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杭州华安生物技术有限公司

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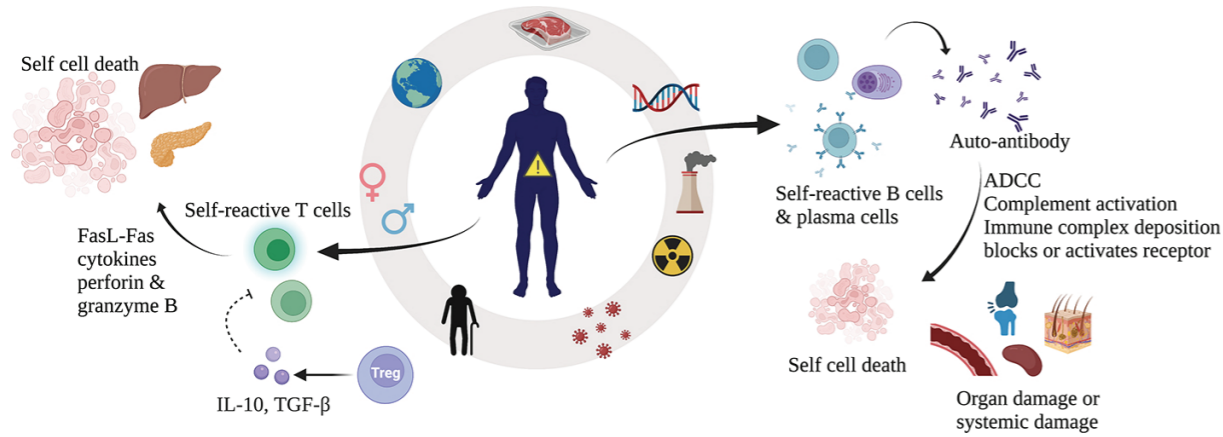
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 华安生物
H U A B I O

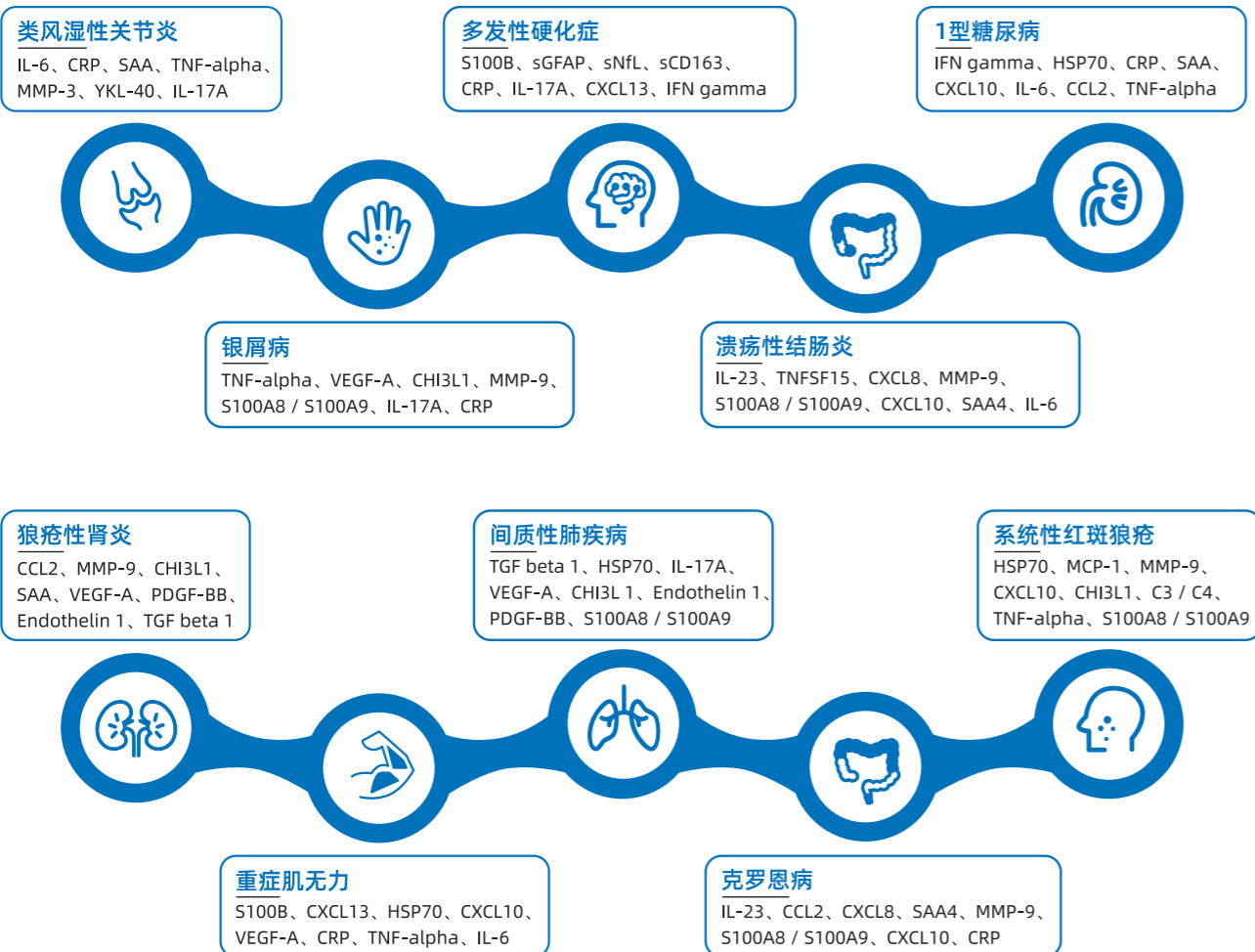
自身免疫性疾病的核心病理机制涉及自身反应性T细胞的异常激活、自身抗体产生及慢性炎症反应失衡。目前，自身抗体、细胞因子与非编码RNA等多种生物标志物已成为临床诊断与病理评估的关键依据。



自身免疫性疾病的病理机制 (PMID: 35008131)

为支持该领域前沿探索，华安生物 (HUABIO) 提供经严格验证的高性能重组蛋白、抗体及检测试剂盒，助力研究人员实现对疾病相关生物标志物的精准、可靠分析。我们的产品体系为自身免疫性疾病的早期筛查、疾病进展监测、分子机制解析、患者分型及疗效评估提供关键工具，持续推动科研与转化医学的发展。

常见自身免疫性疾病的主要生物标志物



华安生物 (HUABIO) 的解决方案

在自身免疫性疾病的研究与转化医学领域，精准、可靠的生物标志物检测是解析疾病异质性、监测活动度及评估治疗响应的基石。华安生物 (HUABIO) 提供涵盖高性能抗体、即用型检测试剂盒及高纯度蛋白产品，助力从机制探索到临床前评估的全程研究。



