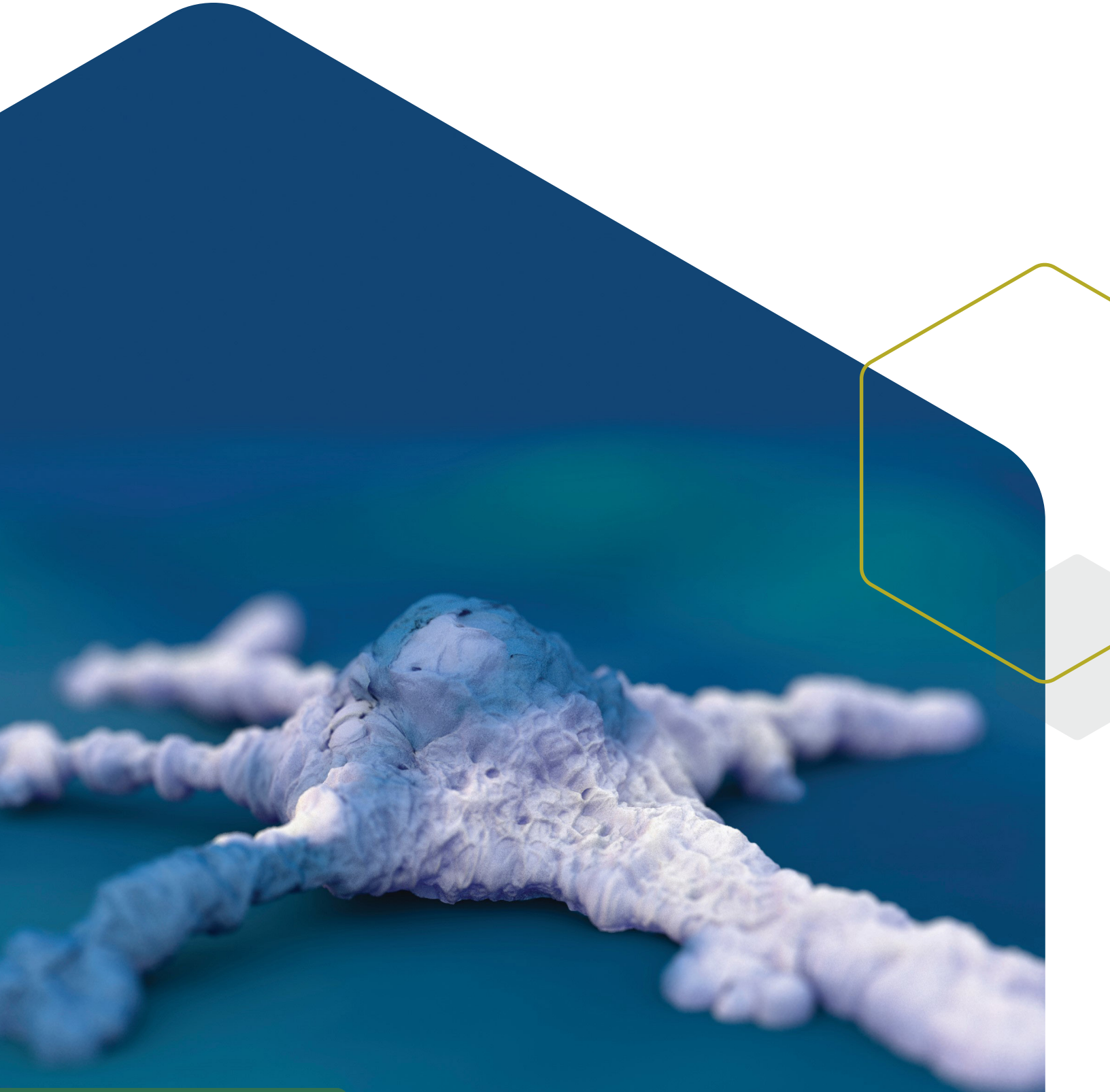




Cancer Research

Integrated Solutions to Unravel the
Complex Landscape of Cancer



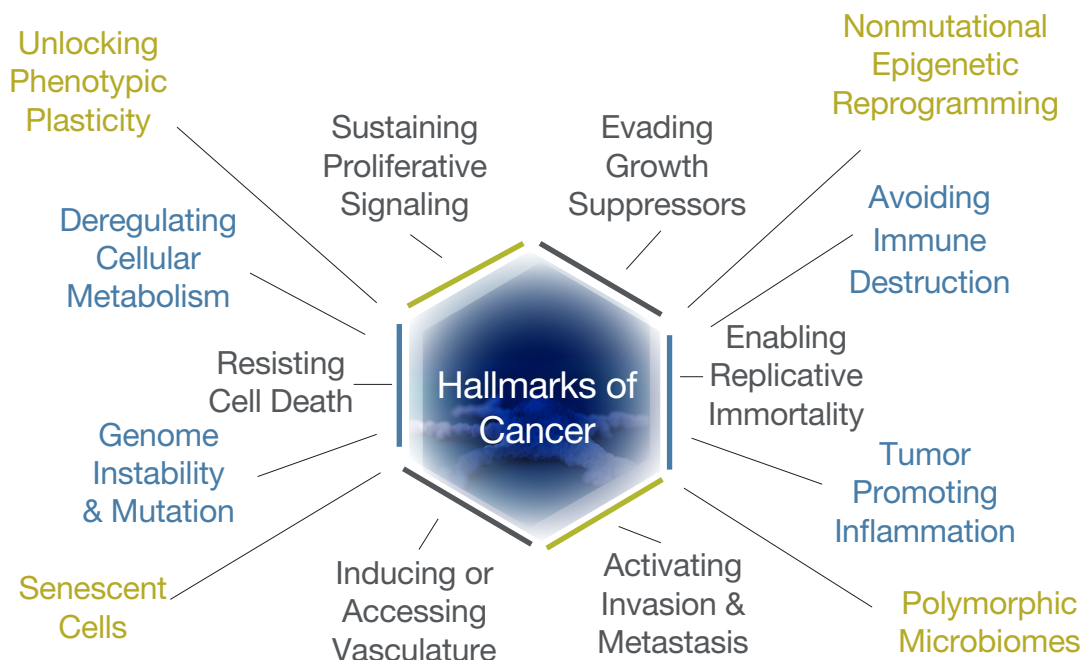
Introduction

Innovation to Meet the Needs of Evolving Cancer Hallmarks

Cancer is the leading cause of death worldwide, accounting for nearly one in six deaths. In order to navigate the complex landscape of mutations and diverse types of genetic aberration that leads to cancer, the hallmarks of cancer were initially proposed two decades ago. These are a set of functional capabilities acquired by human cells as normal cells transform into tumor cells in a multi-stage process that generally progresses from pre-cancerous lesion to a malignant tumor.

As cancer hallmarks have evolved since their introduction, so has our portfolio of tools to support cancer research. Over this time, we have called upon our diverse scientific and technical expertise to create innovative technologies, assays, and reagents to aid with genomics, protein, cellular and tissue analysis, in addition to small molecule chemistry.

With our comprehensive catalog of unique products, we are committed to providing the tools and support you need to drive innovation and advancement in cancer research and help discover the next hallmark.



Unraveling the Complex Landscape of Cancer

Target Identification

Whether it's a specific gene, protein, lipids or a whole pathway, target identification is one of the most critical steps in cancer research and drug discovery.

AMPIVIEW® RNA Probes

Target Characterization

Some targets can play different roles depending on the cell type or microenvironment, hence, the characterization step is crucial for the understanding of the functional role that plays in normal cells vs cancer cells.

**ROS-ID® Hypoxia/
Oxidative Stress
Detection Kit**

Target Analysis

Validation of the target is achieved with target analysis to understand and control its regulatory mechanism, and the role that plays in the hallmarks of cancer.

