespoke, high-quality protein and X-Chem DEL technology work together as the ideal combination for driving novel hit discovery.

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

**Find Your Next 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.