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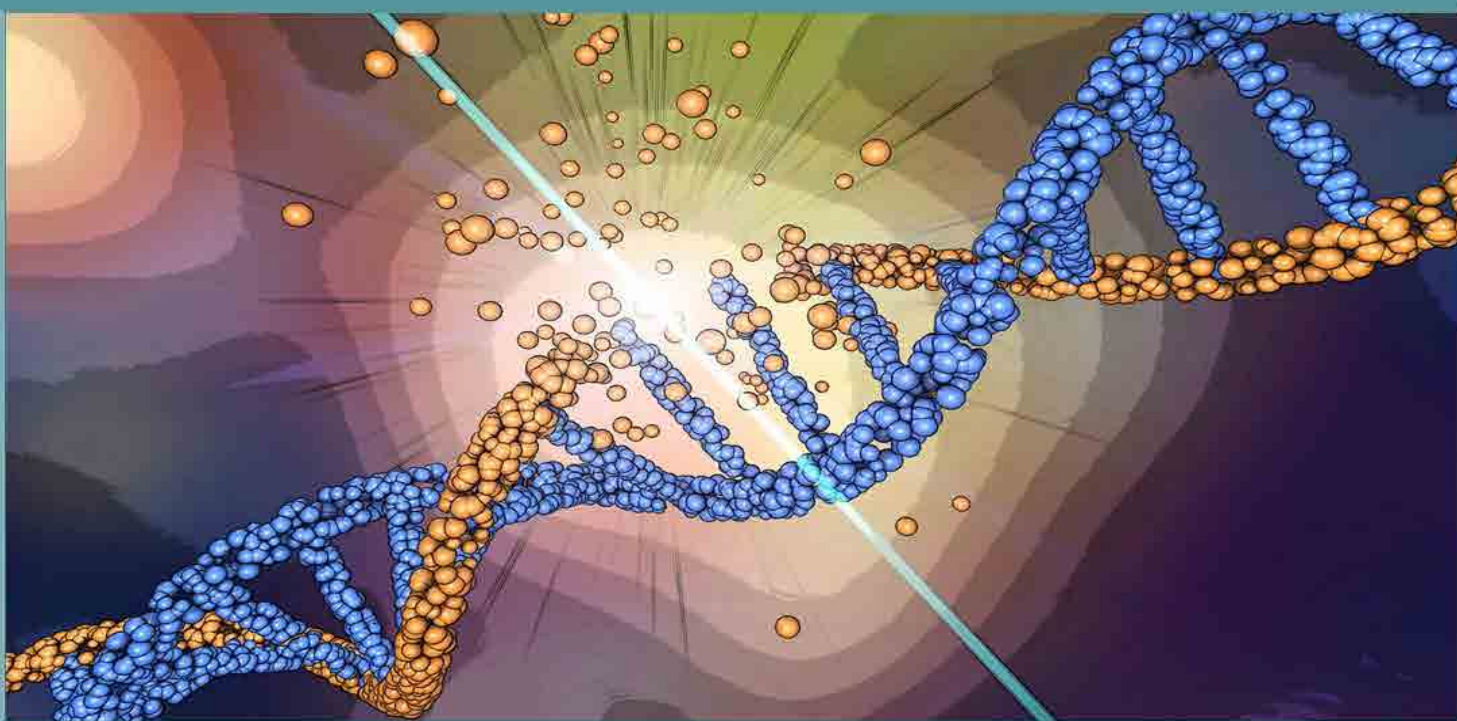
**CliniSciences Group**

# DNA DAMAGE RESPONSE

TOOLS & SERVICES FOR DRUG DISCOVERY

PARPtrap™ | Enzymatic Assay Kits | Cell-based PARylation Assay

Active Proteins | Reporter Lentiviruses | Screening & Profiling Services



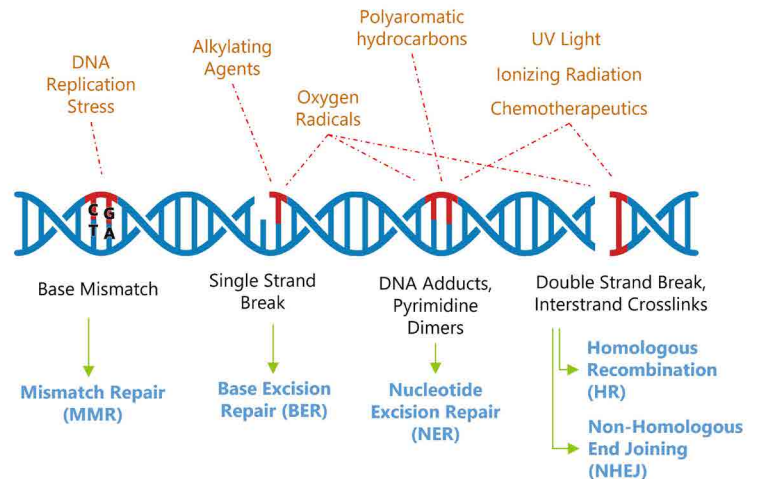
# DNA Replication and DNA Damage Repair

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<sub>50</sub> determination or single point concentrations
- Ready-to-use Lentiviruses: integrating and non-integrating options