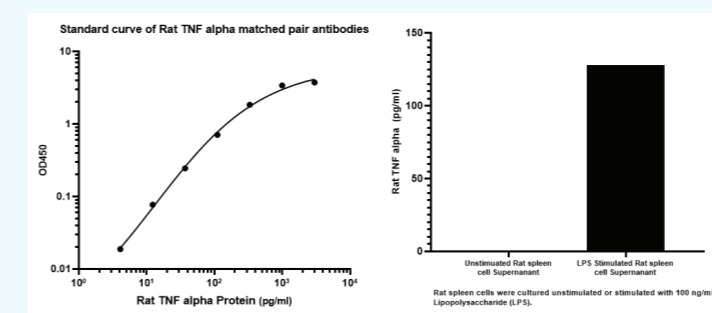
即用型试剂盒及精品配对抗体

• 系统性炎症与关节炎核心标志物 (类风湿性关节炎、强直性脊柱炎、银屑病)

TNF- α

作为免疫稳态的核心调节因子，通过激活NF- κ B和MAPK通路，驱动下游炎症级联反应。在类风湿关节炎中，其直接激活滑膜成纤维细胞和破骨细胞，导致关节软骨侵蚀和骨破坏；在炎症性肠病中，破坏肠上皮屏障完整性并诱导潘氏细胞凋亡。

Product name	Catalog#	Tested applications	Assay range / Sensitivity
Human TNF- α	HA721265	ELISA(Cap)	31.25 - 2,000 pg/ml
Human TNF- α	HA721266	ELISA(Det)	
Mouse/Rat TNF- α	HA721974	ELISA(Cap)	0 - 3,000 pg/ml
Mouse/Rat TNF- α	HA721975	ELISA(Det)	
Human TNF- α ELISA Kit	EH0002	ELISA	0.21 pg/ml (50 μ l); 0.26 pg/ml (10 μ l)
Mouse TNF- α ELISA Kit	EM0010	ELISA	0.097 pg/ml (10 μ l)
Rat TNF- α ELISA Kit	ER0007	ELISA	0.08 pg/ml (50 μ l); 0.16 pg/ml (10 μ l)



Mouse/Rat TNF alpha Matched Antibody Pair

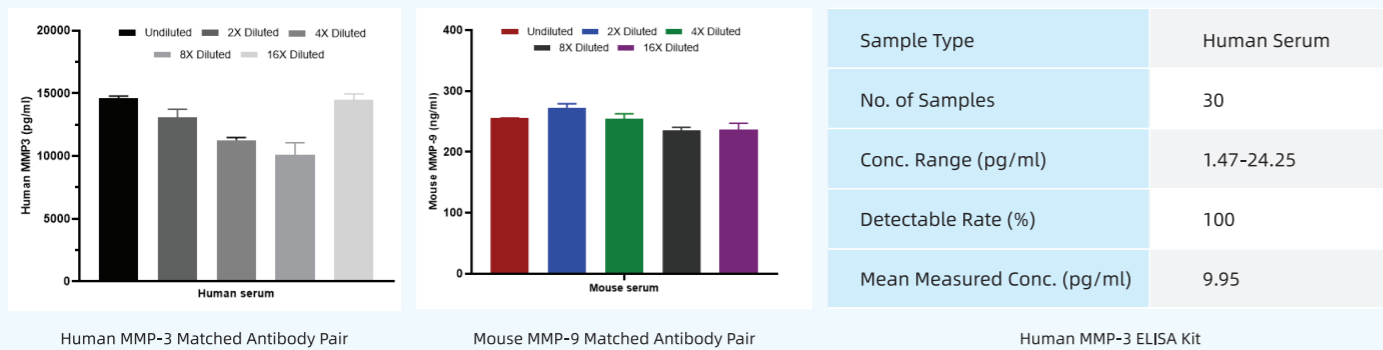
Sample Type	Mouse Serum
No. of Samples	30
Conc. Range (pg/ml)	n.d.-0.28
Detectable Rate (%)	33
Mean Measured Conc. (pg/ml)	0.16

Mouse TNF- α ELISA Kit

MMP-3 / MMP-9

属于基质金属蛋白酶家族。MMP-3可激活多种前体MMPs，广泛降解蛋白多糖、层粘连蛋白等基质成分，并与滑膜增生相关。MMP-9特异性降解IV型胶原及明胶，破坏基底膜，促进免疫细胞浸润与血管翳形成，其活性受TIMP-1调控。

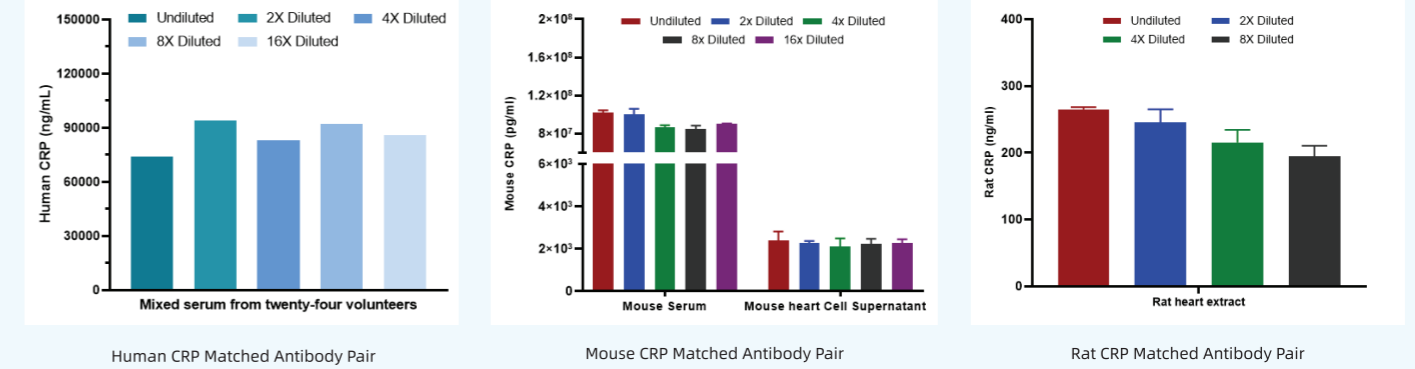
Product name	Catalog#	Tested applications	Assay range / Sensitivity
Human MMP-3	HA722877	ELISA(Cap)	41.2-10,000 pg/ml
Human MMP-3	HA722878	ELISA(Det)	
Human MMP-3 ELISA Kit	EH0169	ELISA	0.79 ng/ml (50 μ l); 4.66 ng/ml (10 μ l)
Human MMP-9	HA722106	ELISA(Cap)	20.6-5,000 pg/ml
Human MMP-9	HA722107	ELISA(Det)	
Mouse MMP-9	HA723784	ELISA(Cap)	23.4-6,000 pg/ml
Mouse MMP-9	HA723785	ELISA(Det)	
Human MMP-9 ELISA Kit	EH0020	ELISA	1.02 pg/ml (50 μ l); 5.99 pg/ml (10 μ l)



