

A detailed 3D rendering of several cancer cells. The cells are depicted with a textured, orange-brown surface and numerous thin, hair-like projections extending from their periphery. Some cells are shown in various stages of division or interaction, with smaller, blue-tinted spherical structures nearby. The background is a soft, blue, wavy pattern, suggesting a cellular or tissue environment.

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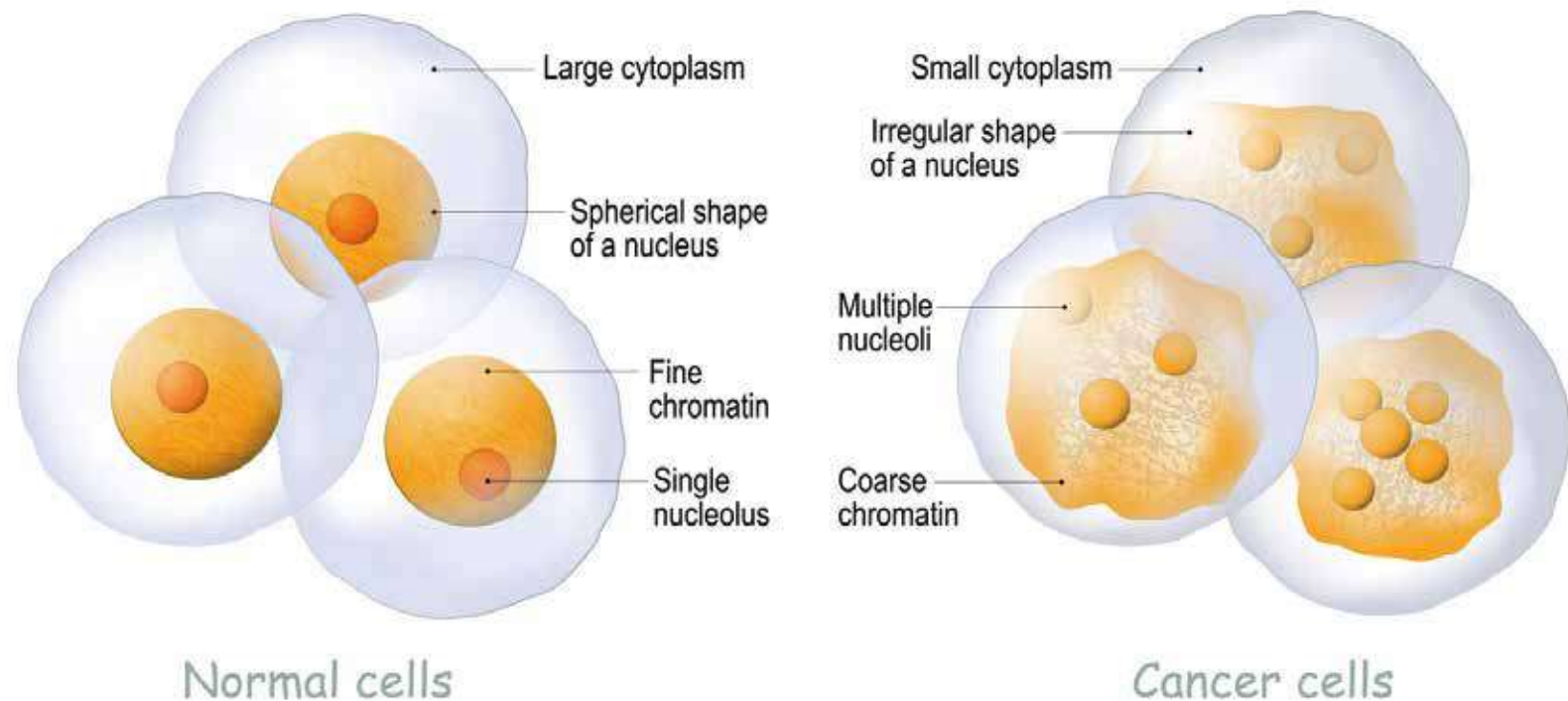
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# ELISA Kits for Cancer

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# NORMAL CELLS and CANCER CELLS



Normal cells

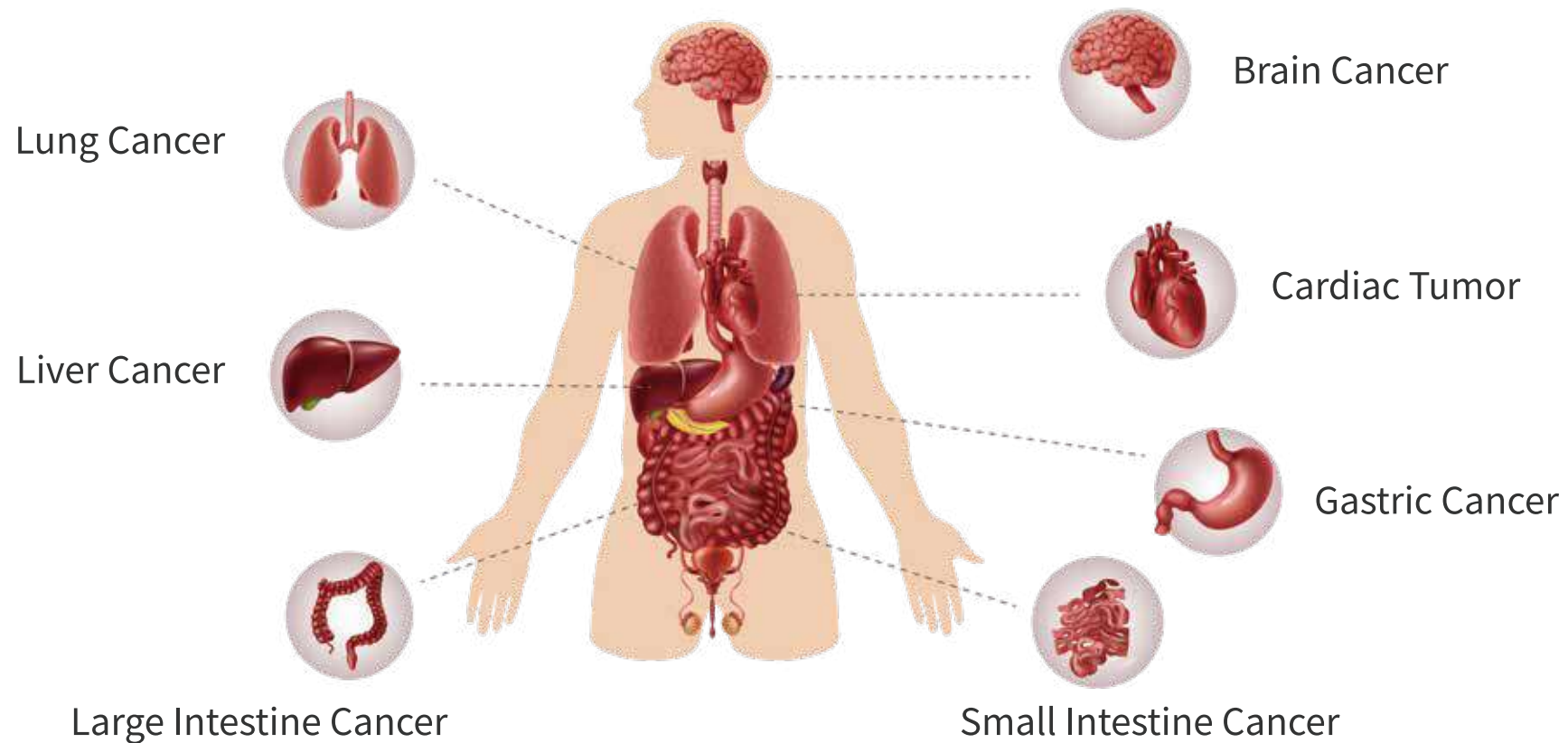
Cancer cells

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# Cancer Introduction



**Cancer** is a disease caused by the loss of normal regulation and excessive proliferation of cells in the body. Cells that proliferate excessively are called cancer cells. Cancer cells may invade surrounding tissues (invasion) and even metastasize to other parts of the body through the circulatory system and/or lymphatic system (cancer metastasis).

Normal cell proliferation is tightly regulated with a balance between the activities of proto-oncogenes and tumor suppressors. For example, DNA damage and repair mechanisms exist in order to decrease the likelihood of genetic mutation and cell transformation. Accumulating disruptions in these homeostatic control mechanisms can lead to unregulated proliferation and cancer. Whereas normal cells differentiate into very different cell types when they mature, cancer cells are less differentiated and aggressive and often gain the ability to avoid programmed cell death (apoptosis). Out-of-control tumor cells can also evade the immune system by hiding themselves and influence the tumor microenvironment, promoting angiogenesis and providing oxygen and nutrients to the tumor.

**Elabscience®** provides customers with high-quality ELISA Kits to study multiple aspects of the cancer area, including cancer immunology, tumor suppressors, growth factors, apoptosis, cancer biomarkers and more.

# Company Brief Introduction



45

Invention patents



10000+

SCI articles



84

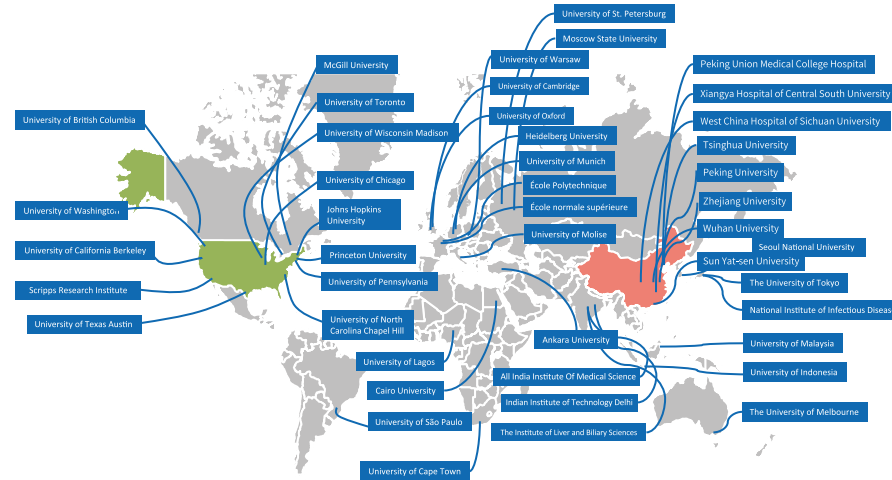
Utility model patents

## About Elabscience®

Elabscience® is a high-tech biological company specializing in the development, production and sales of immunoassay reagents. The main products are **ELISA Kits, CLIA Kits, FCM Antibodies, Cell Function Assays, Metabolism Assay Kits, Antibodies, Proteins, Labeling Kits, Immunology Related Reagents**, etc.

## Customer Distribution

The customers are distributed in more than **150 countries** on **5 continents**, basically covering all famous universities and research institutions in the world.



## Why Choose Elabscience® ELISA Kits?



### Strict Quality Control

- 8 processes for strict quality control
- Superior performance guarantees



### Recommended by CiteAb

- In 2019, Elabscience® was highly commended as "ELISA KIT SUPPLIER TO WATCH IN 2019" by CiteAb



### Supported by 10000+ SCI Literatures

- Elabscience® products have been cited in more than **10,000** SCI papers, and published in *Nature Medicine, Nature, Cell, Immunity, Molecular Cancer* and other internationally renowned journals.

