

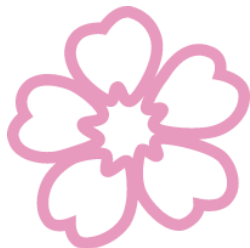
ZENBIO抗体的选择

技术支持-王炜
2020.10

正能生物，您身边的抗体专家
ANTIBODY EXPERT BY YOUR SIDE

A. 什么是抗原

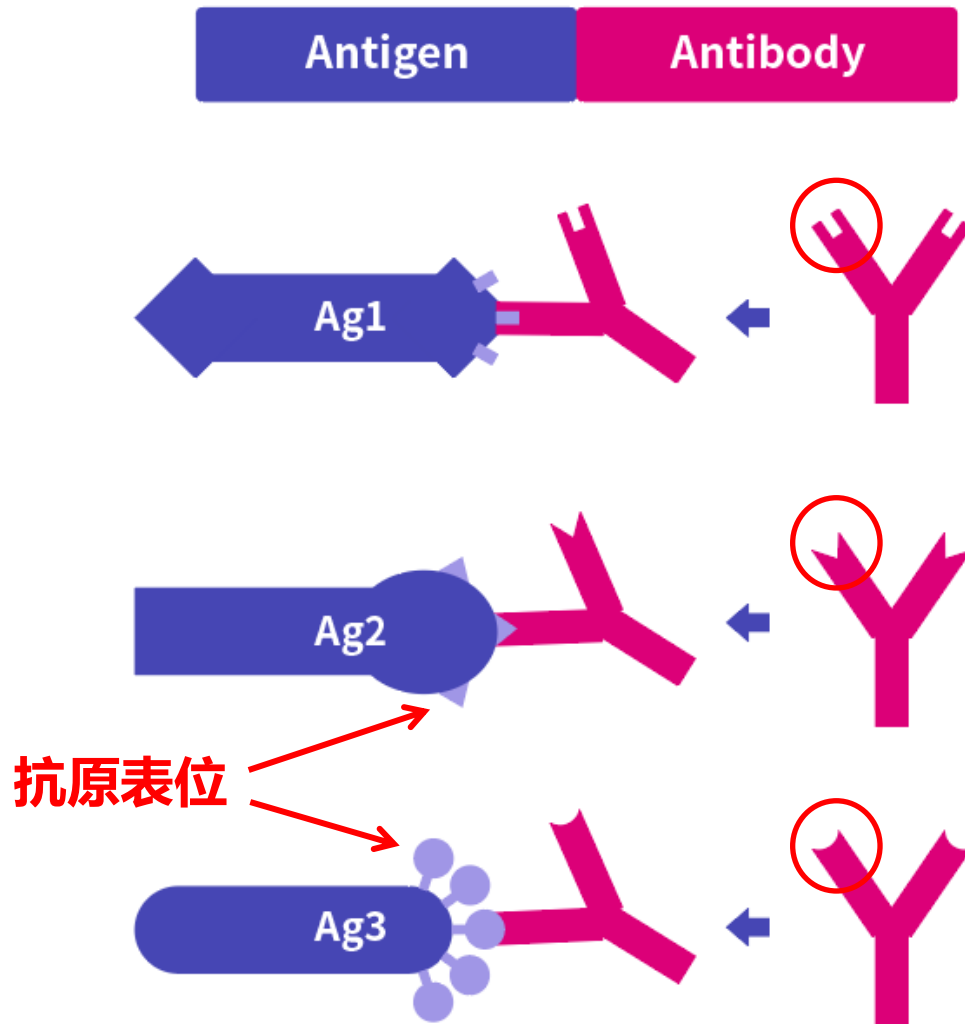
抗原(Antigen): 指所有能激活和诱导免疫应答的物质。



- 抗原以蛋白质为主，也包括多糖、脂类和核酸等物质
- 科研上需要检测的靶标、靶点或者目的蛋白

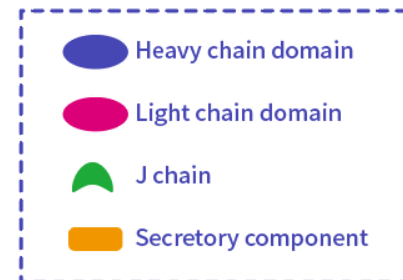
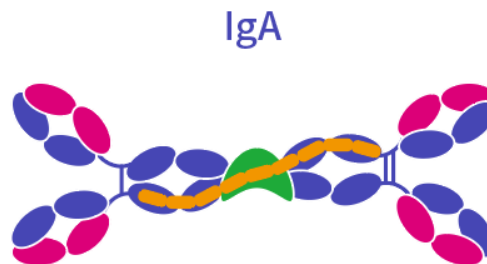
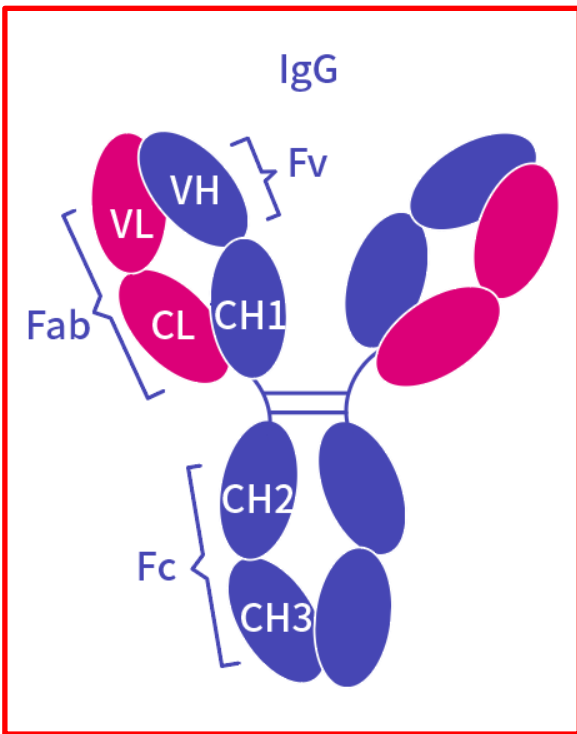
B. 什么是抗体

