

蛋白表达服务手册

PROTEIN EXPRESSION SERVICE MANUAL

苏州普维拓生物科技有限公司

Suzhou Provetop Biotechnology Co., Ltd.

PROVETOP



400-829-0116

北京市大兴区天华大街绿地启航国际13号楼

<http://https://www.provetop.com>

PROVETOP

■ 关于我们

普维拓生物（Provetop Biotech）是一家专注于重组蛋白研发、表达及生产的生物技术企业，致力于为全球生命科学研究、体外诊断及创新药研发提供高品质蛋白产品与专业蛋白表达解决方案。

公司围绕重组蛋白开发建立了完善的技术平台，涵盖哺乳动物细胞表达、原核表达、昆虫杆状病毒表达等多种表达体系，可根据不同蛋白特性提供个性化表达策略及工艺优化方案，满足科研与产业化研发过程中对蛋白质量、活性及稳定性的多样化需求。

依托成熟的蛋白工程技术和标准化生产流程，普维拓生物可提供从基因设计、载体构建、蛋白表达、纯化到质量检测的一站式蛋白表达服务，同时提供重组蛋白、抗原及相关定制开发服务。公司始终坚持以产品质量为核心，建立了完善的质量控制体系，对蛋白纯度、活性、内毒素及批间一致性进行严格控制，为客户提供稳定、可靠的蛋白产

www.provetop.com

7,000+
重组蛋白

14,000+
抗体

一站式
CRO 服务

■ 目录

01	哺乳动物细胞 (HEK293/CHO) 瞬时表达服务	01
	· 服务优势	02
	· 表达与纯化能力	02
	· 服务内容	02
	· 案例展示	02
02	原核 (E . c o l i) 蛋白表达服务	01
	· 服务优势	02
	· 表达与纯化能力	02
	· 服务内容	02
	· 案例展示	02
03	杆状病毒-昆虫细胞蛋白表达服务	01
	· 服务优势	02
	· 表达与纯化能力	02
	· 服务内容	02
	· 案例展示	02

重组蛋白表达服务

普维拓生物专注于重组蛋白与重组抗体的高效表达与制备，构建了覆盖多体系的蛋白表达技术平台，可灵活满足科研与产业化不同阶段的需求。

我们提供哺乳动物细胞瞬时表达服务、酵母细胞表达服务、原核（E. coli）蛋白表达服务以及杆状病毒-昆虫细胞蛋白表达服务，支持从小规模筛选到高通量表达的快速推进。

依托成熟的工艺体系与自动化流程，普维拓生物可实现高通量重组抗体/蛋白表达，最快1周即可交付纯化的抗体或蛋白，助力客户显著缩短研发周期，加速项目进程。



重组蛋白技术平台优势

- 多种表达系统可供选择
- 自主开发的高效表达载体
- 快速响应与定制化服务
- 高效率：生产成本降低10倍
- 高通量：年开发蛋白1000+
- 高质量：≥国际同类产品
- 高密度细胞培养技术
- 成熟的蛋白复性技术和可溶表达
- 丰富复杂蛋白表达经验

蛋白表达系统选择参考

表达系统	服务大类	优势	劣势	推荐表达
原核系统	大肠杆菌	• 经济	• 包涵体	• 细菌类蛋白
		• 快速		
		• 高产量		
		• 应用广泛		
真核系统	酵母细胞	• 经济	• 非人源糖基化	• 细胞因子
		• 快速		
	杆状病毒-昆虫细胞	• 高产量	• 高甘露糖修饰	• 小分子量蛋白
		• 部分翻译后修饰		
	哺乳动物细胞	• 基因容量大	• 周期长	• 毒性蛋白
		• 可溶蛋白		
	杆状病毒-昆虫细胞	• 适合毒性蛋白	• 成本高	• 跨膜蛋白
		• 类似哺乳动物系统翻译后修饰		
	哺乳动物细胞	• 更低内毒素	• 缺少部分糖基化	• 分泌蛋白
		• 更好的活性		
	杆状病毒-昆虫细胞	• 更好的翻译后修饰	• 周期长	• 重组抗体
		• 可瞬时转染与稳定转染表达		
	哺乳动物细胞	• 可瞬时转染与稳定转染表达	• 成本高	• 抗体片段

