BPS Bioscience

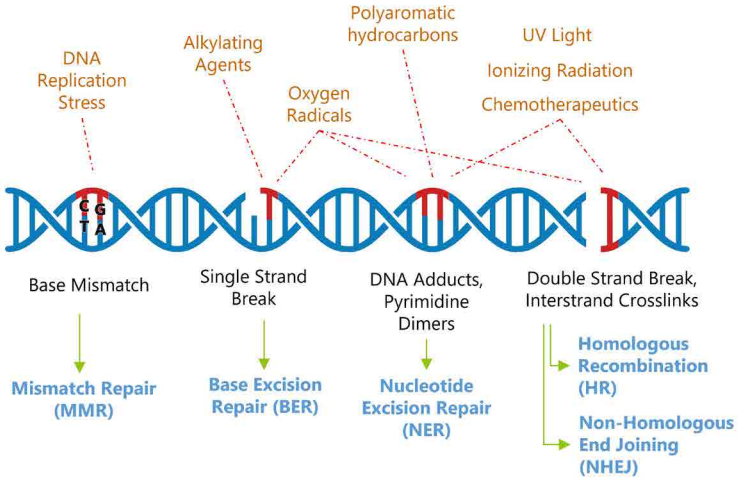
DNA DAMAGE RESPONSE

TOOLS & SERVICES FOR DRUG DISCOVERY

PARPtrap™ | Enzymatic Assay Kits | Cell-based PARylation Assay
Active Proteins | Reporter Lentiviruses | Screening & Profiling Services

DNA Replication and DNA Damage Repair

DNA damage, resulting in base mismatches, bulky adducts, cross-links, single strand breaks, or double strand breaks, can occur from a variety of exogenous and endogenous mechanisms. For example, normal replication cycles have the potential to damage DNA. In response, mammalian cells employ an array of mechanisms to repair the damaged DNA. Repair pathways can also trigger cell cycle blockade, stress responses, and apoptosis.



Thus, repair processes are critical for maintaining healthy cells, while potentially serving as therapeutic targets in oncology. Specifically, some inhibitors of DNA Damage Response (DDR) pathways increase the efficacy of DNA damaging cancer therapy (such as chemo or radiotherapy), whereas other DDR inhibitors display synthetic lethality when combined with a genetic alteration or chemical inhibition of complementary DDR pathways.

Also of great therapeutic potential are inhibitors of cell cycle progression. Indeed, CDK4 (Cyclin-dependent kinase) and CDK6 inhibitors are currently used to treat breast cancer and are in clinical trial alone or in combination to treat other types of cancer including lung cancer, melanoma, and lymphomas.

Our Advantages

Produced In-House

- Made in the USA at our San Diego, CA laboratory
- Get customized, personal support directly from our experts

Committed to Excellence

- ISO 9001:2015-certified Quality Management System
- Lot-specific quality controls

Screening & Profiling Services

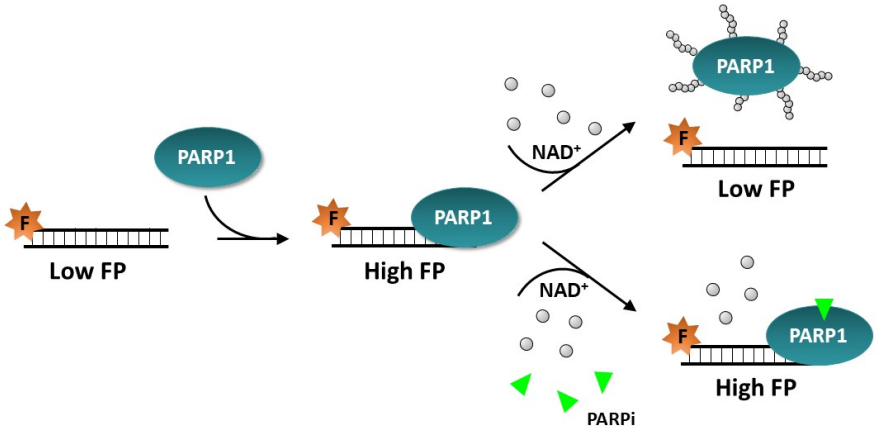
- Panel of Assays for Evaluation of Lead compounds
- Select from IC_{50} determination or single point concentrations
- Ready-to-use Lentiviruses: integrating and non-integrating options

Expansive Portfolio

- Unique PARPtrap™ assays
- Full PARP family panel for assessment of compound selectivity
- High quality purified DDR proteins

PARPtrap™ Assay Kits

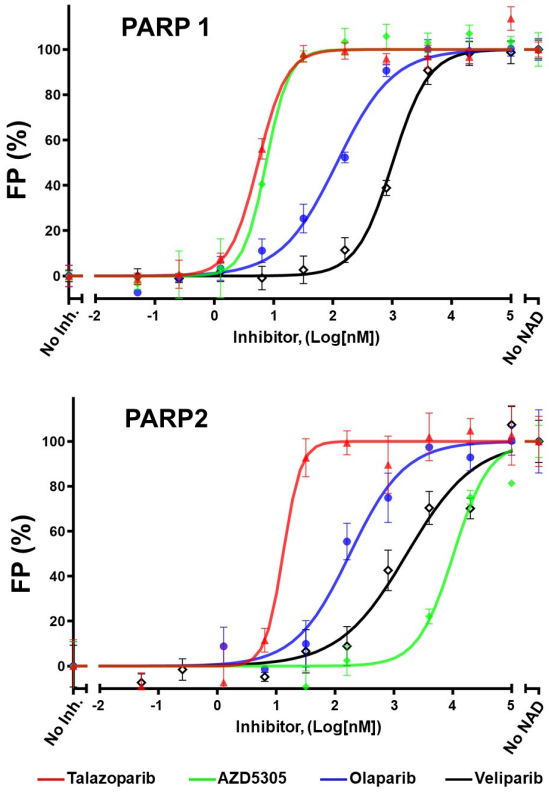
PARP1 and PARP2 bind to damaged DNA and auto-ribosylate in the presence of NAD+. This causes them to dissociate from the DNA due to the accumulated negative charge of the ribosyl polymers. Some inhibitors prevent auto-ribosylation, which results in PARP remaining on the DNA, termed "trapping'. Trapped PARP-DNA complexes are highly cytotoxic to cancer cells, therefore such inhibitors are desirable for cancer treatment.