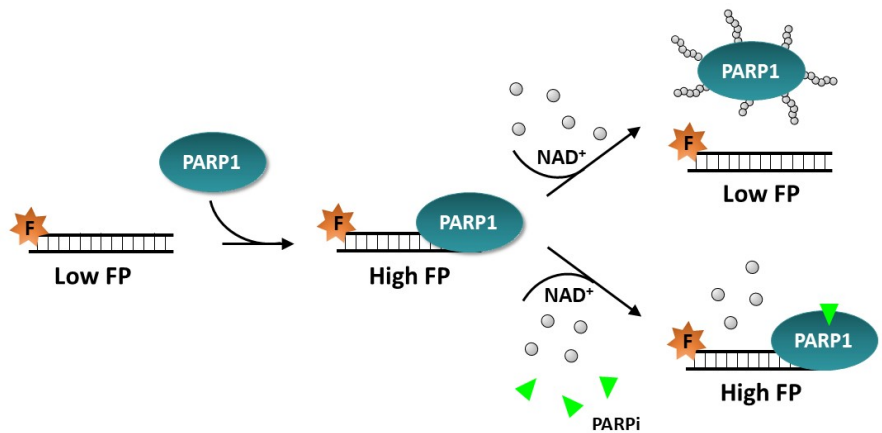
### Expansive Portfolio

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

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# PARPtrap™ Assay Kits

PARP1 and PARP2 bind to damaged DNA and auto-ribosylate in the presence of NAD<sup>+</sup>. 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.

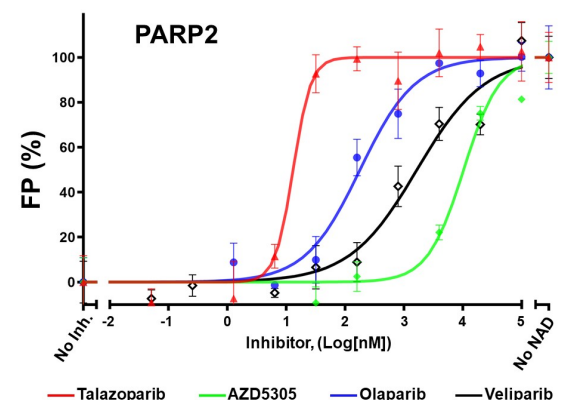
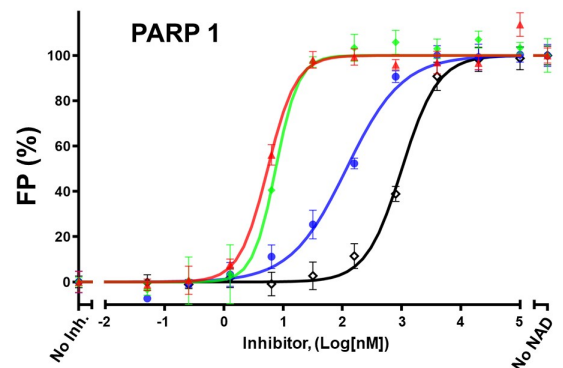


Our unique biochemical PARPtrap™ assays use principles of fluorescence polarization (FP). Before ribosylation, PARP binds to the fluorescent DNA probe, forming a large complex and resulting in the emission of polarized fluorescence. Ribosylation is initiated by the addition of NAD<sup>+</sup> and PARP 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.

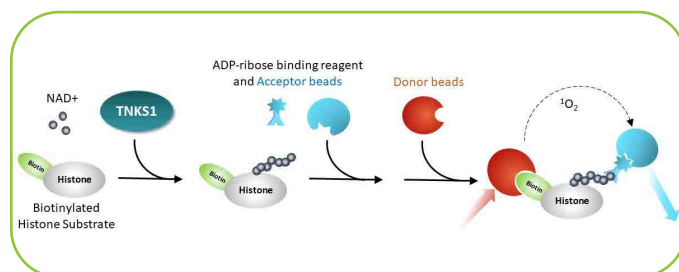
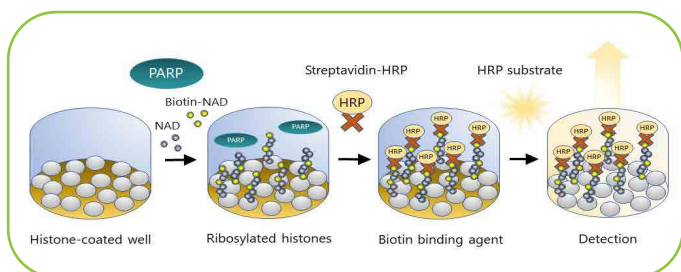


