



ProPure™

Endotoxin-Free Proteins



ProPure™

All made in the USA

Proudly provided by Center for Bioprocessing (C4B), Houston, Texas

What is Endotoxin?

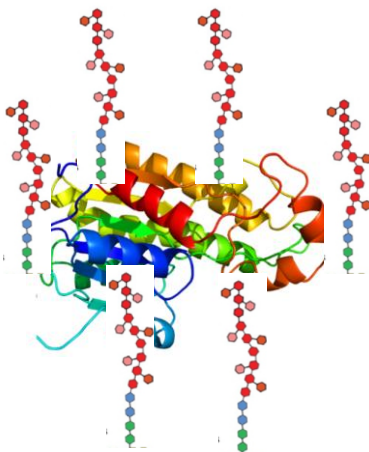
Adhesive

Pervasive

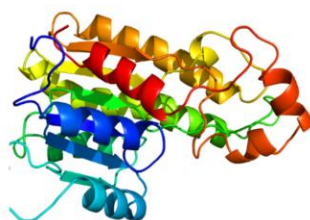
Hard to remove

Name	Come from	Outcome	Mode of action
Endotoxin, or Lipopolysaccharide (LPS)	Gram-negative bacteria	Cause animal fever, sick or die	Via immune system

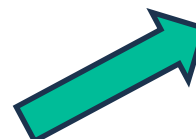
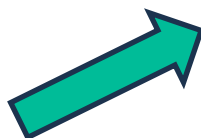
Recombinant
protein **with**
Endotoxin



