

免疫检查点研究用**稳定细胞系/蛋白/抗体**推荐



免疫检查点 研究相关产品

近年来，Anti-PD1和Anti-CTLA4等单克隆药物的上市，以及在临床上展现出的不错疗效，使得肿瘤的免疫治疗方法焕发了新的生命。

免疫检查点涉及一系列的免疫调节通路，一些能激活，另一些则能抑制免疫反应。

这些检查点的关键是一些存在于人体免疫系统的共刺激和共抑制分子、蛋白，它们会传递信号；共刺激分子受体会提高机体的免疫反应来对抗病原体，共抑制性分子受体能负向调节T细胞活力，来保护过度的炎症反应。

肿瘤免疫治疗中很值得关注的靶点有PD-1、PD-L1、CTLA-4、4-1BB、TIM3、LAG3等。为方便该领域的科学研究及药物开发，金斯瑞研发了一系列免疫检查点相关产品，涵盖了已知的绝大部分免疫检查点分子，包括蛋白，抗体和细胞株等。这些产品早已成为众多国内外医药公司加速研发的得力工具。

免疫检查点相关稳定细胞系



热门靶点即买即用
可节约3-5个月的药物研发时间



细胞表面蛋白表达量高
经FACS认证



更可靠的质量
表达更稳定（大于15代）

功能细胞系

| | | |
|-------|-------|-------|
| PD-1 | PD-L1 | 4-1BB |
| OX-40 | CD27 | CD28 |
| CD40 | CD80 | GITR |

功能型：靶点蛋白稳定表达于母细胞表面，可引发母细胞生物活性改变

非功能细胞系

| | | |
|------------------------|------------------------|------------------------|
| CTLA4 (Hu, M, Cyno) | PD-1 (Hu, M, Cyno) | PD-L1 (Hu, M, Cyno) |
| PD-L2 (Hu, M, Cyno) | 4-1BB (Hu, M, Cyno) | TIGIT (Hu, M, Cyno) |
| Lag3 (Hu) | Tim3 (Hu, Cyno) | VISTA (Hu, M, Cyno) |
| OX-40 (Hu) | OX-40L (Hu) | HVEM (Hu, M, Cyno) |
| CD155 (Hu, M, Cyno) | B7-H2 (Hu) | B7-H3 (Hu) |
| B7-H4 (Hu) | BTLA (Hu) | CD200 R1 (Hu) |
| CD27 (Hu) | CD38 (Hu, M) | CD40 (Hu) |
| CD47 (Hu, M, Cyno) | CD80 (Hu) | CD86 (Hu) |
| CD112 (Hu) | CD160 (Hu) | CD16a (Hu) |
| CD32b (Hu) | ITGAE/CD103 (Hu) | GITR (Hu) |
| ICOS (Hu) | KIR (Hu) | FLT3 (Hu, M, Cyno) |
| SIRP Alpha (Hu) | SIRP Gamma (Hu) | |

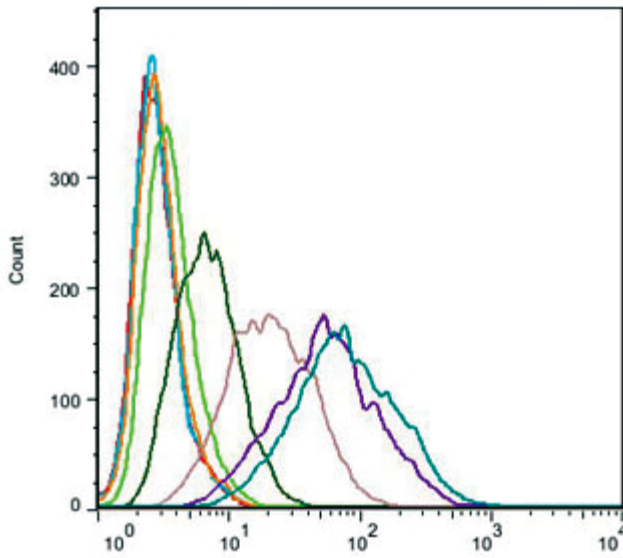
备注：Hu: Human; M: Mouse; Cyno: Cynomolgus