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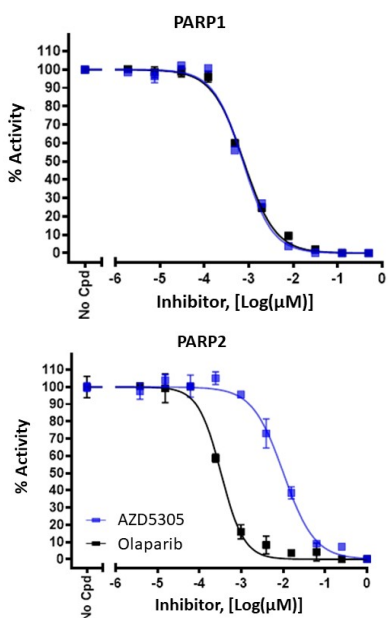
# PARP Enzymatic Assays

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<sup>®</sup> are fast, simple, homogeneous (no wash) assays.



**ELISA:** Histones are coated on a plate and biotin-labeled NAD<sup>+</sup> 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.

**AlphaLISA<sup>®</sup> Homogeneous Assay:** PARP is incubated with a biotinylated histone substrate and NAD<sup>+</sup> 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.

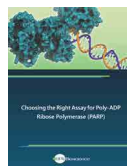


PARP1 and PARP2 chemiluminescence assays showed a distinctive inhibition profile for olaparib and AZD5305. Whereas both inhibitors had a similar IC<sub>50</sub> for PARP1, they differ by a factor of 300 when used with PARP2 (olaparib IC<sub>50</sub> = 0.3 nM; AZD5305 IC<sub>50</sub> = 100 nM), demonstrating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

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Chemiluminescent	Colorimetric	AlphaLISA <sup>®</sup>
PARP1	PARP1	PARP1
PARP2	PARP2	PARP2
PARP3	PARP5A	PARP3
PARP5A (TNKS1)	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.

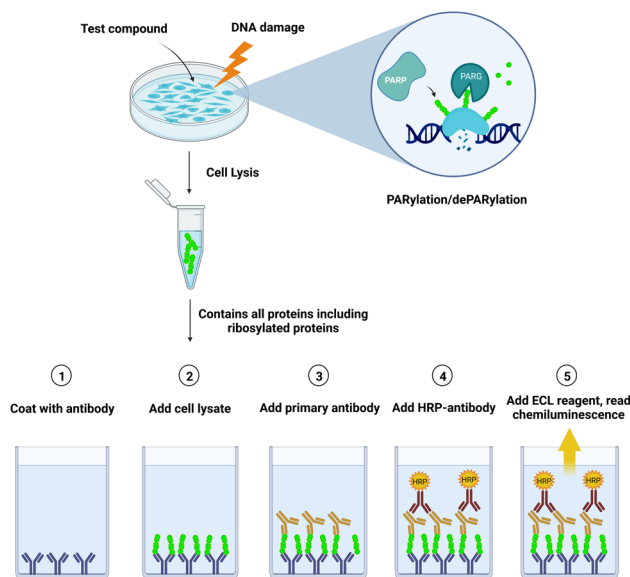
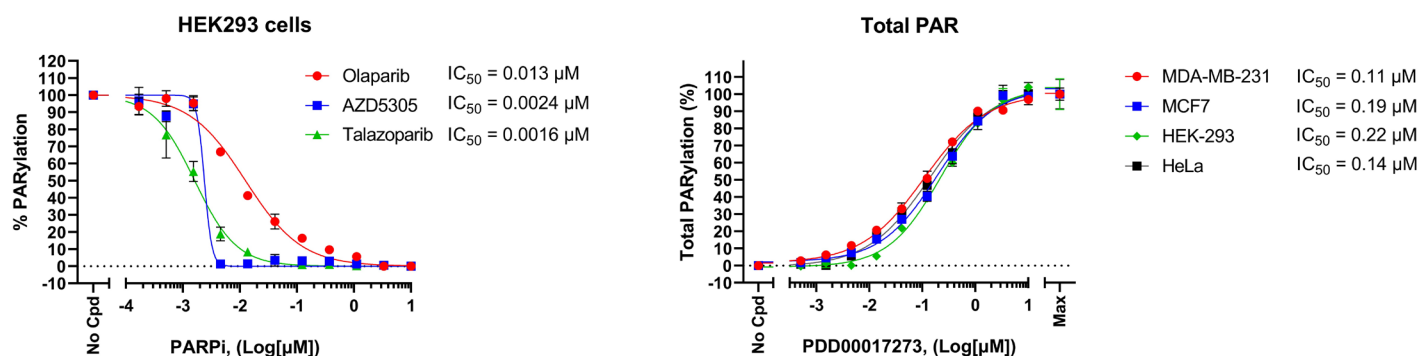


Illustration created with BioRender.com

## Advantages

- Measures PARylation from lysates of cells treated with PARP or PARG inhibitors of interest
- Sensitivity  $\geq 100$  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%.

