

# ActiveMax<sup>®</sup> Cytokines

— Made as Human as Humanly Possible

— Your Ideal Choice for Human Cell Culture

- Authentic Post-Translational Modification
- Tag-Free
- Endotoxin-Free
- Xeno-Free
- High Bioactivity
- High Stability
- High Purity

Activin A

TGF-b2

G-CSF

TGF-b1

GM-CSF

VEGF165/ 121

EPO

TPO

IL-15

IL-4

IL-7

IL-2

IL-6

IL-1a

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# ActiveMax<sup>®</sup> Human Cytokines

ActiveMax<sup>®</sup> Human Cytokines is our flagship product line featuring a complete collection of commonly used human cytokines and growth factors. Unlike most of other commercially available cytokine products, ActiveMax<sup>®</sup> cytokines are expressed exclusively in human cells under strict animal-free and xeno-free conditions. Therefore, they are uniquely suitable for human cell culture and assay development.



Here are some of the reasons why you should choose ActiveMax<sup>®</sup> cytokines for your studies:



## Authentic Human Protein

The function of a protein heavily depends on its post translational processing, such as glycosylation, folding, and subunit assembly. Human recombinant proteins expressed from bacteria, insect, or non-human mammalian cells often fall short in fully recapitulating the post-translational modifications of their native counterparts, largely due to lack of human-specific mechanisms in the hosts. Consequently, these proteins often demonstrate compromised biological properties.

On the contrary, the production of ActiveMax<sup>®</sup> cytokines relies entirely on the human cellular machinery provided by the HEK293 cells. As a result, our cytokines retain their authentic post-translational processing (Fig. 1), which translates into high bioactivity and stability (Fig. 2). In addition, the HEKMax<sup>®</sup> system confers very high level of target expression, which allows us to purify proteins without the use of artificially introduced tags. This true tag-free production brings the benefit of fully maintaining the proteins' native conformation and biological properties, including ligand-receptor binding affinity, which may be affected by subtle charge/size changes caused by the addition of tags.

Expression System	Folding	Phosphorylation	Proteolytic	Glycosylation
E. coli	+	N/A	N/A	N/A
Insect Cell	++	++	+	Poor
Plant Cell	+++	++	++	Poor
CHO Cell	++++	+++	+++	Non-Human Like
HEK293T Cell	+++++	+++++	+++++	Human Authentic



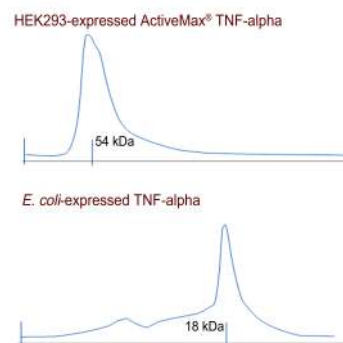
## Xeno-Free and Endotoxin-Free

Endotoxin and other non-human components can provoke immune response in human systems. These contaminations are significant complicating factors for human cell culture experiments, in particular those relevant to human cell therapy or other clinical applications. Our ActiveMax<sup>®</sup> cytokines are exclusively produced in a serum-free, animal component-free, and chemically defined cell culture system. These cytokines are absolutely xeno-free, and have an endotoxin level of less than 1.0 EU per µg.

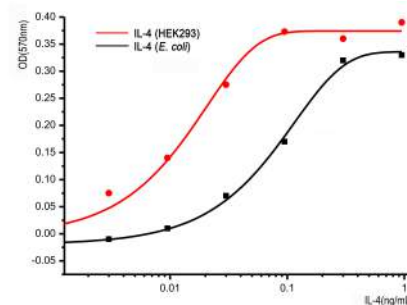


## Bulk Production

Our HEKMax<sup>®</sup> technology platform employs a high density cell culture system, specially designed expression vectors, and proprietary HEK293 cell lines with a low background and an optimal metabolic profile. The seamless integration of these elements allows us to easily scale up our production to meet your demand for bulk amount of cytokines. With this refined expression system in place, you can enjoy the benefits of an industrial production process with a highly affordable price.



**Fig. 1:** Gel filtration analysis of HEK293-expressed ActiveMax<sup>®</sup> TNF-alpha (upper panel) and competitor's *E. coli*-expressed TNF-alpha (lower panel). Note that ActiveMax<sup>®</sup> TNF-alpha are active trimers (54kDa), while *E. coli*-expressed TNF-alpha are monomers (18kDa).



**Fig. 2:** Proliferation of TF-1 cells assayed 5 days after treatment with HEK293-expressed ActiveMax<sup>®</sup> IL-4 (red) and an *E. coli*-derived IL-4 (black) from a competitor.

