

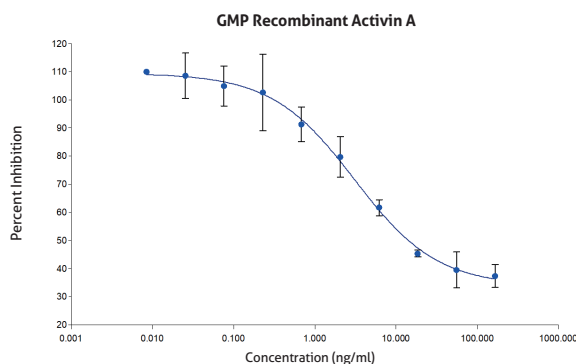


GMP-GRADE **HUMANKINE**[®] HUMAN CELL-EXPRESSED CYTOKINES AND GROWTH FACTORS

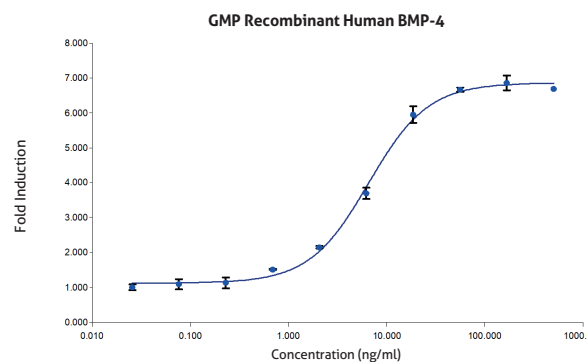
Proteintech announces HumanKine[®] GMP-Grade recombinant cytokines and growth factors for cell, gene, and tissue-engineered therapies.

Advantages of HumanKine[®] GMP-Grade products:

- Manufactured and validated in-house in compliance with ISO 13485 quality management system and appropriate GMP guidelines
- Extensive documentation, including safety, purity, stability, and bioactivity
- High bioactivity and stability
- Lot-to-lot consistency
- Native human conformation and post-translational modifications
- Endotoxin-free, xeno-free and tag-free



GMP-Grade Recombinant human Activin A (HZ-1138-GMP) activity was determined by dose-dependent inhibition of proliferation of the MPC-11 cell line (mouse plasmacytoma cell line). Proliferation of the MPC-11 cell line was assessed using Promega CellTiter96[®].



GMP-Grade Recombinant human BMP-4 (HZ-1045-GMP) stimulates dose-dependent induction of alkaline phosphatase production in the ATDC-5 mouse chondrogenic cell line. Alkaline phosphatase production was assessed using pNPP as a chromogenic substrate.

FROM INITIAL DISCOVERY TO THE CLINIC

To facilitate a seamless transition from pre-clinical to clinical studies, both Research-Grade and GMP-Grade HumanKine cytokines and growth factors are manufactured through the same production process, minimizing variability in performance between Research-Grade and GMP-Grade products.

Though Research-Grade and GMP-Grade products go through the same production process, GMP-Grade products undergo a more rigorous quality check and there is more extensive documentation for traceability and transparency for regulatory requirements.

**All HumanKine[®] Research-Grade cytokines and growth factors are available in GMP-Grade upon request.*

HumanKine[®] Cytokines and Growth Factors

Cat. No	Product name	Activity (ng/ml EC50)	Purity	Expression source	
HZ-1138	Activin A	≤5	>95%	HEK293	16
HZ-1222	beta NGF	≤3	>95%	HEK293	
HZ-1128	BMP-2	≤60	>95%	HEK293	21
HZ-1045	BMP-4	≤10	>95%	HEK293	41
HZ-1229	BMP-7	≤100	>95%	HEK293	7
HZ-1211	Cystatin C	≤5μM IC50	>95%	HEK293	
HZ-1168	EPO	≤2.5	>95%	HEK293	3
HZ-1285	FGF Basic TS	≤0.5	>95%	HEK293	9
HZ-1218	FGF-4	≤1.25	>95%	HEK293	
HZ-1100	FGF-7 (KGF)	≤7.5	>95%	HEK293	
HZ-1103	FGF-8b	≤10	>95%	HEK293	
HZ-1151	FLT3 Ligand	≤0.8	>95%	HEK293	10
HZ-1207	G-CSF	≤0.1	>95%	HEK293	6
HZ-1311	GDNF	≤ 10	>95%	HEK293	
HZ-1002	GM-CSF	≤0.5	>95%	HEK293	11
HZ-1084	HGF	≤20	>95%	HEK293	
HZ-1007	HGH	≤0.5	>95%	HEK293	2
HZ-3001	HSA	N/A	>95%	HEK293	
HZ-1066	IFN alpha 2A	≤0.4	>95%	HEK293	4
HZ-1072	IFN alpha 2B	≤0.12	>95%	HEK293	2
HZ-1298	IFN beta	≤0.1	>95%	HEK293	
HZ-1301	IFN gamma	≤0.05	>95%	HEK293	3
HZ-1164	IL-1 beta	≤0.05	>95%	HEK293	16
HZ-1015	IL-2	≤5	>95%	HEK293	5
HZ-1074	IL-3	≤2	>95%	HEK293	10
HZ-1004	IL-4	≤0.6	>95%	HEK293	18
HZ-1019	IL-6	≤0.5	>95%	HEK293	19
HZ-1281	IL-7	≤1	>95%	HEK293	
HZ-1240	IL-9	≤1	>95%	HEK293	2

Cat. No	Product name	Activity (ng/ml EC50)	Purity	Expression source	
HZ-1145	IL-10	≤1.5	>95%	HEK293	
HZ-1256	IL-12	≤2	>95%	HEK293	
HZ-1113	IL-17A	≤2	>95%	HEK293	3
HZ-1116	17F	≤10	>95%	HEK293	
HZ-1254	IL-23	≤4	>95%	HEK293	11
HZ-1275	IL-27	≤12	>95%	HEK293	1
HZ-1235	IL-28A	≤5	>95%	HEK293	2
HZ-1245	IL-28B	≤1	>95%	HEK293	3
HZ-1156	IL-29	≤5	>95%	HEK293	2
HZ-1109	Lefty-1	≤40	>95%	HEK293	
HZ-1292	LIF	≤0.2	>95%	HEK293	
HZ-1192	M-CSF	≤4	>95%	HEK293	5
HZ-1118	Noggin	≤15	>95%	HEK293	6
HZ-1030	OSM	≤1	>95%	HEK293	3
HZ-1215	PDGF-aa	≤10	>95%	HEK293	
HZ-1278	Pleiotrophin-PTN	N/A	>95%	HEK293	
HZ-1308	proIGF-II	≤3	>95%	HEK293	1
HZ-1161	pro-IGF-II	≤50	>95%	HEK293	1
HZ-1024	SCF	≤25	>95%	HEK293	9
HZ-1306	Sonic Hedgehog	≤350	>90%	HEK293	
HZ-1011	TGF beta 1	≤0.5	>95%	HEK293	84
HZ-1092	TGF beta 2	≤0.5	>95%	HEK293	4
HZ-1090	TGF beta 3	≤0.5	>95%	HEK293	8
HZ-3010	Thrombin	N/A	>95%	HEK293	1
HZ-1014	TNF alpha	≤0.5	>95%	HEK293	9
HZ-1248	TPO	≤5	>95%	HEK293	2
HZ-1204	VEGF 121	≤15	>95%	HEK293	14
HZ-1038	VEGF 165	≤5	>95%	HEK293	12
HZ-1296	Wnt3A	≤20	>90%	HEK293	1

00 This number shows the amount of times our protein has been cited in a publication.