Our unique biochemical PARPtrap™ assays use principles of fluorescence polarization (FP). Before ribosylation, PARP binds to the fluorescent DNA probe, forming a large complex and resulting in the emission of polarized fluorescence. Ribosylation is initiated by the addition of NAD+ and PARP dissociates from the probe, which is small and rotates freely, resulting in mostly depolarized fluorescence. Thus, the reaction results in a net decrease in fluorescence polarization. Addition of an inhibitor that traps PARP onto the fluorescent DNA probe results in increased FP compared to the condition without inhibitor and is proportional to the concentration and potency of the inhibitor.

Advantages

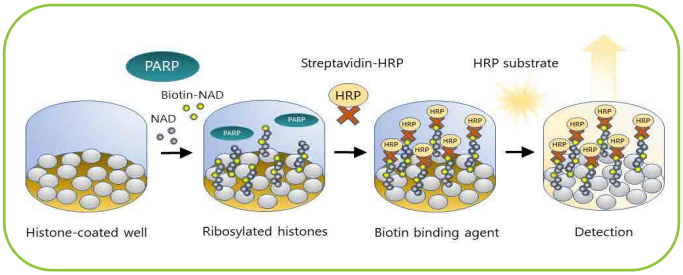
- Homogeneous (no wash)
- Precise FP technology
- Sensitive and robust
- Available in 96-well or 384-well formats
- Highly specific optimized DNA probes for PARP1 and PARP2
- Combo PARPtrap™ assay kit for PARP1 and PARP2 allows direct comparison of potency



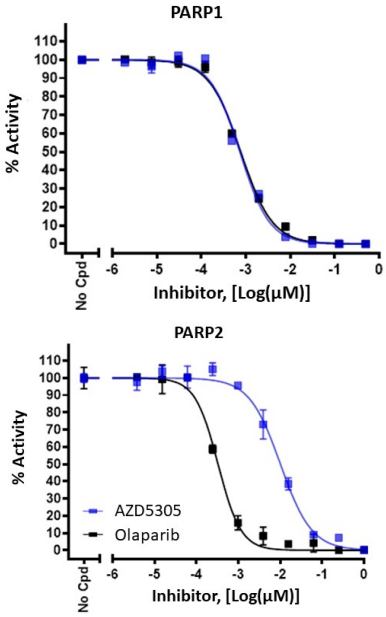
DNA trapping of PARP1 (upper panel) and PARP2 (lower panel) measured in the presence of increasing concentrations of talazoparib, olaparib, veliparib and AZD5305. "No compound" corresponds to the experimental control and "no NAD" corresponds to the highest FP signal allowed by the assay.

PARP Enzymatic Assays

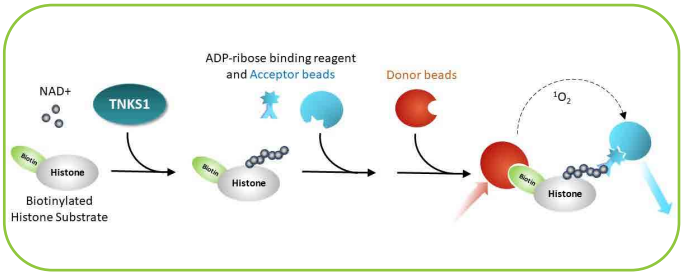
BPS Bioscience offers one of the most extensive product lines on the market, with over 20 validated enzymatic assays in 96-well and 384-well format to assess the efficacy of compounds on almost all PARP family members. ELISA-based measurements of enzymatic activity are available in cost-effective colorimetric, or sensitive chemiluminescent options. AlphaLISA® are fast, simple, homogeneous (no wash) assays.



ELISA: Histones are coated on a plate and biotin-labeled NAD^+ is added with PARP. Mono or poly-ribosylation is detected by adding Streptavidin-HRP (horseradish peroxidase), which binds to the newly formed biotin-ribose chains. A chemiluminescent or colorimetric HRP substrate is added for detection.

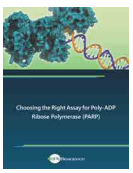


PARP1 and PARP2 chemiluminescence assays showed a distinctive inhibition profile for olaparib and AZD5305. Whereas both inhibitors had a similar IC_{50} for PARP1, they differ by a factor of 300 when used with PARP2 (olaparib IC_{50} = 0.3 nM; AZD5305 IC_{50} = 100 nM), demonstrating the exquisite sensitivity of the assays which may help better prioritize compounds for development.



AlphaLISA® Homogeneous Assay: PARP is incubated with a biotinylated histone substrate and NAD^+ for an hour. An ADP-ribose binding reagent is added with an acceptor bead, then a streptavidin-conjugated donor bead is added. Excitation of the donor bead is transmitted to the acceptor bead.

Chemiluminescent	Colorimetric	AlphaLISA®
PARP1	PARP1	PARP1
PARP2	PARP2	PARP2
PARP3	PARP5A	PARP3
PARP5A (TNSK1)	PARP5B	PARP5A
PARP5B (TNKS2)		PARP5B
PARP6		PARP11
PARP7		
PARP10		
PARP11		
PARP12		
PARP14		
PARP15		
PARP15-FL		



Learn more about Choosing the Right Assay for Poly-ADP Ribose Polymerase (PARP) in our eBook.

Detection of Cellular PARylation

LysA™ Universal PARylation Assay Kit (#82123) is a sandwich ELISA-based kit designed to analyze the level of total poly ADP-ribosylation (PARylation) present in cellular extracts. The kit contains all the reagents necessary to measure PARylation levels in cell extracts, including a PAR standard for quantitative measurements.

Applications

The assay is *quantitative* and detects differences in protein PARylation levels resulting, for example, from inducing the DNA damage response, or from exposure to PARP inhibitors and inhibitors of PAR erasers such as PARG (poly (ADP-ribose) glycohydrolase).

Principle of the Assay

A 96-well plate is coated with an anti-PAR antibody recognizing PARylated chains. Lysates from cells are added to the coated wells, and PAR (PARylated proteins) present in the cell lysates are captured by the antibody. This is followed by an incubation with an anti-PAR detection antibody, then a secondary HRP-conjugated antibody. Addition of a chemiluminescent HRP substrate provides a luminescence signal that directly correlates with the amount of PAR present in the cell extracts.