01 哺乳动物细胞 (HEK293/CHO) 瞬时表达服务

驯化后的哺乳动物细胞是现代重组蛋白生物技术的重要组成部分，哺乳动物细胞具有高度复杂的蛋白折叠和翻译后修饰机制，其表达的重组蛋白在分子结构、理化性质和生物学功能方面最接近于天然的高等生物蛋白质分子，更有可能获得与天然分子相同的生物活性。

普维拓生物的哺乳动物细胞瞬时表达系统以HEK293细胞和CHO细胞为表达宿主，同时可以满足标签切除、内毒素去除、SEC-HPLC检测分析等多种需求，为客户提供灵活优质的服务。

服务优势

- 优化的高效表达载体
- 高密度细胞培养技术
- 领先的蛋白纯化平台
- 多种质检手段满足不同需求
- 6000+蛋白表达与纯化经验
- 具有高通量、大规模蛋白表达生产能力

表达与纯化能力



表达规模

- mg-g 级蛋白表达能力
- 支持多批次稳定放大



表达方式

- 分泌型 / 跨膜蛋白表达
- Fc 融合、多结构域蛋白



纯化方式

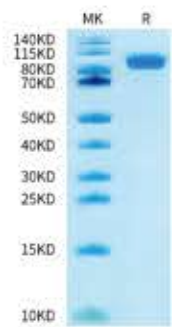
- Protein A / His 等亲和纯化
- 多步层析，保证高纯度与高活性

服务内容



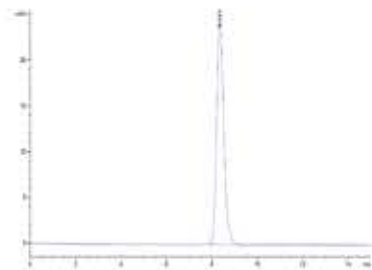
■ 案例展示

■ Bis-Tris PAGE



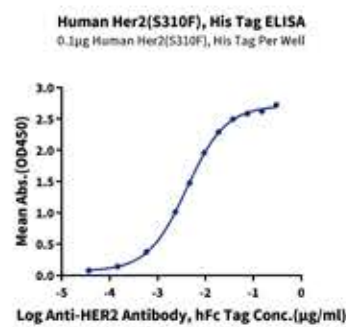
Human Her2 (S310F) on Bis-Tris PAGE under reduced condition. The purity is greater than 95%.

■ SEC-HPLC



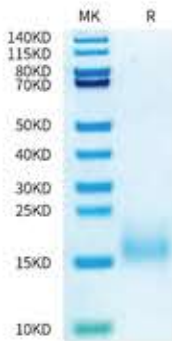
The purity of Human Her2 (S310F) is greater than 95% as determined by SEC-HPLC.

■ ELISA Data



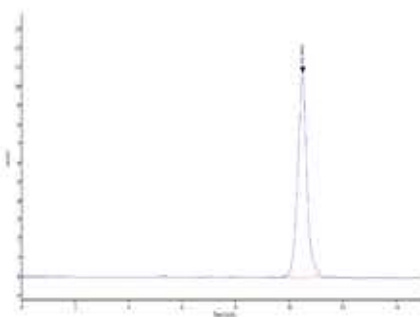
Immobilized Human Her2 (S310F), His Tag at 1 μg/ml (100 μl/well) on the plate. Dose response curve for Anti-HER2 Antibody, hFc Tag with the EC50 of 4.1 ng/ml determined by ELISA. (QC Test)

■ Bis-Tris PAGE



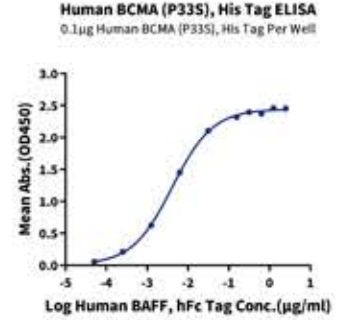
Human BCMA (P33S) on Bis-Tris PAGE under reduced condition. The purity is greater than 95%.

■ SEC-HPLC



The purity of Human BCMA (P33S) is greater than 95% as determined by SEC-HPLC.