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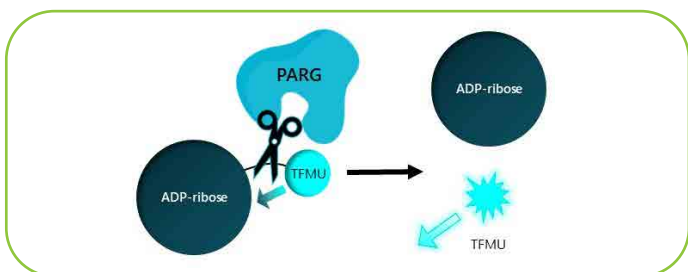
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BPS Bioscience

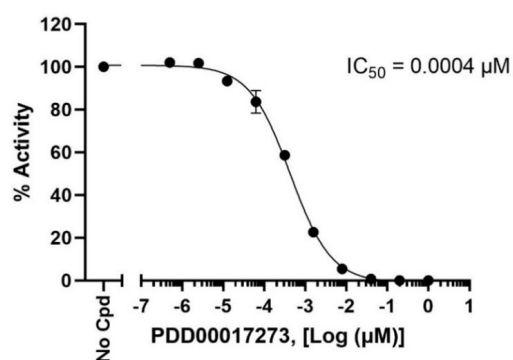


## Other Biochemical Assay Kits

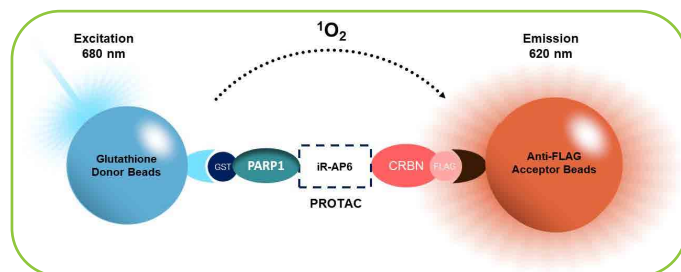
Accelerate your discoveries with optimized, validated screening & profiling assay kits.



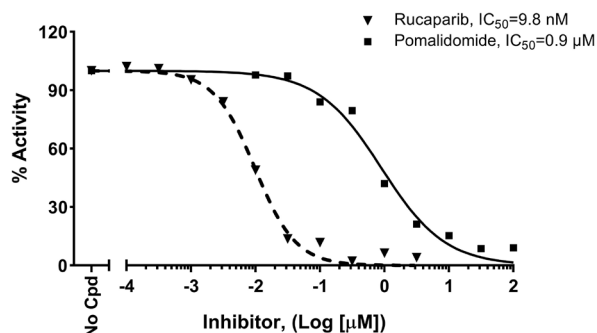
**PARG Fluorogenic Assay Kit:** High-throughput, homogeneous. Poly (ADP-ribose) glycohydrolase (PARG) is incubated with a fluorogenic ADP-ribose substrate in which the fluorophore is quenched. PARG-mediated hydrolysis of the ribose substrate releases fluorescence.



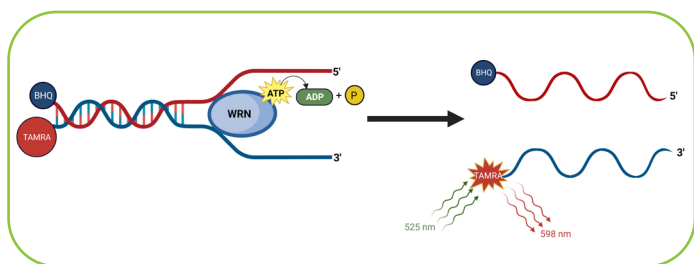
PARG activity was measured in the presence of increasing concentrations of PDD00017273.



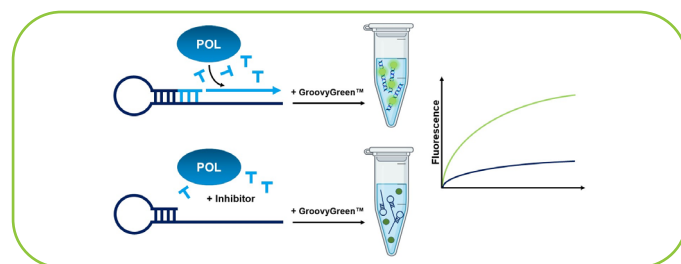
**PROTAC™ Optimization Assay Kits:** Robust, homogeneous AlphaLISA® assay. A degrader of interest interacts with the target and the E3 ligase, bringing them in proximity. Target binds to a donor bead, while E3 binds to the acceptor bead, leading to emission of fluorescence.



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.