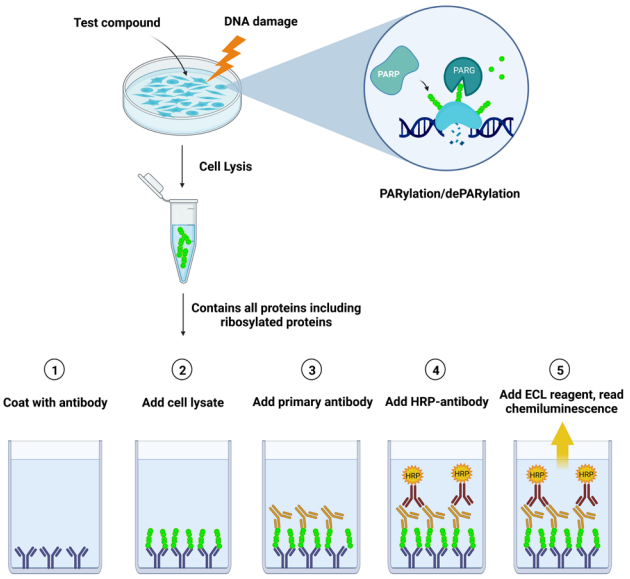
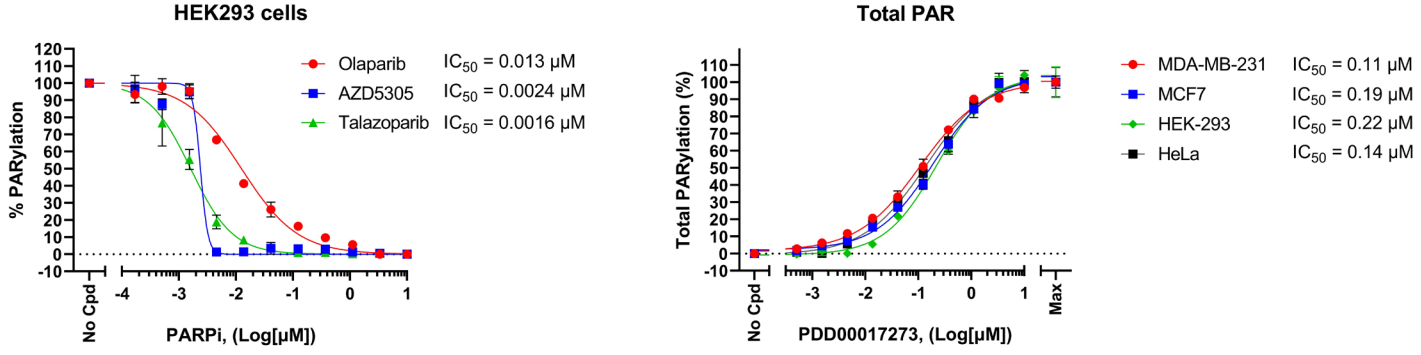


Illustration created with BioRender.com

Advantages

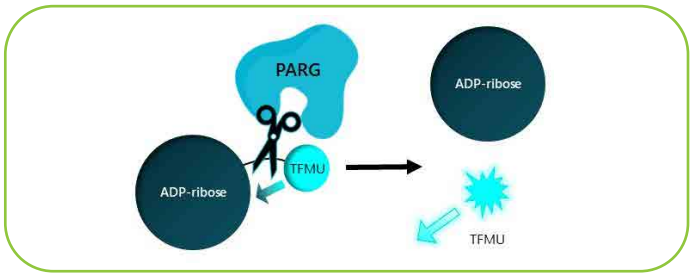
- Measures PARylation from lysates of cells treated with PARP or PARG inhibitors of interest
- Sensitivity ≥100 pM PAR
- Absolute quantification of PAR levels enabled by inclusion of a PAR standard
- Provided with detailed protocols and examples of cellular experiments
- Accessory reagents for cell lysis available, including reagents optimized for this assay kit



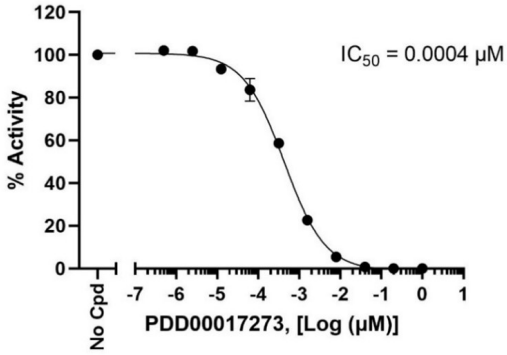
Left: *Effect of several PARP inhibitors on stress-induced PARylation in HEK293 cells.* ***Right:*** *Effect of PARG inhibitor PDD00017273 on stress-induced PARylation in various cell lines. Cells were treated with increasing concentrations of inhibitor for 105 minutes and hydrogen peroxide was added for an additional 15 minutes to induce DNA damage. The reaction was stopped and cell extracts were collected. Lysates were analyzed using LysA™ Universal PARylation Assay Kit. Results are expressed as percent of total PARylation in which maximum PARylation is set at 100%.*

Other Biochemical Assay Kits

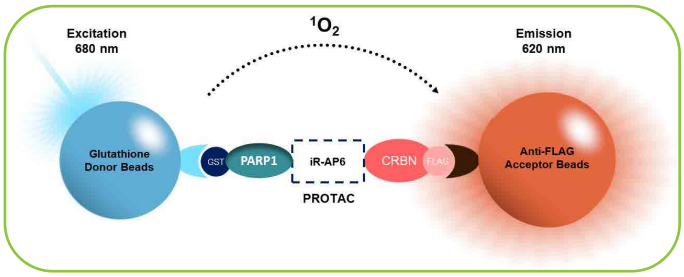
Accelerate your discoveries with optimized, validated screening & profiling assay kits.



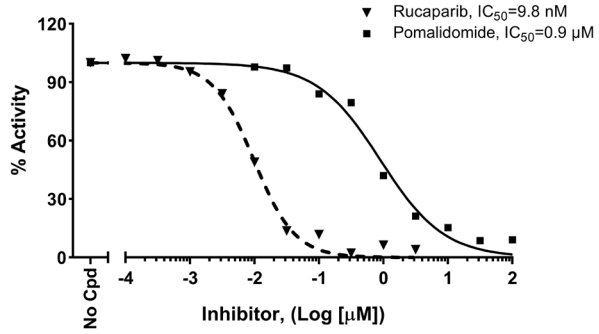
PARG Fluorogenic Assay Kit: High-throughput, homogeneous. Poly (ADP-ribose) glycohydrolase (PARG) is incubated with a fluorogenic ADP-ribose substrate in which the fluorophore is quenched. PARG-mediated hydrolysis of the ribose substrate releases fluorescence.



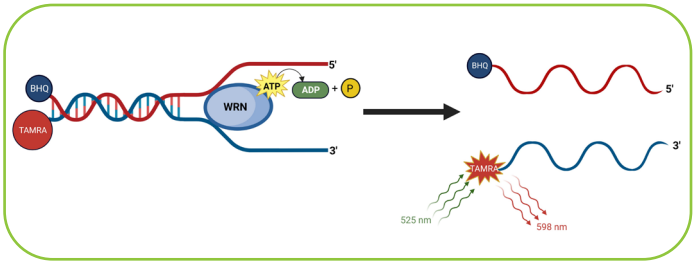
PARG activity was measured in the presence of increasing concentrations of PDD00017273.