**CYTO-ID®
Autophagy Detection
Kit 2.0**

Target Identification

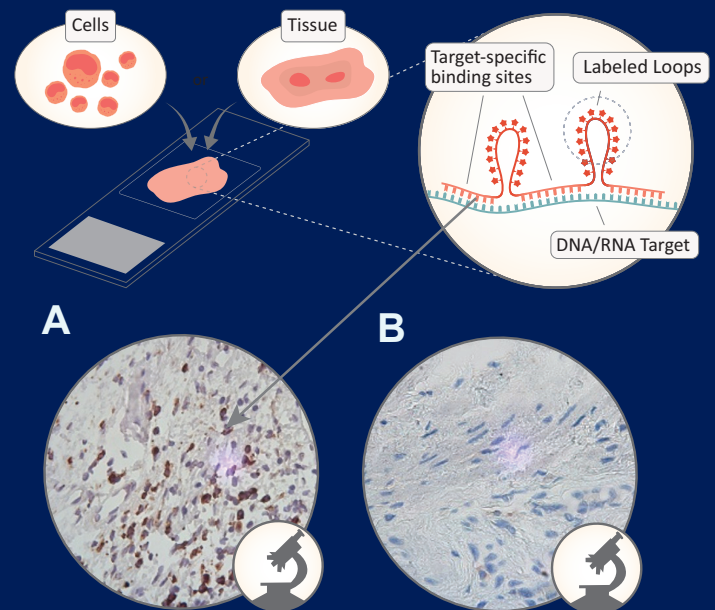
Whether it's a specific gene, protein, lipids, or a whole pathway, target identification is one of the most critical steps in cancer research and drug discovery.

AMPIVIEW® RNA Probes

AMPIVIEW® RNA probes are uniquely designed with the precision of targeted, sequence-specific RNA, powered by Enzo's LoopRNA™ ISH technology to deliver superior sensitivity when combined with Enzo's immunochemistry detection solutions. With sample morphology preserved, the spatial localization of target biomarkers can be visualized under the light microscope.

- Detection of unique nucleic acid targets (DNA/RNA or RNA) down to a single cell level
- Simple protocols of 2-hour hybridization and one-step amplification
- Adaptable products ready for any workflow (Manual or Automated)

AMPIVIEW® RNA Probes Deliver Superior Sensitivity and Specificity



AMPIVIEW® RNA probes workflow diagram. Screening of 15 High-Risk HPV genotypes (16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 66, 68 and 82) (brown) with AMPIVIEW® HPV HR-15 (AS) RNA probes in A. HPV infected cervical cancer tissue and B. non-infected cervical tissue.

AMPIVIEW™ RNA Probes

AMPIVIEW® HPV HR-15 (AS) DNP RNA Probes Set

AMPIVIEW® HPV 6/11 RNA Probes Set

AMPIVIEW® HPV 16/18 RNA Probes Set

AMPIVIEW® HPV 31/33/51 RNA Probes Set

AMPIVIEW® HPV High-Risk RNA Probes Set

AMPIVIEW® EGFR (AS) Dig RNA Probes Set

AMPIVIEW® Ubiquitin and NSP Dig Control Probes Kit

AMPIVIEW® GAPDH and NSP Dig Control Probes Kit

ENZ-GEN320

ENZ-GEN145

ENZ-GEN146

ENZ-GEN147

ENZ-GEN148

ENZ-GEN129

ENZ-KIT223

ENZ-KIT224

Target Identification

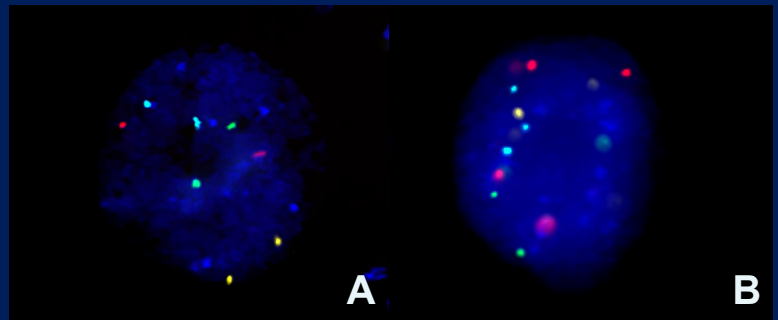
Genome instability and mutations are two of the most common causes of cancer. Fluorescence *in situ* hybridization (FISH) techniques provide a way to visualize and map the genetic material in individual cells. This is a very useful tool to understand a variety of chromosomal abnormalities and other genetic mutations.