SAA / CRP

肝脏产生的急性期蛋白，其血浆浓度迅速响应于IL-6等细胞因子，是评估系统性炎症活动度的经典客观指标。通过经典途径激活补体、调节巨噬细胞吞噬功能，其糖基化变体（pCRP→mCRP）在炎症部位表现出更强的促炎活性。

Product name	Catalog#	Tested applications	Assay range / Sensitivity
Human SAA1	HA601333	ELISA(Cap)	329-80,000 pg/ml
Human SAA1	HA601334	ELISA(Det)	
Human SAA1 ELISA Kit	EH0180	ELISA	1.56~100 ng/ml
Human CRP	HA722108	ELISA(Cap)	617-50,000 pg/ml
Human CRP	HA722109	ELISA(Det)	
Human CRP ELISA Kit	EH0076	ELISA	4.26 pg/ml (50 μ l); 21.35 pg/ml (10 μ l)
Mouse CRP	HA725073	ELISA(Cap)	156-10,000 pg/ml
Mouse CRP	HA725074	ELISA(Det)	
Mouse CRP ELISA Kit	EM0035	ELISA	0.01 ng/ml (50 μ l)
Rat CRP	HA725049	ELISA(Cap)	78.1-10,000 pg/ml
Rat CRP	HA725050	ELISA(Det)	
Rat CRP ELISA Kit (One step)	ERY0009	ELISA	2.9 pg/ml (50 μ l); 42.15 pg/ml (10 μ l)

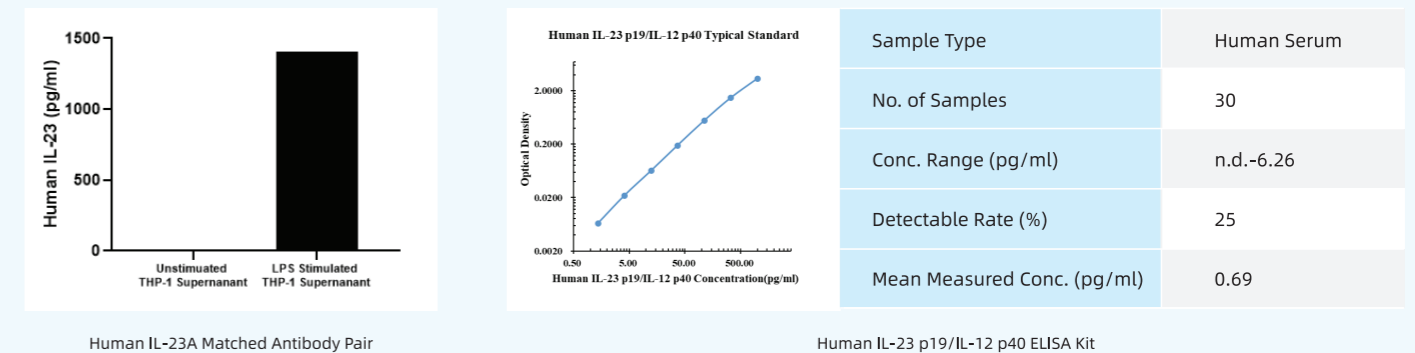


• 皮肤-关节-肠道轴（IL-23/Th17通路）标志物（强直性脊柱炎、银屑病关节炎、克罗恩病、溃疡性结肠炎）

IL-23

IL-23由抗原呈递细胞分泌，通过稳定Th17细胞表型及扩增记忆性T细胞，驱动病理性的IL-17产生。IL-23是维持Th17细胞谱系和功能的关键调节因子，是PsA、AS及IBD等疾病的治疗核心靶点。

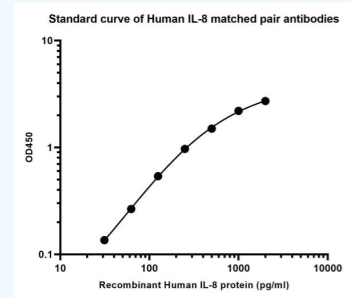
Product name	Catalog#	Tested applications	Assay range / Sensitivity
Human IL-23A	HA721933	ELISA(Cap)	37-3,000 pg/ml
Human IL-23A	HA721934	ELISA(Det)	
Human IL-23 p19/IL-12 p40 ELISA Kit	EH0109	ELISA	0.32 pg/ml (50 μ l); 1.3 pg/ml (10 μ l)
Mouse IL-12/IL-23 p40 ELISA Kit	EM0012	ELISA	1.65 pg/ml (10 μ l)



CXCL8

CXC趋化因子家族成员，通过与CXCR1/2结合，强力趋化中性粒细胞至炎症部位，并激活其脱颗粒释放髓过氧化物酶和中性粒细胞胞外 traps（NETs），在银屑病皮损和关节炎滑液中显著升高。

Product name	Catalog#	Tested applications	Assay range / Sensitivity
Human IL-8/CXCL8	HA722098	ELISA(Cap)	1.9 - 125 pg/ml
Human IL-8/CXCL8	HA722099	ELISA(Det)	
Human IL-8/CXCL8 ELISA Kit	EH0014	ELISA	1.45 pg/ml (50 μ l); 3.63 pg/ml (10 μ l)



Human IL-8/CXCL8 Matched Antibody

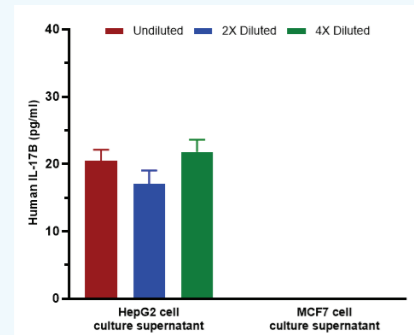
Sample Number	Intra-assay Precision			Inter-assay Precision		
	S1	S2	S3	S1	S2	S3
Average (pg/ml)	54.3	279.3	896.3	51.2	259.7	780.4
Standard Deviation	1.9	8.3	31.3	3.4	14.2	25.7
CV(%)	3.4	3.0	3.5	6.7	5.5	3.3