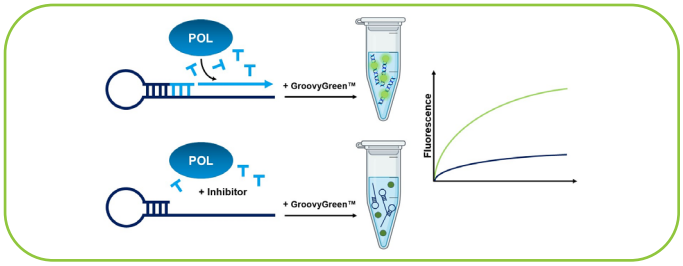
PROTAC™ Optimization Assay Kits: Robust, homogeneous AlphaLISA® assay. A degrader of interest interacts with the target and the E3 ligase, bringing them in proximity. Target binds to a donor bead, while E3 binds to the acceptor bead, leading to emission of fluorescence.



Inhibition of Rucaparib-AP6-mediated interaction of cereblon with PARP1 by PARP inhibitor rucaparib or cereblon inhibitor pomalidomide.



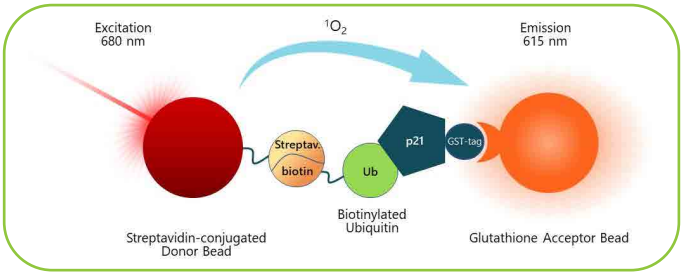
WRN Helicase Assay Kit: Fluorogenic, homogeneous assay in which the DNA probe is conjugated on one strand with the TAMRA (tetramethylrhodamine) fluorophore, and on the other strand with a Black Hole Quencher. WRN unwinds the two strands, releasing TAMRA from the quencher. WRN activity, therefore, results in a proportional increase in fluorescence.



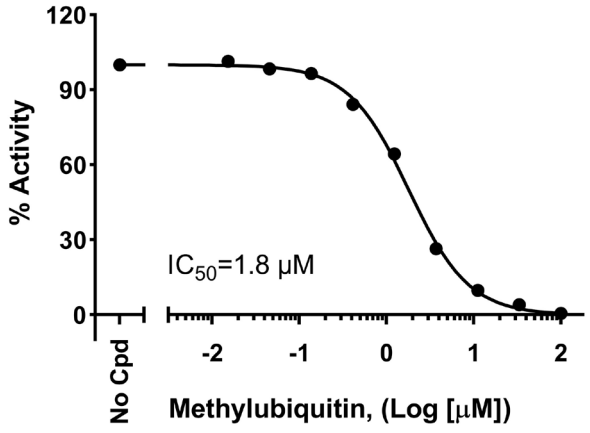
DNA Polymerase (POL) Assay Kits: Fluorogenic, homogeneous assays used for the screening of small molecule libraries or for measuring the potency of POL inhibitors. These assays quantify the enzymatic activity of DNA polymerase β (POLB), polymerase γ (POLG1), or polymerase θ (POLQ).

Ubiquitination and Deubiquitination Assays

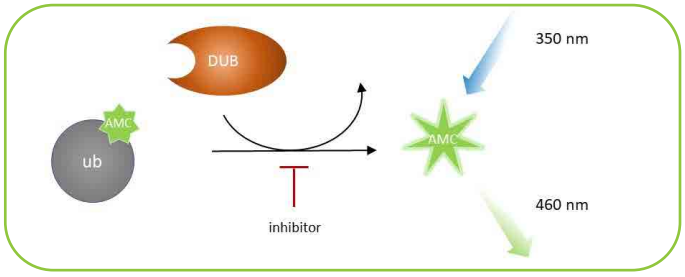
The efficient functioning of DDR pathways safeguards cells against genomic instability. Conversely, impaired DDR can result in unrepaired DNA lesions, leading to genomic mutations that may cause diseases such as cancer. Proper regulation of DDR processes is crucial to maintain genomic stability and overall health. Ubiquitination and deubiquitination play a major role in DDR by controlling the activity, localization, and stability of DDR proteins. Therefore, ubiquitin-mediated regulation of DDR has emerged as a significant area of focus in DDR research. Notably, deubiquitinases present attractive targets for small-molecule drugs due to their well-defined catalytic residues.



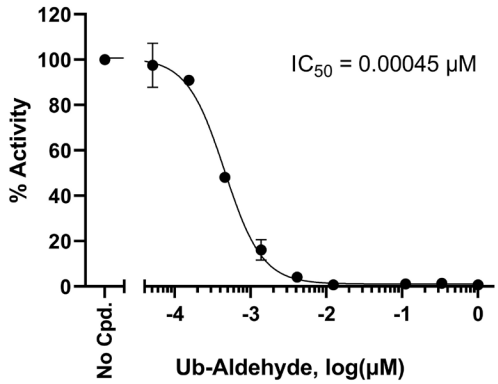
AlphaLISA® Homogeneous Assay: E3-driven p21 ubiquitination assay kit. E1 and E2 enzymes are incubated with the E3 complex and with the target protein p21 (GST-tag) in the presence of biotin-conjugated ubiquitin and ATP. Ubiquitination of p21 occurs in a multistep ubiquitin transfer from E1 to E2 to E3, and E3-mediated conjugation of ubiquitin to p21. Glutathione-acceptor beads are then added, followed by streptavidin-conjugated donor beads, and Alpha-counts are measured. The increase in signal is proportional to the mono- or poly-ubiquitination of p21.



Dcaf11-mediated ubiquitination of p21 was measured in the presence of increasing concentrations of inhibitor methylubiquitin.



Deubiquitinase Fluorogenic Homogeneous Assays: Ubiquitin-AMC (7-amido-4-methyl coumarin) is a fluorogenic substrate for deubiquitinases (DUB). In the conjugated form, the energy emitted from fluorochrome AMC is quenched. Upon proteolysis of ubiquitin, AMC is no longer quenched and emits fluorescence. The increase in fluorescence is proportional to the DUB activity.