抗体(Antibody): 在抗原的刺激下, 生物体内产生的一种免疫球蛋白(Ig)。



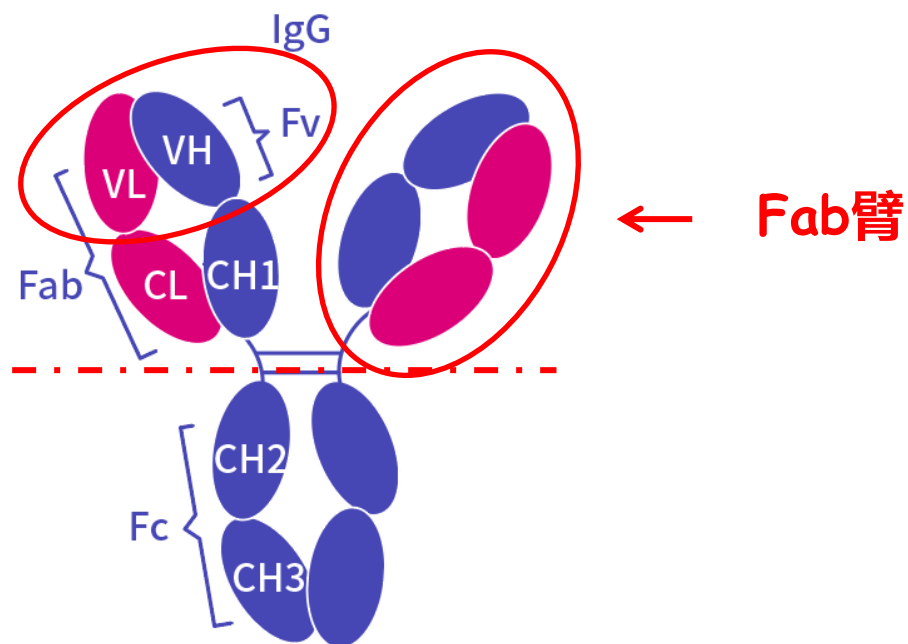
B. 什么是抗体

Ig 分为五个种类 - IgG, IgD, IgA, IgE和IgM。



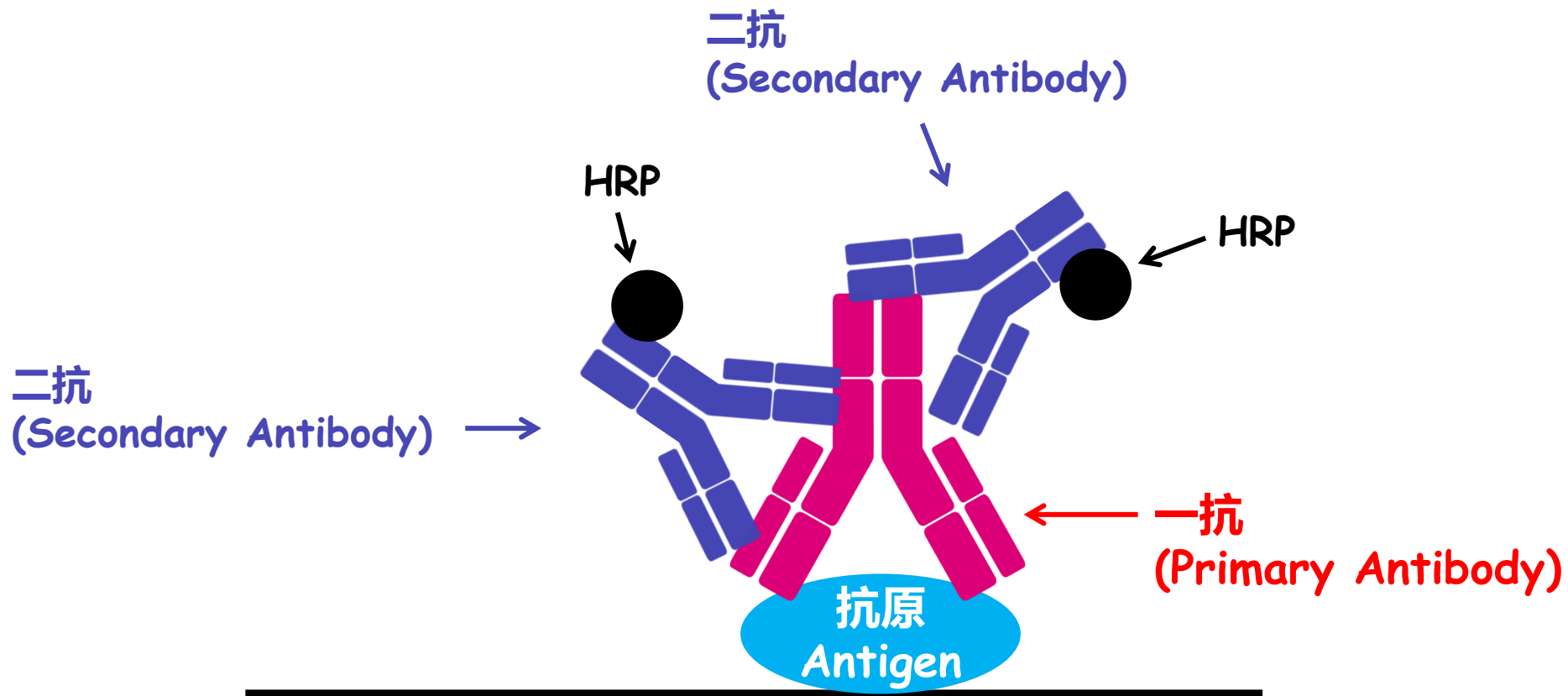
B. 什么是抗体

抗体的抗原结合片段 (Antigen Binding Fragment, Fab) 识别抗原, 而抗体的可结晶片段 (Crystallizable Fragment, Fc) 促进抗原的祛除。



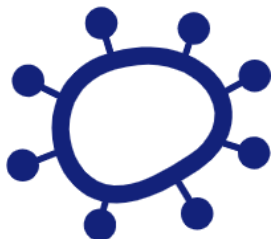
C. 抗体的应用

抗体检测抗原的原理:



C. 抗体的应用

a. 临床诊断



b. 治疗药物

TNF alpha [Adalimumab]