## ELISA Kits Features

- High precision: Both inter and intra CV are <10%
- High sensitivity: Pg level
- Good specificity: Cross-reactivity <10%
- High precision over thousands of items: Covering various targets and species
- Flexible choices on size: 48T/96T/96T\*5/96T\*10
- One-step method available



• Fig. ELISA Product Appearance Diagram

# Cancer Research

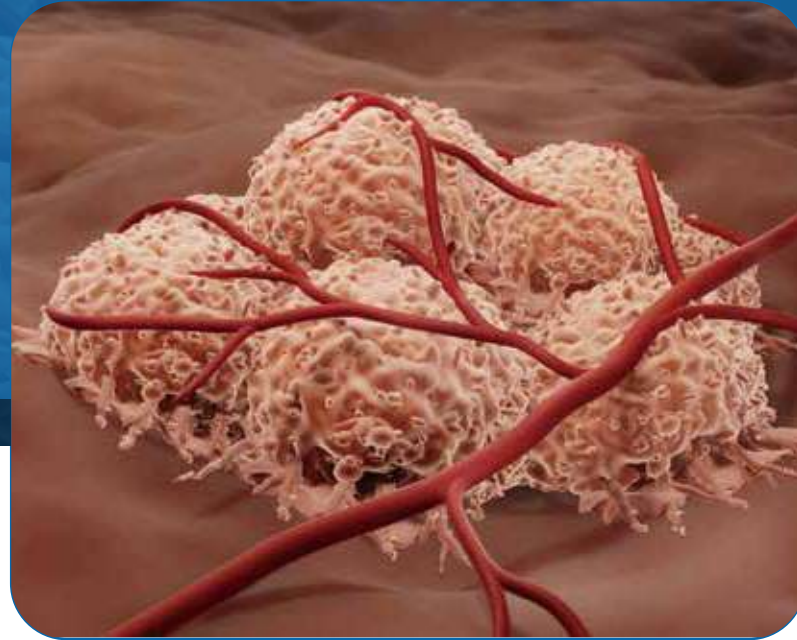


Fig.1 Stimulation of Angiogenesis by Cancer Cells

## 01 Cancer Immunology

Biological cells have a certain rate of variation in the normal process of division and proliferation, but the mutant cells are not necessarily malignant cells, and the tumor formed by malignant cells is the result of cell division and differentiation disorders. These malignant cells have many differences from the original normal cells (such as accompanied by new antigens), and thus can cause the body's immune response.

Cancer cells employ several immunosuppressive mechanisms to prevent the protective function of the immune system. For example, they can downregulate the expression of tumor antigens on their surface to evade recognition. To suppress immune function, these cells secrete paracrine mediators and suppressive cytokines which operate to inhibit the penetration of T cells into the tumor, inactivate effector T cells, and activate suppressor T cells.

## Cancer Immunology ▾

Targets	Cat.No.	Species	Detection Range	Sensitivity
CDK4(Cyclin Dependent Kinase 4)	E-EL-H2323	Human	0.31-20ng/mL	0.19ng/mL
CEA(Carcinoembryonic Antigen)	E-EL-H6047	Human	0.16-10ng/mL	0.10ng/mL
	E-EL-M0232	Mouse	62.50-4000pg/mL	37.50pg/mL
EGFR(Epidermal Growth Factor Receptor)	E-EL-R0150	Rat	0.16-10ng/mL	0.10ng/mL
	E-EL-H0060	Human	0.31-20ng/mL	0.19ng/mL
GPC3(Glypican 3)	E-EL-M3068	Mouse	6.25-400pg/mL	3.75pg/mL
	E-EL-H1712	Human	0.16-10ng/mL	0.10ng/mL
IDO(Indoleamine-2,3-Dioxygenase)	E-EL-M0328	Mouse	0.16-10ng/mL	0.10ng/mL
	E-EL-H2162	Human	0.31-20ng/mL	0.19ng/mL
IFN-γ(Interferon Gamma)	E-EL-H0108	Human	15.63-1000pg/mL	9.38pg/mL
	E-EL-M0048	Mouse	15.63-1000pg/mL	9.38pg/mL
	E-EL-R0009	Rat	31.25-2000pg/mL	18.75pg/mL
IL-6(Interleukin 6)	E-EL-H6156	Human	1.56-100pg/mL	0.94pg/mL
	E-EL-M0044	Mouse	31.25-2000pg/mL	18.75pg/mL
	E-EL-R0015	Rat	12.50-800pg/mL	7.50pg/mL
IL-8(Interleukin 8)	E-EL-H6008	Human	7.81-500pg/mL	4.69pg/mL
IL-10(Interleukin 10)	E-EL-H6154	Human	1.56-100pg/mL	0.94pg/mL
	E-EL-M0046	Mouse	15.63-1000pg/mL	9.38pg/mL
	E-EL-R0016	Rat	31.25-2000pg/mL	18.75pg/mL



Targets	Cat.No.	Species	Detection Range	Sensitivity
IL-17A(Interleukin 17A)	E-EL-H0105	Human	31.25-2000pg/mL	18.75pg/mL
	E-EL-M0047	Mouse	15.63-1000pg/mL	9.38pg/mL
	E-EL-R0566	Rat	15.63-1000pg/mL	9.38pg/mL
IL-21(Interleukin 21)	E-EL-H2450	Human	62.50-4000pg/mL	37.50pg/mL
MUC1(Mucin 1)	E-EL-H0616	Human	0.16-10ng/mL	0.10ng/mL
NCAM/CD56(Neural Cell Adhesion Molecule)	E-EL-H1894	Human	1.56-100ng/mL	0.94ng/mL
PD-L1(Programmed Cell Death Protein 1 Ligand 1)	E-EL-H1547	Human	0.16-10ng/mL	0.10ng/mL
PSMA(Prostate specific membrane antigen)	E-EL-H5413	Human	4.69-300ng/mL	2.81ng/mL
SDC1(Syndecan 1)	E-EL-H1298	Human	0.16-10ng/mL	0.10ng/mL
	E-EL-M2460	Mouse	0.16-10ng/mL	0.10ng/mL
	E-EL-R0996	Rat	1.56-100ng/mL	0.94ng/mL
TERT(Telomerase Reverse Transcriptase)	E-EL-H0706	Human	0.16-10ng/mL	0.10ng/mL
TGF-β1(Transforming Growth Factor Beta 1)	E-EL-0162	Universal	0.16-10ng/mL	0.10ng/mL
TL1A(Tumor Necrosis Factor Related Ligand 1A)	E-EL-H2307	Human	78.13-5000pg/mL	46.88pg/mL
TNF-α(Tumor Necrosis Factor Alpha)	E-EL-H0109	Human	7.81-500pg/mL	4.69pg/mL
	E-EL-M3063	Mouse	7.81-500pg/mL	4.69pg/mL
	E-EL-R2856	Rat	15.63-1000pg/mL	9.38pg/mL
VEGFR-2/KDR (Vascular Endothelial Growth Factor Receptor 2)	E-EL-H1603	Human	78.13-5000pg/mL	46.88pg/mL
	E-EL-M0649	Mouse	0.16-10ng/mL	0.10ng/mL

Fig.2 Tumor Microenvironment Schematic



## 02 Tumor Microenvironment

The tumor microenvironment time (TME) refers to the interactions between heterogeneous cell types and the extracellular matrix (ECM) within a cancerous lesion, and mediates the key processes of angiogenesis, ECM remodeling and immunosurveillance inhibition. TME plays a key role in regulating the immune response of cancer patients. Tumor cells and their microenvironment typically produce a large number of immunomodulatory molecules that negatively (suppressor) or positively (activator) affect the function of immune cells. Thus, TME is able to shift the immune response from a tumor-destructive mode to a tumor-promoting mode based on the composition of the TME. Among them, immune cells, soluble mediators (cytokines, chemokines, angiogenic factors, lymphangiogenic factors and growth factors) and cell receptors in TME play key roles in immune response.

## Tumor Microenvironment ▼

Targets	Cat.No.	Species	Detection Range	Sensitivity
ANG(Angiostatin)	E-EL-H6165	Human	31.25-2000pg/mL	18.75pg/mL
ANG2(Angiopoietin 2)	E-EL-H0008	Human	46.88-3000pg/mL	28.13pg/mL
	E-EL-M0098	Mouse	31.25-2000pg/mL	18.75pg/mL
ARG1(Arginase 1)	E-EL-H0497	Human	3.13-200ng/mL	1.88ng/mL
	E-EL-M0154	Mouse	0.78-50ng/mL	0.47ng/mL
ASPN(Asporin)	E-EL-H0515	Human	0.31-20ng/mL	0.19ng/mL
bFGF/FGF2(Basic Fibroblast Growth Factor)	E-EL-H6042	Human	31.25-2000pg/mL	18.75pg/mL
	E-EL-M0170	Mouse	15.63-1000pg/mL	9.38pg/mL
	E-EL-R0091	Rat	15.63-1000pg/mL	9.38pg/mL
CCR2(Chemokine C-C-Motif Receptor 2)	E-EL-H1877	Human	0.16-10ng/mL	0.10ng/mL
CHGA(Chromogranin A)	E-EL-H0739	Human	62.50-4000pg/mL	37.50pg/mL
COL1a1(Collagen Type I Alpha 1)	E-EL-H0869	Human	0.31-20ng/mL	0.19ng/mL
	E-EL-R0041	Rat	0.31-20ng/mL	0.19ng/mL
COL2a1(Collagen Type II Alpha 1)	E-EL-H0777	Human	0.63-40ng/mL	0.38ng/mL
COL3a1(Collagen Type III Alpha 1)	E-EL-H0778	Human	0.63-40ng/mL	0.38ng/mL
COL4a1(Collagen Type IV Alpha 1)	E-EL-H0779	Human	0.31-20ng/mL	0.19ng/mL
COL10(Collagen Type X)	E-EL-H6050	Human	31.25-2000pg/mL	18.75pg/mL

Targets	Cat.No.	Species	Detection Range	Sensitivity
CRT(Calreticulin)	E-EL-H0627	Human	0.16-10ng/mL	0.10ng/mL
	E-EL-M0224	Mouse	0.16-10ng/mL	0.10ng/mL
ELN(Elastin)	E-EL-H1163	Human	0.47-30ng/mL	0.28ng/mL
	E-EL-R0004	Rat	0.63-40ng/mL	0.38ng/mL
FN(Fibronectin)	E-EL-H0179	Human	1.56-100ng/mL	0.94ng/mL
	E-EL-M0506	Mouse	1.56-100ng/mL	0.94ng/mL
	E-EL-R0578	Rat	1.25-80ng/mL	0.75ng/mL
G-CSF(Granulocyte Colony-stimulating Factor)	E-EL-H0079	Human	39.06-2500pg/mL	23.44pg/mL
	E-EL-M0031	Mouse	15.63-1000pg/mL	9.38pg/mL
	E-EL-R0454	Rat	15.63-1000pg/mL	9.38pg/mL
GM-CSF (Granulocyte-Macrophage Colony Stimulating Factor)	E-EL-H0081	Human	7.81-500pg/mL	4.69pg/mL
	E-EL-M0032	Mouse	15.63-1000pg/mL	9.38pg/mL
	E-EL-R0008	Rat	15.63-1000pg/mL	9.38pg/mL
ICAM-1/CD54(intercellular adhesion molecule 1)	E-EL-H6114	Human	0.31-20ng/mL	0.19ng/mL
	E-EL-M3037	Mouse	1.37-1000ng/mL	0.82ng/mL
	E-EL-R2850	Rat	0.31-20ng/mL	0.19ng/mL
IDO(Indoleamine-2,3-Dioxygenase)	E-EL-H2162	Human	0.31-20ng/mL	0.19ng/mL
IFN-γ(Interferon Gamma)	E-EL-H0108	Human	15.63-1000pg/mL	9.38pg/mL
	E-EL-M0048	Mouse	15.63-1000pg/mL	9.38pg/mL
	E-EL-R0009	Rat	31.25-2000pg/mL	18.75pg/mL