USP7 activity was measured in the presence of increasing concentrations of Ub-Aldehyde.

BPS Bioscience provides a complete portfolio of ubiquitination / deubiquitination enzymes relevant to DDR, including several USP proteins, A20, E3-ligase complexes, cereblon and CHL intrachain assay kits, TRAF6 and MDM2 products, and more.

Protein Products

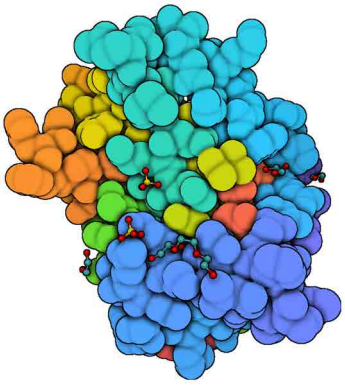
BPS Bioscience specializes in manufacturing bioactive enzymes and protein complexes, offering over 2000 proteins critical for drug discovery programs. Our DNA replication and DDR protein portfolio comprises DNA methylases, de-ubiquitinases, active kinases involved in repair and in cell cyle progression, and one of the most comprehensive panel of PARP proteins on the market.

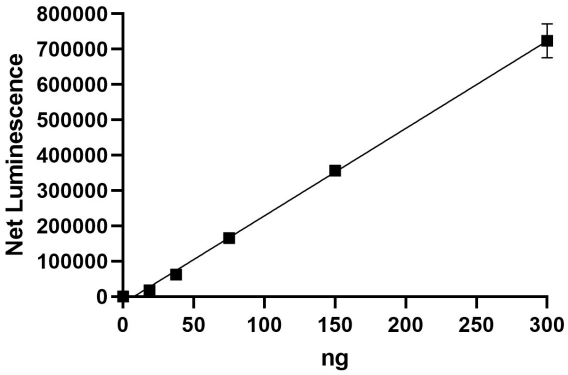
HiP™ Proteins (High Purity, Low Aggregation)

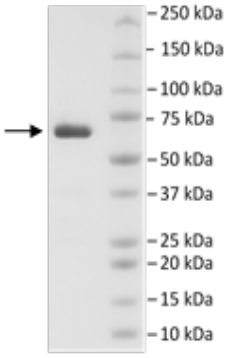
- >90% purity
- <10% aggregation guaranteed by HPLC

Bulk Production and Customization

Proteins customized to your specifications: full-length or partial, tag of choice, mutation, activity testing. Size, bulk order, and custom formulation are available.







Left: Structure of human PARP14 in complex with a compound- PDB 6WE3 (created with bioRender.com). Middle: PARP14 enzymatic activity as a function of enzyme amount. Right: PARP14 purity vizualized by Coomassie staining following SDS-PAGE electrophoresis.

Our purified, tagged recombinant enzymes are suitable for assay development and for inhibitor screening & profiling across enzyme families (IC_{50} determination). Purity level assessment and quality control of enzymatic activity are performed for each lot.

Inhibitors and DNA Damage Inducers

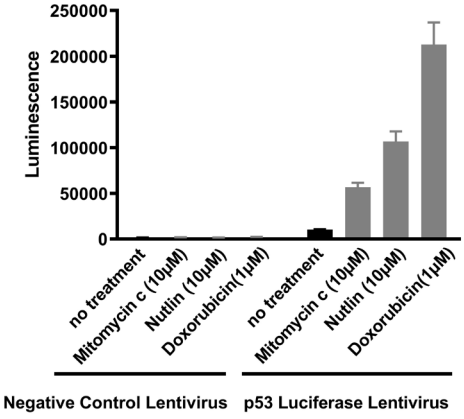
We provide inhibitors for PARP, cell cycle kinases, and other DDR enzymes for use as internal controls Activators are also available. A sampling set of 8 PARP inhibitors (#78318) includes broad-specificity olaparib, niraparib, rucaparib, talazoparib, velaparib, and more selective inhibitors AZD5305 (PARP1), XAV939 (PARP5A/B), and RBN-2397 (PARP7). These inhibitors have been used to optimize and validate assay kits and can be used as controls.

DNA damage agents cisplatin, mitomycin C, and streptozotocin are used to study DDR pathways and synthetic lethality.

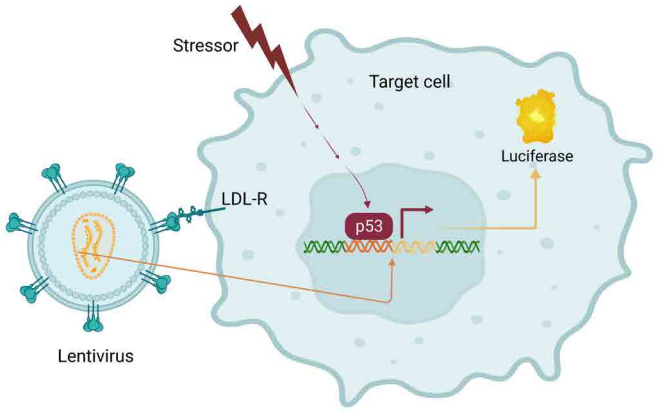
Lentiviruses

Conditional reporter cell systems are versatile and provide elegant models for measuring signaling activity in a straightforward and quantitative manner. To accelerate the development of your ideal reporter cells, BPS Bioscience offers reporter lentiviruses ready to transduce the desired cell lines. Replication-incompetent, VSV-G pseudotyped lentiviruses are safe and, in most countries, require only a Biosafety Level 2 facility.

For example, off-the-shelf p53 Luciferase Reporter Lentiviruses transduce a firefly luciferase gene driven by p53 response elements located upstream of a minimal TATA promoter. An antibiotic selection gene (puromycin) allows for the selection of stable clones. After transduction, p53-regulated reporter expression in the target cells can be monitored by measuring luciferase activity.



p53-dependent luciferase activity in transduced HCT116 cells.



Created with BioRender.com

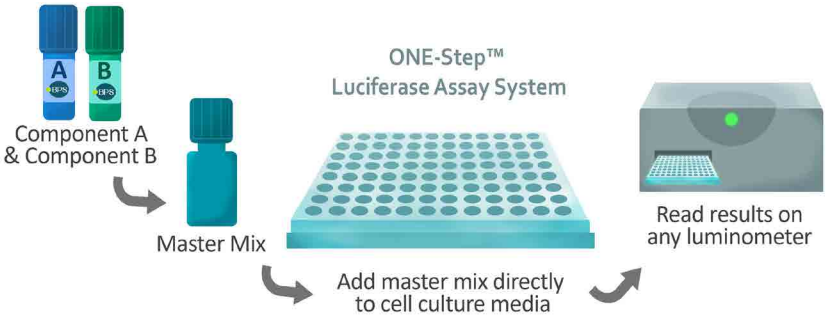
Advantages

- High efficiency of tranduction
- Low cellular toxicity
- Stable expression of transgene
- Infect various mammalian cell types
- Transduce dividing and non-dividing cells
- Insert DNA of up to 10 kb

ONE-Step™ Luciferase Assay System

For simple, sensitive quantitation of luciferase activity in mammalian cells, try the ONE-Step™ Luciferase Assay System (#60690), optimized for cell lysis and measurement of firefly luciferase activity in one simple step.