DEEPSEE® CDKN2A/CEN3/7/17 Quad Probe Assay (ENZ-GEN440)

Ready-to-use probes, used to detect the most frequently encountered chromosomal abnormalities in bladder cancer, contain fluorescently labeled nucleic acid targeting CDKN2A or p16 (gold) and three chromosomes, 3 (red), 7 (green) and 17 (aqua).

- Validated for use with cells and urine samples
- Ready-to-use probe mix to minimize pipetting errors
- Rapid detection of chromosomal aneuploidies and identification of loss or alterations of CDKN2A

Quadruple Color Assay for the Detection of CDKN2A/CEN3/7/17



A. Normal cytological specimen hybridized with DEEPSEE® CDKN2A/CEN3/7/17 Quad Probe. Two red (CEN 3), two green (CEN 7), two aqua (CEN 17), and two gold (CDKN2A) signals indicating normal interphase nucleus. B. Right: UM-UC-3 bladder cancer cells hybridized with DEEPSEE® CDKN2A/CEN3/7/17 Quad Probe showing trisomy 9, indicated by 3 CDKN2A (gold) signals in the nucleus.

Related Products

CYTAG® CGH Labeling Kit	ENZ-42671
CYTAG® SuperCGH Labeling Kit	ENZ-GEN120
CYTAG® Total CGH Labeling Kit	ENZ-42674
CD3ε Recombinant Monoclonal Antibody	ENZ-ABS424
CD4 Recombinant Monoclonal Antibody	ENZ-ABS430
CD8 (α chain) Recombinant Monoclonal Antibody	ENZ-ABS323
CD19 Recombinant Monoclonal Antibody	ENZ-ABS412
CD23 (Human) Monoclonal Antibody	ENZ-ABS248
CD33 Recombinant Monoclonal Antibody	ENZ-ABS625
CD44std (Human) Monoclonal Antibody	ALX-801-089

Target Characterization

Some targets can play different roles depending on the cell type or microenvironment, hence, the characterization step is crucial for the understanding of the functional role that plays in normal cells vs cancer cells.

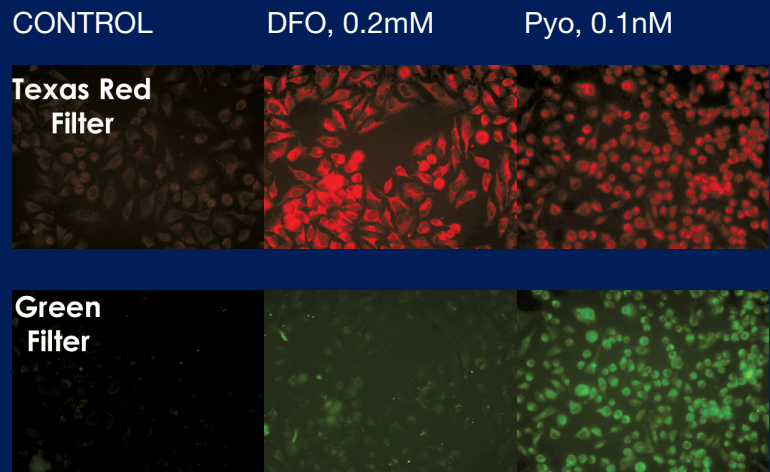
Cancer cells survive and adapt to many types of stress, including hypoxia, nutrient deprivation, metabolic, and oxidative stress.

ROS-ID® Hypoxia/Oxidative Stress Detection Kit (ENZ-51042)

ROS-ID® Hypoxia/Oxidative Stress Detection Kit is designed for the functional detection of hypoxia and oxidative stress levels in live cells (both suspension and adherent) using fluorescent microscopy or flow cytometry.

- ⬡ Detection of hypoxia with high sensitivity, selectivity and accuracy in cancer tissues and cells
- ⬡ Allow for simple single-step detection of hypoxia in non-fixed cells and tissues
- ⬡ Dyes can be combined with reactive oxygen species (ROS) detection reagents for multiplexing

Multiplex Hypoxia and Oxidative Stress Detection



HeLa cells were seeded on microscope slides and treated the next day, with DFO (chemical inducer of hypoxia) or pyocyanin (oxidative stress inducer) for 4 h at 37°C as described in the manual. ROS-ID® Hypoxia/Oxidative Stress Detection Kit (ENZ-51042) was used to detect hypoxia (red) and oxidative stress (green). Post-treatment, slides were washed with PBS, cover-slipped and visualized using an Olympus BX-51 fluorescence microscope.