HER2 [Ado-trastuzumab emtansine]

CD52 [Alemtuzumab]

PCSK9 [Alirocumab]

PD-L1 [Avelumab]

PD-L1 [Atezolizumab]

PCSK9 [Evolocumab]

TNF alpha [Infliximab]

CTLA-4 [Ipilimumab]

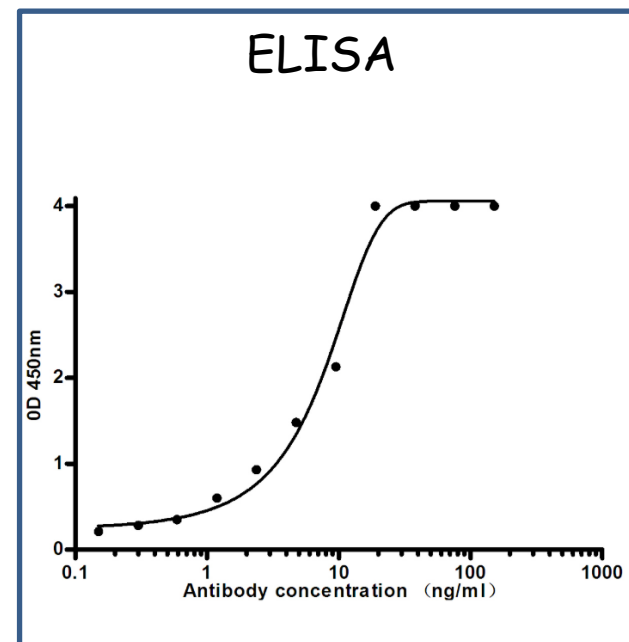
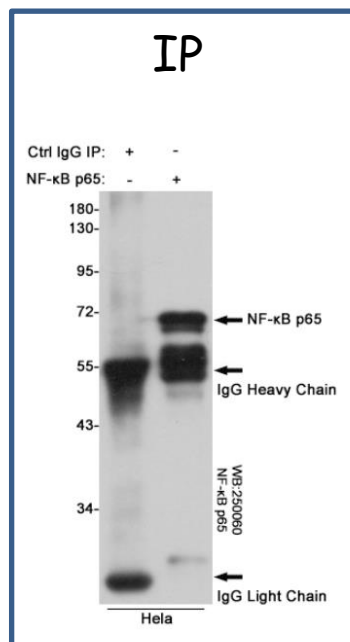
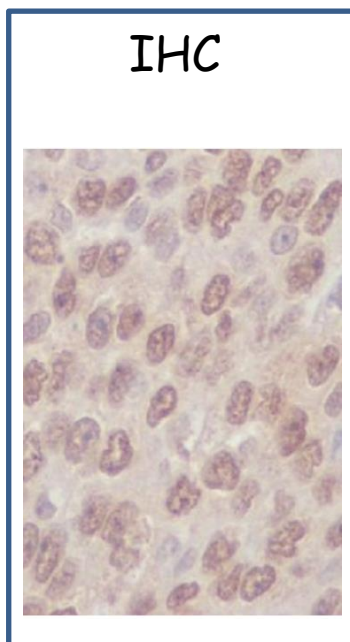
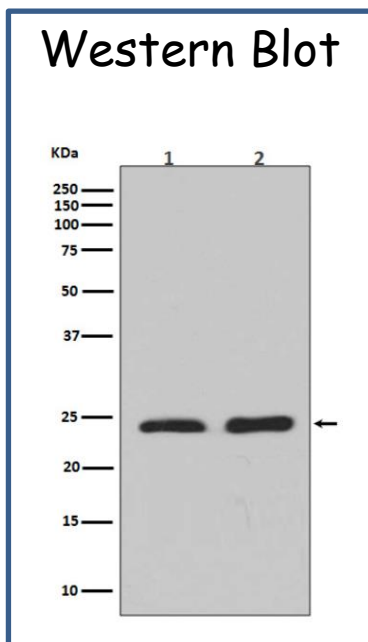
EGFR [Matuzumab]

EGFR [Nimotuzumab]

PD-1 [Nivolumab]



c. 科学研究



a. 确认抗原信息

<https://www.uniprot.org/>

分子量、组织特异性、亚细胞定位、同源异构体等等

The mission of UniProt is to provide the scientific community with a comprehensive, high-quality and freely accessible resource of protein sequence and functional information.