Highly sensitive yet stable signal (for over an hour) permits flexible incubation times. The reagent is compatible with most common cell cuclture media containing up to 10% serum and phenol red.



Custom Services

In addition to custom protein and custom assay development services, all our biochemical and cell-based assays are avaible as screening & profiling services. BPS Bioscience services are a fast and reliable way to screen or characterize small molecule inhibitors for PARP, PARG, WRN, POL, kinases, CDK complexes, and other enzymes. Our team of experts along with our broad assay portfolio makes it easy to:

- Screen or titrate compounds
- Select from IC_{50} determination or single point concentrations
- Perform follow up studies using the same proteins manufactured in house
- Have questions answered and receive project guidance in a time-efficient manner
- Receive end-to-end customization from protein production to assay development to compound screening

Our Deliverables to You

Detailed Results

Extensive report with raw and analyzed data, graphs, and detailed protocols. Typically includes positive controls for inhibition.

Platform Options

Choose the format that works best for your experiment or perform orthogonal testing on multiple platforms to validate your results.

Quality & Consistency

Proteins and enzymes synthesized and QC'd in-house to ensure the highest level of inter- and intra-assay consistency.

Fast Turnaround

Receive results within weeks after our receipt of your compounds.

Extensive Selection

Choose from over 45 in-house developed assays, including unique assays and enzyme family panels.

Our panel of PARP family proteins allows IC_{50} determinations across family members, providing useful information about the selectivity of the inhibitor being developed. For example, Wang *et al.* titrated pamiparib against individual PARP members using BPS Bioscience's assay kits and services (Wang H. *et al.*, J. Med. Chem, 2020, 63: 15541-15563). Pamiparib is an oral PARP1/2 inhibitor with demonstrated trapping ability and strong anti-tumor activity. As shown in this table, it is highly selective of PARP1/2.

	PARP1	PARP2	PARP3	PARP5A	PARP5B	PARP6	PARP7	PARP8	PARP10	PARP11	PARP12
Pamiparib IC_{50} (nM)	1.3	0.92	68	230	140	>100,000	11,000	8,400	11,000	2,700	2,400

Antibodies	Catalog#
Anti–MeCP2 polyclonal antibody	25304

Assay Kit Components	Catalog#
Activated DNA	80605
ADP-Ribosylation Cycle Inhibitor Mix	82130

Biochemical Assay Kits	Catalog#
2-Step DNase I Assay Kit	82213
ALKBH5 Chemiluminescent Assay Kit	79659
ARH3 Fluorogenic Assay Kit	82158
CDK1 Assay Kit	79597
CDK12/Cyclin K Kinase Assay Kit	78298
CDK2 Assay Kit	79599
CDK4 Assay Kit	79674
CDK5 Assay Kit	79600
CDK6/CyclinD3 Kinase Assay Kit	78395
CDK7 Assay Kit	79603
CDK9/CyclinT Kinase Assay Kit	79628
Cereblon Intrachain TR-FRET Assay Kit	78301
Chemi-Verse™ AMPK (A1/B1/G1) Kinase Assay Kit	82101
Chemi-Verse™ Aurora Kinase A Assay Kit	82095
Chemi-Verse™ Aurora Kinase B Assay Kit	82094
Chemi-Verse™ CDK14/Cyclin Y Kinase Assay Kit	78889
Chemi-Verse™ CDK16/Cyclin Y Kinase Assay Kit	78887
Chemi-Verse™ CDK17/Cyclin Y Kinase Assay Kit	78885
Chemi-Verse™ CDK18/Cyclin Y Kinase Assay Kit	78888
Chemi-Verse™ CDK3/CyclinE1 Kinase Assay Kit	78884
Chemi-Verse™ CDK8/Cyclin C Kinase Assay Kit	78886
Chemi-Verse™ Kinase Aurora C Assay Kit	82096
Chemi-Verse™ PARP7 Assay Kit	78814
CHK1 Kinase Assay Kit	78418
CHK2 Kinase Assay Kit	78421
ChoosE2-Opti™ Intrachain TR-FRET Assay Kit	78561
ChoosE3-Freedom™ Intrachain TR-FRET Assay Kit	78560
DCAF11 Intrachain TR-FRET Assay Kit	78542
DNA Polymerase β Assay Kit	82099
DNA Polymerase γ Assay Kit	82098
DNA Polymerase θ Assay Kit	82107

Biochemical Assay Kits	Catalog#
DUB-Freedom™ Inhibitor Screening Assay Kit	78895
FTO Chemiluminescent Assay Kit	79344
HSP70 Assay Kit	78414
HSP90ß (C-Terminal Domain) TR-FRET Kit	50262
HSP90ß (N-terminal) Assay Kit	50299
HSP90ß N-Terminal Domain Assay Kit	50294
HSP90α (C-Terminal Domain) TR-FRET Kit	50261
HSP90α (C-Terminal) Inhibitor Screening Assay Kit	50317
HSP90α (N-terminal) Assay Kit	50298
HSP90α C-Terminal Domain TR-FRET Assay Kit	50289
HSP90α N-Terminal Domain Assay Kit	50293
HSP90β (C-terminal) Inhibitor Screening Kit	50314
L3MBTL1 Inhibitor Screening Assay Kit	55100
L3MBTL1 TR-FRET Assay Kit	55200
LysA™ Universal PARylation Assay Kit	82123
MCL-1 TR-FRET Assay Kit	79506
MCL-1 TR-FRET Assay Kit (Mouse)	79928
MCL-1 TR-FRET Assay Kit (Rat)	78804
MDM2 Intrachain TR-FRET Assay Kit	78302
MDM2 TR-FRET Assay Kit	79773
MDM2-Driven p53 Ubiquitination Assay Kit	82179
NEK6 Kinase Assay Kit	79992
NEK7 Kinase Assay Kit	78850
PARG Fluorogenic Assay Kit	78858
PARP1 Chemiluminescent Assay Kit	80551
PARP1 Chemiluminescent Assay Kit (384-well)	80569
PARP1 Colorimetric Assay Kit	80580
PARP1 Homogenous Assay Kit	78438
PARP10 Chemiluminescent Assay Kit	80560
PARP11 Chemiluminescent Assay Kit	80561
PARP11 Homogenous Assay Kit	78492
PARP12 Chemiluminescent Assay Kit	78504
PARP14 Chemiluminescent Assay Kit	80568
PARP15 Chemiluminescent Assay Kit	80567
PARP15-FL Chemiluminescent Assay Kit	78596
PARP2 Chemiluminescent Assay Kit	80552
PARP2 Colorimetric Assay Kit	80581
PARP2 Homogenous Assay Kit	78572