Targets	Cat.No.	Species	Detection Range	Sensitivity
IL-6(Interleukin 6)	E-EL-H6156	Human	1.56-100pg/mL	0.94pg/mL
	E-EL-M0044	Mouse	31.25-2000pg/mL	18.75pg/mL
	E-EL-R0015	Rat	12.50-800pg/mL	7.50pg/mL
IL-6R(Interleukin 6 Receptor)	E-EL-H0192	Human	31.25-2000pg/mL	18.75pg/mL
	E-EL-R0896	Rat	78.13-5000pg/mL	46.88pg/mL
IL-8(Interleukin 8)	E-EL-H6008	Human	7.81-500pg/mL	4.69pg/mL
IL-10(Interleukin 10)	E-EL-H6154	Human	1.56-100pg/mL	0.94pg/mL
	E-EL-M0046	Mouse	15.63-1000pg/mL	9.38pg/mL
	E-EL-R0016	Rat	31.25-2000pg/mL	18.75pg/mL
IL-12(Interleukin 12)	E-EL-H0150	Human	15.63-1000pg/mL	9.38pg/mL
	E-EL-M3062	Mouse	0.31-20pg/mL	0.17pg/mL
	E-EL-R0064	Rat	15.63-1000pg/mL	9.38pg/mL
IL-13(Interleukin 13)	E-EL-H0104	Human	15.63-1000pg/mL	9.38pg/mL
	E-EL-M0727	Mouse	31.25-2000pg/mL	18.75pg/mL
	E-EL-R0563	Rat	15.63-1000pg/mL	9.38pg/mL
LOX(Lysyl Oxidase)	E-EL-H0174	Human	0.63-40ng/mL	0.38ng/mL
	E-EL-M0005	Mouse	0.31-20ng/mL	0.19ng/mL
NOS2/iNOS(Nitric Oxide Synthase 2, Inducible)	E-EL-H0753	Human	78.13-5000pg/mL	46.88pg/mL
	E-EL-M0696	Mouse	0.31-20ng/mL	0.19ng/mL
	E-EL-R0520	Rat	0.31-20ng/mL	0.19ng/mL

Targets	Cat.No.	Species	Detection Range	Sensitivity
PF4(Platelet Factor 4)	E-EL-H6184	Human	0.63-40ng/mL	0.38ng/mL
	E-EL-M3080	Mouse	31.25-2000pg/mL	18.75pg/mL
	E-EL-R0759	Rat	0.16-10ng/mL	0.10ng/mL
PGF(Placental Growth Factor)	E-EL-H1555	Human	15.63-1000pg/mL	9.38pg/mL
	E-EL-R0742	Rat	7.81-500pg/mL	4.69pg/mL
S100A8(S100 Calcium Binding Protein A8)	E-EL-H1289	Human	0.63-40ng/mL	0.38ng/mL
	E-EL-M3048	Mouse	62.50-4000pg/mL	37.50pg/mL
S100A9(S100 Calcium Binding Protein A9)	E-EL-H1290	Human	0.78-50ng/mL	0.47ng/mL
	E-EL-M3049	Mouse	0.63-40ng/mL	0.38ng/mL
SELL(L-Selectin)	E-EL-H0895	Human	0.31-20ng/mL	0.19ng/mL
	E-EL-M0637	Mouse	0.16-10ng/mL	0.10ng/mL
	E-EL-R0596	Rat	0.16-10ng/mL	0.10ng/mL
sgp130(Soluble Glycoprotein 130)	E-EL-H6015	Human	78.13-5000pg/mL	46.88pg/mL
TGF-β1(Transforming Growth Factor Beta 1)	E-EL-0162	Universal	0.16-10ng/mL	0.10ng/mL
TGF-β2(Transforming Growth Factor Beta 2)	E-EL-H1587	Human	31.25-2000pg/mL	18.75pg/mL
	E-EL-M1191	Mouse	15.63-1000pg/mL	9.38pg/mL
	E-EL-R1015	Rat	15.63-1000pg/mL	9.38pg/mL
TGF-β3(Transforming Growth Factor Beta 3)	E-EL-H2339	Human	15.63-1000pg/mL	9.38pg/mL
	E-EL-M1192	Mouse	15.63-1000pg/mL	9.38pg/mL
	E-EL-R1016	Rat	15.63-1000pg/mL	9.38pg/mL



Targets	Cat.No.	Species	Detection Range	Sensitivity
TIMP-1(Tissue Inhibitors of Metalloproteinase 1)	E-EL-H0184	Human	0.16-10ng/mL	0.10ng/mL
	E-EL-M3071	Mouse	78.13-5000pg/mL	46.88pg/mL
	E-EL-R0540	Rat	0.16-10ng/mL	0.10ng/mL
TIMP-2(Tissue Inhibitors of Metalloproteinase 2)	E-EL-H1453	Human	0.16-10ng/mL	0.10ng/mL
	E-EL-R0985	Rat	0.63-40ng/mL	0.38ng/mL
TIMP-3(Tissue Inhibitors of Metalloproteinase 3)	E-EL-H1454	Human	62.50-4000pg/mL	37.50pg/mL
TNF- $\alpha$ (Tumor Necrosis Factor Alpha)	E-EL-H0109	Human	7.81-500pg/mL	4.69pg/mL
	E-EL-M3063	Mouse	7.81-500pg/mL	4.69pg/mL
	E-EL-R2856	Rat	15.63-1000pg/mL	9.38pg/mL
TSP-1(Thrombospondin-1)	E-EL-H1589	Human	7.81-500ng/mL	4.69ng/mL
	E-EL-M1137	Mouse	39.06-2500pg/mL	23.44pg/mL
	E-EL-R0964	Rat	0.16-10ng/mL	0.10ng/mL
VEGF-A(Vascular Endothelial Cell Growth Factor A)	E-EL-H0111	Human	31.25-2000pg/mL	18.75pg/mL
	E-EL-M1292	Mouse	31.25-2000pg/mL	18.75pg/mL
	E-EL-R2603	Rat	31.25-2000pg/mL	18.75pg/mL

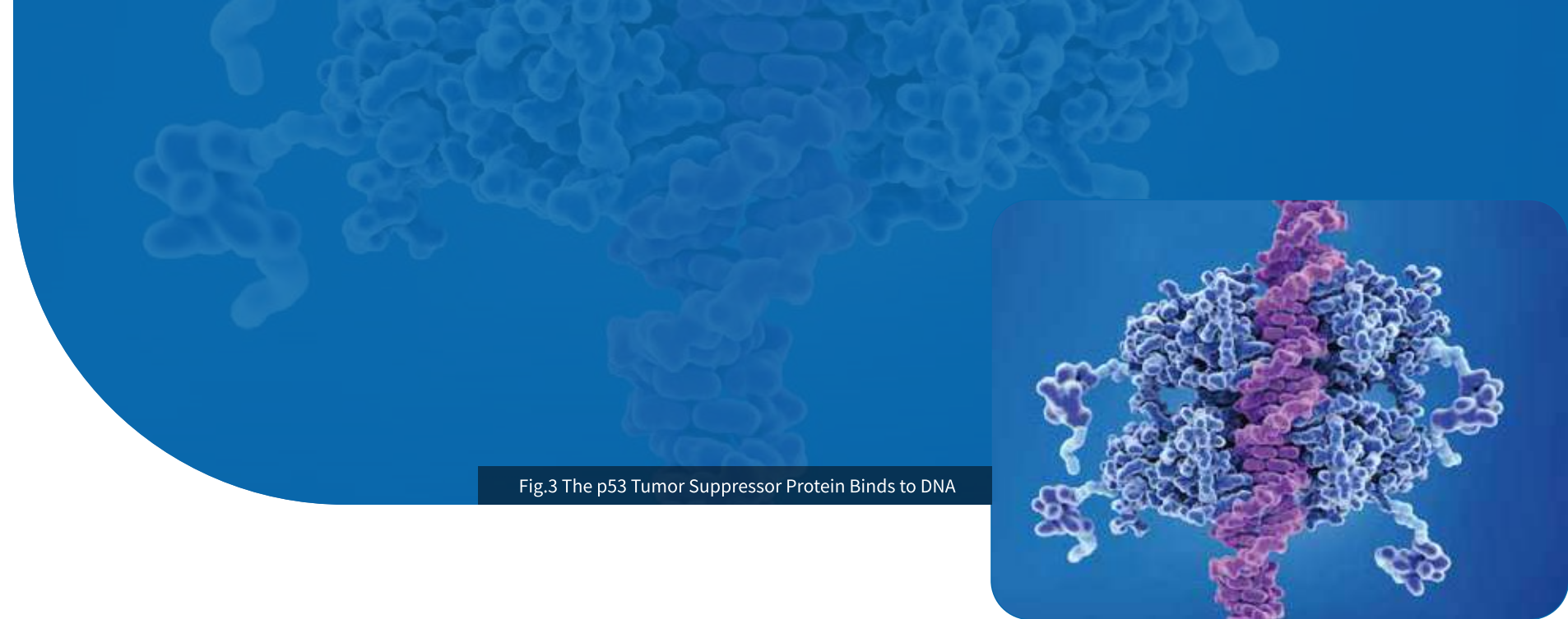


Fig.3 The p53 Tumor Suppressor Protein Binds to DNA

### 03 Tumor Suppressors

Tumor suppressor genes exist in normal cells and regulate cell growth and differentiation together with proto-oncogenes. Tumor suppressor genes play a very important negative regulatory role in the control of cell growth, proliferation and differentiation. They interact with proto-oncogenes to maintain the relative stability of positive and negative regulatory signals. When these genes are mutated, deleted or inactivated, they can cause malignant transformation of cells and lead to the occurrence of tumors. So far, scientists have isolated and identified about 100 tumor suppressor genes from cells, the most common genes such as Rb (retinoblastoma gene), p53, APC, NM23 and so on. Normal people have complete Rb gene, the partial deletion of Rb gene, can cause a variety of cancers such as retinoblastoma and colon cancer.

## Tumor Suppressors ▼

Targets	Cat.No.	Species	Detection Range	Sensitivity
BECN1(Beclin 1)	E-EL-H0564	Human	0.16-10ng/mL	0.10ng/mL
CASP8(Caspase 8)	E-EL-H0659	Human	0.16-10ng/mL	0.10ng/mL
	E-EL-R0280	Rat	0.16-10ng/mL	0.10ng/mL
CDKN2A(Cyclin Dependent Kinase Inhibitor 2A)	E-EL-H2327	Human	0.63-40ng/mL	0.38ng/mL
E-Cad(E-Cadherin)	E-EL-H0014	Human	0.16-10ng/mL	0.10ng/mL
	E-EL-M0211	Mouse	62.50-4000pg/mL	37.50pg/mL
	E-EL-R0347	Rat	0.16-10ng/mL	0.10ng/mL
FAS/CD95(Factor Related Apoptosis)	E-EL-H0067	Human	31.25-2000pg/mL	18.75pg/mL
	E-EL-R0373	Rat	31.25-2000pg/mL	18.75pg/mL
GATA3(GATA Binding Protein 3)	E-EL-H0881	Human	0.31-20ng/mL	0.19ng/mL
Notch 2(Notch Homolog 2)	E-EL-R3040	Rat	78.13-5000pg/mL	46.88pg/mL
PPAR- $\gamma$ (Peroxisome Proliferator Activated Receptor Gamma)	E-EL-H1361	Human	0.16-10ng/mL	0.10ng/mL
	E-EL-M0893	Mouse	0.16-10ng/mL	0.10ng/mL
	E-EL-R0724	Rat	0.16-10ng/mL	0.10ng/mL
TP53(Tumor Protein p53)	E-EL-H0910	Human	78.13-5000pg/mL	46.88pg/mL



Fig.4 Vascular Endothelial Growth Factor Receptors are Activated by VEGF

## 04 Growth Factors

Growth factors are a class of peptides that regulate cell growth and other cell functions by binding to specific and highly affinity cell membrane receptors, and promote growth and development by directing cell maturation and differentiation and by mediating maintenance and repair of tissues. They have an array of putative functions during development including regulating tissue morphogenesis, angiogenesis, cell differentiation, and neurite outgrowth. They also play important roles in the maintenance of tissue homeostasis and wound healing in the adult.

