



# 2013 SUPPLEMENT



## Chimerigen Laboratories

*The Experts for High Quality Fusion Proteins*

### Stem Cell Factor (SCF)

SCF plays an essential role in the regulation of cell survival and proliferation, hematopoiesis, stem cell maintenance (binding to haemopoietic stem cells), gametogenesis, mast cell development, migration and function, and in melanogenesis by activating several signaling pathways.

PID	PRODUCT NAME	SIZE
CHI-HF-210SCF	SCF (human):Fc (human) (rec.)	10 µg
CHI-HF-220SCF	SCF (human):Fc (human) (rec.) (non-lytic)	50 µg
CHI-HF-211SCF	SCF (human):Fc (mouse) (rec.)	50 µg
CHI-HR-200SCF	SCF (human) (rec.) (His)	10 µg
CHI-MF-110SCF	SCF (mouse):Fc (mouse) (rec.)	50 µg
CHI-MF-120SCF	SCF (mouse):Fc (mouse) (rec.) (non-lytic)	50 µg
CHI-RF-311SCF	SCF (rat):Fc (mouse) (rec.)	10 µg

### **NEW** IL-2 Superkine (Fc)

Highly active and low toxic protein that directly triggers proliferation of T cells.

CHI-ZHF-21002S	IL-2 Superkine (Fc)	10 µg 3 x 10 µg
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### **NEW** mIL-35/Fc

Biological activity tested protein now available FROM STOCK.

CHI-MF-11135	IL-35 (mouse):Fc (human) (rec.)	5 µg
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## Biologically Active BULK Proteins

**CD152 [CTLA-4] (mouse):Fc (mouse) (rec.)**

CHI-MF-110A4

**CD152 [CTLA-4] (mouse):Fc (mouse) (rec.) (non-lytic)**

CHI-MF-120A4

**CD274 [B7-H1/PD-L1] (human):Fc (human) (rec.)**

CHI-HF-210PDL1

**CD274 [B7-H1/PD-L1] (human):Fc (human) (rec.) (non-lytic)**

CHI-HF-220PDL1

**CD274 [B7-H1/PD-L1] (mouse):Fc (mouse) (rec.)**

CHI-MF-110PDL1

**CD274 [B7-H1/PD-L1] (mouse):Fc (mouse) (rec.) (non-lytic)**

CHI-MF-120PDL1

**CD279 [PD-1] (human):Fc (human) (rec.)**

CHI-HF-210PD1

**IL-21 (mouse):Fc (mouse) (rec.) (non-lytic)**

CHI-MF-12021

**IL-21R (mouse):Fc (mouse) (rec.) (non-lytic)**

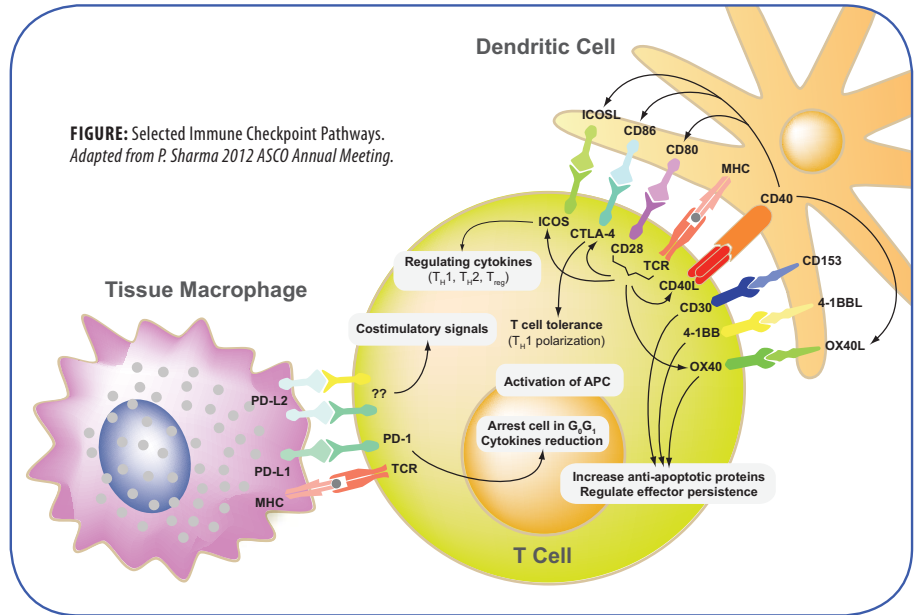
CHI-MF-12021R

*For other proteins  
please inquire!*

# Immune Checkpoint Proteins – The B7-CD28 Superfamily

The B7 family consists of structurally related, cell-surface protein ligands, which bind to receptors on lymphocytes that regulate immune responses. Activation of T and B lymphocytes is initiated by engagement of cell-surface, antigen-specific T cell or B cell receptors, but additional signals delivered simultaneously by B7 ligands determine the ultimate immune response. These ‘costimulatory’ or ‘coinhibitory’ signals are delivered by B7 ligands through the CD28 family of receptors on lymphocytes, resulting also in the modulation of interleukin production. Interaction of B7-family members with costimulatory receptors augments immune responses and interaction with coinhibitory receptors attenuates immune responses.