Human IL-8/CXCL8 ELISA Kit

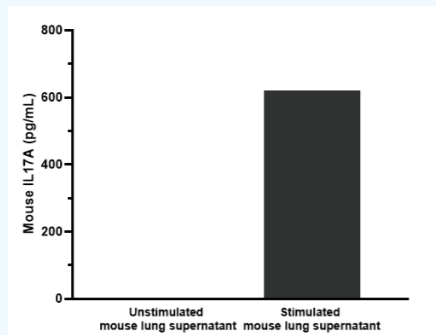
IL-17

Th17细胞的主要效应因子，直接刺激上皮细胞、成纤维细胞和滑膜细胞产生CXCL8、GM-CSF及基质降解酶，是屏障组织中中性粒细胞募集和组织重塑的核心介质。

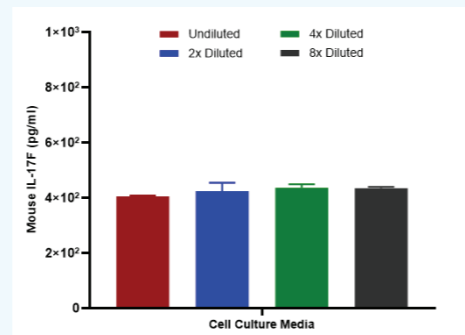
Product name	Catalog#	Tested applications	Assay range / Sensitivity
Human IL-17A	HA721232	ELISA(Cap)	30.5 -2,000 pg/ml
Human IL-17A	HA721233	ELISA(Det)	
Human IL-17A ELISA Kit	EH0004	ELISA	0.26 pg/ml (50 µl); 0.65 pg/ml (10 µl)
Human IL-17B	HA725267	ELISA(Cap)	5.9-1,500 pg/ml
Human IL-17B	HA725268	ELISA(Det)	
Human IL-17F	HA725315	ELISA(Cap)	39.1-20,000 pg/ml
Human IL-17F	HA725316	ELISA(Det)	
Mouse IL-17A	HA722264	ELISA(Cap)	9.9-800 pg/ml
Mouse IL-17A	HA722265	ELISA(Det)	
Mouse IL-17A ELISA Kit	EM0008	ELISA	0.25pg/ml (10 µl)
Mouse IL-17E/IL-25	HA725043	ELISA(Cap)	78.1-10,000 pg/ml
Mouse IL-17E/IL-25	HA725044	ELISA(Det)	
Human IL-17E ELISA Kit	EH0066	ELISA	0.69 pg/ml (50 µl); 2.74 pg/ml (10 µl)
Mouse IL-17E ELISA Kit	EM0028	ELISA	12.33 pg/ml (10 µl)
Mouse IL-17F	HA723901	ELISA(Cap)	3.9-1,000 pg/ml
Mouse IL-17F	HA723902	ELISA(Det)	



Human IL-17B Matched Antibody Pair



Mouse IL-17A Matched Antibody Pair



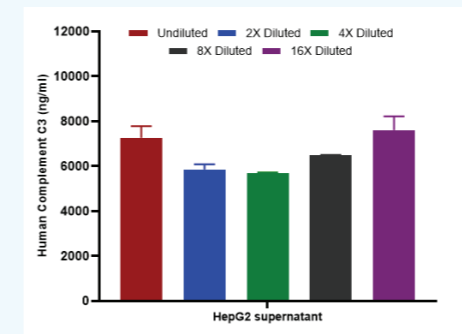
Mouse IL-17F Matched Antibody Pair

• 系统性自身免疫病与体液免疫标志物（系统性红斑狼疮，狼疮性肾炎，原发性干燥综合征，IgA肾病）

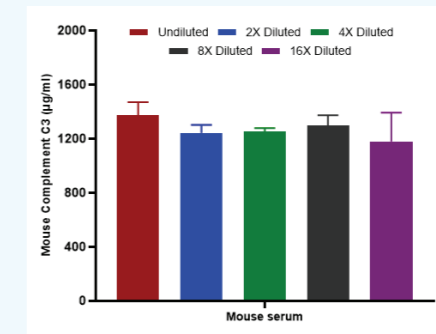
C3

补体系统核心组分，其裂解产物C3a和C3b是炎症反应、免疫复合物清除及组织损伤的关键效应分子。在自身免疫性疾病中，自身抗体或异常免疫复合物持续激活补体，导致C3过度消耗和裂解片段积累，直接驱动组织炎症与损伤。

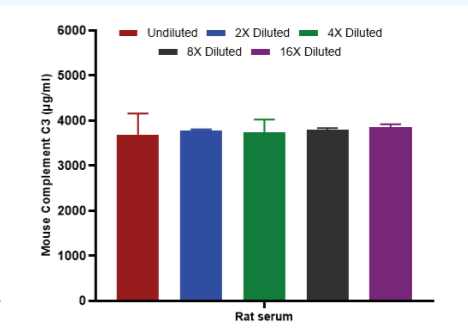
Product name	Catalog#	Tested applications	Assay range / Sensitivity
Human Complement C3	HA725140	ELISA(Cap)	3,125-400,000 pg/ml
Human Complement C3	HA725141	ELISA(Det)	
Human Complement C3 ELISA Kit	EHY0202	ELISA	1.45 pg/ml (50 µl); 3.63 pg/ml (10 µl)
Mouse/Rat Complement C3	HA725143	ELISA(Cap)	312.5-40,000 pg/ml
Mouse/Rat Complement C3	HA725144	ELISA(Det)	



Human Complement C3 Matched Antibody Pair



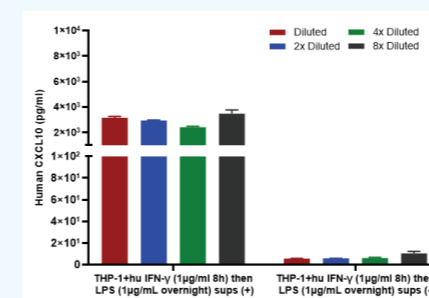
Mouse/Rat Complement C3 Matched Antibody Pair



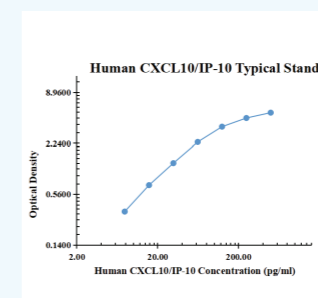
CXCL10

I型干扰素的代表性细胞因子，受IFN-γ诱导产生，作为Th1细胞的化学吸引物，通过CXCR3介导T细胞向靶组织（如MS的CNS、SLE肾脏及RA滑膜）的特异性归巢，并抑制血管生成。

Product name	Catalog#	Tested applications	Assay range / Sensitivity
Human CXCL10 / IP-10	HA725007	ELISA(Cap)	1.6-200 pg/ml
Human CXCL10 / IP-10	HA725008	ELISA(Det)	
Human CXCL10/IP-10 ELISA Kit	EH0012	ELISA	0.16 pg/ml (50 µl); 0.68 pg/ml (10 µl)