Growth factors are also key players in tumor progression, and are involved in clonal expansion, tissue invasion and angiogenesis. Important growth factors include vascular endothelial growth factor (VEGF), epidermal growth factor (EGF), fibroblast growth factor (FGF), platelet-like growth factor (PDGF), insulin-like growth factor (IGF), and nerve growth factor (NGF).

## Growth Factors ▼

Targets	Cat.No.	Species	Detection Range	Sensitivity
ACV-A(Activin A)	E-EL-H0003	Human	78.13-5000pg/mL	46.88pg/mL
ACVB(Activin B)	E-EL-H1518	Human	15.63-1000pg/mL	9.38pg/mL
AFGF/FGF1(Acidic Fibroblast Growth Factor 1)	E-EL-H0071	Human	31.25-2000pg/mL	18.75pg/mL
ANG1(Angiopoietin 1)	E-EL-H6119	Human	62.50-4000pg/mL	37.50pg/mL
	E-EL-M3014	Mouse	0.78-50ng/mL	0.47ng/mL
	E-EL-R0626	Rat	0.16-10ng/mL	0.10ng/mL
ANG2(Angiopoietin 2)	E-EL-H0008	Human	46.88-3000pg/mL	28.13pg/mL
	E-EL-M0098	Mouse	31.25-2000pg/mL	18.75pg/mL
ANG3(Angiopoietin 3)	E-EL-M0003	Mouse	0.16-10ng/mL	0.10ng/mL
ANGPTL2(Angiopoietin Like Protein 2)	E-EL-H6034	Human	0.16-10ng/mL	0.10ng/mL
	E-EL-M0092	Mouse	31.25-2000pg/mL	18.75pg/mL
ANGPTL3(Angiopoietin Like Protein 3)	E-EL-M2458	Mouse	0.16-10ng/mL	0.10ng/mL
	E-EL-R2449	Rat	62.50-4000pg/mL	37.50pg/mL
ANGPTL4(Angiopoietin Like Protein 4)	E-EL-H0337	Human	1.56-100ng/mL	0.94ng/mL
	E-EL-M0093	Mouse	0.16-10ng/mL	0.10ng/mL
α2-M(Alpha-2 Macroglobulin)	E-EL-H6060	Human	62.50-4000ng/mL	37.50ng/mL

Targets	Cat.No.	Species	Detection Range	Sensitivity
bFGF/FGF2(Basic Fibroblast Growth Factor)	E-EL-H6042	Human	31.25-2000pg/mL	18.75pg/mL
	E-EL-M0170	Mouse	15.63-1000pg/mL	9.38pg/mL
	E-EL-R0091	Rat	15.63-1000pg/mL	9.38pg/mL
BMP-1(Bone Morphogenetic Protein 1)	E-EL-H6044	Human	15.63-1000pg/mL	9.38pg/mL
BMP-2(Bone Morphogenetic Protein 2)	E-EL-H0011	Human	62.50-4000pg/mL	37.50pg/mL
	E-EL-M0193	Mouse	62.50-4000pg/mL	37.50pg/mL
	E-EL-R0002	Rat	62.50-4000pg/mL	37.50pg/mL
BMP-4(Bone Morphogenetic Protein 4)	E-EL-H0012	Human	31.25-2000pg/mL	18.75pg/mL
BMP-6(Bone Morphogenetic Protein 6)	E-EL-H6046	Human	15.63-1000pg/mL	9.38pg/mL
	E-EL-M3019	Mouse	15.63-1000pg/mL	9.38pg/mL
	E-EL-R0118	Rat	0.16-10ng/mL	0.10ng/mL
BMP-7(Bone Morphogenetic Protein 7)	E-EL-H0013	Human	31.25-2000pg/mL	18.75pg/mL
	E-EL-R0119	Rat	15.63-1000pg/mL	9.38pg/mL
BMP-15(Bone Morphogenetic Protein 15)	E-EL-H6045	Human	15.63-1000pg/mL	9.38pg/mL
DKK1(Dickkopf Related Protein 1)	E-EL-H0057	Human	31.25-2000pg/mL	18.75pg/mL
	E-EL-M0024	Mouse	62.50-4000pg/mL	37.50pg/mL
	E-EL-R0332	Rat	0.31-20ng/mL	0.19ng/mL
DKK2(Dickkopf Related Protein 2)	E-EL-H0862	Human	0.16-10ng/mL	0.10ng/mL
DKK3(Dickkopf Related Protein 3)	E-EL-H6110	Human	0.78-50ng/mL	0.47ng/mL
	E-EL-M0443	Mouse	15.63-1000pg/mL	9.38pg/mL



Targets	Cat.No.	Species	Detection Range	Sensitivity
EGF(Epidermal Growth Factor)	E-EL-H0059	Human	3.91-250pg/mL	2.35pg/mL
	E-EL-M0025	Mouse	15.63-1000pg/mL	9.38pg/mL
	E-EL-R0369	Rat	15.63-1000pg/mL	9.38pg/mL
EGFR(Epidermal Growth Factor Receptor)	E-EL-H0060	Human	0.31-20ng/mL	0.19ng/mL
	E-EL-M3068	Mouse	6.25-400pg/mL	3.75pg/mL
FAK(Focal Adhesion Kinase)	E-EL-H1771	Human	0.16-10ng/mL	0.10ng/mL
FBLN1(Fibulin 1)	E-EL-H1677	Human	0.63-40ng/mL	0.38ng/mL
FBLN2(Fibulin 2)	E-EL-H1668	Human	0.31-20ng/mL	0.19ng/mL
FBLN3(Fibulin 3)	E-EL-H1673	Human	0.31-20ng/mL	0.19ng/mL
FGF7/KGF(Fibroblast Growth Factor 7)	E-EL-H0092	Human	31.25-2000pg/mL	18.75pg/mL
	E-EL-M0499	Mouse	15.63-1000pg/mL	9.38pg/mL
FGF8(Fibroblast Growth Factor 8)	E-EL-H5461	Human	12.50-800pg/mL	7.50pg/mL
FGF19(Fibroblast Growth Factor 19)	E-EL-R2409	Rat	15.63-1000pg/mL	9.38pg/mL
FGF21(Fibroblast Growth Factor 21)	E-EL-H0074	Human	31.25-2000pg/mL	18.75pg/mL
	E-EL-M0029	Mouse	31.25-2000pg/mL	18.75pg/mL
FGFR1(Fibroblast Growth Factor Receptor 1)	E-EL-H0345	Human	0.16-10ng/mL	0.10ng/mL
FGFR4(Fibroblast Growth Factor Receptor 4)	E-EL-H6035	Human	78.13-5000pg/mL	46.88pg/mL
GDF3(Growth Differentiation Factor 3)	E-EL-H1910	Human	78.13-5000pg/mL	46.88pg/mL
GDF7(Growth Differentiation Factor 7)	E-EL-H1913	Human	62.50-4000pg/mL	37.50pg/mL

Targets	Cat.No.	Species	Detection Range	Sensitivity
GDNF(Glial Cell Line Derived Neurotrophic Factor)	E-EL-H1495	Human	0.31-20ng/mL	0.19ng/mL
	E-EL-M3028	Mouse	15.63-1000pg/mL	9.38pg/mL
	E-EL-R0420	Rat	78.13-5000pg/mL	46.88pg/mL
GPC1(Glypican 1)	E-EL-H1710	Human	78.13-5000pg/mL	46.88pg/mL
GPC3(Glypican 3)	E-EL-H1712	Human	0.16-10ng/mL	0.10ng/mL
	E-EL-M0328	Mouse	0.16-10ng/mL	0.10ng/mL
GPC4(Glypican 4)	E-EL-H1713	Human	0.16-10ng/mL	0.10ng/mL
HB-EGF(Heparin-binding Epidermal Growth Factor-like Growth Factor)	E-EL-M0658	Mouse	15.63-1000pg/mL	9.38pg/mL
HDGF(Hepatoma Derived Growth Factor)	E-EL-H5651	Human	0.31-20ng/mL	0.19ng/mL
HGF(Hepatocyte Growth Factor)	E-EL-H0084	Human	125-8000pg/mL	75.00pg/mL
	E-EL-M3033	Mouse	31.25-2000pg/mL	18.75pg/mL
	E-EL-R0496	Rat	62.5-4000pg/mL	37.50pg/mL
HSP-27/HSPB1(Heat Shock Protein 27)	E-EL-H1860	Human	0.78-50ng/mL	0.47ng/mL
HSPG(Heparan Sulfate Proteoglycan)	E-EL-R0491	Rat	0.31-20ng/mL	0.19ng/mL
IGF-1(Insulin-like Growth Factor 1)	E-EL-H0086	Human	1.56-100ng/mL	0.94ng/mL
	E-EL-M3006	Mouse	15.63-1000ng/mL	9.38ng/mL
	E-EL-R3001	Rat	3.13-200ng/mL	1.88ng/mL
IGF-2(Insulin Like Growth Factor 2)	E-EL-H6037	Human	7.81-500ng/mL	4.69ng/mL
	E-EL-R0530	Rat	46.88-3000pg/mL	28.13pg/mL

Targets	Cat.No.	Species	Detection Range	Sensitivity
IGFBP-1(Insulin-like Growth Factor Binding Protein 1)	E-EL-H0442	Human	0.16-10ng/mL	0.10ng/mL
	E-EL-M0705	Mouse	0.16-10ng/mL	0.10ng/mL
IGFBP-2(Insulin-like Growth Factor Binding Protein 2)	E-EL-H6038	Human	1.56-100ng/mL	0.94ng/mL
IGFBP-3(Insulin-like Growth Factor Binding Protein 3)	E-EL-H0087	Human	0.78-50ng/mL	0.47ng/mL
	E-EL-M3007	Mouse	31.25-2000ng/mL	18.75ng/mL
	E-EL-R3017	Rat	31.25-2000pg/mL	18.75pg/mL
IGFBP-4(Insulin-like Growth Factor Binding Protein 4)	E-EL-H0444	Human	3.13-200ng/mL	1.88ng/mL
IGFBP-5(Insulin-like Growth Factor Binding Protein 5)	E-EL-H0443	Human	1.56-100ng/mL	0.94ng/mL
IGFBP-6(Insulin-like Growth Factor Binding Protein 6)	E-EL-H0450	Human	0.16-10ng/mL	0.10ng/mL
	E-EL-M3067	Mouse	7.81-500pg/mL	4.69pg/mL
INSR(Insulin Receptor)	E-EL-H0452	Human	1.56-100ng/mL	0.94ng/mL
IRS1(Insulin Receptor Substrate 1)	E-EL-H5554	Human	0.16-10ng/mL	0.10ng/mL
	E-EL-R1111	Rat	0.31-20ng/mL	0.19ng/mL
JAK1(Janus Kinase 1)	E-EL-H5552	Human	0.16-10ng/mL	0.10ng/mL
JAK2(Janus Kinase 2)	E-EL-H2239	Human	125-8000pg/mL	75.00pg/mL
KL(Klotho)	E-EL-H5451	Human	0.31-20ng/mL	0.19ng/mL
	E-EL-M3051	Mouse	15.63-1000pg/mL	9.38pg/mL
	E-EL-R2580	Rat	0.16-10ng/mL	0.10ng/mL
LRP-1(Low-Density Lipoprotein-Receptor-Related Protein 1)	E-EL-M2602	Mouse	0.63-40ng/mL	0.38ng/mL
MCSF(Macrophage Colony Stimulating Factor 1)	E-EL-H0097	Human	31.25-2000pg/mL	18.75pg/mL
	E-EL-R0601	Rat	15.63-1000pg/mL	9.38pg/mL