非功能型：靶点蛋白稳定表达于母细胞表面，靶点具有天然三维构象，不引起下游信号传递。

应用

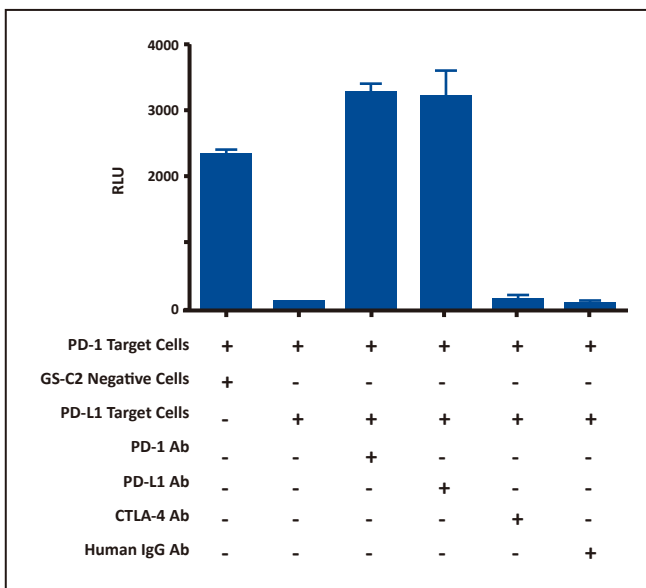
- 1) 抗体药物筛选
- 2) 免疫细胞治疗活性检测 (Functional Assay)
- 3) 抗体分子结合实验 (Binding Assay)
- 4) 作为免疫原, 免疫动物

应用案例



| Population Name | Median FL1-H |
|------------------------------------|--------------|
| CHO-K1/PD1 + 10 µg/ml Keytruda | 74.9 |
| CHO-K1/PD1 + 2 µg/ml Keytruda | 54.5 |
| CHO-K1/PD1 + 0.4 µg/ml Keytruda | 20.2 |
| CHO-K1/PD1 + 0.08 µg/ml Keytruda | 6.64 |
| CHO-K1/PD1 + 0.016 µg/ml Keytruda | 3.45 |
| CHO-K1/PD1 + 0.0032 µg/ml Keytruda | 2.84 |
| CHO-K1/PD1 2nd Ab control | 2.71 |
| CHO-K1/PD1 Blank control | 2.69 |

FACS 分析CHO-K1/PD1非功能稳定细胞系中PD1的表达



Event1.

“TCR activator” on the target cells binding to TCR on PD-1 effector cells results in luciferase expression.

Event2.

Luciferase expression is reduced when PD-1 on effector cells binds to PD-L1 on target cells.

Event3.

Testing antibody added to mixture of PD-L1 target cells and PD-1 effector cells blocks the interaction of PD-1 and PD-L1 which results in recovery of luciferase expression.