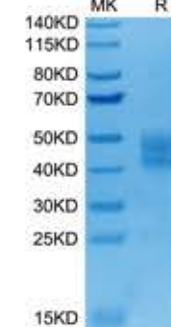
■ ELISA Data



The purity of Human BCMA (P33S) is greater than 95% as determined by SEC-HPLC. Immobilized Human BCMA (P33S), His Tag at 1 μg/ml (100 μl/well) on the plate. Dose response curve for Human BAFF, hFc Tag with the EC50 of 4.1 ng/ml determined by ELISA.

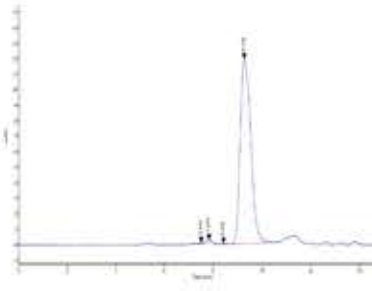
■ 案例展示

■ Bis-Tris PAGE



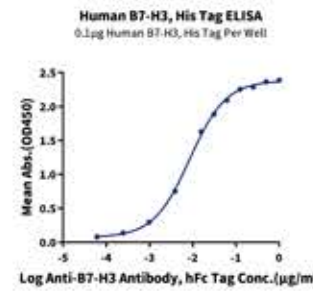
Human B7-H3 on Bis-Tris PAGE under reduced condition. The purity is greater than 95%.

■ SEC-HPLC



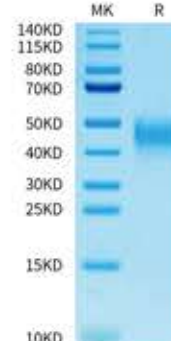
The purity of Human B7-H3 is greater than 95% as determined by SEC-HPLC.

■ ELISA Data



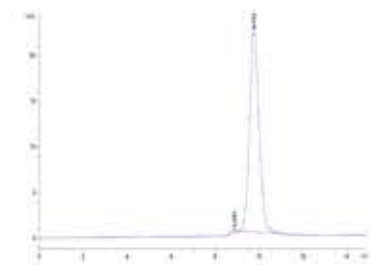
Immobilized Human B7-H3, His Tag at 1 μg/ml (100 μl/Well) on the plate. Dose response curve for Anti-B7-H3 Antibody, hFc Tag with the EC50 of 8.5 ng/ml determined by ELISA. (QC Test)

■ Bis-Tris PAGE



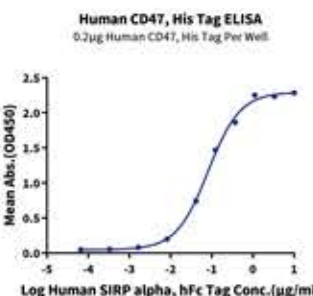
Human CD47 on Bis-Tris PAGE under reduced condition. The purity is greater than 95%.

■ SEC-HPLC



The purity of Human CD47 is greater than 90% as determined by SEC-HPLC.

■ ELISA Data

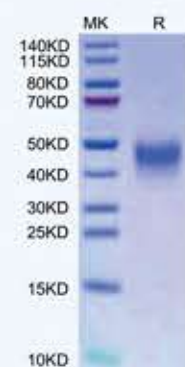


Immobilized Human CD47, His Tag at 2 μg/ml (100 μl/well) on the plate. Dose response curve for Human SIRP alpha, hFc Tag with the EC50 of 82.1 ng/ml determined by ELISA (QC Test).

■ 案例展示

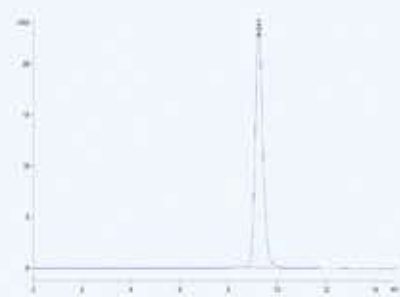
■ 案例展示

■ Bis-Tris PAGE



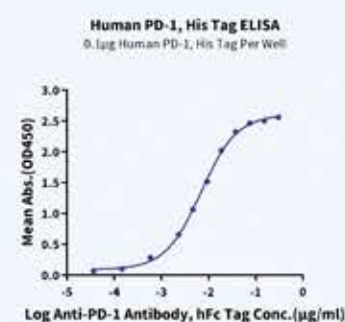
Human PD-1 on Bis-Tris PAGE under reduced. The purity is greater than 95%.

