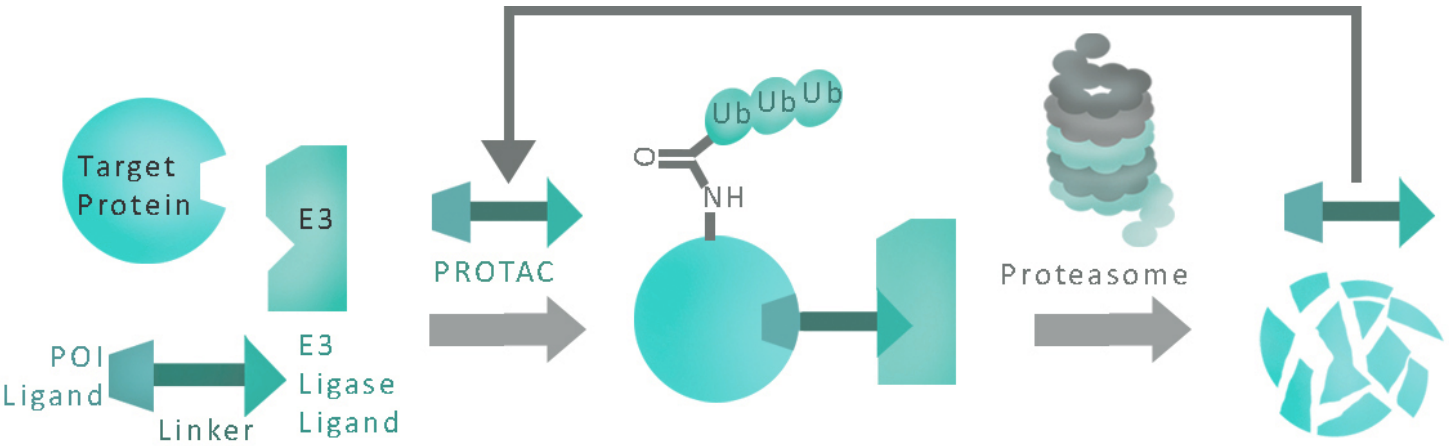
BPS Bioscience

Scientist Founded, Scientist Driven

PROTACs and Ubiquitin-Mediated Degradation



Targeted protein degradation using Proteolysis Targeting Chimeras, or PROTAC®, is a new and promising therapeutic approach. PROTACs promote protein degradation through recruitment of ubiquitin E3 ligases. This novel technology allows for the degradation of target proteins and offers distinct advantages over traditional protein inhibition. PROTACs function by hijacking E3 ligases to tag the protein of interest for ubiquitination. A PROTAC is composed of an E3 ligand that binds to the ligase, a ligand that binds to the protein of interest, connected by a linker. Binding of both ligands to their respective partner triggers ubiquitination of the protein of interest. A single PROTAC molecule can promote the degradation of many proteins.

Advantages

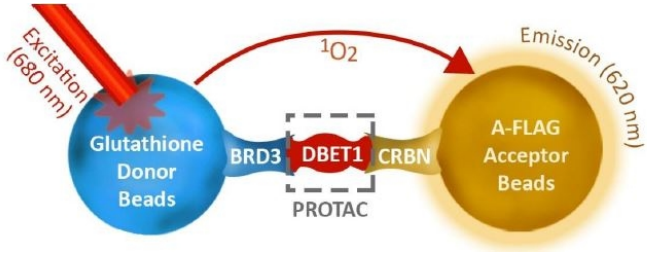
- Circumvents enzyme resistance against sustained inhibition
- Promiscuous ligands can still demonstrate high degradation efficacy
- Ineffectual ligands (which do not alter the function of the target) can mediate degradation
- PROTACs may target proteins previously believed to be undruggable through conventional small molecule inhibition

PROTAC Products and Services

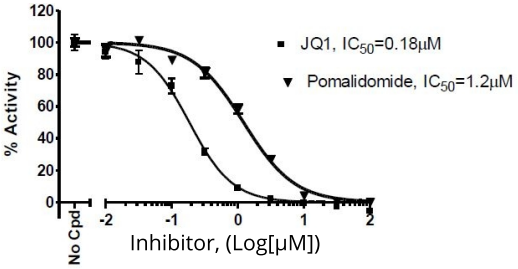
BPS Bioscience is a leading product manufacturer and service provider in the PROTAC space. Available services include homogeneous proximity assays to assess the chemical adaptor function of PROTACs.

PROTAC® is a registered trademark of Arvinas Operations Inc., and is used under license.

Application example: PROTAC Optimization Kit for BET Bromodomain Cereblon Binding (#79770), designed for testing and profiling of PROTACs directed against BET Bromodomain family and the Cereblon complex. Cereblon (CRBN) is a substrate recognition component of a DCX (DDB1-CUL44-Rbx1) E3 protein ligase complex that mediates the ubiquitination and subsequent proteasomal degradation of target proteins.