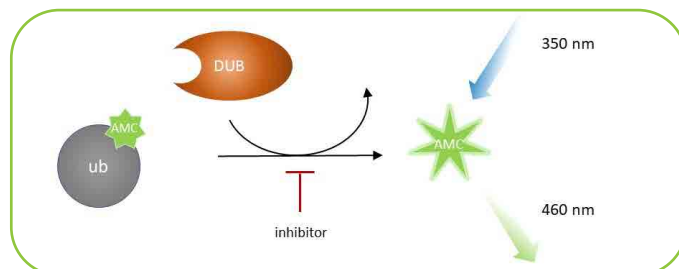
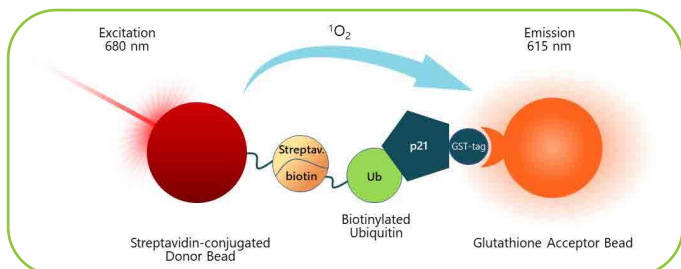


**DNA Polymerase (POL) Assay Kits:** Fluorogenic, homogeneous assays used for the screening of small molecule libraries or for measuring the potency of POL inhibitors. These assays quantify the enzymatic activity of DNA polymerase  $\beta$  (POLB), polymerase  $\gamma$  (POLG1), or polymerase  $\theta$  (POLQ).

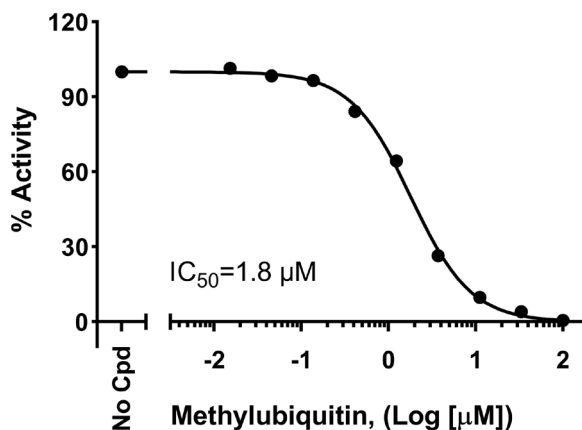
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# Ubiquitination and Deubiquitination Assays

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.

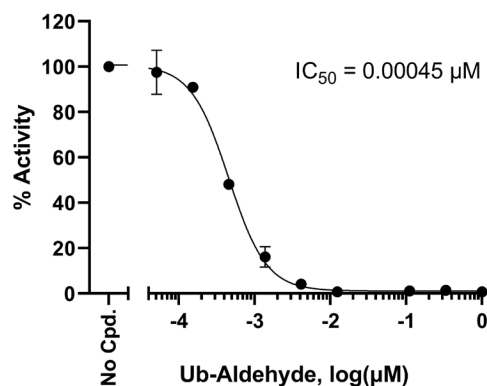


*Dcaf11-mediated ubiquitination of p21 was measured in the presence of increasing concentrations of inhibitor methylubiquitin.*

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**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

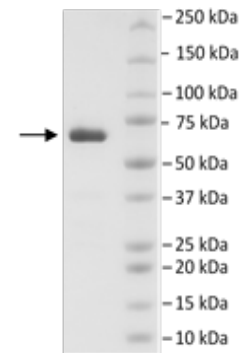
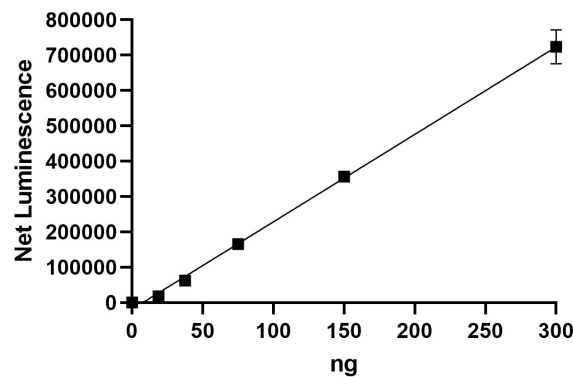
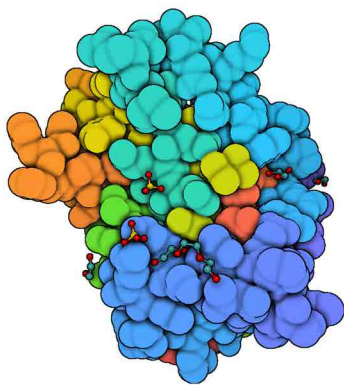
BPS Bioscience specializes in manufacturing bioactive enzymes and protein complexes, offering over 2000 proteins critical for drug discovery programs. Our DNA replication and DDR protein portfolio comprises DNA methylases, de-ubiquitinases, active kinases involved in repair and in cell cycle progression, 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 visualized 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.