■ SEC-HPLC



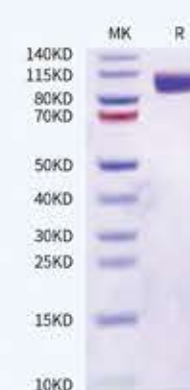
The purity of Human PD-1 is greater than 95% as determined by SEC-HPLC.

■ ELISA Data



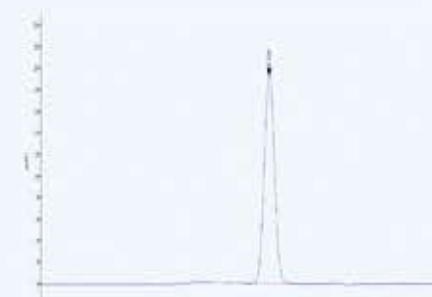
Immobilized Human PD-1, His Tag at 1µg/ml (100µl/Well). Dose response curve for Anti-PD-1 Antibody, hFc Tag with the EC50 of 6.9ng/ml determined by ELISA.

■ Bis-Tris PAGE



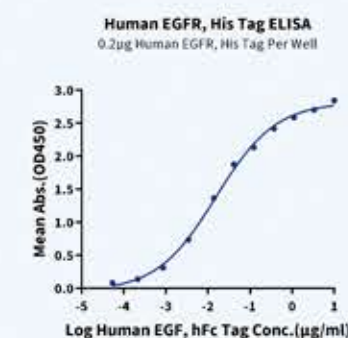
Human EGFR on Bis-Tris PAGE under reduced condition. The purity is greater than 95%.

■ SEC-HPLC



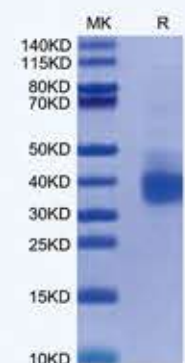
The purity of Human EGFR is greater than 95% as determined by SEC-HPLC.

■ ELISA Data



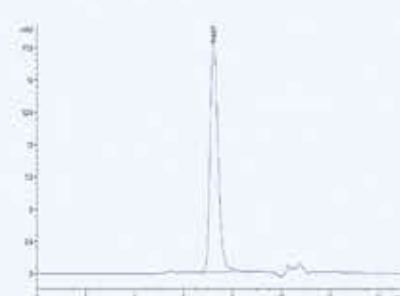
Immobilized Human EGFR, His Tag at 2µg/ml (100µl/well) on the plate. Dose response curve for Human EGF, hFc Tag with the EC50 of 15.6ng/ml determined by ELISA. (QC Test)

■ Bis-Tris PAGE



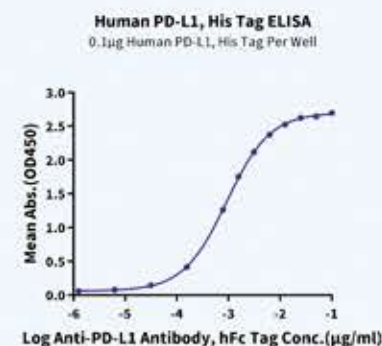
Human PD-L1 on Bis-Tris PAGE under reduced condition. The purity is greater than 95%.

■ SEC-HPLC



The purity of Human PD-L1 is greater than 95% as determined by SEC-HPLC.

■ ELISA Data



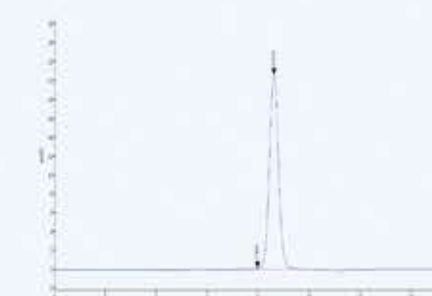
Immobilized Human PD-L1, His Tag at 1µg/ml (100µl/well) on the plate. Dose response curve for Anti-PD-L1 Antibody, hFc Tag with the EC50 of 0.92ng/ml determined by ELISA.