There are currently seven known members of the B7 family: B7.1 (CD80), B7.2 (CD86), inducible costimulator ligand (ICOS-L), programmed death-1 ligand (PD-L1), programmed death-2 ligand (PD-L2), B7-H3, and B7-H4 and four known members of the CD28 family: CD28, CTLA-4 (CD152), ICOS, PD-1. The importance of the family in regulating immune responses is shown by the development of immunodeficiency and autoimmune diseases. Manipulation of the signals delivered by B7 ligands has shown potential in the treatment of autoimmunity, inflammatory diseases and cancer.



**FIGURE:** Selected Immune Checkpoint Pathways. Adapted from P. Sharma 2012 ASCO Annual Meeting.

PID	PRODUCT NAME	SIZE	SOURCE	PURITY (SDS-PAGE)	ENDOTOXIN (LAL TEST)	LIT	NON-LYTIC
<b>NEW B7-CD28 Receptors, Ligands and Costimulatory Proteins</b>							
CHI-MF-110CD83	CD83 (mouse):Fc (mouse) (rec.)	50 µg	CHO cells	≥98%	<0.06EU/µg		
CHI-MF-110PDL1	CD274 [B7-H1/PD-L1] (mouse):Fc (mouse) (rec.)	50 µg	CHO cells	≥98%	<0.06EU/µg		
CHI-HF-210ICOS	CD278 [ICOS] (human):Fc (human) (rec.)	25 µg 100 µg	CHO cells	≥98%	<0.06EU/µg		
CHI-HF-220ICOS	CD278 [ICOS] (human):Fc (human) (rec.) (non-lytic)	25 µg 100 µg	CHO cells	≥98%	<0.06EU/µg		✓

## Coming soon!

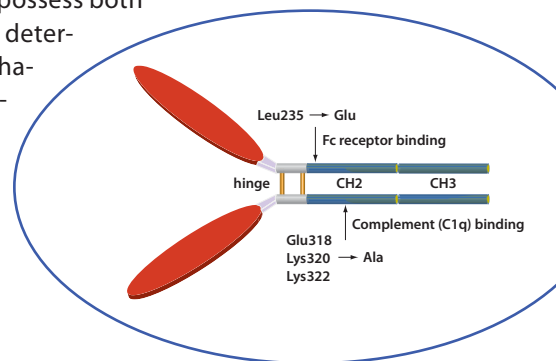
CHI-MF-110B7H4	B7-H4 [VTCN1] (mouse):Fc (mouse) (rec.)
CHI-HF-210CD28	CD28 (human):Fc (human) (rec.)
CHI-MF-110CD28	CD28 (mouse):Fc (mouse) (rec.)
CHI-HF-210CD80	CD80 [B7-1] (human):Fc (human) (rec.)
CHI-MF-110CD80	CD80 [B7-1] (mouse):Fc (mouse) (rec.)
CHI-HF-210CD86	CD86 [B7-2] (human):Fc (human) (rec.)
CHI-MF-110CD86	CD86 [B7-2] (mouse):Fc (mouse) (rec.)
CHI-HF-220A4	CD152 [CTLA-4] (human):Fc (human) (rec.) (non-lytic)
CHI-HF-210PDL2	CD273 [PD-L2] (human):Fc (human) (rec.)

CHI-MF-110PDL2	CD273 [PD-L2] (mouse):Fc (mouse) (rec.)
CHI-HF-210B7H2	CD275 [B7-H2/ICOS-L] (human):Fc (human) (rec.)
CHI-HF-220B7H2	CD275 [B7-H2/ICOS-L] (human):Fc (human) (rec.) (non-lytic)
CHI-MF-120B7H2	CD275 [B7-H2/ICOS-L] (mouse):Fc (mouse) (rec.) (non-lytic)
CHI-HF-210B7H3	CD276 [B7-H3] (human):Fc (human) (rec.)
CHI-MF-110B7H3	CD276 [B7-H3] (mouse):Fc (mouse) (rec.)
CHI-MF-110ICOS	CD278 [ICOS] (mouse):Fc (mouse) (rec.)
CHI-MF-110PD1	CD279 [PD-1] (mouse):Fc (mouse) (rec.)