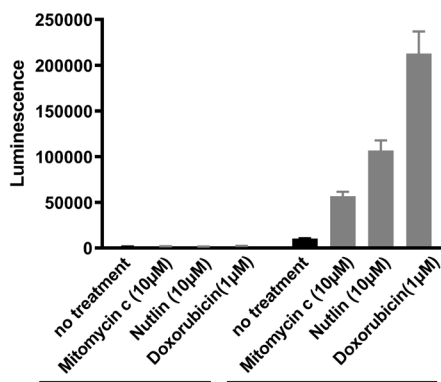
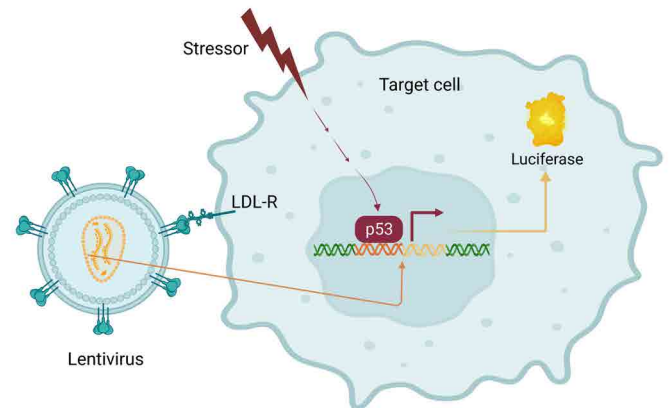
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# Lentiviruses

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.



Negative Control Lentivirus p53 Luciferase Lentivirus

*p53-dependent luciferase activity in transduced HCT116 cells.*

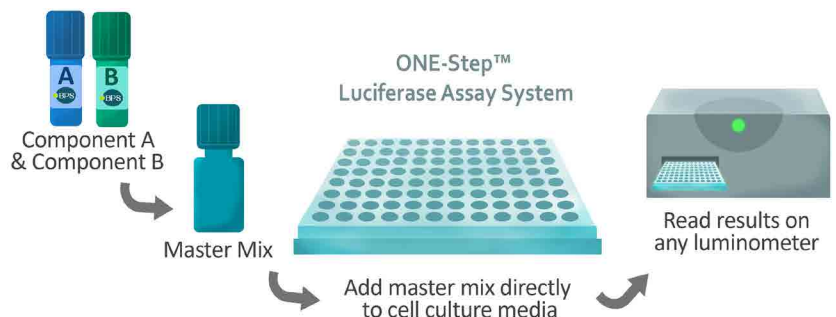
## Advantages

- High efficiency of transduction
- 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 culture media containing up to 10% serum and phenol red. **Distributed by:**



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## Custom Services

In addition to custom protein and custom assay development services, all our biochemical and cell-based assays are available 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<sub>50</sub> 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<sub>50</sub> 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 <sub>50</sub> (nM)	1.3	0.92	68	230	140	>100,000	11,000	8,400	11,000	2,700	2,400

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Antibodies	Catalog#	Biochemical Assay Kits	Catalog#
Anti-MeCP2 polyclonal antibody	25304	DNA Polymerase $\gamma$ Assay Kit	82098
		DNA Polymerase $\theta$ Assay Kit	82107
		DUB-Freedom™ Inhibitor Screening Assay Kit	78895
		FTO Chemiluminescent Assay Kit	79344
		HSP70 Assay Kit	78414
		HSP90 $\beta$ (C-Terminal Domain) TR-FRET Kit	50262
		HSP90 $\beta$ (N-terminal) Assay Kit	50299
		HSP90 $\beta$ N-Terminal Domain Assay Kit	50294
		HSP90 $\alpha$ (C-Terminal Domain) TR-FRET Kit	50261
		HSP90 $\alpha$ (C-Terminal) Inhibitor Screening Assay Kit	50317
		HSP90 $\alpha$ (N-terminal) Assay Kit	50298
		HSP90 $\alpha$ C-Terminal Domain TR-FRET Assay Kit	50289
		HSP90 $\alpha$ N-Terminal Domain Assay Kit	50293
		HSP90 $\beta$ (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
		PARP1 Olaparib Competitive Inhibitor Assay Kit	82293
		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
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		
BLM Helicase Activity Assay Kit	82512		
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™ CDK12/CyclinK Kinase Assay Kit	82295		
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 $\beta$ Assay Kit	82099		