■ Bis-Tris PAGE



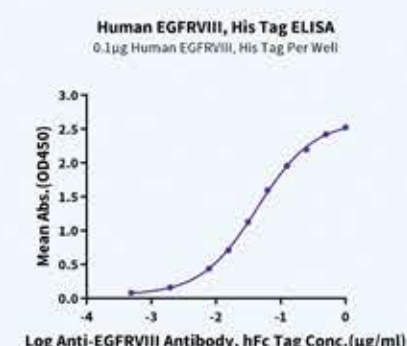
Human EGFRVIII on Bis-Tris PAGE under reduced condition. The purity is greater than 95%.

■ SEC-HPLC



The purity of Human EGFRVIII is greater than 95% as determined by SEC-HPLC.

■ ELISA Data



Immobilized Human EGFRVIII, His Tag at 1µg/ml (100µl/well) on the plate. Dose response curve for Anti-EGFRVIII Antibody, hFc Tag with the EC50 of 43.3ng/ml determined by ELISA. (QC Test)

02 原核 (E.coli) 蛋白表达服务

E.coli表达系统是目前应用最为广泛，也是最为经济实惠的蛋白表达系统。E.coli 细胞遗传背景清楚，目的基因表达水平高，培养周期短，抗污染能力强，易于放大，可以适用于多种属蛋白的表达，是重组蛋白表达和生物技术产业化发展的重要工具，尤其对小分子蛋白的生产具有极大的优势。源沃生物拥有大量 E.coli可溶性蛋白表达和纯化及蛋白复性经验，拥有多种 细胞株和表达载体，可为您提供优质的原核蛋白表达服务。

服务优势

- 多种表达载体、菌株和纯化标签可供选择
- 多年原核蛋白表达经验
- 成熟的蛋白变性-复性纯化技术
- 具有高通量、大规模原核蛋白表达生产能力

表达与纯化能力



表达规模

- mg-g 级蛋白表达能力



表达方式

- 可溶 / 包涵体表达灵活选择



纯化方式

- His / GST / Flag / Strep
- 支持变性复性与高纯度制备

服务内容



阶段一交付

- 表达评估报告

阶段二交付

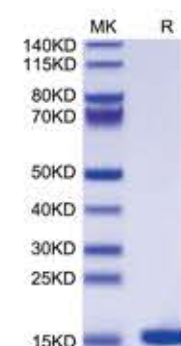
- 如蛋白表达可行，提供0.5-1mg纯化后蛋白样品
- 质量检验报告 (CoA)(CoA)

阶段三交付

- 纯化蛋白
- 质量检验报告

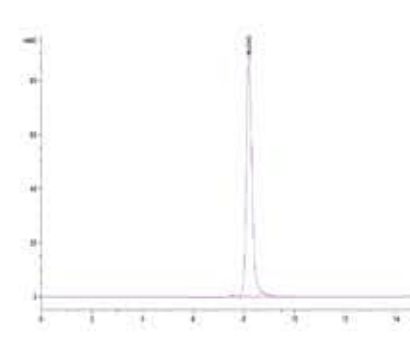
案例展示

Bis-Tris PAGE



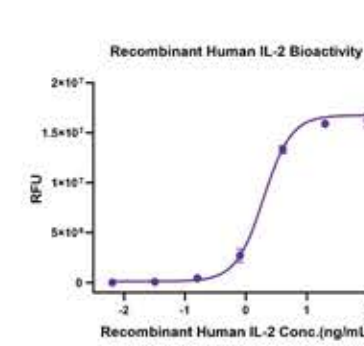
Human IL-2 on Bis-Tris PAGE under reduced condition. The purity is greater than 95%.

SEC-HPLC



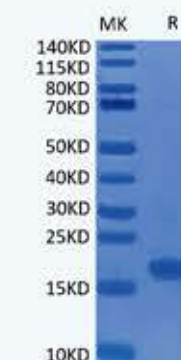
The purity of Human IL-2 is greater than 95% as determined by SEC-HPLC.