UniProtKB
UniProt Knowledgebase
Swiss-Prot (563,082)
Manually annotated and reviewed.
Records with information extracted from literature and curator-evaluated computational analysis.

UniRef
The UniProt Reference Clusters (UniRef) provide clustered sets of sequences from the UniProt Knowledgebase (including isoforms) and selected UniParc records.

UniParc
UniParc is a comprehensive and non-redundant database that contains most of the publicly available protein sequences in the world.

Proteomes
A proteome is the set of proteins thought to be expressed by an organism. UniProt provides proteomes for species with completely sequenced genomes.

Supporting data

- Literature citations
- Cross-ref. databases
- Taxonomy
- Diseases
- Subcellular locations
- Keywords

Getting started
Text search
Our basic text search allows you to search all the resources available
<https://ebi16.uniprot.org/uniparc>

UniProt data
Download latest release
Get the UniProt data

News
Forthcoming changes
Planned changes for UniProt

UniProt release 2020_04
Inflammation: the Good, the Bad and the Ugly | Cross-references to GlyGen and PathwayCommons | New automatic annotation system ARBA (Asso...)

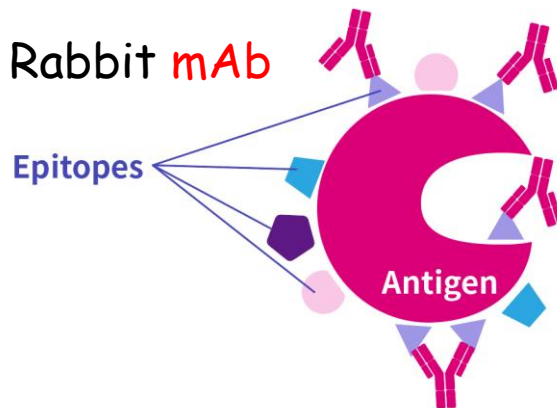
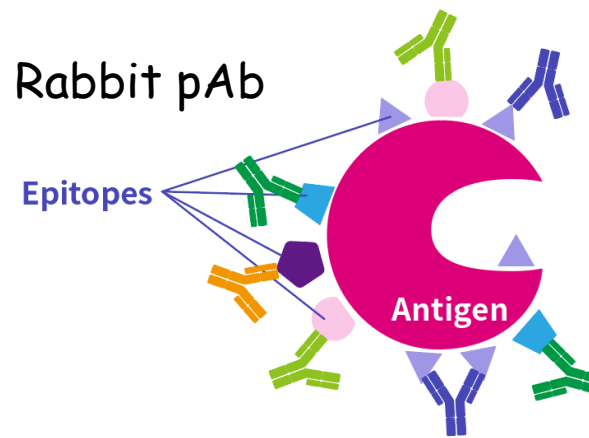
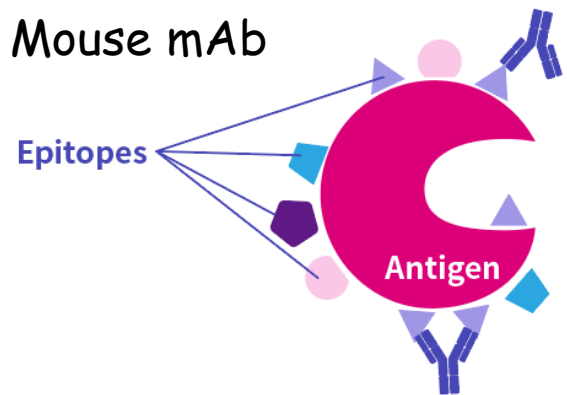
UniProt release 2020_03
Mitochondrial call for help | Cross-references to IDEAL and BioGRID-ORCS | Changes to ABCD, BioGrid and MycoCLAP cross-references | Un...