Recombinant
protein **without**
Endotoxin



Injection



Outcome

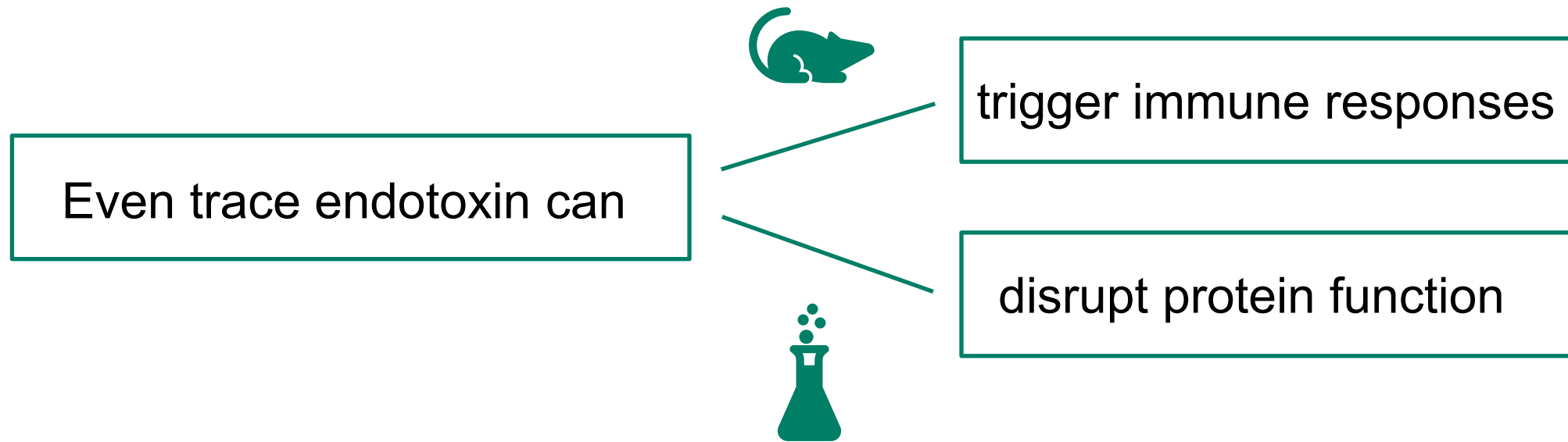


Risk of

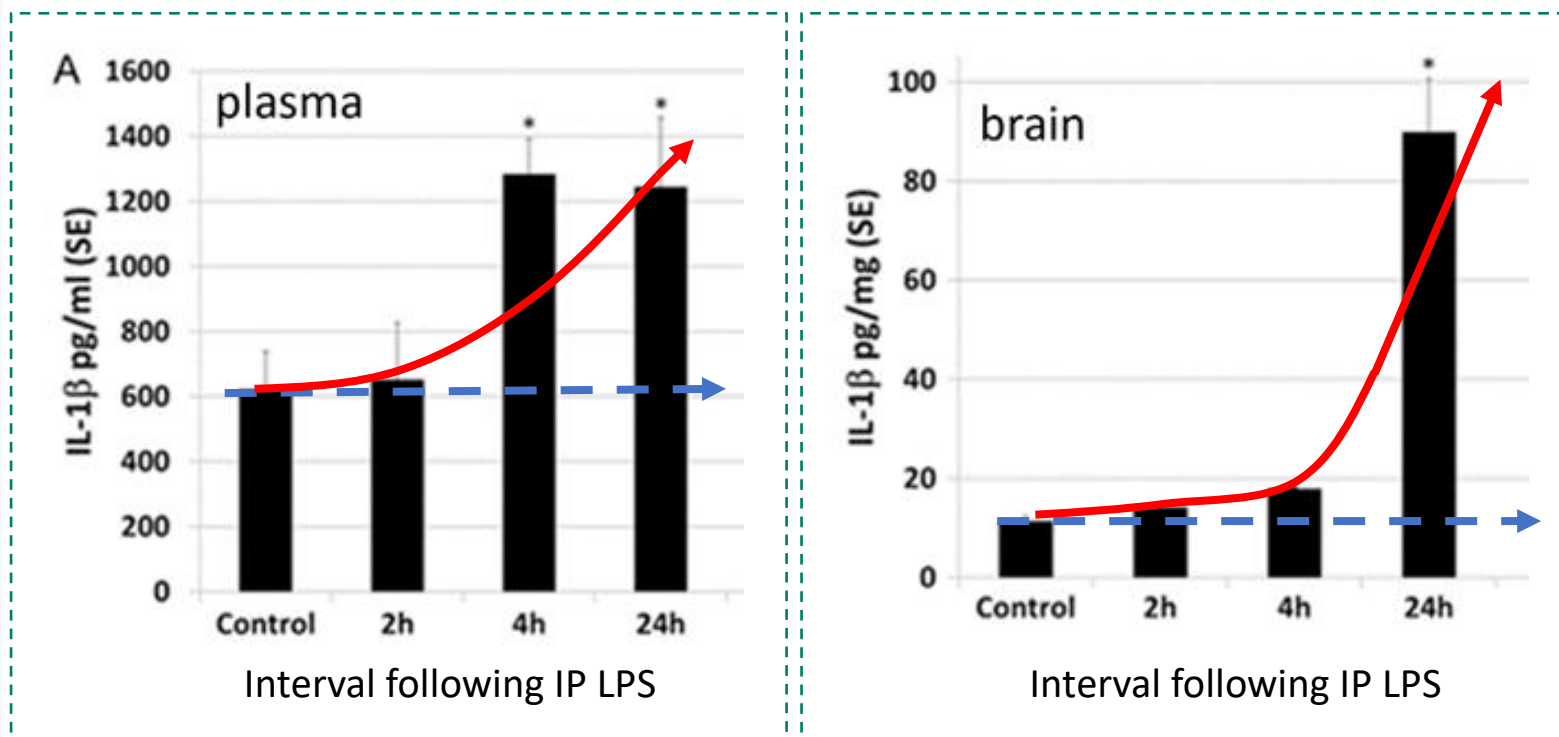
1. **Sick** animal with irrelevant immune response
2. Getting **false** data

1. Health animal with reasonable immune response
2. Reliable and repeatable result

Why Endotoxins Matter?



