



The 0.05 EU/mg Breakthrough: How Sino Biological ProPure® Is Redefining the Ultra-Low Endotoxin Standard

Descrizione

COMUNICATO STAMPA • CONTENUTO PROMOZIONALE

HOUSTON, March 10, 2026 /PRNewswire/ • While exotoxins dominate discussions of bacterial infections, endotoxins—cell wall components released upon bacterial death—are equally dangerous. These endotoxins trigger hyperinflammatory responses that spiral into endotoxemia, in which bloodstream endotoxins trigger massive cytokine release. Symptoms range from fever and fatigue to organ failure and life-threatening septic shock.

Three Major Mechanisms of Endotoxin-Induced Pathogenesis

Pyrogenicity: The body is highly sensitive to endotoxins—doses as low as 1–5 ng/kg can cause fever. Endotoxins activate immune cells, producing cytokines (IL-1, IL-6, TNF- α) that raise body temperature.

Leukocyte Response: Endotoxins initially trigger leukocyte adhesion to capillary walls, leading to a sharp drop in circulating leukocyte counts. Within hours, bone marrow releases neutrophils into the bloodstream, leading to leukocytosis that peaks at 12–24 hours. This “dip then surge” pattern is a hallmark of endotoxin infection.

Disseminated Intravascular Coagulation: This may be one of the most dangerous effects of endotoxins. By promoting TNF and IL-1 expression, they induce leukocyte extravasation and disrupt the coagulation-anticoagulation balance, triggering thrombus formation. Concurrently, platelet-activating factor (PAF) drives platelet aggregation. This coagulation cascade culminates in DIC—a condition that, when severe, precipitates life-threatening shock.

Challenges Facing Scientific Research

Endotoxin dangers extend beyond clinics into research. In animals, LPS induces systemic inflammation and neuroinflammation, corrupting experiments and invalidating preclinical data. Contaminated recombinant proteins also compromise cellular behavior through immunostimulatory and cytotoxic

effects.

As a common production contaminant, trace endotoxin triggers immune responses, skews results, and jeopardizes patient safety—risks that are critical in immunology, cell/gene therapy, and vaccine production. Endotoxin-free proteins are therefore essential for experimental accuracy, safety, and regulatory compliance.

The Solution: ProPure® Endotoxin-Free Proteins

Excellence Built on Ultra-Low Endotoxin. Sino Biological's Center for Bioprocessing (C4B) in Texas produces ProPure® endotoxin-free proteins with levels below the quantification limit (BQL) (< 0.05 EU/mg), which exceed the industry standard (0.5 EU/mg according to USP). Choosing ProPure® proteins supports accurate experimental outcomes, enhances data reliability, and improves safety for pre-clinical animal studies, accurate cell assays, and detection assays.

We possess advanced technological processes and equipment, ensuring that ProPure® proteins achieve endotoxin levels as low as 0.05 EU/mg, with some products reaching 0.01 EU/mg, meeting the demands of sensitive scientific and translational applications. Sino Biological's rigorous quality control system ensures ultra-low endotoxin levels, providing researchers with reliable assurance.

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