PD-1/PD-L1 Functional Assay

免疫检查点相关蛋白



高纯度

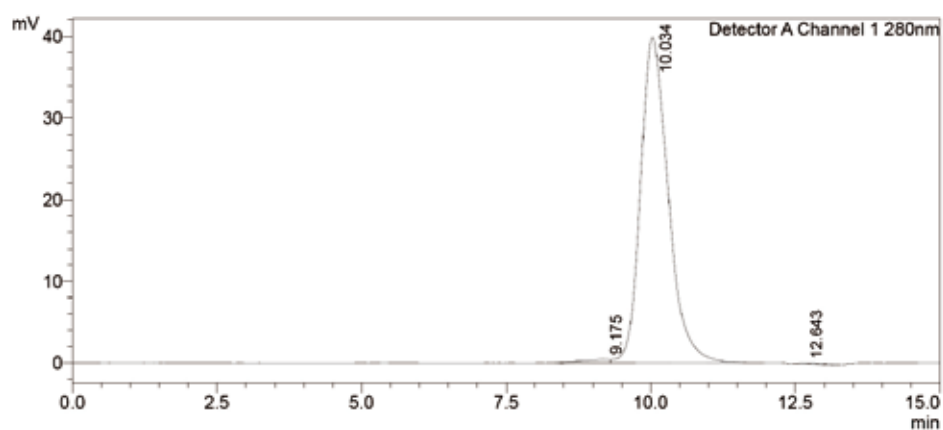


高稳定性



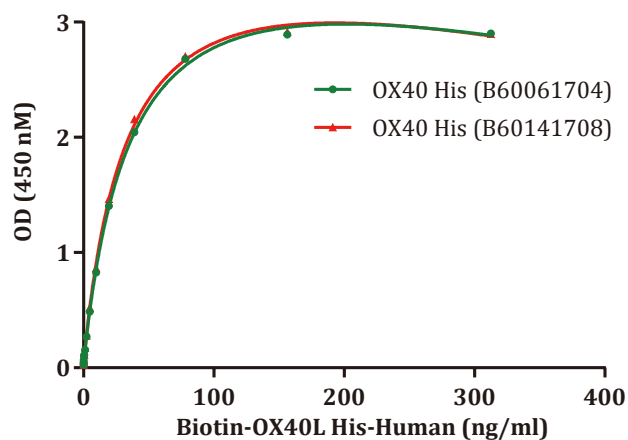
高活性

纯度检测举例 (PD-1, His, Human (Z03424))



PD-1, His, Human (Z03424) 使用SEC-HPLC检测纯度>98%

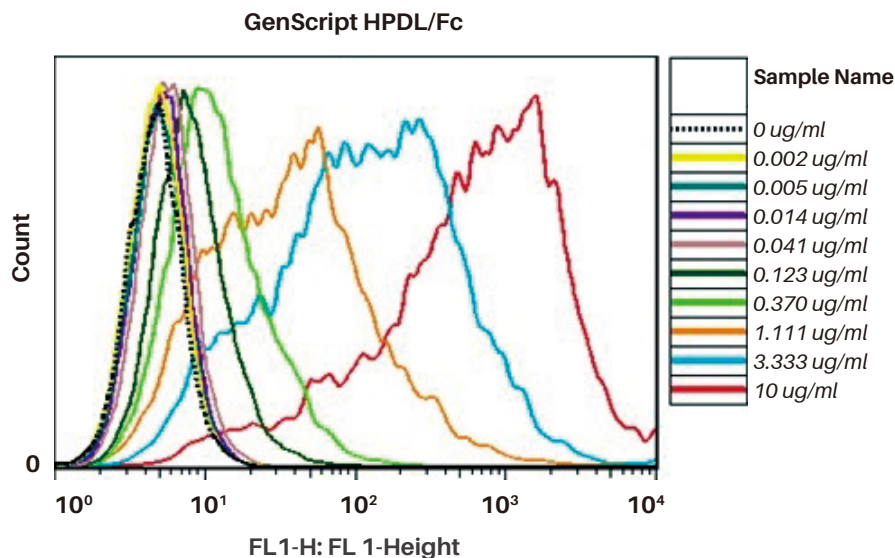
批次稳定性检测举例 (OX40/TNFRSF4, His, Human (Z03438))



包被OX40 His, human 2 μ g/mL (100 μ L/well), 与Biotin-OX40L His, Human 结合的线性范围为1.22–19.53 ng/mL

活性检测举例

PD-L1, Human (Z03371) 与CHO-K1/PD1 Stable Cell Line (M00529)结合实验



PD-L1 Fc Chimera, Human (Z03371) 结合稳定表达PD-1分子的稳定细胞系的平均荧光强度分析

| Sample/Coc. ($\mu\text{g/ml}$) | 10 | 3.333 | 1.111 | 0.370 | 0.123 | 0.041 | 0.014 | 0.005 | 0.002 | 0 |
|----------------------------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-----|
| hPDL1/Fc (GenScript) | 528 | 111 | 37.3 | 12.5 | 8.23 | 5.6 | 5.09 | 4.91 | 4.83 | 4.7 |

Fig.1 Biological Activity: 利用不同浓度的PD-L1重组蛋白与表达PD-1的稳定细胞系共孵育，通过流式检测平均荧光强度（抗人的荧光抗体来检测配体-受体结合能力）。结果显示金斯瑞的重组PD-L1 Fc Chimera蛋白在低浓度下依然可以和稳定细胞系表面的PD-1分子有较强的结合能力。