Targets	Cat.No.	Species	Detection Range	Sensitivity
MSTN(Myostatin)	E-EL-H1437	Human	0.78-50ng/mL	0.47ng/mL
MUSK(Muscle Skeletal Receptor Tyrosine Kinase)	E-EL-H1345	Human	0.16-10ng/mL	0.10ng/mL
NFKB-p65(Nuclear factor NF-kappa-B p65 subunit)	E-EL-H1388	Human	0.16-10ng/mL	0.10ng/mL
	E-EL-M0838	Mouse	0.31-20ng/mL	0.19ng/mL
	E-EL-R0674	Rat	78.13-5000pg/mL	46.88pg/mL
NFKB-p105(Nuclear factor NF-kappa-B p105 subunit)	E-EL-H1386	Human	0.16-10ng/mL	0.10ng/mL
	E-EL-M0836	Mouse	0.16-10ng/mL	0.10ng/mL
	E-EL-R0673	Rat	0.16-10ng/mL	0.10ng/mL
NGF(Nerve Growth Factor)	E-EL-H1205	Human	15.63-1000pg/mL	9.38pg/mL
	E-EL-M0815	Mouse	31.25-2000pg/mL	18.75pg/mL
	E-EL-R0652	Rat	39.06-2500pg/mL	23.44pg/mL
NOS3/eNOS(Nitric Oxide Synthase 3, Endothelial)	E-EL-H0755	Human	62.50-4000pg/mL	37.50pg/mL
	E-EL-M0456	Mouse	15.63-1000pg/mL	9.38pg/mL
	E-EL-R0367	Rat	15.63-1000pg/mL	9.38pg/mL
NRG-1(Neuregulin 1)	E-EL-H6092	Human	15.63-1000pg/mL	9.38pg/mL
	E-EL-M0107	Mouse	78.13-5000pg/mL	46.88pg/mL
NRP1(Neuropilin 1)	E-EL-H6164	Human	15.63-1000pg/mL	9.38pg/mL
	E-EL-R3041	Rat	15.63-1000pg/mL	9.38pg/mL
PDGF-AB(Platelet Derived Growth Factor AB)	E-EL-H1576	Human	31.25-2000pg/mL	18.75pg/mL
PDGF-BB(Platelet Derived Growth Factor BB)	E-EL-H1577	Human	31.25-2000pg/mL	18.75pg/mL
	E-EL-M0632	Mouse	39.06-2500pg/mL	23.44pg/mL

Targets	Cat.No.	Species	Detection Range	Sensitivity
pERK1/2(Phospho Extracellular Signal Regulated Kinase 1/2)	E-EL-H1698	Human	31.25-2000pg/mL	18.75pg/mL
PGF(Placental Growth Factor)	E-EL-H1555	Human	15.63-1000pg/mL	9.38pg/mL
	E-EL-R0742	Rat	7.81-500pg/mL	4.69pg/mL
Rac1(Ras Related C3 Botulinum Toxin Substrate 1)	E-EL-H1558	Human	0.16-10ng/mL	0.10ng/mL
SCF(Stem Cell Factor)	E-EL-H1299	Human	31.25-2000pg/mL	18.75pg/mL
sVEGFR-1(soluble Vascular endothelial growth factor receptor 1)	E-EL-H6117	Human	7.81-500pg/mL	4.69pg/mL
TGF-β1(Transforming Growth Factor Beta 1)	E-EL-0162	Universal	0.16-10ng/mL	0.10ng/mL
TGF-β2(Transforming Growth Factor Beta 2)	E-EL-H1587	Human	31.25-2000pg/mL	18.75pg/mL
	E-EL-M1191	Mouse	15.63-1000pg/mL	9.38pg/mL
	E-EL-R1015	Rat	15.63-1000pg/mL	9.38pg/mL
Ub(Ubiquitin)	E-EL-H1252	Human	62.50-4000pg/mL	37.50pg/mL
	E-EL-H6103	Human	31.25-2000pg/mL	18.75pg/mL
VE-Cadherin(Vascular Endothelial Cadherin)	E-EL-M0210	Mouse	0.16-10ng/mL	0.10ng/mL
	E-EL-R0130	Rat	0.16-10ng/mL	0.10ng/mL
VEGF-A(Vascular Endothelial Cell Growth Factor A)	E-EL-H0111	Human	31.25-2000pg/mL	18.75pg/mL
	E-EL-M1292	Mouse	31.25-2000pg/mL	18.75pg/mL
	E-EL-R2603	Rat	31.25-2000pg/mL	18.75pg/mL
VEGFR1/FLT1(Vascular Endothelial Growth Factor Receptor 1)	E-EL-R0911	Rat	0.16-10ng/mL	0.10ng/mL
VEGFR-2/KDR(Vascular Endothelial Growth Factor Receptor 2)	E-EL-H1603	Human	78.13-5000pg/mL	46.88pg/mL
	E-EL-M0649	Mouse	0.16-10ng/mL	0.10ng/mL
WISP1(WNT1 Inducible Signaling Pathway Protein 1)	E-EL-H5542	Human	78.13-5000pg/mL	46.88pg/mL

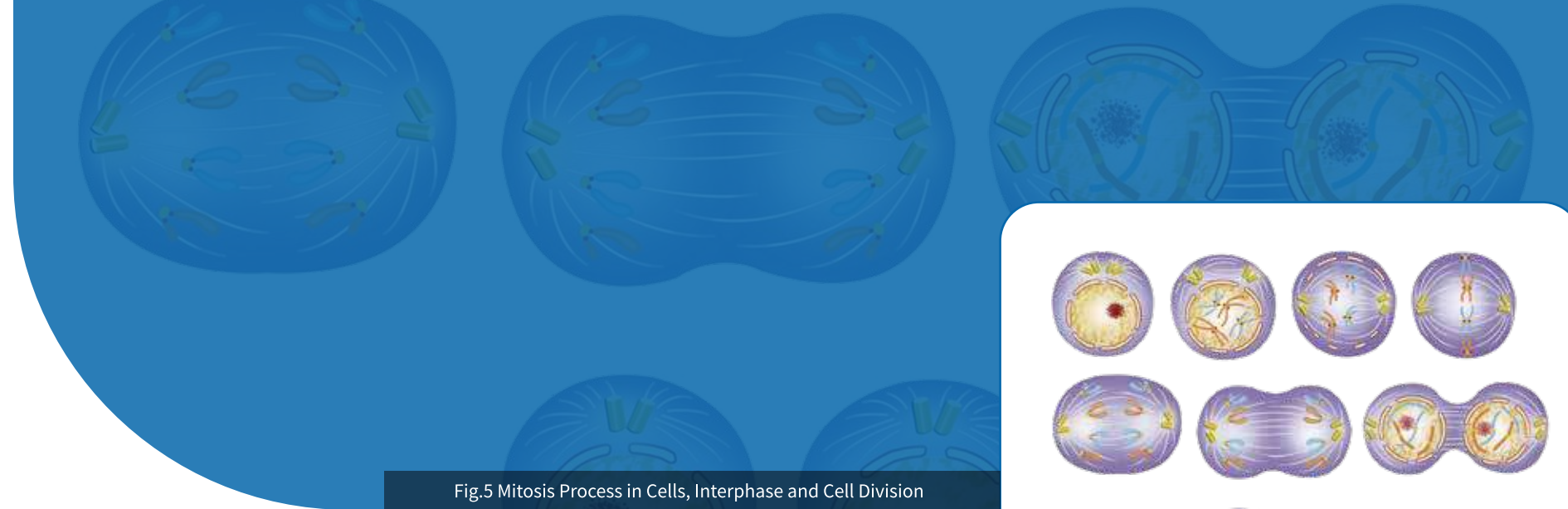


Fig.5 Mitosis Process in Cells, Interphase and Cell Division

## 05 cell cycle

Cell cycle refers to the whole process that a cell goes through from the completion of one division to the end of the next division, which is divided into two stages: interphase and mitotic phase. During interphase, the cell grows, accumulating nutrients needed for mitosis, and replicates its DNA and some of its organelles. During the mitotic phase, the replicated chromosomes, organelles, and cytoplasm separate into two new daughter cells. To ensure the proper replication of cellular components and division, there are control mechanisms known as cell cycle checkpoints after each of the key steps of the cycle that determine if the cell can progress to the next phase.

The cell-division cycle is a vital process by which a single-celled fertilized egg develops into a mature organism, as well as the process by which hair, skin, blood cells, and some internal organs are renewed. Disruption of the normal cell cycle underpins the characteristic uncontrolled cell division in cancer. Deregulation of the cell cycle is a consequence of aberrant activity of cell cycle-associated kinases or phosphatases.



## Cell Cycle ▼

Targets	Cat.No.	Species	Detection Range	Sensitivity
CCNB1(Cyclin-B1)	E-EL-H0293	Human	0.31-20ng/mL	0.19ng/mL
CDK4(Cyclin Dependent Kinase 4)	E-EL-H2323	Human	0.31-20ng/mL	0.19ng/mL
CDKN2A(Cyclin Dependent Kinase Inhibitor 2A)	E-EL-H2327	Human	0.63-40ng/mL	0.38ng/mL
CLU(Clusterin)	E-EL-H0038	Human	1.56-100ng/mL	0.94ng/mL
	E-EL-M3070	Mouse	15.63-1000ng/mL	9.38ng/mL
FOXO3(Forkhead Box Protein O3)	E-EL-H1101	Human	0.31-20ng/mL	0.19ng/mL
SIRT1(Sirtuin 1)	E-EL-H1546	Human	0.31-20ng/mL	0.19ng/mL
	E-EL-M0350	Mouse	0.16-10ng/mL	0.10ng/mL
	E-EL-R1102	Rat	0.16-10ng/mL	0.10ng/mL
WISP1(WNT1 Inducible Signaling Pathway Protein 1)	E-EL-H5542	Human	78.13-5000pg/mL	46.88pg/mL

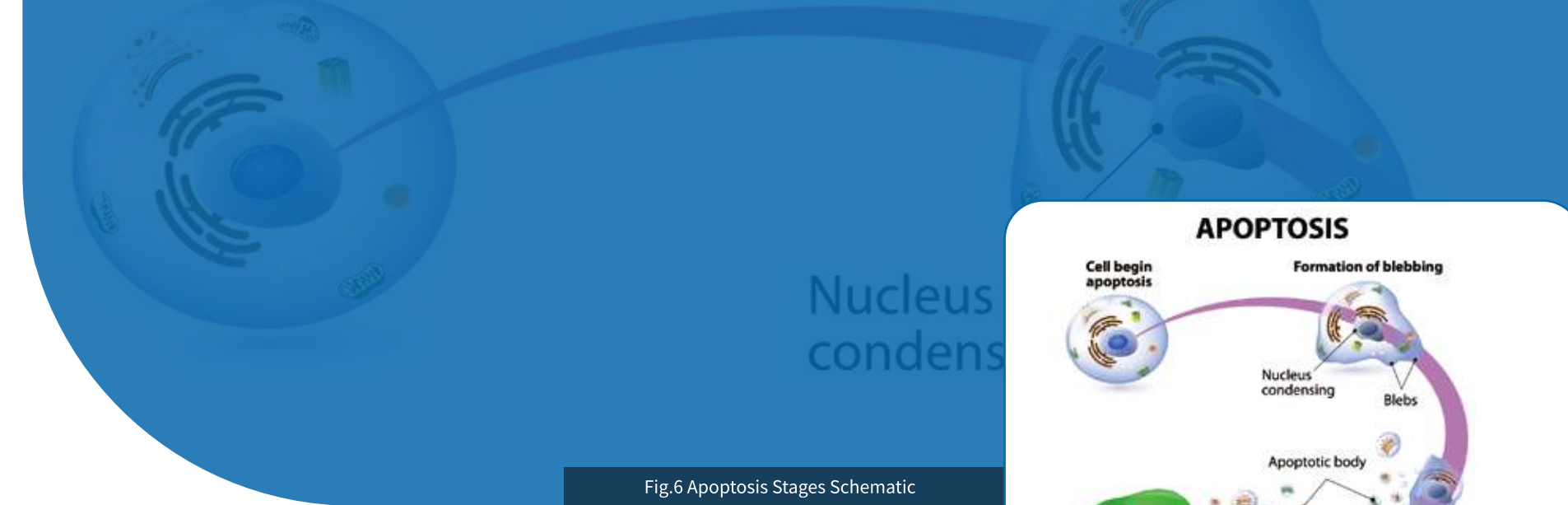
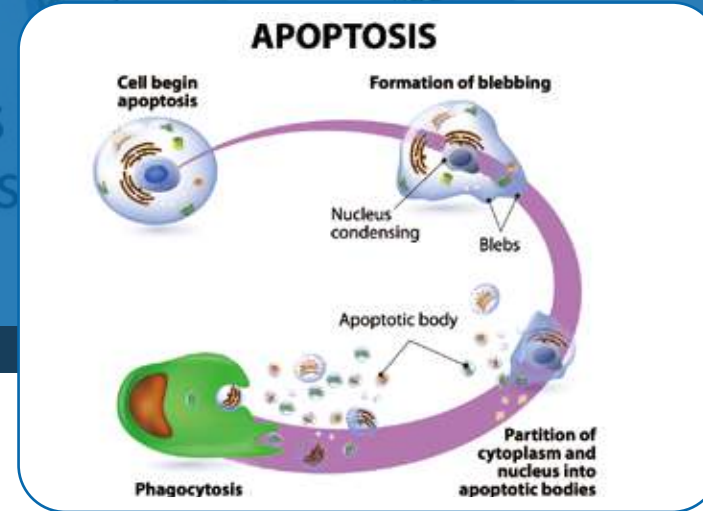