Biochemical Assay Kits	Catalog#
PARP3 Chemiluminescent Assay Kit	80553
PARP3 Homogenous Assay Kit	78491
PARP6 Chemiluminescent Assay Kit	80556
PARP7 Chemiluminescent Assay Kit	79729
PARPtrap™ Assay Kit for PARP1	80584
PARPtrap™ Assay Kit for PARP2	78296
PARPtrap™ Combo Assay Kit for PARP1 and PARP2	78317
PRDM9 Chemiluminescent Assay Kit	79625
PRMT5 Chemiluminescent Assay Kit	52002L
PRMT5 Chemiluminescent Assay Kit	52073
PRMT5 Homogeneous Assay Kit	52052
PRMT5 TR-FRET Assay Kit	52171
PROTAC® Optimization Kit for CDK Kinase-Cereblon Binding	79924
PROTAC® Optimization Kit for PARP1-Cereblon Binding	78441
TNKS1 (PARP5A) Chemiluminescent Assay Kit	78405
TNKS1 (PARP5A) Colorimetric Assay Kit	78576
TNKS1 Homogenous Assay Kit	78489
TNKS2 (PARP5B) Chemiluminescent Assay Kit	78406
TNKS2 (PARP5B) Colorimetric Assay Kit	78577
TNKS2 Homogenous Assay Kit	78490
TRAF6 Intrachain TR-FRET Assay Kit	78598
TRAF6 TR-FRET Assay Kit	78851
UBCH13 TR-FRET Assay Kit	79741
USP1 Inhibitor Screening Assay Kit	78831
USP7 Inhibitor Screening Assay Kit	79256
VHL Intrachain TR-FRET Assay Kit	78305
Wee1 Kinase Assay Kit	79909
WRN Helicase Activity Assay Kit	78852

Buffers	Catalog#
10x PARP Assay Buffer	80602
3x HSP90 Assay Buffer 2	50324
5x HSP90 Assay Buffer 1	50311

Inhibitors/Activators	Catalog#
1,5-Isoquinolinediol	27310
3-aminobenzamide	79888
A-769662	27057

Inhibitors/Activators	Catalog#
A-966492	27601-1
A-966492	27601-2
A-966492	27601-3
ABT-888 (Veliparib)	27101
AG-14361	27602-1
AG-14361	27602-2
AG-14361	27602-3
AZD2281 (Olaparib)	27003
AZD2461	27606-1
AZD2461	27606-2
BMN 673	27609-1
BMN 673	27609-2
BMN-673 8R,9S	27610-1
BMN-673 8R,9S	27610-2
Cisplatin	27744
DPQ	27311
EPZ015666	79043-1
EPZ015666	79043-2
Ganetespib (STA-9090)	27750-1
Ganetespib (STA-9090)	27750-2
IPI-504 (Retaspimycin hydrochloride)	27753-1
IPI-504 (Retaspimycin hydrochloride)	27753-2
JW 55	27633-1
JW 55	27633-2
ME0328	27634-1
ME0328	27634-2
Mitomycin C	27763
MK-1775	82196
Novobiocin	27501
NU 7026	27312
NVP-BEP800	27766-1
NVP-BEP800	27766-2
NVP-BEP800	27766-3
P005091	27767-1
P005091	27767-2
PJ34	27041
Rucaparib (AG-014699,PF-01367338)	27647-1
Rucaparib (AG-014699,PF-01367338)	27647-2

Inhibitors/Activators	Catalog#
Rucaparib (AG-014699,PF-01367338)	27647-3
Set of PARP Inhibitors (8 x 50 µl)	78318
Streptozocin (U-9889)	27656-1
Streptozocin (U-9889)	27656-2
Tankyrase Inhibitors (TNKS) 22	27658
Tankyrase Inhibitors (TNKS) 49	27659
UNC1215	27406
UNC1215	27405
UPF 1069	27665-1
UPF 1069	27665-2
VER 155008	27777-1
VER 155008	27777-2
XAV939	27100
XL-888	27781-1
XL-888	27781-2
XL-888	27781-3

Lentiviruses	Catalog#
ATF6 Luciferase Reporter Lentivirus (ATF6 Pathway)	78667
EGR1 Promoter Luciferase Reporter Lentivirus	78664
p53 Luciferase Reporter Lentivirus	78666

Proteins	Catalog#
A20, FLAG-tag (Sf9-derived)	80394
A20, His tag, FLAG-tag (Sf9-derived)	80408
A20, His-tag (E. coli-derived)	80393
ADPRS, His-Tag	101852
ALKBH5, FLAG-Tag	100057
AMPK (A1/B1/G1), His-tags	40025
AMPK (A1/B1/G2), His-tag	40701
AMPK (A1/B1/G2), His-tags	40021
AMPK (A1/B1/G3), His-tag	40702
AMPK (A1/B1/G3), His-tags	40022
AMPK (A1/B2/G1), His-tag	40703
AMPK (A1/B2/G1), His-tags	40023
AMPK (A2/ B1/G1), His-tag	40704
AMPK (A2/B1/G1), His-tags	40024
AMPK (A2/B2/G1), His-tag	40705