ActiveMax<sup>®</sup> Human Cytokines

Catalog #	Product Name	Host	Tag	Purity	Bioactivity	Size
AMS.ACA-H421b	Human Activin A / INHBA	HEK293	Native	95%	>1X10 <sup>6</sup> Unit/mg	10ug, 50ug
AMS.EPO-H4214	Human EPO / Erythropoietin	HEK293	Native	97%	>5X10 <sup>6</sup> Unit/mg	10ug, 50ug, 1mg
AMS.FLL-H5218	Human FLT3L	HEK293	Native	95%	>2X10 <sup>6</sup> Unit/mg	10ug, 50ug, 1mg
AMS.GCF-H5214	Human G-CSF	HEK293	Native	95%	>2X10 <sup>7</sup> Unit/mg	10ug, 50ug, 1mg
AMS.GMF-H4214	Human GM-CSF	HEK293	Native	95%	>1X10 <sup>7</sup> Unit/mg	10ug, 50ug, 1mg
AMS.IFG-H4211	Human IFN-gamma	HEK293	Native	93%	>2X10 <sup>7</sup> Unit/mg	100ug, 1mg
AMS.ILA-H4213	Human IL-1a	HEK293	Native	97%	>1X10 <sup>9</sup> Unit/mg	10ug, 50ug, 1mg
AMS.IL2-H4216	Human IL-2	HEK293	Native	95%	>1X10 <sup>7</sup> Unit/mg	100ug, 1mg
AMS.IL3-H4211	Human IL-3	HEK293	Native	97%	>1X10 <sup>7</sup> Unit/mg	10ug, 50ug, 1mg
AMS.IL4-H4218	Human IL-4	HEK293	Native	95%	>5X10 <sup>6</sup> Unit/mg	10ug, 50ug, 1mg
AMS.IL6-H4218	Human IL-6	HEK293	Native	98%	>2X10 <sup>7</sup> Unit/mg	10ug, 50ug, 1mg
AMS.IL7-H4219	Human IL-7	HEK293	Native	95%	>5X10 <sup>6</sup> Unit/mg	10ug, 50ug, 1mg
AMS.ILO-H4216	Human IL-10	HEK293	Native	95%	>2X10 <sup>6</sup> Unit/mg	10ug, 50ug, 1mg
AMS.IL2-H4210	Human IL-12	HEK293	Native	95%	>5X10 <sup>6</sup> Unit/mg	10ug, 50ug, 1mg
AMS.IL5-H4217	Human IL-15	HEK293	Native	95%	>2X10 <sup>6</sup> Unit/mg	10ug, 50ug, 1mg
AMS.ILF-H4214	Human IL-17F	HEK293	Native	95%	>1X10 <sup>5</sup> Unit/mg	10ug, 50ug
AMS.IL2-H5212	Human IL-22	HEK293	Native	95%	>1X10 <sup>6</sup> Unit/mg	10ug, 50ug, 1mg
AMS.FG7-H5216	Human KGF / FGF-7	HEK293	Native	95%	>1X10 <sup>5</sup> Unit/mg	10ug, 50ug
AMS.LIF-H521b	Human LIF	HEK293	Native	95%	>1X10 <sup>7</sup> Unit/mg	10ug, 50ug, 1mg
AMS.OSM-H5213	Human OSM	HEK293	Native	95%	>1X10 <sup>5</sup> Unit/mg	10ug, 50ug
AMS.PDA-H4218	Human PDGF-AA	HEK293	Native	95%	>1X10 <sup>5</sup> Unit/mg	10ug, 50ug, 1mg
AMS.PDB-H4219	Human PDGF-BB	HEK293	Native	95%	>1X10 <sup>5</sup> Unit/mg	10ug, 50ug, 1mg
AMS.SCF-H4212	Human SCF / KITLG	HEK293	Native	98%	>2X10 <sup>5</sup> Unit/mg	10ug, 50ug, 1mg
AMS.TG1-H4212	Human TGF-beta 1	HEK293	Native	95%	>2X10 <sup>7</sup> Unit/mg	10ug, 50ug, 1mg
AMS.TG2-H4213	Human TGF-beta 2	HEK293	Native	98%	>1X10 <sup>7</sup> Unit/mg	10ug, 50ug, 1mg
AMS.TNA-H4211	Human TNF-alpha	HEK293	Native	98%	>4X10 <sup>7</sup> Unit/mg	100ug, 1mg
AMS.TNB-H5214	Human TNF-beta / TNFSF1	HEK293	Native	95%	>2X10 <sup>6</sup> Unit/mg	10ug, 50ug, 1mg
AMS.VE1-H4213	Human VEGF121	HEK293	Native	95%	>1X10 <sup>6</sup> Unit/mg	10ug, 50ug, 1mg
AMS.VE5-H4210	Human VEGF165	HEK293	Native	98%	>2X10 <sup>5</sup> Unit/mg	10ug, 50ug, 1mg

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