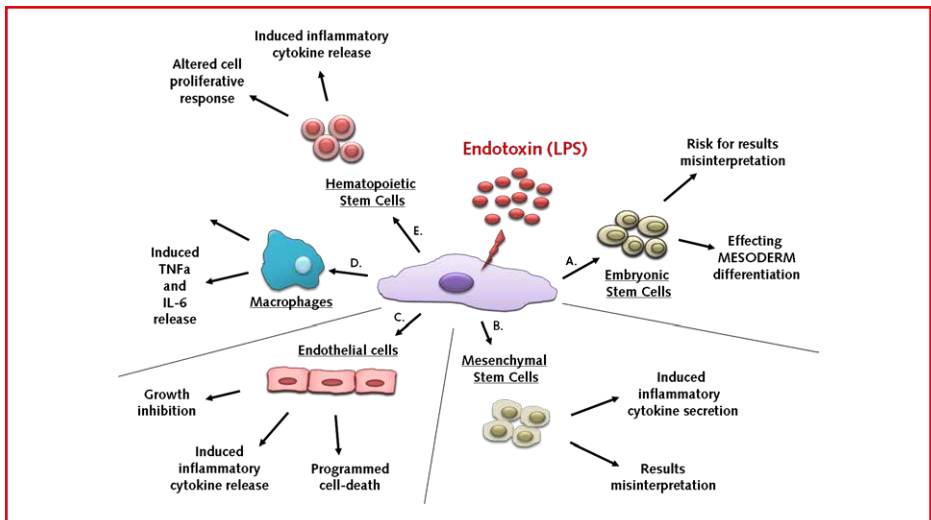


The Endotoxin Problem

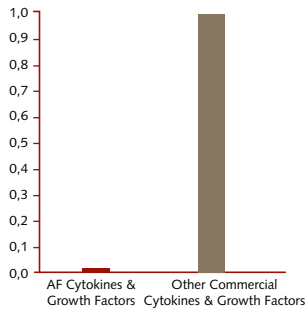
- Endotoxins (lipopolysaccharides, LPS) produced by Gram-negative bacteria frequently contaminate protein preparations derived from *E. coli* etc. and they are difficult to remove
- Even low levels of endotoxins that are currently regarded as acceptable ($<1 \text{ EU}/\mu\text{g} = <0.1 \text{ ng}/\mu\text{g}$) and found in many commercially available cytokines and growth factors, can have profound effects on cell viability as well as cellular behaviour
- Evidence to date suggests that the endotoxin traces in *E. coli*-produced Cytokines/Growth Factors have significant adverse effects on **stem cells** (e.g. on stem cell differentiation), and thus have had a significant impact on stem cell research worldwide over the years
- Endotoxins also show considerable **angiogenic effects**, inducing for e.g. tumour cell proliferation and VEGF production, as well as decreasing apoptosis



The Solution

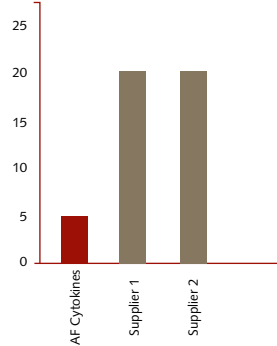
- PromoCell's animal-free cytokines and growth factors, produced in plants at high isogenic quality, typically have an endotoxin level of *significantly less than* $1 \text{ EU}/\mu\text{g}$ ($<0.05 \text{ EU}/\mu\text{g} = <0.005 \text{ ng}/\mu\text{g}$) thereby excluding such complications in cell culture

Endotoxin Level
EU/ μ g



High endotoxin levels are found in most commercially available cytokines and growth factors.

% Cell Death

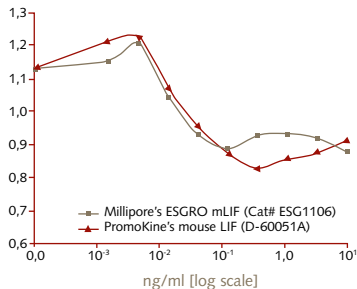


In a cell-based activity assay a PromoCell animal-free (AF) cytokine showed equivalent biological activity, but significantly less cytotoxic effects than two GMP compliant cytokines from competitors.

PromoCell's endotoxin-free, animal-free Cytokines and Growth factors

- Free of antibiotics and proteases as well as bacterial, viral and prion infectious agents
- No proteolytic, pyrogenic or inflammatory activity
- Virtually free of contaminating molecules such as cytotoxic endotoxins (bacterial expression host) or traces of serum and supplements (mammalian expression host) causing unwanted effects on cell viability, proliferation and differentiation
- Proper eukaryotic folding and post-translational modification (e.g. glycosylation), increasing biological activity and stability

OD (490 nm) mLIF Bioassay using M1 cells



More or less all human/mouse LIF on the market comes from *E. coli* - and thus it has an endotoxin level quite critical for some applications (e.g. in stem cell and angiogenesis research).
PromoCell's human and mouse LIF is virtually free of endotoxins.

Request your test discount now!

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