There are cases that endotoxin triggers immune responses



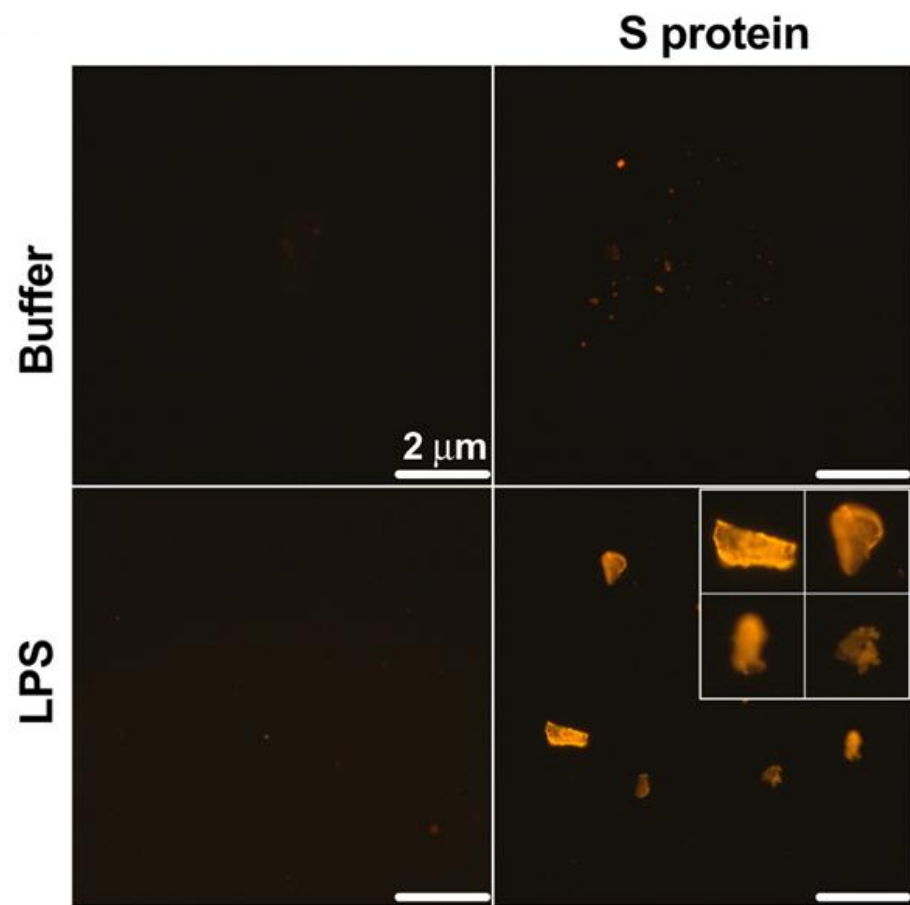
→ LPS-treated
→ Control

Endotoxin leads to elevated cytokine levels in both blood and brain of rat models.

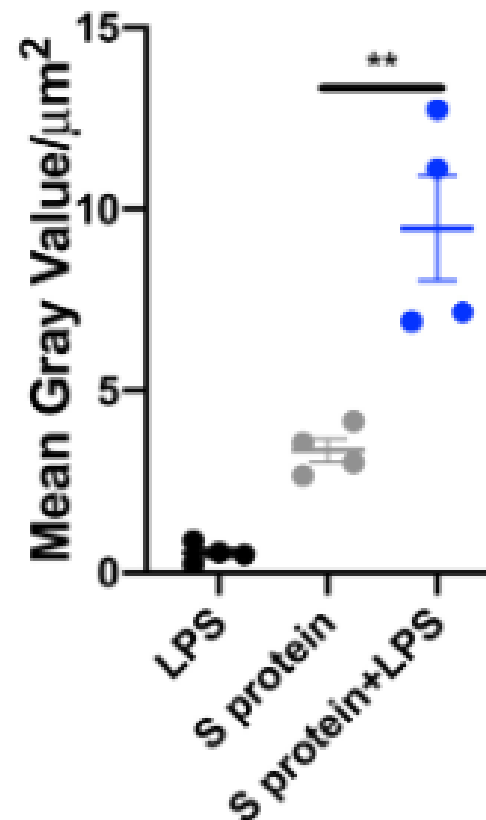
injection of 10 mg/kg

- Endotoxins induce systemic inflammatory immune responses
- Endotoxins interfere with experimental results, particularly in immune-related or cytokine-sensitive assays.