Fig.6 Apoptosis Stages Schematic



## 06 Apoptosis

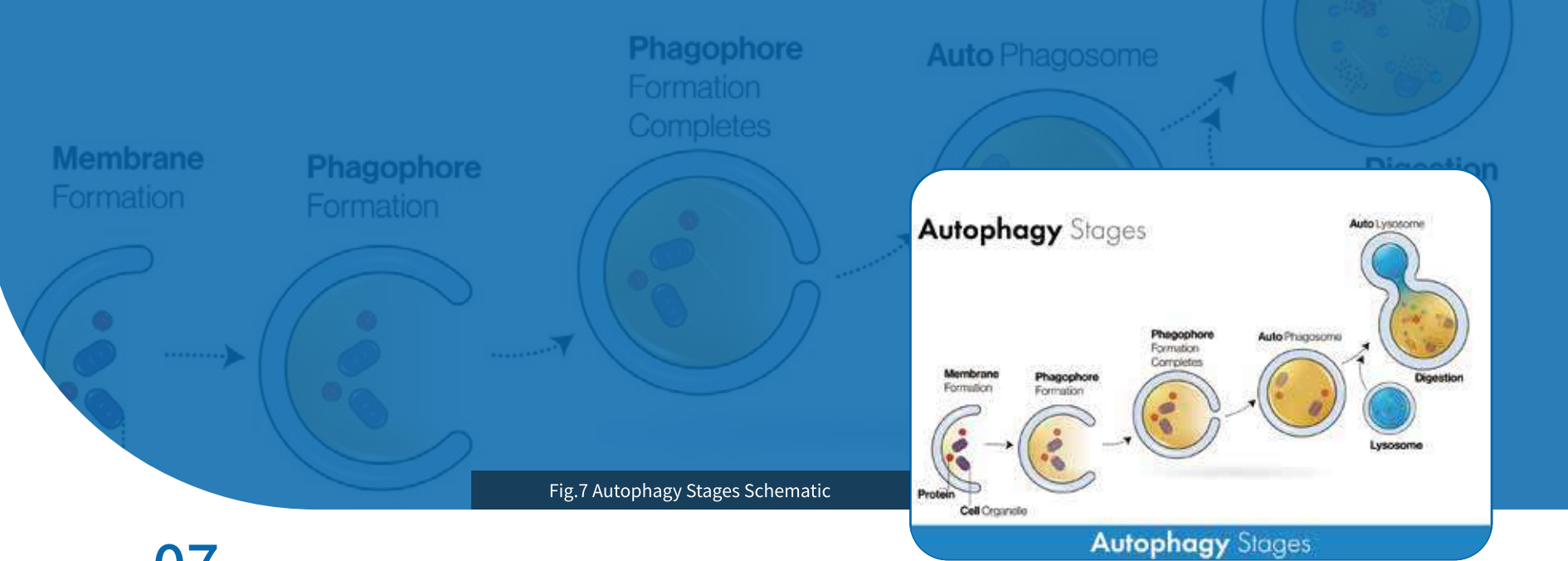
Apoptosis is a form of programmed cell death that occurs in multicellular organisms and plays a key role in development and immunity as well as in cancer and neurodegenerative diseases. Biochemical events lead to characteristic cell changes (morphology) and death. These changes include blebbing, cell shrinkage, nuclear fragmentation, chromatin condensation, chromosomal DNA fragmentation, and global mRNA decay, and ultimately the formation of apoptotic bodies that can be efficiently cleared by phagocytes.

Apoptosis can be initiated via several mechanisms including trophic factor withdrawal, ligation of pro-apoptotic transmembrane receptors, or the activities of cytotoxic immune cells. Excessive apoptosis causes atrophy, whereas an insufficient amount results in uncontrolled cell proliferation, such as cancer. Some factors like Fas receptors and caspases promote apoptosis, while some members of the Bcl-2 family of proteins inhibit apoptosis.

## Apoptosis ▼

Targets	Cat.No.	Species	Detection Range	Sensitivity
BAG3(Bcl2 Associated Athanogene 3)	E-EL-H0418	Human	0.16-10ng/mL	0.10ng/mL
BAX(Bcl-2 Associated X Protein)	E-EL-H0562	Human	0.78-50ng/mL	0.47ng/mL
	E-EL-R0098	Rat	0.16-10ng/mL	0.10ng/mL
Bcl-2(B-cell Leukemia/Lymphoma 2)	E-EL-H0114	Human	0.16-10ng/mL	0.10ng/mL
	E-EL-M0175	Mouse	15.63-1000pg/mL	9.38pg/mL
	E-EL-R0096	Rat	0.16-10ng/mL	0.10ng/mL
CASP1(Caspase 1)	E-EL-H0016	Human	78.13-5000pg/mL	46.88pg/mL
	E-EL-M0201	Mouse	31.25-2000pg/mL	18.75pg/mL
	E-EL-R0371	Rat	62.50-4000pg/mL	37.50pg/mL
CASP3(Caspase 3)	E-EL-H0017	Human	0.31-20ng/mL	0.19ng/mL
	E-EL-M0238	Mouse	0.16-10ng/mL	0.10ng/mL
	E-EL-R0160	Rat	0.31-20ng/mL	0.19ng/mL
CASP4(Caspase 4)	E-EL-H0660	Human	0.16-10ng/mL	0.10ng/mL
CASP8(Caspase 8)	E-EL-H0659	Human	0.16-10ng/mL	0.10ng/mL
CASP9(Caspase 9)	E-EL-H0663	Human	1.56-100ng/mL	0.94ng/mL

Targets	Cat.No.	Species	Detection Range	Sensitivity
FAS/CD95(Factor Related Apoptosis)	E-EL-H0067	Human	31.25-2000pg/mL	18.75pg/mL
	E-EL-R0373	Rat	31.25-2000pg/mL	18.75pg/mL
FASL/TNFSF6(Factor Related Apoptosis Ligand)	E-EL-H0068	Human	15.63-1000pg/mL	9.38pg/mL
	E-EL-M0028	Mouse	31.25-2000pg/mL	18.75pg/mL
SIRT1(Sirtuin 1)	E-EL-H1546	Human	0.31-20ng/mL	0.19ng/mL
	E-EL-M0350	Mouse	0.16-10ng/mL	0.10ng/mL
	E-EL-R1102	Rat	0.16-10ng/mL	0.10ng/mL
Surv(Survivin)	E-EL-H1584	Human	31.25-2000pg/mL	18.75pg/mL
TNFRSF1A (Tumor Necrosis Factor Receptor Superfamily, Member 1A)	E-EL-H0217	Human	7.81-500pg/mL	4.69pg/mL
	E-EL-M3002	Mouse	62.50-4000pg/mL	37.50pg/mL
TNF-α(Tumor Necrosis Factor Alpha)	E-EL-H0109	Human	7.81-500pg/mL	4.69pg/mL
	E-EL-M3063	Mouse	7.81-500pg/mL	4.69pg/mL
	E-EL-R2856	Rat	15.63-1000pg/mL	9.38pg/mL
TRAIL/TNFSF10 (Tumor Necrosis Factor Related Apoptosis Inducing Ligand)	E-EL-H1593	Human	15.63-1000pg/mL	9.38pg/mL
	E-EL-M1084	Mouse	15.63-1000pg/mL	9.38pg/mL
WISP1(WNT1 Inducible Signaling Pathway Protein 1)	E-EL-H5542	Human	78.13-5000pg/mL	46.88pg/mL



## 07 Autophagy

Autophagy is the biological process in which endogenous proteins and damaged organelles are degraded by cellular self-digestion. It is the orderly degradation and recycling of cellular components. There are three main forms of autophagy: microautophagy, macroautophagy and chaperone-mediated autophagy (CMA). Some damaged proteins or organelles during autophagy are wrapped by bilayer membrane structure autophagy vesicles and sent to lysosomes (animals) or vacuoles (yeast and plants) for degradation and recycling.

In disease, autophagy has been seen as an adaptive response to stress, promoting survival of the cell; but in other cases it appears to promote cell death and morbidity. In the extreme case of starvation, the breakdown of cellular components promotes cellular survival by maintaining cellular energy levels. Defects in autophagy have been linked to various human diseases, including neurodegeneration and cancer, and interest in modulating autophagy as a potential treatment for these diseases has grown rapidly.

## Autophagy ▾

Targets	Cat.No.	Species	Detection Range	Sensitivity
BAX(Bcl-2 Associated X Protein)	E-EL-H0562	Human	0.78-50ng/mL	0.47ng/mL
	E-EL-R0098	Rat	0.16-10ng/mL	0.10ng/mL
Bcl-2(B-cell Leukemia/Lymphoma 2)	E-EL-H0114	Human	0.16-10ng/mL	0.10ng/mL
	E-EL-M0175	Mouse	15.63-1000pg/mL	9.38pg/mL
	E-EL-R0096	Rat	0.16-10ng/mL	0.10ng/mL
BEEN1(Beclin 1)	E-EL-H0564	Human	0.16-10ng/mL	0.10ng/mL
mTOR(Mammalian Target of Rapamycin)	E-EL-H1655	Human	0.16-10ng/mL	0.10ng/mL
SIRT1(Sirtuin 1)	E-EL-H1546	Human	0.31-20ng/mL	0.19ng/mL
	E-EL-M0350	Mouse	0.16-10ng/mL	0.10ng/mL
	E-EL-R1102	Rat	0.16-10ng/mL	0.10ng/mL



## TUMOR MARKER

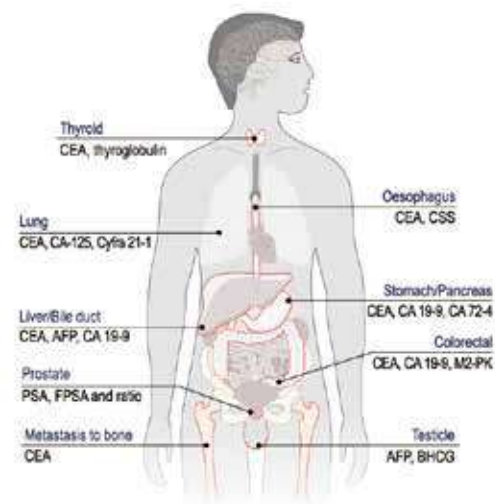


Fig.8 Cancer Biomarkers Schematic

## 08 Cancer Biomarkers

Cancer Biomarkers are endogenous proteins or metabolites that are produced directly by tumor cells or induced by non-tumor cells through tumor cells, and whose amounts and modifications are indicative of tumor state, progression characteristics, and response to therapies. They are present in the tissues, body fluids and excreta of tumor patients and contain a variety of molecules: a, The metabolites of tumor cells, such as glycolysis products, tissue polypeptide antigens, nucleic acid decomposition products. b, Cell gene products with disordered differentiation, such as ectopic ACTH fragments, alpha-fetoprotein, carcinoembryonic antigen, fetal isoenzyme. c, Some cytoskeletal protein components, such as cytokeratin fragment antigen 21-1 (Cyfra21-1) and polyamines, are the main substances released into the blood circulation by necrosis and disintegration of tumor cells. d, Cell reactivity products of tumor host cells, such as VCA-IgA and EA-IgA.