Related Products

ROS-ID® Total ROS/Superoxide Detection Kit

ENZ-51010

GFP-CERTIFIED® Apoptosis/Necrosis Detection Kit

ENZ-51002

NUCLEAR-ID® Green Cell Cycle Kit

ENZ-51014

PKA Kinase Activity Kit

ADI-EKS-390A

Akt Kinase Activity Kit

ADI-EKS-400A

PKC Kinase Activity Kit

ADI-EKS-420A

Target Characterization

Understanding the roles of DNA damage repairs in the promotion of cancer is essential for the development of targeted cancer therapy.

Exposure of cells to oxidative and environmental stresses frequently results in the breakdown of genomic DNA.

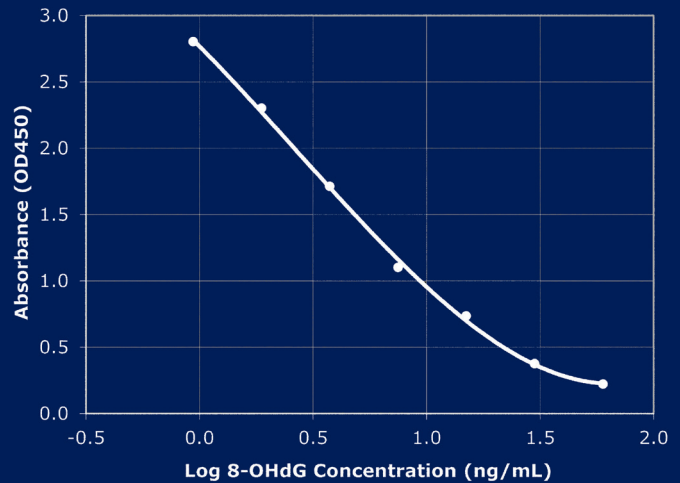
DNA Damage ELISA Kit (ADI-EKS-350)

The DNA Damage ELISA kit is a colorimetric competitive enzyme immunoassay kit that evaluates the integrity of genomic DNA by assessing the presence of oxidized DNA that is frequently used to verify the onset of apoptosis or DNA damage.

Rapid DNA Damage ELISA kit for cancer, apoptosis, and oxidative stress.

- Reliable and validated in a variety of sample matrices
- Fully quantitative results that surpass semi-quantitative Western blot analysis
- No edge effect allowing to assay more samples per kit

Highly Sensitive DNA Damage Measurements for Cancer, Apoptosis, and Oxidative Stress



Standard Curve of DNA damage. Highly sensitive assay, detecting as low as 1ng/ml with results in less than 2.5 hours.

Ordering Information

ELISA KITS

IL-8 (human) ELISA Kit	ADI-900-156A
IL-33 (human) ELISA Kit	ADI-900-201
VEGF (human) ELISA Kit	ENZ-KIT156
DNA Damage ELISA Kit	ADI-EKS-350
cAMP complete ELISA Kit	ADI-900-163A
cGMP complete ELISA Kit	ADI-900-164

Target Analysis

Validation of the target is achieved with target analysis to understand and control its regulatory mechanism, and the role that it plays in the hallmarks of cancer.

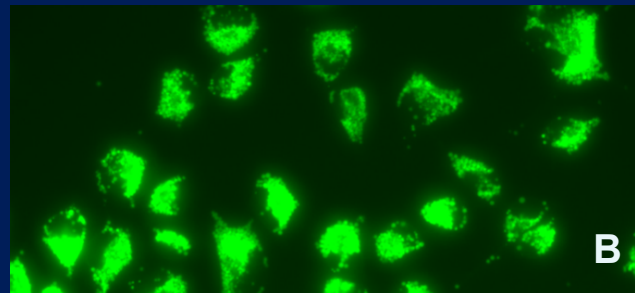
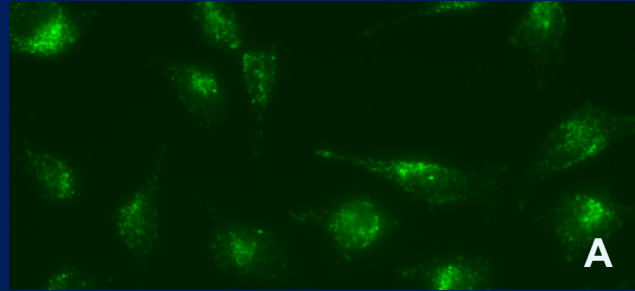
Programmed cell death, such as apoptosis and autophagy, are regulated by a variety of biomacromolecules. Emerging evidence has revealed that programmed cell deaths are key features of tumorigenesis.