There are cases that endotoxin induces protein aggregation

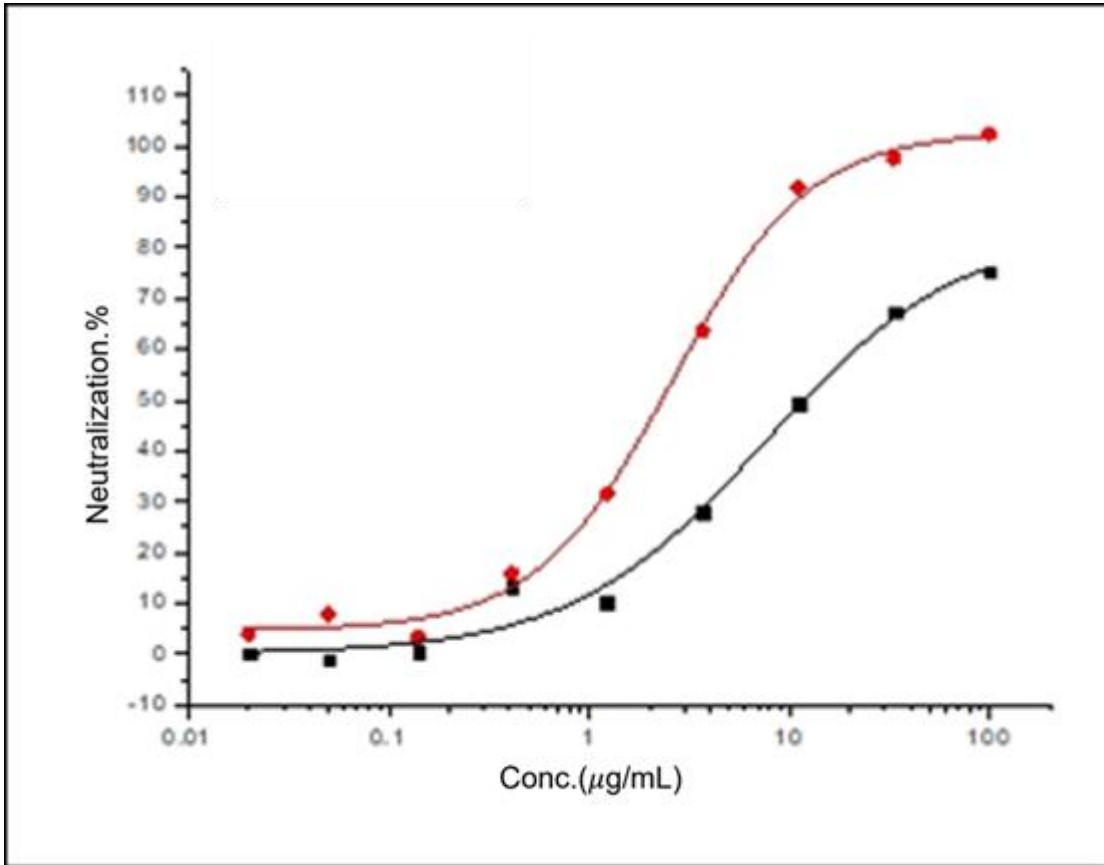


Fluorescent microscopy revealed an increase in S protein aggregation when exposed to LPS (50 μm).