(+)-JQ1 or Pomalidomide were incubated with CRBN and BRD3 (BD2). Acceptor beads were added, then donor beads, followed by data capture



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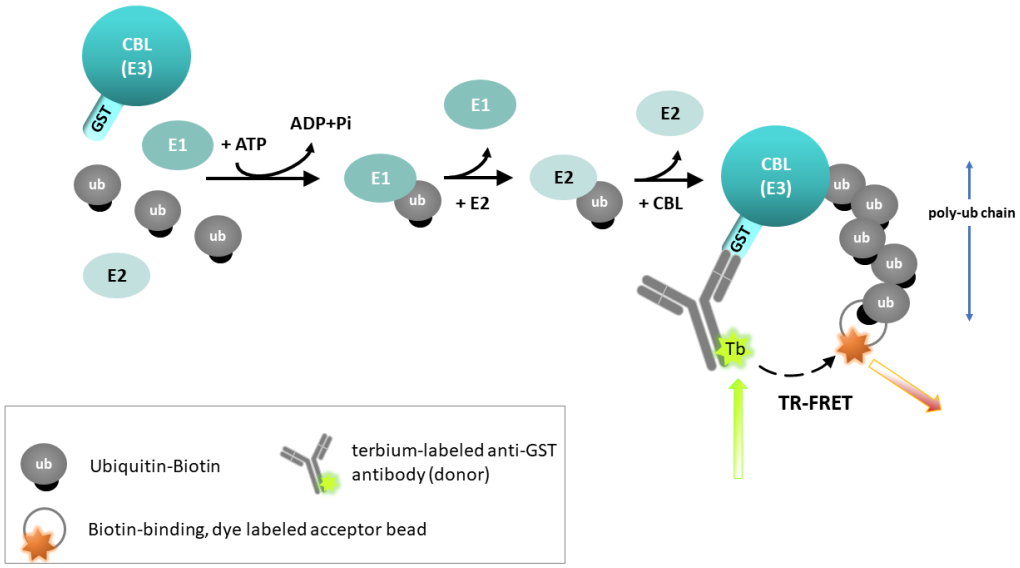
Ubiquitination TR-FRET Assay Kits

Human CBL (Casitas B-lineage lymphoma proto-oncogene) is a multifunctional protein with ubiquitin E3 ligase activity capable of degrading a diverse set of proteins. c-Cbl is ubiquitously expressed and plays a role in cell survival, migration, and proliferation. Recent evidence suggests a critical role for c-Cbl in angiogenesis and human solid organ tumors. CBL-B functions as a negative regulator of T-cell activation.



Both CBL isoforms are promising drug targets for cancer immunotherapy. The CBL TR-FRET Assay Kits are designed to measure auto-ubiquitination activity in a homogeneous, 384 reaction format. The kits use biotin-labeled Ubiquitin and a terbium-labeled antibody recognizing the GST-tagged CBL protein to complete the TR-FRET pairing.

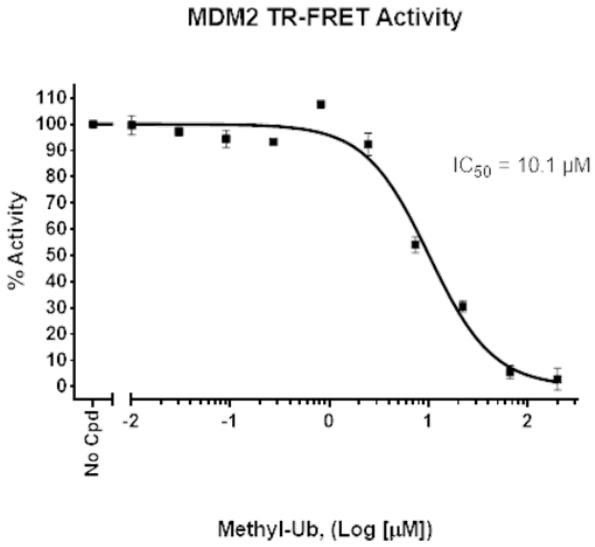
c-CBL TR-FRET (#79796)

CBL-B TR-FRET (#79575)

Ubiquitin Intra-Chain TR-FRET Assay Kits

BPS Bioscience's unique intrachain TR-FRET Assay Kits are sensitive high-throughput screening (HTS) TR-FRET Assay Kit, designed to measure the auto-ubiquitination activity of E3 ligases in a homogeneous 384 reaction format. These kits use a Europium cryptate-labeled Ub (donor) as well as Cy5-labeled Ub (acceptor) to complete the TR-FRET pairing. Both the TR-FRET donor and acceptor are incorporated into poly-ubiquitin chains formed on the ligase of interest. These kits are particularly useful for HTS screening of small molecule ligase inhibitors, for the determination of compound IC_{50}, and for real-time kinetics analyses.

Available intra-chain assay kits: Cereblon (#78301); MDM2 (#78302); SMURF1 (#78303); SMURF2 (#78304); VHL (#78305); XIAP (#78306).



Solutions You Can Trust

Committed to Excellence

- ISO 9001:2015-certified Quality Management System

In-House Manufacturing

- Made in the USA at our San Diego, California facility
- Customized support directly from the source