Human CXCL10 Matched Antibody Pair



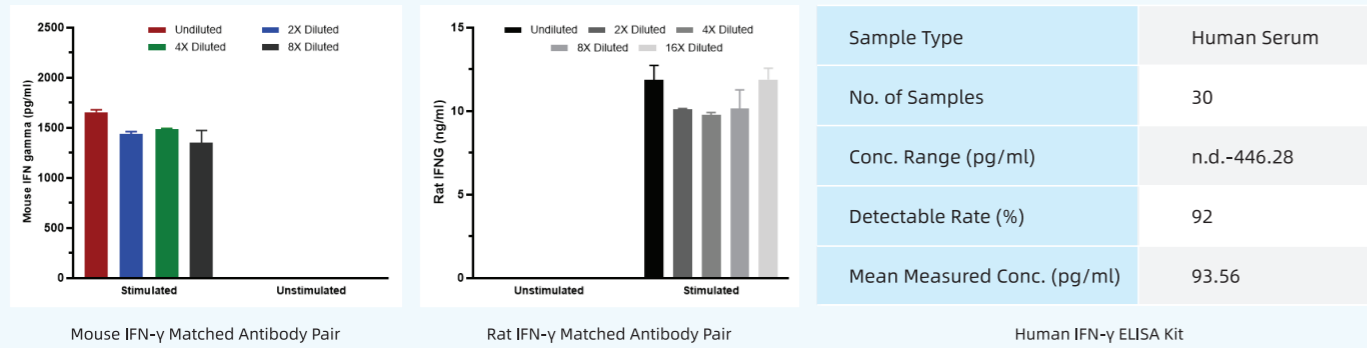
Sample Type	Human Serum
No. of Samples	30
Conc. Range (pg/ml)	8.36-99.65
Detectable Rate (%)	100
Mean Measured Conc. (pg/ml)	25.02

Human CXCL10 ELISA Kit

IFN- γ

由Th1、CD8+ T细胞及NK细胞产生，通过JAK-STAT1通路诱导MHC II类分子表达，增强抗原呈递；同时激活巨噬细胞产生一氧化氮和促炎因子，在T细胞介导的组织特异性自身免疫（如1型糖尿病胰岛破坏）中起核心作用。

Product name	Catalog#	Tested applications	Assay range / Sensitivity
Mouse IFN- γ	HA723676	ELISA(Cap)	13.7-10,000 pg/ml
Mouse IFN- γ	HA723677	ELISA(Det)	
Mouse IFN- γ ELISA Kit	EM0009	ELISA	3.24 pg/ml (10 μ l)
Rat IFN- γ	HA722421	ELISA(Cap)	30.9-2,500 pg/ml
Rat IFN- γ	HA722422	ELISA(Det)	
Rat IFN- γ ELISA Kit	ER0006	ELISA	7.39 pg/ml (50 μ l)
Human IFN- γ ELISA Kit	EH0039	ELISA	0.36 pg/ml (50 μ l); 0.85 pg/ml (10 μ l)

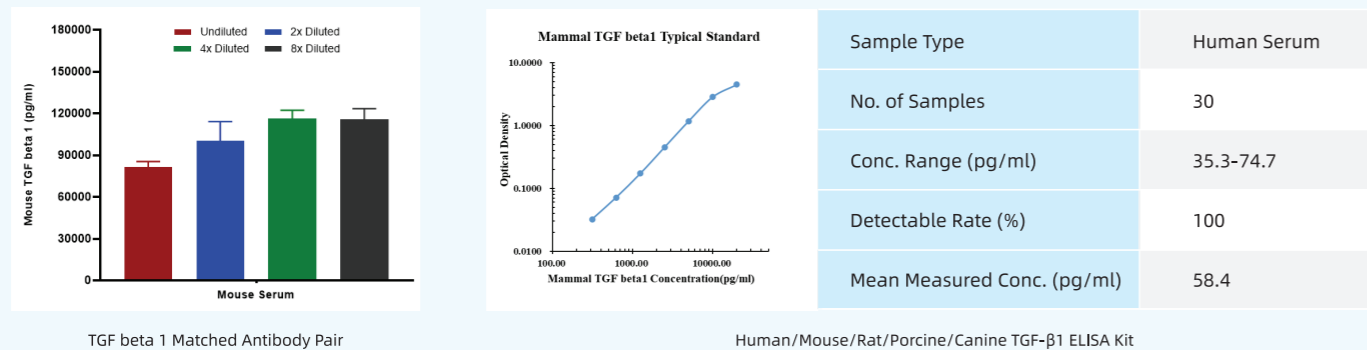


• 系统性硬化症与纤维化驱动标志物（系统性硬皮病，间质性肺疾病）

TGF- β

纤维化的核心调控因子，具有环境依赖性双重功能：在炎症初期，通过调节性T细胞（Treg）分化和抑制Th1/Th17反应发挥免疫抑制；在纤维化阶段，则通过Smad信号通路促进成纤维细胞向肌成纤维细胞转化，导致胶原过度沉积。

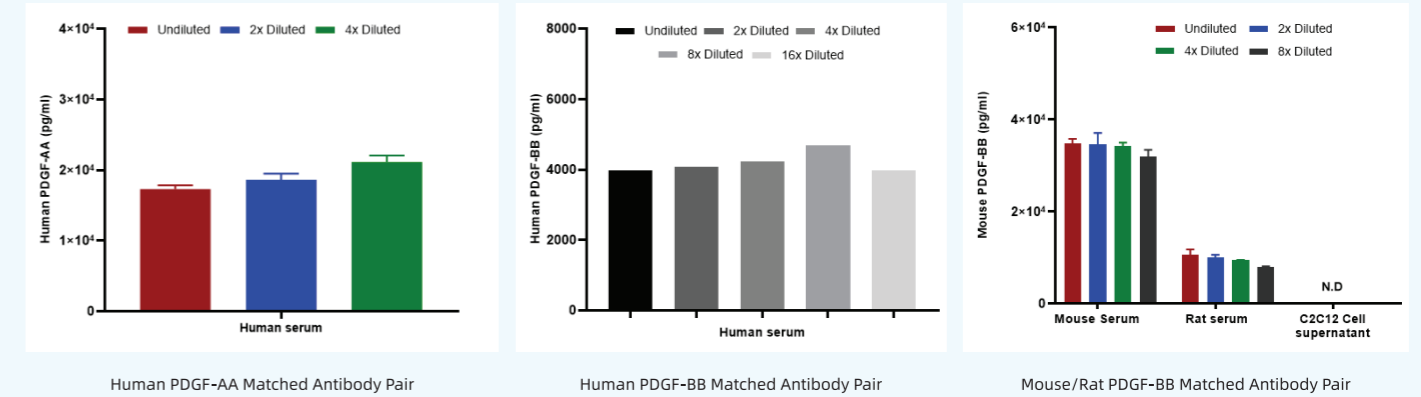
Product name	Catalog#	Tested applications	Assay range / Sensitivity
TGF beta 1	HA723725	ELISA(Cap)	156-20,000 pg/ml
TGF beta 1	HA723726	ELISA(Det)	
Human / Mouse / Rat / Porcine Canine/TGF- β 1 ELISA Kit	EH0012	ELISA	33.32 pg/ml (50 μ l)