CYTO-ID® Autophagy Detection Kit 2.0 (ENZ-KIT175)

Monitor autophagy in live cells with CYTO-ID® Autophagy Detection Kit 2.0, which contains a brighter and more photostable dye that stains autophagic vesicles specifically.

- ⬡ Rapid, no transfection required, and only 30 minutes of incubation
- ⬡ Negligible staining of lysosomes reduces background seen with other dyes
- ⬡ Facilitates high-throughput screening of activators and inhibitors of autophagy

Quantify Autophagic Vacuoles Without Transfection



CYTO-ID® Autophagy Detection Kit 2.0 (ENZ-KIT175) was used to detect autophagy in HeLa cells cultured in (A) media under normal conditions, (B) starvation media (EBSS) treated with 40uM Chloroquine for 4 hours. Starved cells show a higher quantity of autophagic vacuoles compared to cells under normal conditions (fluorescent green).

Related Products

SCREEN-WELL® Cancer Library

SCREEN-WELL® Epigenetic Library

SCREEN-WELL® Wnt Pathway Library

27-Hydroxycholesterol

Afatinib

(R)-BI-2536

Ko-143

ENZ-LIB102

BML-2836

BML-2838

ENZ-CHM102

ENZ-CHM158

ENZ-CHM160

BML-EI396




Target Analysis

High-quality biomarkers for cancer, especially antibodies, are crucial tools for prevention, diagnosis, prognostics, therapy, and to effectively monitor treatment response after disease modifying treatments.

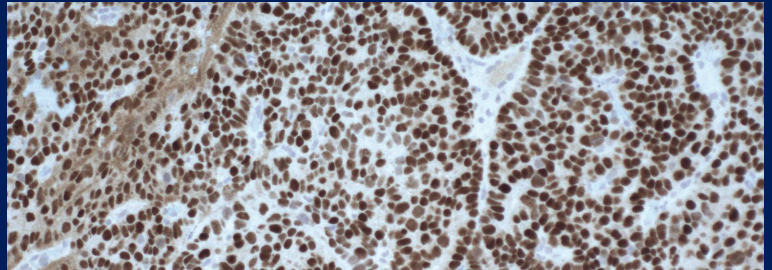
Enzo's portfolio of antibodies for cancer research includes thousands of monoclonal and polyclonal antibodies validated for various applications, including immunohistochemistry (IHC), immunofluorescence (IF), flow cytometry, and Western blotting.

High-Quality Antibodies for Cancer Research

Enzo offers an extensive repertoire of high specificity antibodies for the study of cancer hallmarks, including predictive biomarkers such as p53, EGFR, or p16.

-  Rigorously validated in several applications
-  Superb performance documented in thousands of peer-reviewed publications
-  Backed by Enzo's Worry-free Antibody Trial Program

Highly Sensitive and Specific Detection of p53 in FFPE Tissue



p53 detection endometrial carcinoma with p53 monoclonal antibody (PAb122) (ADI-KAM-CC0022).