免疫检查点蛋白

| | | | | | | |
|--------------------|-----------------------|-------------------|-------------------|---------------------------|---------------|---------------|
| PD-1 (His,Hu) | PD-L1 (His,Hu) | PD-L2 (Fc,Hu) | CD155 (His/Fc,Hu) | SIRP α (His/Fc,Hu) | TIGIT (Fc,Hu) | CTLA4 (Fc,Hu) |
| CD19 (Fc,Hu) | B7-2/CD86 (His/Fc,Hu) | B7-H2 (His/Fc,Hu) | B7-H3 (His/Fc,Hu) | CD40 Ligand (Hu) | OX40 (His,Hu) | TIM3 (Fc,Hu) |
| B7-1(CD80) (Fc,Hu) | 4-1BB/CD137 (Fc,Hu) | HVEM (Fc,Hu) | | | | |

备注: His: His标签; Hu: Human; Fc: Fc Chimera

应用

- 1) 调节免疫反应
- 2) 识别蛋白

- 3) 新药发现
- 4) 抗体生产

免疫检查点相关抗体



替代抗体



阳性对照抗体



抗独特型抗体

一、替代抗体

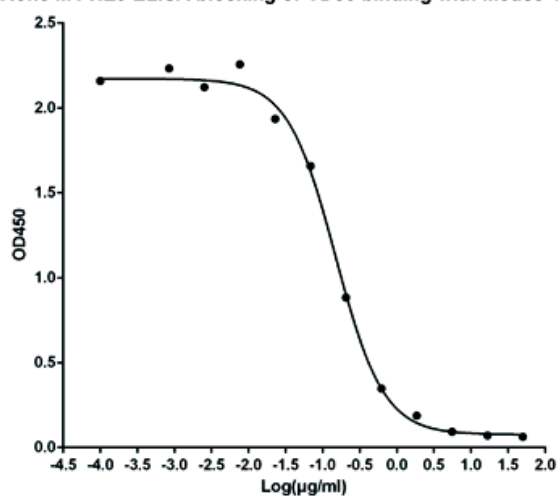
| Target | Cat.No. | Product Name | ELISA |
|--------|-----------|---|-------|
| CTLA-4 | A01842-40 | Anti-Mouse CTLA-4 Antibody (MCT.F6), mAb, Mouse | ✓ |
| | A01843-40 | Anti-Mouse CTLA-4 Antibody (MCT.E9), mAb, Mouse | ✓ |

应用

- 1) 靶点确认 2) 组合疗法评估

应用案例

Clone MCT.E9 ELISA blocking of CD86 binding with Mouse CTLA4



ELISA blocking of mouse CTLA4 antibody MCT.E9 (GenScript, A01843) against mouse CD86 recombinant protein binding with Mouse CTLA4 recombinant protein.

Coating antigen: CD86, 0.5 µg/ml.

Mouse CTLA4 final concentration: 2 µg/ml

CTLA4 antibody dilution start from 50 µg/ml, IC50=0.1494 µg/ml



二、阳性对照抗体

鼠源抗体

| Target | Cat.No. | Product Name | ELISA | FACS | Functional Assay |
|--------|-----------|---|-------|------|------------------|
| PD1 | A01828-40 | Anti-Human PD-1 Antibody (PD1.H5), mAb, Mouse | ✓ | ✓ | ✓ |
| | A01829-40 | Anti-Human PD-1 Antibody (PD1.D3), mAb, Mouse | ✓ | ✓ | ✓ |
| PDL1 | A01830-40 | Anti-Human PD-L1 Antibody (PDL1.D1), mAb, Mouse | ✓ | ✓ | ✓ |
| | A01831-40 | Anti-Human PD-L1 Antibody (PDL1.A6), mAb, Mouse | ✓ | ✓ | ✓ |
| CTLA-4 | A01832-40 | Anti-Human CTLA-4 Antibody (CT.F3), mAb, Mouse | ✓ | ✓ | ✓ |
| | A01833-40 | Anti-Human CTLA-4 Antibody (CT.E8), mAb, Mouse | ✓ | ✓ | ✓ |
| TIM3 | A01834-40 | Anti-Human TIM3 Antibody (TI.B2), mAb, Mouse | ✓ | ✓ | |
| | A01835-40 | Anti-Human TIM3 Antibody (TI.H3), mAb, Mouse | ✓ | ✓ | |