Cell Based Assay



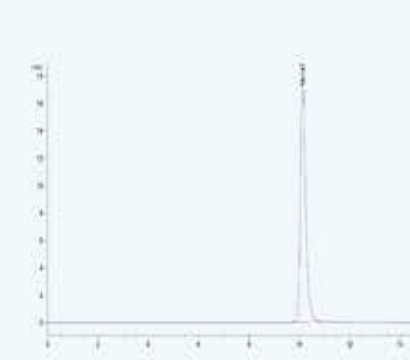
Measured in a cell proliferation assay using CTLL-2 mouse cytotoxic T cells. The ED50 for this effect is 0.5-2 ng/mL (QC Test).

Bis-Tris PAGE



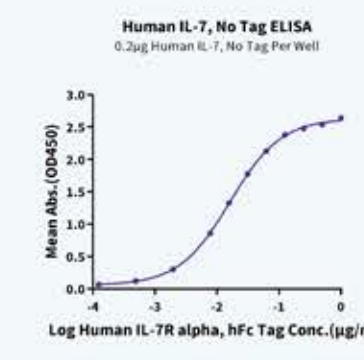
Human IL-7 on Bis-Tris PAGE under reduced condition. The purity is greater than 95%.

SEC-HPLC



The purity of Human IL-7 is greater than 95% as determined by SEC-HPLC.

ELISA Data



Immobilized Human IL-7 at 2μg/ml (100μl/Well) on the plate. Dose response curve for Human IL-7R alpha, hFc Tag with the EC50 of 16.2ng/ml determined by ELISA (QC tested).

■ 案例展示

03 杆状病毒-昆虫细胞蛋白表达服务

杆状病毒-昆虫细胞蛋白表达系统 (baculovirus-insect cell system) 属于真核表达系统，该系统已经被广泛的应用于科研和工业生产领域。相较于其他常用的重组蛋白表达系统，昆虫杆状病毒表达系统具有外源基因表达水平高、易于表达异源多聚体蛋白、安全性高等优势。通过此系统表达的重组蛋白通常具有正确的翻译后修饰（如二硫键的形成、磷酸化、糖基化等）和生物学活性。同时，昆虫细胞可以悬浮生长，易于放大培养，有利于大规模表达重组蛋白。普维拓生物拥有丰富的昆虫杆状病毒表达重组蛋白经验，特别是针对序列较长的蛋白、病毒类蛋白、激酶、胞内蛋白等。

服务优势

- 多年蛋白表达经验
- 实现从基因到纯化后蛋白的一站式服务
- 高效表达胞内和胞外蛋白
- 多种昆虫细胞 Sf9, Sf21, Hi-5等可供选择
- 优化后的高滴度病毒包装技术

表达与纯化能力



表达规模

- 高密度培养，高表达产量
- 支持中试级蛋白放大制备



表达方式

- 复杂结构蛋白表达
- 多亚基复合物组装



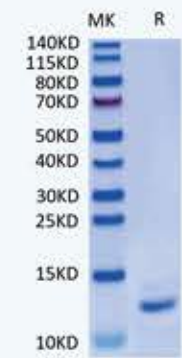
纯化方式

- 亲和层析 + 抛光纯化
- 高回收率、结构稳定

服务内容

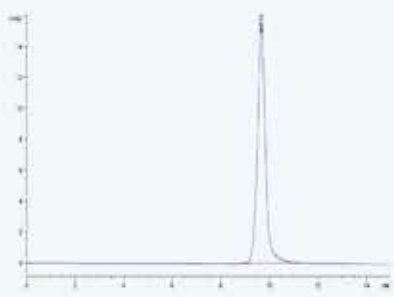


■ Bis-Tris PAGE



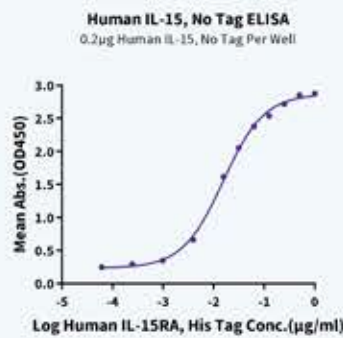
Human IL-15 on Bis-Tris PAGE under reduced condition. The purity is greater than 95%.