PDGF

强效的成纤维细胞和血管平滑肌细胞有丝分裂原，主要由活化的血小板和巨噬细胞释放。PDGF通过激活PDGFR- α/β ，强力促进成纤维细胞、平滑肌细胞增殖与迁移，是肉芽组织形成和组织纤维化的核心生长因子。

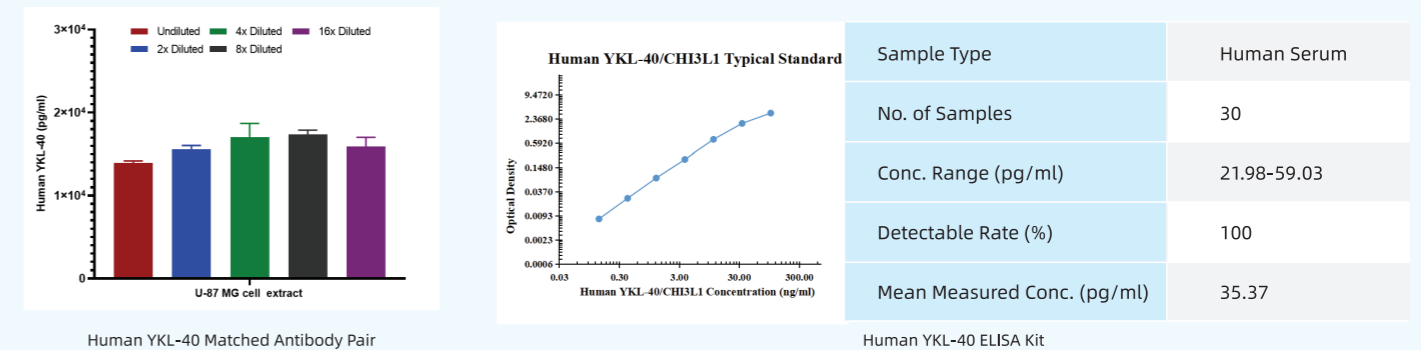
Product name	Catalog#	Tested applications	Assay range / Sensitivity
Human PDGF-AA	HA725061	ELISA(Cap)	141-9,000 pg/ml
Human PDGF-AA	HA725062	ELISA(Det)	
Human PDGF-AA ELISA Kit	EH0058	ELISA	0.10 ng/ml (50 μ l); 0.17 ng/ml (10 μ l)
Human PDGF-BB	HA722497	ELISA(Cap)	30.9-2,500 pg/ml
Human PDGF-BB	HA722498	ELISA(Det)	
Human PDGF-BB ELISA Kit	EH0068	ELISA	7.39 pg/ml (50 μ l)
Mouse/Rat PDGF-BB	HA723810	ELISA(Cap)	3.9-500 pg/ml
Mouse/Rat PDGF-BB	HA723811	ELISA(Det)	



YKL-40 (CHI3L1)

一种几丁质酶样蛋白，在巨噬细胞、软骨细胞和肿瘤细胞中表达。通过调控MAPK和PI3K通路，促进血管生成、细胞外基质重塑，并与组织修复/纤维化过程相关，其血清水平可反映疾病活动度和结构进展。

Product name	Catalog#	Tested applications	Assay range / Sensitivity
Human YKL-40	HA725088	ELISA(Cap)	31.3-4,000 pg/ml
Human YKL-40	HA725089	ELISA(Det)	
Human YKL-40 ELISA Kit	EHY0159	ELISA	0.01 ng/ml (50 μ l); 0.05 ng/ml (10 μ l)

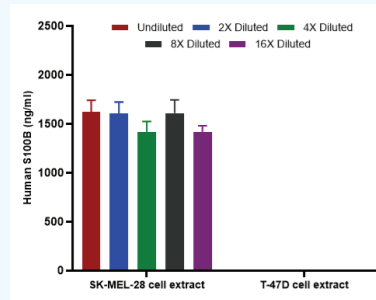


• 神经与罕见自身免疫病相关标志物（多发性硬化症，视神经脊髓炎，重症肌无力）

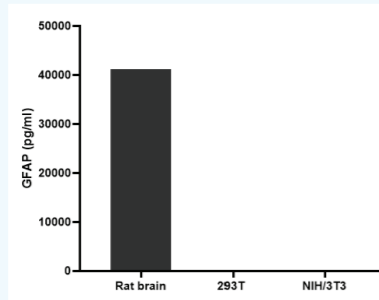
S100B / GFAP

S100B主要存在于星形胶质细胞，血清或脑脊液水平升高是星形胶质细胞损伤和血脑屏障功能障碍的标志。GFAP是星形胶质细胞损伤的特异性标志物，其释放提示星形胶质细胞终足破坏及血脑屏障功能障碍。在神经免疫疾病急性期显著升高，可用于鉴别MS急性发作与假性发作。

Product name	Catalog#	Tested applications	Assay range / Sensitivity
S100B	HA723728	ELISA(Cap)	46.9-6,000 pg/ml
S100B	HA723729	ELISA(Det)	
GFAP	HA722234	ELISA(Cap)	823-200,000 pg/ml
GFAP	HA601342	ELISA(Det)	
Mammal GFAP ELISA Kit	EH0178	ELISA	2.52 pg/ml (50 μ l); 17.06 pg/ml (10 μ l)



S100B Matched Antibody Pair



GFAP Matched Antibody Pair

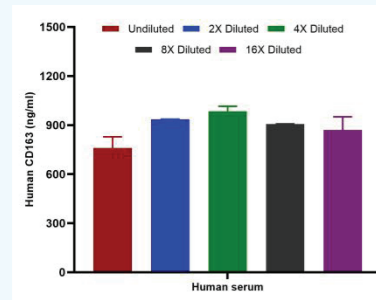
Sample Type	Human Serum
No. of Samples	30
Conc. Range (pg/ml)	n.d.-23.29
Detectable Rate (%)	75
Mean Measured Conc. (pg/ml)	5.29

Mammal GFAP ELISA Kit

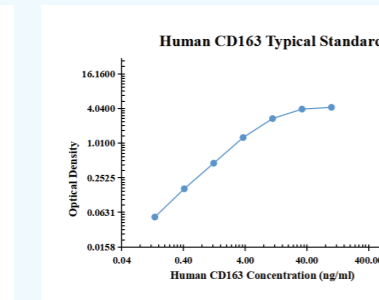
CD163

血红蛋白-触珠蛋白清道夫受体CD163的可溶性形式，反映M2型巨噬细胞的抗炎/修复合活性。其水平升高既可指示巨噬细胞激活状态，亦可能具有免疫调节功能。

Product name	Catalog#	Tested applications	Assay range / Sensitivity
Human CD163	HA723566	ELISA(Cap)	78.1-10,000 pg/ml
Human CD163	HA723567	ELISA(Det)	
Human CD163 ELISA Kit	EH0185	ELISA	1.70 pg/ml (50 μ l); 7.17 pg/ml (10 μ l)