Antibodies Related to Cancer

CTLA-4 (1E6)	ENZ-ABS696
Cytokeratin 1/5/10/14 (34BE12)	ENZ-C34903
EGFR (528)	ENZ-ABS481
HER-2/Neu	ENZ-ABS381
Ki67	ENZ-ABS678
LAG-3 (L4-PL33)	ENZ-ABS677
p16^{INK4a}	ENZ-ABS377
p504S p63 + HMWCK cocktail	ENZ-ABS717
p53 (PAb122)	ADI-KAM-CC002
PD-1 (4F12)	ENZ-ABS737
PD-L1	ENZ-ABS693

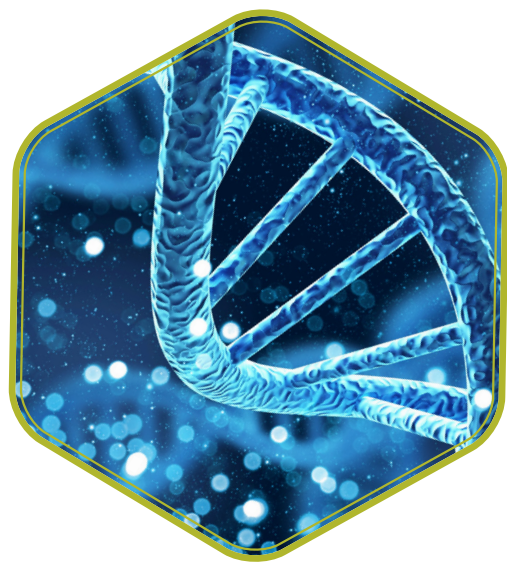
Related Products

POLYVIEW® PLUS HRP (anti-rabbit) Reagent	ENZ-ACC103
POLYVIEW® PLUS AP (anti-rabbit) Reagent	ENZ-ACC110
POLYVIEW® PLUS HRP (anti-mouse) Reagent	ENZ-ACC104
POLYVIEW® PLUS AP (anti-mouse) Reagent	ENZ-ACC114
HIGHDEF® DAB Chromogen/Substrate Set	ENZ-ACC105
HIGHDEF® Green AP Chromogen/Substrate Set	ENZ-ACC130
HIGHDEF® Hematoxylin	ENZ-ACC106
HIGHDEF® PLUS Red AP Chromogen Kit	ENZ-ACC158

Enabling Cancer Research

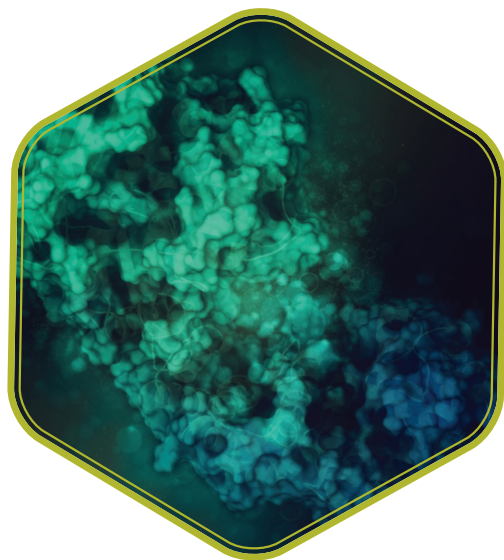
With over 45 years of innovation and technical expertise, Enzo provides you with the leverage you need to advance your cancer research. Enzo fully supports your research, drug discovery, drug development, and diagnostics through our core technology platforms. Backed by more than 160,000 citations and GMP and ISO certifications, our highly-sensitive, quality products consistently provide trusted results. We maintain product integrity and reliability with our in-house U.S. manufacturing facility. We deploy our bench of expert Ph.D scientists to provide technical, tailored, support for our customers and their projects.

Rely on our extensive experience in innovation, technology development, and manufacturing to support your cancer research and development. Our comprehensive Life Sciences Contract Services support the development of customizable, unique, and efficient solutions for all your research needs.