■ SEC-HPLC



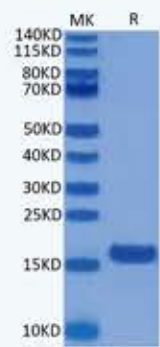
The purity of Human IL-15 is greater than 95% as determined by SEC-HPLC.

■ ELISA Data



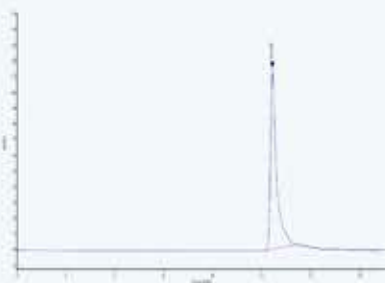
Immobilized Human IL-15, No Tag at 2 µg/ml (100 µl/Well) on the plate. Dose response curve for Human IL-15RA, His Tag with the EC50 of 15.4 ng/ml determined by ELISA.

■ Bis-Tris PAGE



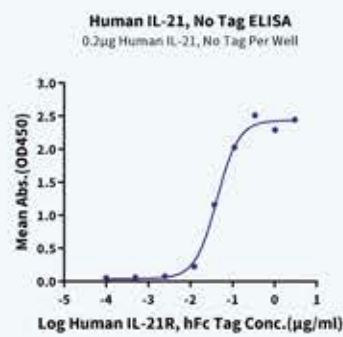
Human IL-21 on Bis-Tris PAGE under reduced condition. The purity is greater than 95%.

■ SEC-HPLC



The purity of Human IL-21 is greater than 95% as determined by SEC-HPLC.

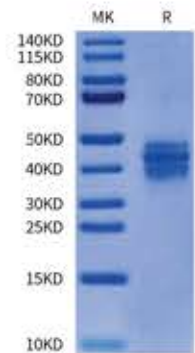
■ ELISA Data



Immobilized Human IL-21, No Tag at 2µg/ml (100µl/well) on the plate. Dose response curve for Human IL-21R, hFc Tag with the EC50 of 42.3ng/ml determined by ELISA. (QC Test)

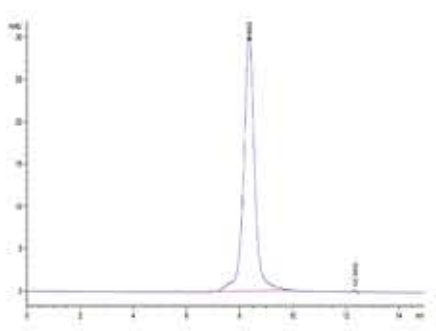
■ 案例展示

■ Bis-Tris PAGE



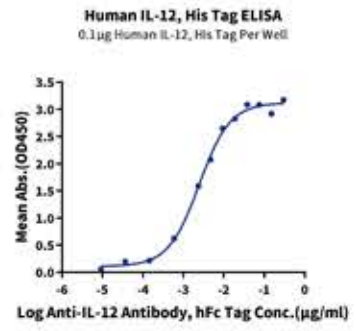
Human IL-12 on Bis-Tris PAGE under reduced condition. The purity is greater than 95%.

■ SEC-HPLC



The purity of Human IL-12 is greater than 90% as determined by SEC-HPLC.

■ ELISA Data



Immobilized Human IL-12, His Tag at 1µg/ml (100µl/well) on the plate. Dose response curve for Anti-IL-12 Antibody, hFc Tag with the EC50 of 2.4ng/ml determined by ELISA (QC Test).

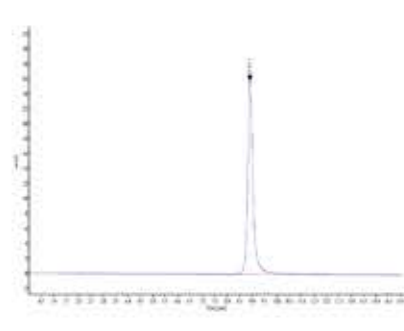
■ 案例展示

■ Bis-Tris PAGE



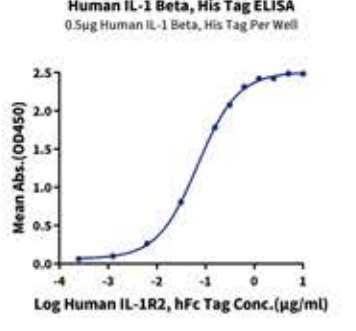
Human IL-1 Beta on Bis-Tris PAGE under reduced condition. The purity is greater than 95%.