Proteins	Catalog#
AMPK (A2/B2/G1), His-tags	40026
AMPK (A2/B2/G2), His-tag	40706
AMPK (A2/B2/G2), His-tags	40027
ATF2, GST-Tag	40520
ATM, GST-tag	101486
ATR, GST-Tag	101485
Aurora A Protein Kinase, His-Tag (HEK293-derived)	100112
Aurora A Protein Kinase, His-Tag (Sf9-derived)	40004
AURORA C, GST-tag	40178
Aurora Kinase B, GST-Tag, His-Tag	40002
Bap1, His-tag	81083
CDK1/CyclinA2, GST-Tag	40100
CDK1/CyclinB1, GST-Tag	40454
CDK11A/CyclinD3, GST-tags	100595
CDK12 (696-1082)/CyclinK, GST-Tags,	100998
CDK12/Cyclin K, GST-Tags	101235
CDK13/Cyclin K, GST-Tags	101128
CDK14/Cyclin Y, GST-Tag	100602
CDK16/Cyclin Y, GST-tags	100604
CDK17/Cyclin Y, GST-tags	100606
CDK18/Cyclin Y, GST-tags	100608
CDK19/Cyclin C, GST-tags	100593
CDK2 (no tag)/CyclinA2, His-GST-tags	41101
CDK2/CyclinA2, GST-tag	40101
CDK2/CyclinE1, GST-tag	40102
CDK20, GST-Tag (Mouse)	100609
CDK3/CyclinE1, GST-tag	40103
CDK4(EE,T172A)/Cyclin D1, His-tag	40094
CDK4, FLAG-Tag	100052
CDK4/CyclinD3, GST-His-Tag	40104
CDK5/p25, GST-tag	40105
CDK5/p35, GST-tag	40095
CDK6, His-Tag	100031
CDK6/CyclinD1, His-tag, GST-tag	40097
CDK6/CyclinD3, His-tags	40206
CDK7/CyclinH1/MNAT1, His-tags	40098
CDK8/Cyclin C, GST-tags	100433
CDK9/CyclinK, GST-tag	40106

Proteins	Catalog#
CDK9/CyclinT1, GST-Tag	40307
Cereblon/DDB1/Cul4A/Rbx1 Complex	100329
CHK1, GST-tag	40039
CHK2, His-tag	40040
CUL3/Rbx1, GST-tag	80409
DNA Polymerase β (POLB), His-tag	21000
DNA Polymerase γ (POLG), His-FLAG-Tag	21001
DNA Polymerase θ (POLQ), His-Tag, SUMO-Tag	101945
FTO, His-Tag (Sf9 derived)	79480
FTO, His-Tag	79306
Histone Mixture (5X), His-tag	52029
HMGB1, Avi-His-Tag	79082
HMGB1, Avi-His-Tag, Biotin-labeled	79007
Hop/STIP1, FLAG-tag	50322
HSP40, His-tag	50285
HSP70, His-Tag	50287
HSP90α (C-terminal), Biotin-Labeled, His-Tag, Avi-Tag	50316
HSP90α, His-Avi-Tag, Biotin-labeled (Mouse)	100751
HSP90α, His-tag	50290
HSP90β (C-terminal), Biotin-Labeled, His-Tag, Avi-Tag	50313
HSP90β, His-tag	50292
L3MBTL1, GST-tag	55000
L3MBTL1, His-tag	55002
MCL-1 His-Tag (Mouse)	100637
MCL1, His-Tag (Dog)	101305
MCL1, His-Tag (Guinea Pig)	101311
MCL1, His-Tag (Rabbit)	101310
MCL1, His-Tag (Rat)	101299
MCL1, His-Tag	40742
MDM2, GST-tag	100409
MECP2, GST-tag	50250
Metnase (SETMAR), FLAG-tag	51018
MGMT, His-Tag	101602
Mouse AURORA A, GST-tag	40177
mTOR/Raptor/MLST8 Complex, FLAG-Tag, His-Tag (Human)	40300
NEK11, GST-tag	40139
NEK2	40009
NEK3, GST-tag	40140

Proteins	Catalog#
NEK6, His-tag	40014
NEK7, GST-tag	40141
NEK7, His-Tag	100476
NEK9, GST-tag	40142
NPM1, His-Tag	102057
Otub1, His-tag	81088
Otub2, His-tag	81089
OTUD6B, His-FLAG-tags	80407
p21, GST-Tag	101584
p53 (Y220C), GST-Tag	101610
p53, FLAG-Tag	100412
p53, GST-Tag	40511
PARG, His-Tag	101726
PARP1, FLAG-Avi-tag	80521
PARP1, GST-tag	80501
PARP1, GST-Tag, PAR-Labeled	101774
PARP10, FLAG-Strep-Tag	80522
PARP11, GST-Tag, His-Tag	80511
PARP12, His-GST-Tag	80513
PARP14, His-GST-Tag	80514
PARP15, GST-tag	80517
PARP2, GST-tag	80502
PARP3, GST-tag	80503
PARP4, FLAG-Tag	101690
PARP4, His-GST-Tag	11394
PARP6, GST-Tag	80506
PARP7, FLAG-Tag	80527
PARP9, GST-tag, His-tag	80509
PLK1 Polo Box Domain, GST-Tag	50301
PLK1, His-tag	40033
PLK2, GST-tag	40034
PLK3 Polo Box Domain, MBP-tag, His-tag	50302
PLK3, His-Tag	40035
PLK4, GST-tag	40236
PRDM9, GST-Tag	100078
PRMT5, FLAG-Avi-Tag, Biotin-Labeled	79191
PRMT5/MEP50, Biotin-Labeled	52102
PRMT5/MEP50, FLAG-Tag, His-Tag (HEK293-derived)	51045

Proteins	Catalog#
PRMT5/MEP50, FLAG-Tag, His-Tag (Sf9-derived)	51048
Rbx1/Cul4B/Dcaf11/Ddb1 Complex	101495
Rbx1/CUL4B/DDB1/DCAF15/DDA1 Complex	101497
Sestrin 1, FLAG-tag	50284
Sestrin 2, FLAG-Tag	50286
SMARCA2, His-Tag	101801
STING, GST-Tag, His-Tag	100043
Tankyrase 1 (PARP5A), GST-Tag	80504
Tankyrase 2 (PARP5B) [849-1166], GST-tag	80515
Tankyrase 2 (PARP5B), GST-Tag	80505
TRAF6 (D57K), GST-Tag	101598
TRAF6, GST-Tag	101597
UbcH13 (UBE2N), His-tag	80323
UCH-L5, SUMO-His-tags	81099
UHRF1 (108-286), GST-tag	55003
UHRF1 (108-286), His-tag	55004
UHRF1, His-FLAG-Tags	55001
USP10, FLAG-tag	80360
USP7, His-FLAG-Tags	80395
USP9X, His-tag, FLAG-tag	100188
VHL/CUL2/ELOB/ELOC/RBX1 Complex	100373
Wee1, FLAG-Tag	100154
Wee1, GST-Th-Tag	40412
WRN, GST-Tag	101264
Yod1, His-tag	81104

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orders@bpsbioscience.com

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BPS Bioscience, Inc.
6405 Mira Mesa Blvd, Suite 100
San Diego, CA 92121
Tel: 858-202-1401

bpsbioscience.com