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Biochemical Assay Kits	Catalog#	Inhibitors/Activators	Catalog#
PARP2 Chemiluminescent Assay Kit	80552	1,5-Isoquinolinediol	27310
PARP2 Colorimetric Assay Kit	80581	3-aminobenzamide	79888
PARP2 Homogenous Assay Kit	78572	A-769662	27057
PARP2 Olaparib Competitive Inhibitor Assay Kit	82294	A-966492	27601-1
PARP3 Chemiluminescent Assay Kit	80553	A-966492	27601-2
PARP3 Homogenous Assay Kit	78491	A-966492	27601-3
PARP6 Chemiluminescent Assay Kit	80556	ABT-888 (Veliparib)	27101
PARP7 Chemiluminescent Assay Kit	79729	AG-14361	27602-1
PARPtrap™ Assay Kit for PARP1	80584	AG-14361	27602-2
PARPtrap™ Assay Kit for PARP2	78296	AG-14361	27602-3
PARPtrap™ Combo Assay Kit for PARP1 and PARP2	78317	AZD2281 (Olaparib)	27003
PRDM9 Chemiluminescent Assay Kit	79625	AZD2461	27606-1
PRMT5 Chemiluminescent Assay Kit	52002L	AZD2461	27606-2
PRMT5 Chemiluminescent Assay Kit	52073	BMN 673	27609-1
PRMT5 Homogeneous Assay Kit	52052	BMN 673	27609-2
PRMT5 TR-FRET Assay Kit	52171	BMN-673 8R,9S	27610-1
PROTAC® Optimization Kit for CDK Kinase-Cereblon Binding	79924	BMN-673 8R,9S	27610-2
PROTAC® Optimization Kit for PARP1-Cereblon Binding	78441	Cisplatin	27744
TNKS1 (PARP5A) Chemiluminescent Assay Kit	78405	Complete ADP-Ribosylation Cycle Inhibitor Cocktail	82539
TNKS1 (PARP5A) Colorimetric Assay Kit	78576	DPQ	27311
TNKS1 Homogenous Assay Kit	78489	EPZ015666	79043-1
TNKS2 (PARP5B) Chemiluminescent Assay Kit	78406	EPZ015666	79043-2
TNKS2 (PARP5B) Colorimetric Assay Kit	78577	Ganetespi (STA-9090)	27750-1
TNKS2 Homogenous Assay Kit	78490	Ganetespi (STA-9090)	27750-2
TRAF6 Intrachain TR-FRET Assay Kit	78598	JW 55	27633-1
TRAF6 TR-FRET Assay Kit	78851	JW 55	27633-2
UBCH13 TR-FRET Assay Kit	79741	ME0328	27634-1
USP1 Inhibitor Screening Assay Kit	78831	ME0328	27634-2
USP7 Inhibitor Screening Assay Kit	79256	Mitomycin C	27763
VHL Intrachain TR-FRET Assay Kit	78305	MK-1775	82196
Wee1 Kinase Assay Kit	79909	Novobiocin	27501
WRN Helicase Activity Assay Kit	78852	NU 7026	27312
		Nutlin-3	27711
		P005091	27767-1
		P005091	27767-2
		PJ34	27041
		Rucaparib (AG-014699,PF-01367338)	27647-1
		Rucaparib (AG-014699,PF-01367338)	27647-2
Buffers	Catalog#		
10x PARP Assay Buffer	80602		
3x HSP90 Assay Buffer 2	50324		
5x HSP90 Assay Buffer 1	50311		

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Inhibitors/Activators	Catalog#	Proteins	Catalog#
Rucaparib (AG-014699,PF-01367338)	27647-3	ATR, GST-Tag	101485
Set of PARP Inhibitors (8 x 50 µl)	78318	Aurora A Protein Kinase, His-Tag (HEK293-derived)	100112
Streptozocin (U-9889)	27656-1	Aurora A Protein Kinase, His-Tag (Sf9-derived)	40004
Streptozocin (U-9889)	27656-2	AURORA C, GST-tag	40178
Tankyrase Inhibitors (TNKS) 22	27658	Aurora Kinase B, GST-Tag, His-Tag	40002
Tankyrase Inhibitors (TNKS) 49	27659	Bap1, His-tag	81083
UNC1215	27406	BLM, GST-Tag	102130
UNC1215	27405	CDK1/Cyclin A1, GST-Tag	102145
UPF 1069	27665-1	CDK1/Cyclin E1, GST-Tag	102146
UPF 1069	27665-2	CDK1/CyclinA2, GST-Tag	40100
XAV939	27100	CDK1/CyclinB1, GST-Tag	40454
		CDK10/Cyclin M, GST-Tag	102152
		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/Cyclin A1, GST-Tag	102147
		CDK2/Cyclin E2, GST-Tag	102148
		CDK2/Cyclin O, GST-Tag	102149
		CDK2/CyclinA2, GST-tag	40101
		CDK2/CyclinE1, GST-Tag	40102
		CDK20, GST-Tag (Mouse)	100609
		CDK3/Cyclin E2, GST-Tag	102150
		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/Cyclin D2, GST-Tag	102151
		CDK6/CyclinD1, His-tag, GST-tag	40097