News archive

Protein spotlight
Spotting Patterns
August 2020

D. 一抗的选择

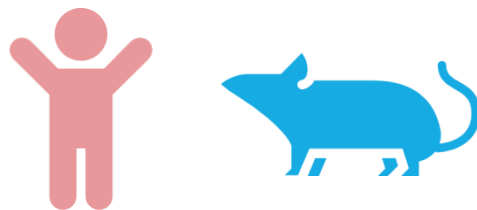
b. 抗体的宿主



D. 一抗的选择

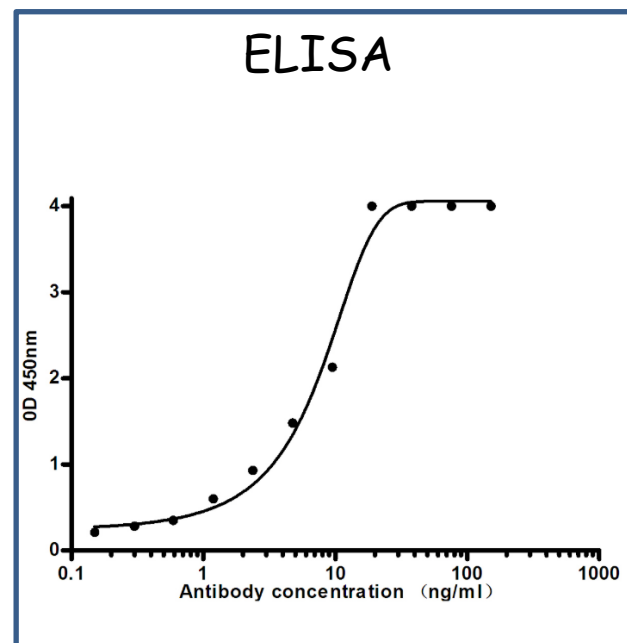
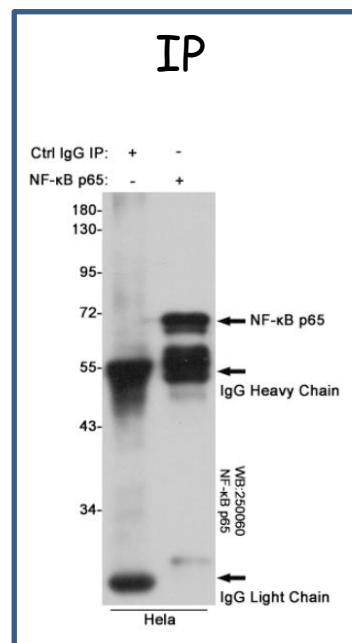
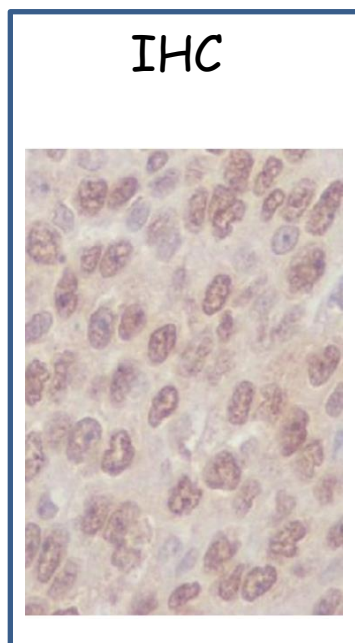
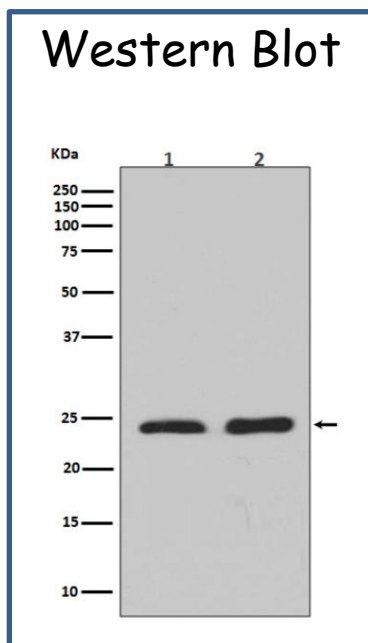
c. 样本的反应种属