HumanCD163 Matched Antibody Pair



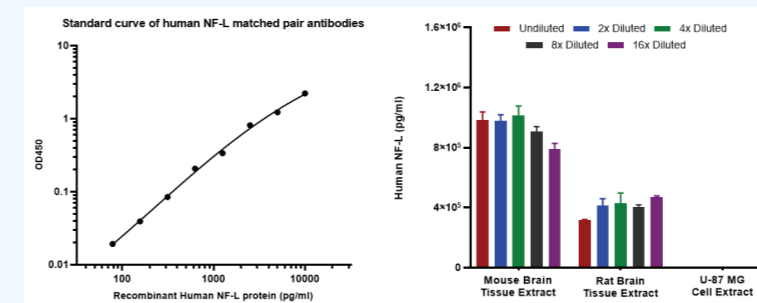
Sample Type	Human Serum
No. of Samples	30
Conc. Range (pg/ml)	175.83-829.63
Detectable Rate (%)	100
Mean Measured Conc. (pg/ml)	452.37

Human CD163 ELISA Kit

NFL

神经元细胞骨架组分，轴突损伤后释放入脑脊液及外周血。作为定量轴突损伤标志物，其动态变化可客观反映MS、NMOSD等疾病中的神经退变进程和治疗神经保护效果。

Product name	Catalog#	Tested applications	Assay range / Sensitivity
Human/Mouse/Rat NF-L	HA723333	ELISA(Cap)	156-10,000 pg/ml
Human/Mouse/Rat NF-L	HA723334	ELISA(Det)	
Human/Mouse/Rat NF-L	HA723330	ELISA(Cap)	78-10,000 pg/ml
Human/Mouse/Rat NF-L	HA723331	ELISA(Det)	
Mammal NF-L ELISA Kit	EH0154	ELISA	0.54 pg/ml (50 μ l); 1.31 pg/ml (10 μ l)



Human/Mouse/Rat NF-L Matched Antibody Pair

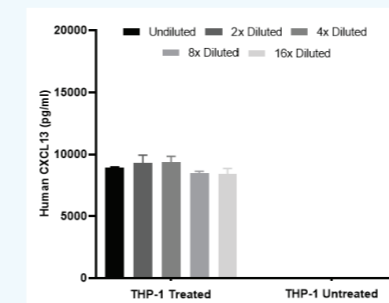
Sample Type	Human Serum
No. of Samples	30
Conc. Range (pg/ml)	n.d.-1.18
Detectable Rate (%)	25
Mean Measured Conc. (pg/ml)	0.55

Mammal NF-L ELISA Kit

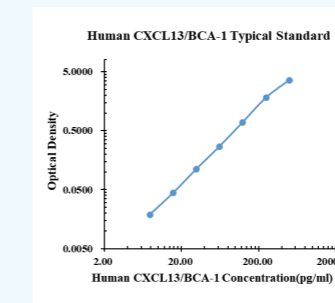
CXCL13

次级淋巴组织趋化因子（SLC），通过CXCR5引导B细胞归巢至滤泡，在MS脑脊液中升高，提示鞘内B细胞滤泡样结构的形成，与疾病进展和鞘内IgG合成相关。此外，在RA滑膜、pSS唾液腺等病变组织中驱动异位淋巴结构形成，支持局部自身抗体产生和抗原呈递。

Product name	Catalog#	Tested applications	Assay range / Sensitivity
Human CXCL13	HA722791	ELISA(Cap)	12.3-3,000 pg/ml
Human CXCL13	HA722792	ELISA(Det)	
Human CXCL13 ELISA Kit	EH0172	ELISA	0.56 pg/ml (50 μ l); 5.32 pg/ml (10 μ l)



Human CXCL13 Matched Antibody Pair



Sample Type	Human Serum
No. of Samples	30
Conc. Range (pg/ml)	28.44-275.19
Detectable Rate (%)	100
Mean Measured Conc. (pg/ml)	71.8

Human CXCL13 ELISA Kit

重组蛋白

华安生物 (HUABIO) 提供研究级重组蛋白, 保证高批间一致性, 是建立标准曲线、细胞功能实验及抗体验证的理想选择。

- 01 严格质控:** 纯度 >95% (SEC-HPLC/SDS-PAGE验证), 内毒素 <1.0 EU/μg。
- 02 功能验证:** 关键蛋白, 提供细胞水平生物活性数据 (典型EC50范围)。
- 03 成功经验:** 拥有2000+ 成功交付案例, 涵盖多种全长跨膜蛋、多亚基复合物等困难靶点。