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
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
AMPK (A2/B2/G1), His-tags	40026
AMPK (A2/B2/G2), His-tag	40706
AMPK (A2/B2/G2), His-tags	40027
ARH3 (ADPRS), His-Tag	101852
ATF2, GST-Tag	40520
ATM, GST-tag	101486

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Proteins	Catalog#	Proteins	Catalog#
CDK6/CyclinD3, His-tags	40206	NEK11, GST-tag	40139
CDK7/CyclinH1/MNAT1, His-tags	40098	NEK2	40009
CDK8/Cyclin C, GST-tags	100433	NEK3, GST-tag	40140
CDK9/CyclinT1, GST-Tag	40307	NEK6, His-tag	40014
Cereblon/DDB1/Cul4A/Rbx1 Complex	100329	NEK7, GST-tag	40141
CHK1, GST-tag	40039	NEK7, His-Tag	100476
CHK2, His-tag	40040	NEK9, GST-tag	40142
CUL3/Rbx1, GST-tag	80409	NPM1, His-Tag	102057
DNA Polymerase $\beta$ (POLB), His-tag	21000	Otub1, His-tag	81088
DNA Polymerase $\gamma$ (POLG), His-FLAG-Tag	21001	Otub2, His-tag	81089
DNA Polymerase $\theta$ (POLQ), His-Tag, SUMO-Tag	101945	OTUD6B, His-FLAG-tags	80407
FTO, His-Tag (Sf9 derived)	79480	p21, GST-Tag	101584
FTO, His-Tag	79306	p53 (Y220C), GST-Tag	101610
Histone Mixture (5X), His-tag	52029	p53, FLAG-Tag	100412
HMGB1, Avi-His-Tag	79082	p53, GST-Tag	40511
HMGB1, Avi-His-Tag, Biotin-labeled	79007	PARG, His-Tag	101726
Hop/STIP1, FLAG-tag	50322	PARP1, FLAG-Avi-tag	80521
HSP40, His-tag	50285	PARP1, GST-tag	80501
HSP70, His-Tag	50287	PARP1, GST-Tag, PAR-Labeled	101774
HSP90 $\alpha$ (C-terminal), Biotin-Labeled, His-Tag, Avi-Tag	50316	PARP10, FLAG-Strep-Tag	80522
HSP90 $\alpha$ , His-Avi-Tag, Biotin-labeled (Mouse)	100751	PARP11, GST-Tag, His-Tag	80511
HSP90 $\alpha$ , His-tag	50290	PARP12, His-GST-Tag	80513
HSP90 $\beta$ (C-terminal), Biotin-Labeled, His-Tag, Avi-Tag	50313	PARP14, His-GST-Tag	80514
HSP90 $\beta$ , His-tag	50292	PARP15, GST-tag	80517
L3MBTL1, GST-tag	55000	PARP2, GST-tag	80502
L3MBTL1, His-tag	55002	PARP3, GST-tag	80503
MCL-1 His-Tag (Mouse)	100637	PARP4, FLAG-Tag	101690
MCL1, His-Tag (Dog)	101305	PARP6, GST-Tag	80506
MCL1, His-Tag (Guinea Pig)	101311	PARP7, FLAG-Tag	80527
MCL1, His-Tag (Rabbit)	101310	PARP9, GST-tag, His-tag	80509
MCL1, His-Tag (Rat)	101299	PLK1 Polo Box Domain, GST-Tag	50301
MCL1, His-Tag	40742	PLK1, His-tag	40033
MDM2, GST-tag	100409	PLK2, GST-tag	40034
MECP2, GST-tag	50250	PLK3 Polo Box Domain, MBP-tag, His-tag	50302
Metnase (SETMAR), FLAG-tag	51018	PLK3, His-Tag	40035
MGMT, His-Tag	101602	PLK4, GST-tag	40236
Mouse AURORA A, GST-tag	40177	PRDM9, GST-Tag	100078
mTOR/Raptor/MLST8 Complex, FLAG-Tag, His-Tag (Human)	40300	PRMT5, FLAG-Avi-Tag, Biotin-Labeled	79191

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Proteins	Catalog#
PRMT5/MEP50, Biotin-Labeled	52102
PRMT5/MEP50, FLAG-Tag, His-Tag (HEK293-derived)	51045
PRMT5/MEP50, FLAG-Tag, His-Tag (Sf9-derived)	51048
Rad51, His-Tag	102050
RB, GST-tag	40595
Rbx1/Cul4B/Dcaf11/Ddb1 Complex	101495
Rbx1/CUL4B/DBP1/DCAF15/DDA1 Complex	101497
Sestrin 1, FLAG-tag	50284
Sestrin 2, FLAG-Tag	50286
SMARCA2, His-Tag	101801
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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