## Cancer Biomarkers ▼

Targets	Cat.No.	Species	Detection Range	Sensitivity
AGR2(Anterior Gradient Protein 2)	E-EL-H0298	Human	0.16-10ng/mL	0.10ng/mL
ApoA1(Apolipoprotein A1)	E-EL-H0125	Human	3.13-200ng/mL	1.88ng/mL
	E-EL-M3016	Mouse	0.63-40ng/mL	0.38ng/mL
	E-EL-MK1491	Monkey	1.56-100ng/mL	0.94ng/mL
	E-EL-R3029	Rat	15.63-1000pg/mL	9.38pg/mL
ApoA2(Apolipoprotein A2)	E-EL-H6039	Human	31.25-2000ng/mL	18.75ng/mL
	E-EL-M2733	Mouse	0.31-20ng/mL	0.19ng/mL
αFP(Alpha-Fetoprotein)	E-EL-H0070	Human	1.56-100ng/mL	0.94ng/mL
	E-EL-H2188	Human	31.25-2000ng/mL	18.75ng/mL
	E-EL-M2411	Mouse	0.31-20ng/mL	0.19ng/mL
BMG/β2-MG(Beta-2-Microglobulin)	E-EL-M2411	Mouse	0.31-20ng/mL	0.19ng/mL
	E-EL-R1085	Rat	0.31-20ng/mL	0.19ng/mL
CA125(Carbohydrate Antigen 125)	E-EL-H0636	Human	3.13~200IU/mL	1.88IU/mL
CA19-9(Carbohydrate antigen19-9)	E-EL-H0637	Human	6.25~400IU/mL	3.75IU/mL
CEA(Carcinoembryonic Antigen)	E-EL-H6047	Human	0.16~10ng/mL	0.10ng/mL
CK-18/KRT18(Cytokeratin 18)	E-EL-H2072	Human	6.25-400mIU/mL	3.75mIU/mL
	E-EL-R1004	Rat	0.16-10ng/mL	0.10ng/mL
CTSD(Cathepsin D)	E-EL-H0669	Human	46.88-3000pg/mL	28.13pg/mL
	E-EL-M0249	Mouse	31.25-2000pg/mL	18.75pg/mL
	E-EL-R0171	Rat	15.63-1000pg/mL	9.38pg/mL

Targets	Cat.No.	Species	Detection Range	Sensitivity
DKK1(Dickkopf Related Protein 1)	E-EL-H0057	Human	31.25-2000pg/mL	18.75pg/mL
	E-EL-M0024	Mouse	62.50-4000pg/mL	37.50pg/mL
	E-EL-R0332	Rat	0.31-20ng/mL	0.19ng/mL
EMMPRN/CD147 (Extracellular Matrix Metalloproteinase Inducer)	E-EL-H6150	Human	0.16-10ng/mL	0.09ng/mL
ERβ(Estrogen Receptor Beta)	E-EL-H1132	Human	0.31-20ng/mL	0.19ng/mL
FETUA(Fetuin A)	E-EL-H0386	Human	9.38-600ng/mL	5.63ng/mL
	E-EL-M3069	Mouse	78.12-5000ng/mL	46.88ng/mL
	E-EL-R2451	Rat	6.25-400ng/mL	3.75ng/mL
GFAP(Glial Fibrillary Acidic Protein)	E-EL-H6093	Human	15.63-1000pg/mL	9.38pg/mL
	E-EL-M0554	Mouse	15.63-1000pg/mL	9.38pg/mL
	E-EL-R1428	Rat	0.31-20ng/mL	0.19ng/mL
IgE(Immunoglobulin E)	E-EL-H6104	Human	3.13-200ng/mL	1.88ng/mL
	E-EL-M3034	Mouse	125-8000ng/mL	75.00ng/mL
	E-EL-RB0659	Rabbit	1.56-100ng/mL	0.94ng/mL
IGFBP-2(Insulin-like Growth Factor Binding Protein 2)	E-EL-H6038	Human	1.56-100ng/mL	0.94ng/mL
IGFBP-6(Insulin-like Growth Factor Binding Protein 6)	E-EL-H0450	Human	0.16-10ng/mL	0.10ng/mL
	E-EL-M3067	Mouse	7.81-500pg/mL	4.69pg/mL
LDHA(Lactate Dehydrogenase A)	E-EL-H0556	Human	0.78-50ng/mL	0.47ng/mL
	E-EL-R2547	Rat	0.31-20ng/mL	0.19ng/mL
LGALS3BP (Lectin Galactoside Binding, Soluble 3 Binding Protein)	E-EL-H1456	Human	1.25-80ng/mL	0.75ng/mL

Targets	Cat.No.	Species	Detection Range	Sensitivity
Mly/CXCL9(Monocyte Interferon Gamma Inducing Factor)	E-EL-H6062	Human	15.63-1000pg/mL	9.38pg/mL
MMP-1(Matrix Metalloproteinase 1)	E-EL-H6073	Human	31.25-2000pg/mL	18.75pg/mL
	E-EL-M0779	Mouse	125-8000pg/mL	75.00pg/mL
	E-EL-R0617	Rat	0.16-10ng/mL	0.10ng/mL
MMP-13(Matrix Metalloproteinase 13)	E-EL-H6023	Human	15.63-1000pg/mL	9.38pg/mL
	E-EL-M0076	Mouse	78.13-5000pg/mL	46.88pg/mL
	E-EL-R0045	Rat	0.31-20ng/mL	0.19ng/mL
MUC1(Mucin 1)	E-EL-H0616	Human	0.16-10ng/mL	0.10ng/mL
PLAU/uPA(Urokinase-Type Plasminogen Activator)	E-EL-H1779	Human	62.50-4000pg/mL	37.50pg/mL
PSA(Prostate Specific Antigen)	E-EL-H0091	Human	0.31-20ng/mL	0.19ng/mL
	E-EL-M0961	Mouse	0.16-10ng/mL	0.10ng/mL
	E-EL-R0796	Rat	0.16-10ng/mL	0.10ng/mL
PSMA(Prostate specific membrane antigen)	E-EL-H5413	Human	4.69-300ng/mL	2.81ng/mL
SAA(Serum Amyloid A)	E-EL-H2183	Human	1.25-80ng/mL	0.75ng/mL
	E-EL-M3045	Mouse	125-8000pg/mL	75.00pg/mL
	E-EL-R3026	Rat	1.56-100pg/mL	0.94pg/mL
SPARCL1(SPARC Like Protein 1)	E-EL-H1273	Human	0.31-20ng/mL	0.19ng/mL
TLR-2(Toll-like Receptor 2)	E-EL-H0951	Human	0.31-20ng/mL	0.19ng/mL
	E-EL-R0907	Rat	0.31-20ng/mL	0.19ng/mL
TNC(Tenascin C)	E-EL-M3047	Mouse	31.25-2000pg/mL	18.75pg/mL
TP53(Tumor Protein p53)	E-EL-H0910	Human	78.13-5000pg/mL	46.88pg/mL
tPA(Tissue-type Plasminogen Activator)	E-EL-H2106	Human	0.63-40ng/mL	0.38ng/mL
	E-EL-M0917	Mouse	39.06-2500pg/mL	23.44pg/mL

TARGET



Fig.9 Cancer Cell Targets

## 09 Cancer Drug Targets

In recent years, with the rapid development of tumor biology and related disciplines, people gradually realize that the essence of cell cancerosis is infinite cell proliferation caused by the disorder of cell signal transduction pathway, which is followed by a major change in the concept of anticancer drug research and development. The focus of research and development is shifting from traditional cytotoxic drugs to a new generation of anti-cancer drugs specific to targets of abnormal signaling systems within cancer cells. Different from traditional cytotoxic drugs, such as poor selectivity, strong side effects and easy to produce drug resistance, target-specific anti-cancer drugs target at the difference between normal cells and tumor cells, achieving high selectivity and low toxicity therapeutic effect. These include targeted tyrosine kinases, angiogenesis, tumor cell cycle related factors, histone deacetylase inhibitors, microenvironments, tumor stem cells, and tumor metabolic abnormalities.

## Cancer Drug Targets ▼

Targets	Cat.No.	Species	Detection Range	Sensitivity
AFGF/FGF1(Acidic Fibroblast Growth Factor 1)	E-EL-H0071	Human	31.25-2000pg/mL	18.75pg/mL
ANG1(Angiopoietin 1)	E-EL-H6119	Human	62.50-4000pg/mL	37.50pg/mL
	E-EL-M3014	Mouse	0.78-50ng/mL	0.47ng/mL
ANG2(Angiopoietin 2)	E-EL-R0626	Rat	0.16-10ng/mL	0.10ng/mL
	E-EL-H0008	Human	46.88-3000pg/mL	28.13pg/mL
Bcl-2(B-cell Leukemia/Lymphoma 2)	E-EL-M0098	Mouse	31.25-2000pg/mL	18.75pg/mL
	E-EL-H0114	Human	0.16-10ng/mL	0.10ng/mL
bFGF/FGF2(Basic Fibroblast Growth Factor)	E-EL-M0175	Mouse	15.63-1000pg/mL	9.38pg/mL
	E-EL-R0096	Rat	0.16-10ng/mL	0.10ng/mL
	E-EL-H6042	Human	31.25-2000pg/mL	18.75pg/mL
CA9(Carbonic Anhydrase IX)	E-EL-M0170	Mouse	15.63-1000pg/mL	9.38pg/mL
	E-EL-R0091	Rat	15.63-1000pg/mL	9.38pg/mL
CDK4(Cyclin Dependent Kinase 4)	E-EL-M0227	Mouse	15.63-1000pg/mL	9.38pg/mL
COX2(Cytochrome C Oxidase Subunit II)	E-EL-H2323	Human	0.31-20ng/mL	0.19ng/mL
CXCR2(CXC-Chemokine Receptor 2)	E-EL-H5574	Human	0.31-20ng/mL	0.19ng/mL
CXCR4(Chemokine C-X-C-Motif Receptor 4)	E-EL-H2578	Human	0.78-50ng/mL	0.47ng/mL
EGFR(Epidermal Growth Factor Receptor)	E-EL-H5490	Human	78.13-5000pg/mL	46.88pg/mL
	E-EL-H0060	Human	0.31-20ng/mL	0.19ng/mL
EGFR2(Epidermal Growth Factor Receptor 2)	E-EL-M3068	Mouse	6.25-400pg/mL	3.75pg/mL
	E-EL-H6083	Human	31.25-2000pg/mL	18.75pg/mL