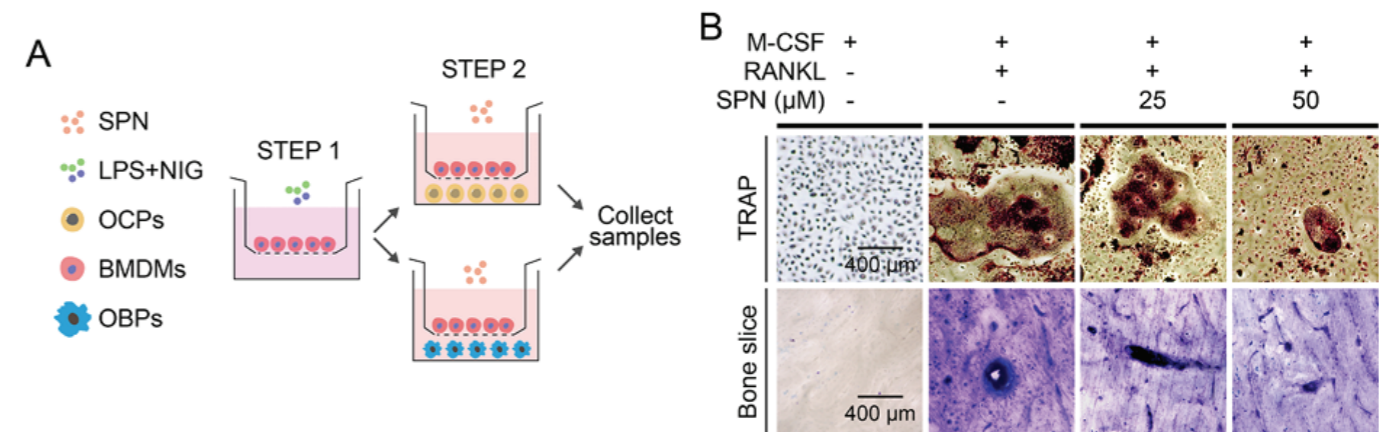
优质重组蛋白产品推荐

Product name	Catalog#	Source	Product name	Catalog#	Source
Human CCL2/MCP1, Tag Free	HA210787	E.coli	Human PDGF-B, Tag Free	HA210859	HEK293
Human CD163, Tag Free (ECD)	HA211143	HEK293	Human S100B, Tag Free	HA211252	HEK293
Human Chitinase 3-like 1/CHI3L1, C-His Tag	HA211030	HEK293	Human TL1A/TNFSF15, Tag Free	HA211266	HEK293
Human Complement C3, C-His Tag	HA211092	HEK293	Human TNF-alpha, Tag Free	HA210760	HEK293
Human C-Reactive Protein/CRP, C-His, Flag Tag	HA210648	HEK293	Human VEGF121, Tag Free	HA210929	HEK293
Human CXCL10, C-Flag Tag	HA210740	HEK293	Human VEGF165, Tag Free	HA210784	HEK293
Human CXCL13 / BCA-1, Tag Free	HA211065	HEK293	Mouse CCL2, Tag Free	HA210775	HEK293
Human GFAP, Tag Free	HA210990	E.coli	Mouse Complement C3, C-His Tag	HA211093	HEK293
Human HSPA1A, Tag Free	HA210756	E.coli	Mouse C-Reactive Protein/CRP, Tag Free	HA211020	HEK293
Human IFN-gamma, C-His Tag	HA210762	HEK293	Mouse CXCL10, Tag Free	HA210805	HEK293
Human IL-1 beta/IL1B, C-His Tag	HA210576	HEK293	Mouse IFN-gamma, Tag Free	HA210974	HEK293
Human IL-12 (linked heterodimer), C-His Tag	HA210910	HEK293	Mouse IL-1 beta/IL1B, C-His Tag	HA210962	HEK293
Human IL12B/P40, C-His Tag	HA210655	HEK293	Mouse IL-17A, C-Flag	HA210791	HEK293
Human IL-17A, Tag Free	HA210731	HEK293	Mouse IL-23 P19/IL23A, Tag Free	HA211007	HEK293
Human IL-23, C-His Tag	HA210909	HEK293	Mouse IL-6, Tag Free	HA210796	HEK293
Human IL-6, Tag Free	HA210797	HEK293	Mouse MMP-3, Tag Free	HA211280	HEK293
Human IL-8/CXCL8 Tag Free	HA210642	HEK293	Mouse MMP-9, C-His Tag	HA211045	HEK293
Human IP-10/CXCL10, Tag Free	HA210896	HEK293	Mouse PDGFBB, Tag Free	HA211037	HEK293
Human MMP3, C-His, Flag Tag	HA210853	HEK293	Mouse TNF-alpha, C-His, Flag Tag	HA210527	HEK293
Human MMP-9, C-His, Flag Tag	HA210698	HEK293	Mouse VEGF164, Tag Free	HA210780	HEK293
Human NFL, Tag Free	HA211087	HEK293	Mouse VEGF188, Tag Free	HA210770	HEK293
Human PDGF-AA, Tag Free	HA211046	HEK293	Rat C-Reactive Protein/CRP, C-His Tag	HA211008	HEK293

Product name	Catalog#	Source	Product name	Catalog#	Source
Rat IFN-gamma, C-His, Flag Tag	HA210577	HEK293	Rat TNF-alpha, C-His, Flag Tag	HA210538	HEK293
Rat IL-1 beta/IL1B, C-Flag Tag	HA210708	E.coli	Rat VEGF164, Tag Free	HA211331	HEK293
Rat IL-6, C-His, Flag Tag	HA210629	HEK293	Rat VEGF188, Tag Free	HA211332	HEK293
Rat MMP-9, Tag Free	HA211141	HEK293			

客户应用案例精选

揭示了中药活性成分SPN抑制破骨细胞分化, 进而改善类风湿关节炎骨破坏的作用机制探究



数据来源: *Phytomedicine*. 2025 Nov 25;148:157293.. doi: 10.1016/j.phymed.2025.157293.(成都中医药大学)

结果解读: 在体外评估SPN在炎症微环境条件下对破骨细胞分化的调控作用实验中, Huan Yao等人使用M-CSF重组蛋白 (Catalog# HA210725, 华安生物) 和RANKL重组蛋白 (Catalog# HA210876, 华安生物) 联合诱导破骨细胞前体细胞 (OCPs) 分化生成破骨细胞, 并评估破骨细胞生成和骨吸收功能。

此外，华安生物（HUABIO）还提供重组蛋白表达服务，通过优化表达平台与规模化纯化流程，显著缩短蛋白交付时间，助您加速从靶点验证到先导化合物筛选的决策流程，致力于将复杂的生物学靶点转化为稳定、可靠、数据驱动的研发工具。

技术路线



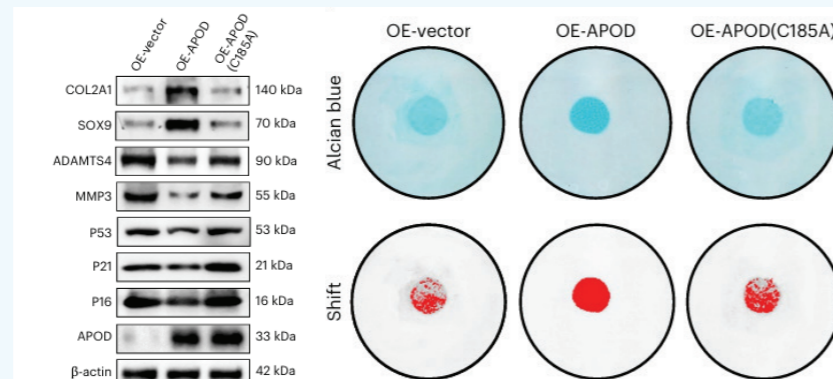
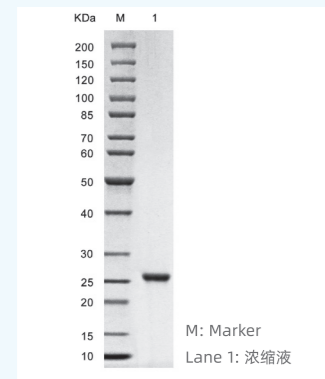
2,000+项目 成功交付 | 4周起 交付周期 | 15年以上 蛋白表达经验 | 90%以上 交付蛋白纯度

重组蛋白定制服务案例

APOD蛋白表达与纯化

纯度：≥90% as estimated by SDS-PAGE gel

原代软骨细胞中过表达APOD，评估其对衰老介导的骨关节炎进程的调控作用。APOD过表达改善骨关节炎和衰老相关表型，减缓细胞衰老；而APOD(C185A)过表达则产生相反效应。



*数据来源: *Nat Aging*. 2025 Sep 30. doi: 10.1038/s43587-025-00968-1. (浙江大学)