Human, Mouse, Rat



d. 实验应用

WB, IHC, IF, IP, ELISA

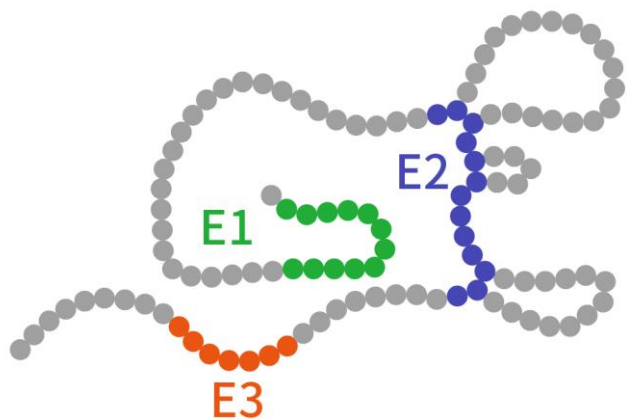


D. 一抗的选择

e. 抗原的表位

WB - 线性表位

IHC, IF - 构象表位



四级结构 - 构象表位



多肽链 - 线性表位

E. 二抗的选择

a. 为什么需要二抗?

- 直接标记一抗成本高 (流式抗体)
- 二抗可以放大信号
- 二抗只需识别IgG (Goat, Donkey)

Rabbit Anti-Mouse IgG



Rabbit Anti-X pAb

Mouse Anti-Y mAb

b. 标记的类型

- 酶类标记 - AP, HRP
- 荧光标记 - FITC, PE, Cy7...
- 其他标记 - Biotin

F. 案例分析

a. 同学A希望在人结肠癌细胞HCT116中通过WB检测MMP9蛋白的表达情况。

反应种属

实验应用

抗原靶标

MMP9 Rabbit pAb

宿主

Rabbit

应用

WB

IHC

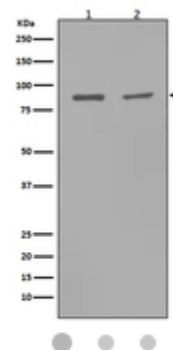
ICC/IF

FC

反应种属

Human

Rat



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F. 案例分析

b. 研究员B希望通过IHC实验在小鼠组织中检测133位丝氨酸磷酸化的CREB蛋白。

实验应用

反应种属

靶标修饰

抗原靶标

Phospho-CREB (Ser133) Rabbit pAb

宿主

Rabbit

应用

WB

IHC

ICC/IF

IP

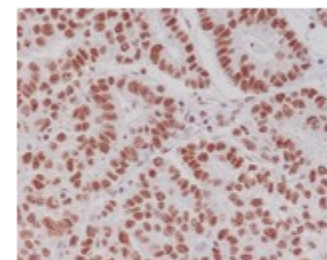
FC

反应种属

Human

Mouse

Rat



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F. 案例分析

c. 不耐烦的同学C想在HepG2细胞上进行tubulin的IF染色，观察蛋白分布情况。

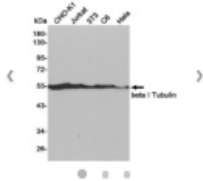
反应种属

抗原靶标

实验应用

beta I Tubulin (1H10) Mouse mAb

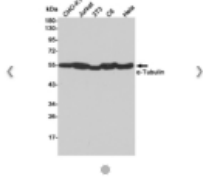
宿主: Mouse
应用: WB, IHC-P, IF
反应种属: Human, Rat, Mouse



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alpha Tubulin Rabbit pAb

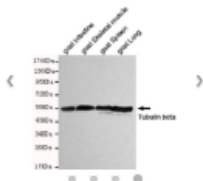
宿主: Rabbit
应用: WB, IHC-P, IF, ELISA
反应种属: Human, Mouse, Rat



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beta Tubulin (1E1) Mouse mAb

宿主: Mouse
应用: WB, ICC/IF
反应种属: Human, Mouse, Monkey, Goat, Hamster, Rat, Chlamydomonas Reinhardtii



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- 查询HepG2
- 查询Tubulin

F. 案例分析

d. 科研萌新D想咨询caspase 1的产品，需要一个同时识别前体和剪切体的抗体。

抗原靶点

- 抗原靶点
- 反应种属
- 实验应用

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Q&A

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2020.10

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