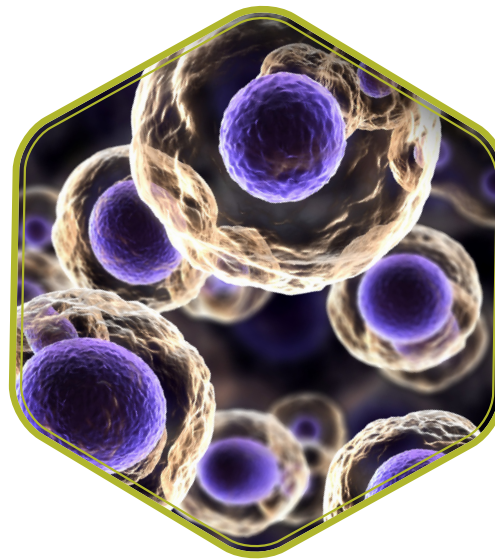
GENOMIC ANALYSIS

Nucleic Acid Extraction, PCR, qPCR, and NGS



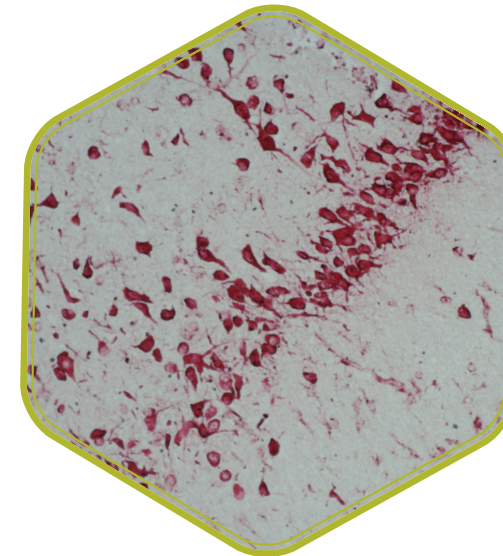
PROTEIN ANALYSIS

ELISA, Western Blot, Proteins, Peptides, and Enzymatic Assays



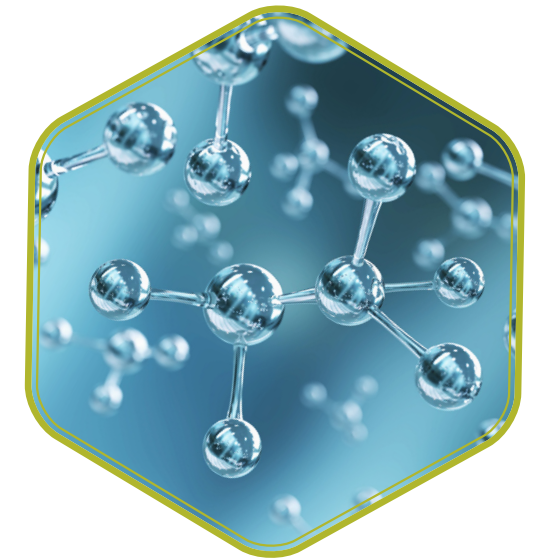
CELLULAR ANALYSIS

Cell-based Assays, Fluorescent Dyes, and Antibodies



TISSUE ANALYSIS

IHC, ISH, and FISH



SMALL MOLECULE CHEMISTRY

Small Molecules and Compound Libraries

Our Technological Depth is Enabling Efficiency for our Customers.

Learn More at: enzolifesciences.com/cancer

SCIENTISTS ENABLING SCIENTISTS™



Global Headquarters
ENZO LIFE SCIENCES, INC.

21 Executive Blvd
Farmingdale, NY 11735
Phone: 800.942.0430
Fax: 631.694.7501
info-usa@enzolifesciences.com

European Sales Office
ENZO LIFE SCIENCES
(ELS) AG

Industriestrasse 17
CH-4415 Lausen, Switzerland
Phone: +41 61 926 8989
Fax: +41 61 926 8979
info-eu@enzolifesciences.com

LOCAL EUROPEAN OFFICES

Belgium, The Netherlands & Luxembourg

Enzo Life Sciences BVBA
Avenue Louise 65/Box 11
1050 Bruxelles
Belgium
Phone: +32 3 466 0420
Fax: +32 3 808 7033
info-be@enzolifesciences.com

France

Enzo Life Sciences (ELS) AG
Branch Office Lyon
43, quai Perrache
69002 Lyon, France
Phone: +33 472 440 655
Fax: +33 481 680 254
info-fr@enzolifesciences.com

Germany

Enzo Life Sciences GmbH
Basler Strasse 57a
DE-79540 Lörrach
Germany
Phone: +49 7621 5500 526
Fax: +49 7621 5500 527
info-de@enzolifesciences.com

UK & Ireland

Enzo Life Sciences (UK) Ltd.
1 Colleton Crescent
Exeter EX2 4DG
Phone (UK customers):
0845 601 1488
Phone: +44 1392 825900
Fax: +44 1392 825910
info-uk@enzolifesciences.com

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NSF-ISR

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