Targets	Cat.No.	Species	Detection Range	Sensitivity
ENG(Endoglin)	E-EL-H6010	Human	0.63-40ng/mL	0.38ng/mL
	E-EL-M1072	Mouse	62.50-4000pg/mL	37.50pg/mL
	E-EL-R2434	Rat	0.16-10ng/mL	0.10ng/mL
FGFR4(Fibroblast Growth Factor Receptor 4)	E-EL-H6035	Human	78.13-5000pg/mL	46.88pg/mL
GAL9(Galectin 9)	E-EL-M0534	Mouse	7.81-500pg/mL	4.69pg/mL
	E-EL-R0403	Rat	7.81-500pg/mL	4.69pg/mL
GM-CSF (Granulocyte-Macrophage Colony Stimulating Factor)	E-EL-H0081	Human	7.81-500pg/mL	4.69pg/mL
	E-EL-M0032	Mouse	15.63-1000pg/mL	9.38pg/mL
	E-EL-R0008	Rat	15.63-1000pg/mL	9.38pg/mL
HGF(Hepatocyte Growth Factor)	E-EL-H0084	Human	125-8000pg/mL	75.00pg/mL
	E-EL-M3033	Mouse	31.25-2000pg/mL	18.75pg/mL
	E-EL-R0496	Rat	62.50-4000pg/mL	37.50pg/mL
HIF-1α(Hypoxia Inducible Factor 1 Alpha)	E-EL-H6066	Human	62.50-4000pg/mL	37.50pg/mL
	E-EL-M0687	Mouse	125-8000pg/mL	75.00pg/mL
	E-EL-R0513	Rat	7.81-500pg/mL	4.69pg/mL
HSP-27/HSPB1(Heat Shock Protein 27)	E-EL-H1860	Human	0.78-50ng/mL	0.47ng/mL
HSP-90(Heat Shock Protein 90)	E-EL-H1864	Human	3.13-200ng/mL	1.88ng/mL
	E-EL-M0620	Mouse	0.16-10ng/mL	0.10ng/mL
	E-EL-R0480	Rat	125-8000pg/mL	75.00pg/mL
IDO(Indoleamine-2,3-Dioxygenase)	E-EL-H2162	Human	0.31-20ng/mL	0.19ng/mL

Targets	Cat.No.	Species	Detection Range	Sensitivity
IGF1R(Insulin Like Growth Factor 1 Receptor)	E-EL-H0425	Human	0.31-20ng/mL	0.19ng/mL
IL-2Rα/CD25(Interleukin-2 Receptor alpha chain)	E-EL-R0899	Rat	78.13-5000pg/mL	46.88pg/mL
IL-6(Interleukin 6)	E-EL-H6156	Human	1.56-100pg/mL	0.94pg/mL
	E-EL-M0044	Mouse	31.25-2000pg/mL	18.75pg/mL
	E-EL-R0015	Rat	12.50-800pg/mL	7.50pg/mL
IL-13(Interleukin 13)	E-EL-H0104	Human	15.63-1000pg/mL	9.38pg/mL
	E-EL-M0727	Mouse	31.25-2000pg/mL	18.75pg/mL
	E-EL-R0563	Rat	15.63-1000pg/mL	9.38pg/mL
JAK1(Janus Kinase 1)	E-EL-H5552	Human	0.16-10ng/mL	0.10ng/mL
JAK2(Janus Kinase 2)	E-EL-H2239	Human	125-8000pg/mL	75.00pg/mL
MMP-1(Matrix Metalloproteinase 1)	E-EL-H6073	Human	31.25-2000pg/mL	18.75pg/mL
	E-EL-M0779	Mouse	125-8000pg/mL	75.00pg/mL
	E-EL-R0617	Rat	0.16-10ng/mL	0.10ng/mL
MMP-2(Matrix Metalloproteinase 2)	E-EL-H1445	Human	0.78-50ng/mL	0.47ng/mL
	E-EL-M0780	Mouse	0.16-10ng/mL	0.10ng/mL
	E-EL-R0618	Rat	0.31-20ng/mL	0.19ng/mL
MMP-7(Matrix Metalloproteinase 7)	E-EL-H1449	Human	0.16-10ng/mL	0.10ng/mL
	E-EL-M0783	Mouse	62.50-4000pg/mL	37.50pg/mL
MMP-9(Matrix Metalloproteinase 9)	E-EL-H6075	Human	0.16-10ng/mL	0.10ng/mL
	E-EL-M3052	Mouse	1.56-100ng/mL	0.94ng/mL
	E-EL-R3021	Rat	7.81-500ng/mL	4.69ng/mL



Targets	Cat.No.	Species	Detection Range	Sensitivity
MMP-10(Matrix Metalloproteinase 10)	E-EL-H6022	Human	31.25-2000pg/mL	18.75pg/mL
MMP-13(Matrix Metalloproteinase 13)	E-EL-H6023	Human	15.63-1000pg/mL	9.38pg/mL
	E-EL-M0076	Mouse	78.13-5000pg/mL	46.88pg/mL
	E-EL-R0045	Rat	0.31-20ng/mL	0.19ng/mL
	E-EL-H1655	Human	0.16-10ng/mL	0.10ng/mL
mTOR(Mammalian Target of Rapamycin)	E-EL-H1655	Human	0.16-10ng/mL	0.10ng/mL
MUC1(Mucin 1)	E-EL-H0616	Human	0.16-10ng/mL	0.10ng/mL
PD-L1(Programmed Cell Death Protein 1 Ligand 1)	E-EL-H1547	Human	0.16-10ng/mL	0.10ng/mL
PSMA(Prostate specific membrane antigen)	E-EL-H5413	Human	4.69-300ng/mL	2.81ng/mL
sCD40L(Soluble Cluster of Differentiation 40 Ligand)	E-EL-H0035	Human	62.50-4000pg/mL	37.50pg/mL
TGF-β1(Transforming Growth Factor Beta 1)	E-EL-0162	Universal	0.16-10ng/mL	0.10ng/mL
TNF-α(Tumor Necrosis Factor Alpha)	E-EL-H0109	Human	7.81-500pg/mL	4.69pg/mL
	E-EL-M3063	Mouse	7.81-500pg/mL	4.69pg/mL
	E-EL-R2856	Rat	15.63-1000pg/mL	9.38pg/mL
TRAIL/TNFSF10 (Tumor Necrosis Factor Related Apoptosis Inducing Ligand)	E-EL-H1593	Human	15.63-1000pg/mL	9.38pg/mL
	E-EL-M1084	Mouse	15.63-1000pg/mL	9.38pg/mL
VEGF-A(Vascular Endothelial Cell Growth Factor A)	E-EL-H0111	Human	31.25-2000pg/mL	18.75pg/mL
	E-EL-M1292	Mouse	31.25-2000pg/mL	18.75pg/mL
	E-EL-R2603	Rat	31.25-2000pg/mL	18.75pg/mL
VEGFR1/FLT1 (Vascular Endothelial Growth Factor Receptor 1)	E-EL-R0911	Rat	0.16-10ng/mL	0.10ng/mL

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## ■ Part of High IF Literatures—Cancer Research Area

Targets	Cat.No.	Literature Information	Research Area	Impact Factor
8-OHdG	E-EL-0028	Yang L, Liu Q, Zhang X, et al. DNA of Neutrophil Extracellular Traps Promotes Cancer Metastasis via CCDC25[J]. Nature, 2020:1-6.	Cancer Immunology	42.778
Mouse HIF-1 $\alpha$	E-EL-M0687	Yang C, Mu G, Zhang Y, et al. Supramolecular Nitric Oxide Depot for Hypoxic Tumor Vessel Normalization and Radiosensitization[J]. Advanced Materials, 2022: 2202625.	Cancer	32.086
Mouse IFN- $\gamma$ Mouse IL-12	E-EL-M0048 E-EL-M3062	Li Y K, Zhang H Q, Wang R K, et al. Tumor Cell Nanovaccines based on Genetically Engineered Antibody-anchored Membrane[J]. Advanced Materials, 2023: e2208923.	Cancer	32.086
PGE2 Human NGF Human CGRP-1 Mouse CGRP1 Rat CGRP1	E-EL-0034 E-EL-H1205 E-EL-H0619 E-EL-M0215 E-EL-R0135	Zhang Y, Lin C Z, Liu Z Q, et al. Cancer Cells Co-opt Nociceptive Nerves to Thrive in Nutrient-Poor Environments and upon Nutrient-Starvation Therapies[J]. Cell Metabolism, 2022, 34(12):1999-2017.	Cancer Immunology Signaling Transduction	31.373
TGF- $\beta$ 1 Mouse IFN- $\gamma$ Mouse IL-2 Mouse IL-12 Mouse TNF- $\alpha$	E-EL-0162 E-EL-M0048 E-EL-M0042 E-EL-M3062 E-EL-M3063	Zhang Z Z , Wang Q X , Liu Q , et al. Dual-Locking Nanoparticles Disrupt the PD-1/PD-L1 Pathway for Efficient Cancer Immunotherapy[J]. Advanced materials, 2019, 1905751.	Cancer Immunology Signaling Transduction	27.398

Targets	Cat.No.	Literature Information	Research Area	Impact Factor
Human IL-6 Human MCP-1	E-EL-H6156 E-EL-H6005	Liu L, Cui J, Zhao Y, et al. KDM6A-ARHGDI B Axis Blocks Metastasis of Bladder Cancer by Inhibiting Rac1[J]. Molecular Cancer, 2021, 20(1): 1-21.	Cancer	27.401
Human FPN	E-EL-H2355	Liu H C, Yeh T C, Hou J Y, et al. The Dysregulation of Hepcidin-Ferroportin Axis in Childhood Acute Lymphoblastic Leukemia Survivors after Completion of Chemotherapy[J]. Blood, 2020, 136: 1.	Cancer	23.629
Mouse MIF	E-EL-M0771	Li J, Wang Q, Lu H, et al. Graphdiyne Oxide Nanosheets Exert Anti-Lymphoma Effect by Killing Cancer Stem Cells and Remodeling Tumor Microenvironment[J]. Nano Today, 2022, 46: 101622.	Cancer	18.962
ST/5-HT	E-EL-0033	Jiang S H, Li J, Dong F Y, et al. Increased Serotonin Signaling Contributes to the Warburg Effect in Pancreatic Tumor Cells under Metabolic Stress and Promotes Growth of Pancreatic Tumors in Mice[J]. Gastroenterology, 2017, 153(1): 277-291.	Cancer Signaling Transduction	18.392
Human CXCL2 Human CXCL3 Mouse CXCL2	E-EL-H1904 E-EL-H1905 E-EL-M0019	Li N, Liu Q, Han Y, et al. ARID1A Loss Induces Polymorphonuclear Myeloid-Derived Suppressor Cell Chemotaxis and Promotes Prostate Cancer Progression[J]. Nature Communications, 2022, 13 (1): 7281.	Cancer Immunology Signaling Transduction	17.694
4-HNE	E-EL-0128	Sun X, Yang X, Wang J, et al. Self-Engineered Lipid Peroxidation Nano-Amplifier for Ferroptosis-Driven Antitumor Therapy[J]. Chemical Engineering Journal, 2023, 451: 138991.	Cancer Metabolism	16.744

Targets	Cat.No.	Literature Information	Research Area	Impact Factor
Mouse CRP	E-EL-M0053	Li X X, Wu T, Zhang Z F, et al. Tumor Microenvironment Activated Nanoreactors for Chemiluminescence Imaging-Guided Simultaneous Elimination of Breast Tumors and Tumor-Resident Intracellular Pathogens[J]. Chemical Engineering Journal, 2023.	Cancer Cell Biology	16.744
Mouse HMGB-1	E-EL-M0676	Hu M, Zhang J, Kong L, et al. Immunogenic Hybrid Nanovesicles of Liposomes and Tumor-Derived Nanovesicles for Cancer Immunotherapy[J]. ACS Nano, 2021, 15(2): 3123-3138.	Cancer Immunology	15.881
Mouse GM-CSF Mouse IL-1α Mouse MCP-1 Mouse MIP-1α Mouse MIP-3α Mouse TNF-α	E-EL-M0032 E-EL-M3059 E-EL-M3001 E-EL-M3059 E-EL-M0013 E-EL-M3063	Zhou Y H, Ye T, Ye C Z, et al. Secretions from Hypochlorous Acid-treated Tumor Cells Delivered in a Melittin Hydrogel Potentiate Cancer Immunotherapy[J]. Bioactive Materials, 2021, 9: 541-553.	Cancer Immunology	14.593

## ■ Brochures for Other Research Areas