# Non-lytic Ig-based Chimeric Fusion Cytokines with Long Circulating Half-life

The potential clinical application of cytokines to modulate immune responses is very high. Unfortunately, most cytokines have short circulating half-lives. Therefore, to facilitate the study of cytokine effects *in vivo*, a variety of non-lytic immunoglobulin-based chimeric cytokine fusion proteins have been created, in which a cytokine sequence had been genetically fused to the hinge, CH2 and CH3 regions of an immunoglobulin. These non-lytic fusion proteins possess both the biological functions of the cytokine moiety and a prolonged circulating half-life determined by the Fc domain. They retain the potential to direct immune cytolytic mechanisms, antibody-dependent cell-mediated cytotoxicity (ADCC) and complement-dependent cytotoxicity (CDC) against cellular targets bound by the amino terminal binding moiety. These fusion molecules also have the promise of being minimally to negligibly immunogenic since they are made entirely from elements derived from the species to be treated.

**LIT:** Localization of the binding site for the human high-affinity Fc receptor on IgG: A.R. Duncan, et al.; *Nature* **332**, 563 (1988) • The binding site for C1q on IgG: A.R. Duncan & G. Winter; *Nature* **332**, 738 (1988) • Administration of noncytolytic IL-10/Fc in murine models of lipopolysaccharide-induced septic shock and allogeneic islet transplantation: X.X. Zheng, et al.; *J. Immunol.* **154**, 5590 (1995)



**FIGURE:** General structure of mouse non-lytic fusion proteins.

PID	PRODUCT NAME	SIZE	SOURCE	PURITY (SDS-PAGE)	ENDOTOXIN (LAL TEST)	LIT	NON-LYTIC
<b>NEW Non-lytic Interleukins</b>							
CHI-HF-22008	IL-8 (human):Fc (human) (rec.) (non-lytic)	10 µg 50 µg	CHO cells	≥98%	<0.06EU/µg		✓
CHI-MF-12021R	IL-21R (mouse):Fc (mouse) (rec.) (non-lytic)	25 µg 100 µg	CHO cells	≥98%	<0.06EU/µg		✓
CHI-MF-12022	IL-22 (mouse):Fc (mouse) (rec.) (non-lytic)	25 µg	CHO cells	≥98%	<0.1EU/µg		✓

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**C M** Original Manufacturer of Interleukins

CHI-HR-20001A	IL-1 $\alpha$ (human) (rec.) (His)	10 µg	E. coli	≥98%	<0.1EU/µg		
CHI-HR-20001B	IL-1 $\beta$ (human) (rec.) (His)	10 µg	E. coli	≥98%	<0.1EU/µg		
CHI-HR-20002	IL-2 (human) (rec.) (His)	10 µg	E. coli	≥90%	<1EU/µg		
CHI-MF-11002	IL-2 (mouse):Fc (mouse) (rec.)	10 µg	CHO cells	≥98%	<0.06EU/µg		
CHI-RR-30002	IL-2 (rat) (rec.) (His)	10 µg	E. coli	≥95%	<1EU/µg		
CHI-HF-21004	IL-4 (human):Fc (human) (rec.)	10 µg	CHO cells	≥98%	<0.06EU/µg		
CHI-HR-20004	IL-4 (human) (rec.) (His)	10 µg	E. coli	≥98%	<0.1EU/µg		
CHI-MR-10004	IL-4 (mouse) (rec.) (His)	10 µg	E. coli	≥98%	<0.1EU/µg		
CHI-HR-20006	IL-6 (human) (rec.) (His)	10 µg	E. coli	≥95%	<1EU/µg		
CHI-HR-20008	IL-8 (human) (rec.) (His)	10 µg	E. coli	≥97%	<0.1EU/µg		
CHI-HF-21010	IL-10 (human):Fc (human) (rec.)	10 µg	CHO cells	≥98%	<0.06EU/µg		
CHI-HR-20010	IL-10 (human) (rec.) (His)	10 µg	E. coli	≥95%	<0.1EU/µg		
CHI-HR-20016	IL-16 (human) (rec.) (His)	10 µg	E. coli	≥95%	<1EU/µg		
CHI-MR-10017A	IL-17A (mouse) (rec.) (His)	10 µg	E. coli	≥95%	<1EU/µg		
CHI-HR-20017F	IL-17F (human) (rec.) (His)	10 µg	E. coli	≥95%	<1EU/µg		
CHI-HR-20018	IL-18 (human) (rec.) (His)	10 µg	E. coli	≥97%	<1EU/µg		
CHI-HR-20021M	IL-21 (mutant) (human) (rec.) (His)	10 µg	E. coli	≥90%	<1EU/µg		
CHI-MR-10022	IL-22 (mouse) (rec.) (His)	10 µg	E. coli	≥95%	<1EU/µg		
CHI-HF-21027	IL-27 (human):Fc (human) (rec.)	50 µg	CHO cells	≥98%	<0.06EU/µg		
CHI-HR-20033	IL-33 (human) (rec.) (His)	20 µg	E. coli	≥98%	<1EU/µg		

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Please visit our website [www.adipogen.com](http://www.adipogen.com) for a comprehensive overview on all Chimerigen Reagents.