人源抗体

| 靶点 | Generic Name | Biosimilar抗体 (人源,阳性对照药) GenScript name | Cat.No. |
|-------|---------------|---|---------|
| PD1 | Nivolumab | Anti-Human PD-1, Human Antibody | A01909 |
| | Pembrolizumab | Anti-Human PD-1, Humanized Antibody | A01910 |
| PDL1 | Atezolizumab | Anti-Human PD-L1, Humanized Antibody | A01914 |
| CTLA4 | Abatacept | CTLA4 (37-161), Fc, Human | A01903 |
| | Ipilimumab | Anti-Human CTLA4, Human Antibody | A01908 |
| CD20 | Rituximab | Anti-Human CD20 type I, Chimeric Antibody | A01899 |
| | Obinutuzumab | Anti-Human CD20 type II, Humanized Antibody | A01912 |
| | Obinutuzumab | | |
| CD38 | Daratumumab | Anti-Human CD38, Human Antibody | A01915 |

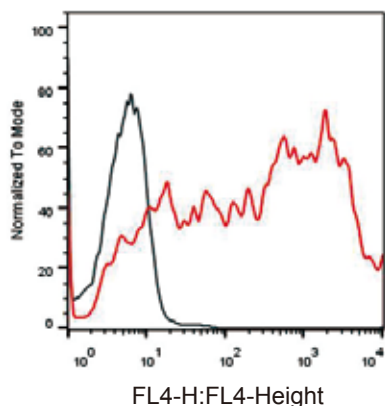
应用

1) 抗体药物开发的阳性对照

2) 制备细胞系

3) 研究分析方法

应用案例



Flow cytometric analysis of CHO-K1/TIM3 stable cell expressing TIM3 (GenScript, M00531, Red) and CHO negative control cell (Black) binding with Human TIM3 Antibody TI.B2 (GenScript, A01834)
 Antibody working concentration: 5 µg/ml, 2.5x10⁵ cells/reaction
 The signal was developed with iFluor647 conjugated Goat Anti-Mouse IgG

三、抗独特型抗体

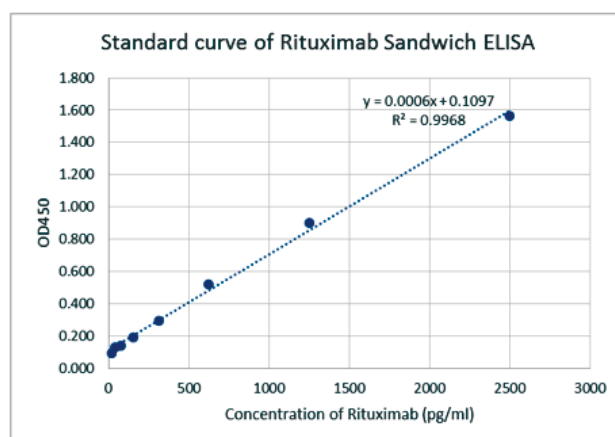
产品信息

| | | |
|------------------------------------|-------------------------------------|-------------------------------------|
| PD-1 Anti-Nivolumab antibody | PD-1 Anti-Pembrolizumab antibody | PD-L1 Anti-Atezolizumab antibody |
| CTLA-4 Anti-Ipilimumab antibody | CD20 Anti-Obinutuzumab antibody | CD20 Anti-Rituximab antibody |

应用

- 1) 抗体药物的药代动力学 (PK) 和药效动力学 (PD) 分析
- 2) 免疫原性分析: 配体中和试验和抗体阻断试验的对照

应用案例



Standard curve of Rituximab Sandwich ELISA. The Rituximab Sandwich ELISA assay is developed by using Anti-Rituximab Antibody (137C6), mAb, Rabbit (GenScript, A01942-40) and Anti-Rituximab Antibody (194D7) [Biotin], mAb, Rabbit (GenScript, A01944-40) as capture and detection antibody, respectively.

The sensitivity of detecting Rituximab is about 30 pg/ml.