■ SEC-HPLC



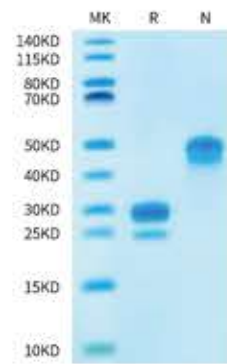
The purity of Human IL-1 Beta is greater than 95% as determined by SEC-HPLC.

■ ELISA Data



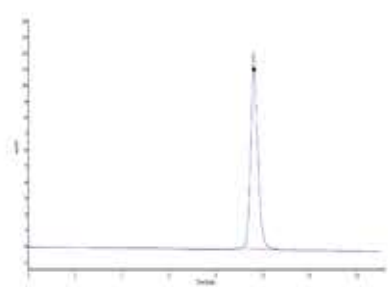
Immobilized Human IL-1 Beta, His Tag at 5µg/ml (100µl/well) on the plate. Dose response curve for Human IL-1R2, hFc Tag with the EC50 of 68.4ng/ml determined by ELISA. (QC Test)

■ Bis-Tris PAGE



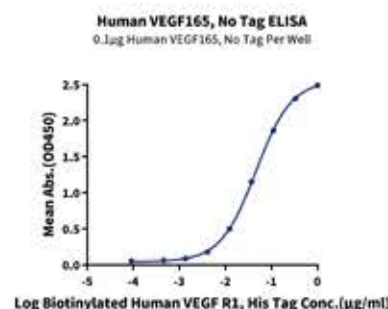
Human VEGF165 on Bis-Tris PAGE under reduced condition and Non reduced (N) condition. The purity is greater than 95%.

■ SEC-HPLC



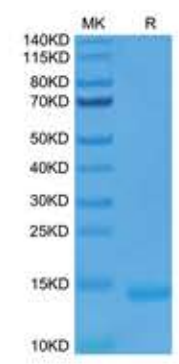
The purity of Human VEGF165 is greater than 95% as determined by SEC-HPLC.

■ ELISA Data



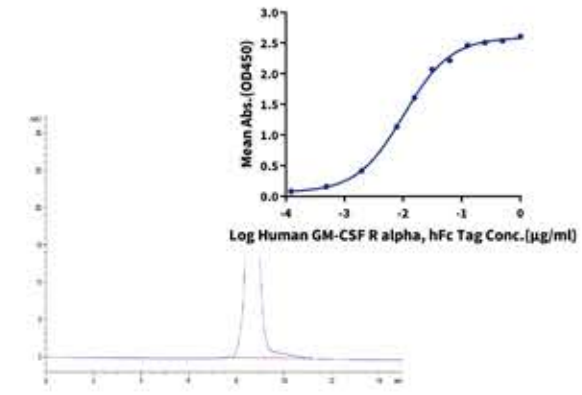
Measured by a reporter gene assay using HEK293T-KDR-NFAT Cell line. The ED50 for this effect is < 10 ng/mL (QC Test).

■ Bis-Tris PAGE



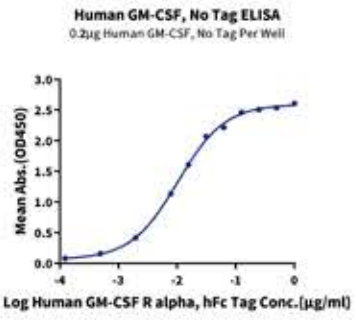
Human GM-CSF on Bis-Tris PAGE under reduced condition. The purity is greater than 95%.

■ SEC-



The purity of Human GM-CSF is greater than 95% as determined by SEC-HPLC.

■ ELISA Data



The ED50 as determined by the dose-dependent stimulation of the proliferation of human TF-1 cells is 0.02-0.1 ng/mL (QC Test).