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## The TIM Family of Co-signaling Receptors

The TIM (T cell/transmembrane, immunoglobulin and mucin) family plays a critical role in regulating immune responses, including allergy, asthma, transplant tolerance, autoimmunity and the response to viral infections. The unique structure of TIM immunoglobulin variable region domains allows highly specific recognition of phosphatidylserine (PtdSer), exposed on the surface of apoptotic cells. TIM-1, important for asthma and allergy, is preferentially expressed on T-helper 2 (Th2) cells and functions as a potent costimulatory molecule for T cell activation. TIM-3 is preferentially expressed on Th1 and Tc1 cells and generates an inhibitory signal resulting in apoptosis of Th1 and Tc1 cells. TIM-3 is also expressed on some dendritic cells and can mediate phagocytosis of apoptotic cells and cross-presentation of antigen. TIM-4 is exclusively expressed on antigen-presenting cells, where it mediates phagocytosis of apoptotic cells and plays an important role in maintaining tolerance.

PID	PRODUCT NAME	SIZE	SOURCE	PURITY (SDS-PAGE)	ENDOTOXIN (LAL TEST)	LIT	NON-LYTIC
CHI-HF-210T1	Tim-1 (human):Fc (human) (rec.)	100 µg	CHO cells	≥98%	<0.06EU/µg	✓	
CHI-HF-210T3	Tim-3 (human):Fc (human) (rec.)	100 µg	CHO cells	≥98%	<0.06EU/µg	✓	
CHI-MF-111T3	<b>NEW</b> Tim-3 (mouse):Fc (human) (rec.)	100 µg	CHO cells	≥98%	<0.06EU/µg		
CHI-HF-210T4	Tim-4 (human):Fc (human) (rec.)	100 µg	CHO cells	≥98%	<0.06EU/µg	✓	
CHI-MF-111T4	Tim-4 (mouse):Fc (human) (rec.)	<b>Coming soon!</b>					

## Inflammatory Chemokines – LATEST ADDITIONS

PID	PRODUCT NAME	SIZE	SOURCE	PURITY (SDS-PAGE)	ENDOTOXIN (LAL TEST)	LIT	NON-LYTIC
CHI-HF-210CCL2	CCL2 (human):Fc (human) (rec.)	10 µg 50 µg	CHO cells	≥98%	<0.06EU/µg		
CHI-MF-110CCL2	CCL2 (mouse):Fc (mouse) (rec.)	10 µg 50 µg	CHO cells	≥98%	<0.06EU/µg		
CHI-HF-210CCL4	CCL4 (human):Fc (human) (rec.)	10 µg 50 µg	CHO cells	≥98%	<0.06EU/µg		
CHI-HR-200CCL5	CCL5 (human) (rec.) (His)	10 µg 50 µg	E. coli	≥98%	<0.1EU/µg		
CHI-HF-210CCL22	CCL22 (human):Fc (human) (rec.)	10 µg 50 µg	CHO cells	≥98%	<0.06EU/µg		
CHI-MF-110CCL22	CCL22 (mouse):Fc (mouse) (rec.)	10 µg 50 µg	CHO cells	≥98%	<0.06EU/µg		
CHI-HF-210CCL24	CCL24 (human):Fc (human) (rec.)	10 µg 50 µg	CHO cells	≥98%	<0.06EU/µg		
CHI-HF-210CX3C	CX3CL1 [Fractalkine] (human):Fc (human) (rec.)	25 µg 100 µg	CHO cells	≥98%	<0.06EU/µg		

## Other Immunomodulating Fusion Proteins – LATEST ADDITIONS

PID	PRODUCT NAME	SIZE	SOURCE	PURITY (SDS-PAGE)	ENDOTOXIN (LAL TEST)	LIT	NON-LYTIC
CHI-HR-200BMP2	BMP-2 (human) (rec.) (His)	10 µg 50 µg	E. coli	≥95%	<0.1EU/µg		
CHI-MF-110CSF3	CSF3 (mouse):Fc (mouse) (rec.)	10 µg 50 µg	CHO cells	≥98%	<0.06EU/µg		
CHI-HF-210EGF	EGF (human):Fc (human) (rec.)	100 µg	CHO cells	≥98%	<0.06EU/µg		
CHI-HF-220EPO	EPO (human):Fc (human) (rec.) (non-lytic)	50 µg	CHO cells	≥98%	<0.06EU/µg		✓
CHI-HR-200HMGB1	HMGB1 (human) (rec.) (His)	25 µg	E. coli	≥90%	<0.1EU/µg		
CHI-RR-300HMGB1	HMGB1 (rat) (rec.) (His)	25 µg	E. coli	≥90%	<0.1EU/µg		



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