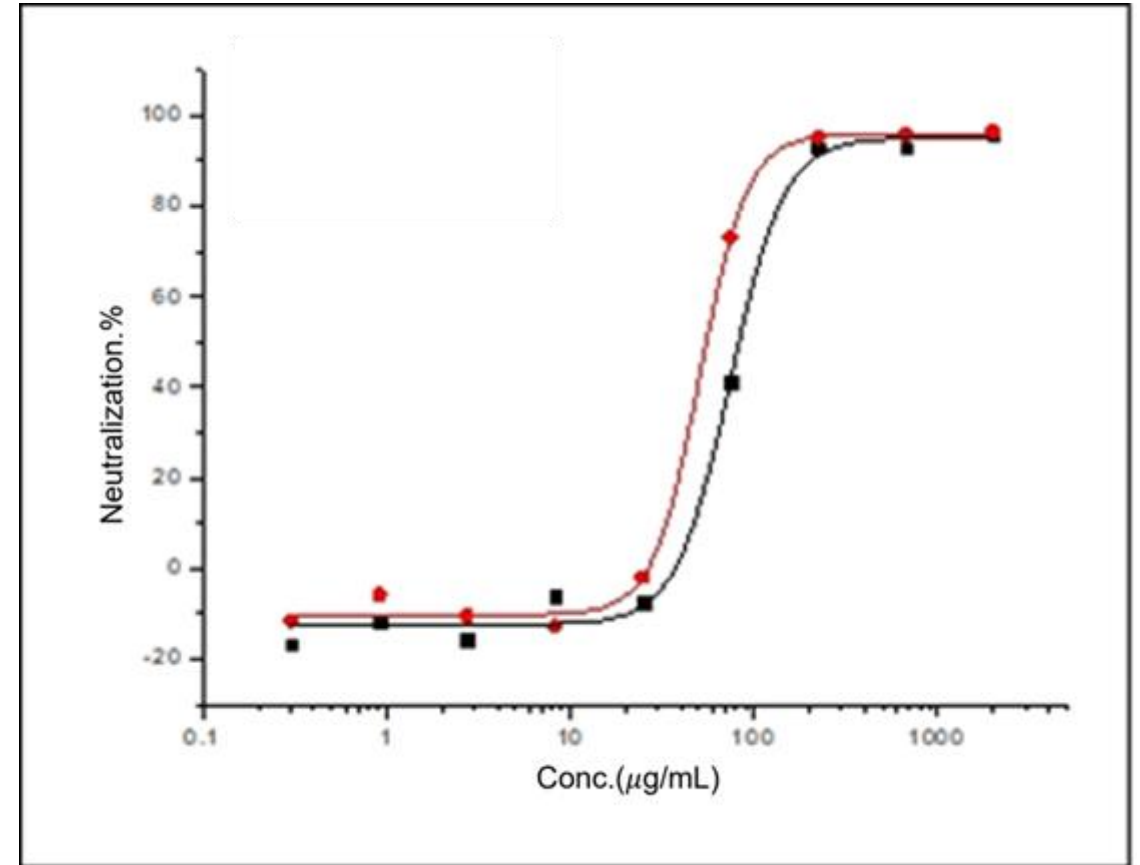


- Endotoxins alter protein sample behavior, adversely affect protein **stability and bioactivity** both in vitro and in vivo
- Endotoxins introduce uncontrolled variables that can compromise experimental **reproducibility**
- Endotoxins obscure the effects of your intended treatment

There are cases that endotoxin compromises protein activity



ET-level	ED50(μg/mL)
High	7.6
Low	2.6



ET-level	ED50(ng/mL)
High	74
Low	51

How do we Guarantee Endotoxin-Free?

Made in US

ProPure™ Eco-system



Endotoxin-free plasmids



Endotoxin-free buffer with filtration



Low endotoxin-affinity plastic containers



Regular Clean-in-place (CIP)

Never Bring *E.coli*/Endotoxin

Not any *E.coli* material/production on site

Strict Endotoxin Monitoring/Detection

Endotoxin level tested by LAL and/or rFc assay

Summary

Risks

- **Serious** animal's immune responses
- **Inflammatory** and antimicrobial responses
- **Interfere** with biopharma production
- **Unknown** risks for downstream applications

Solution

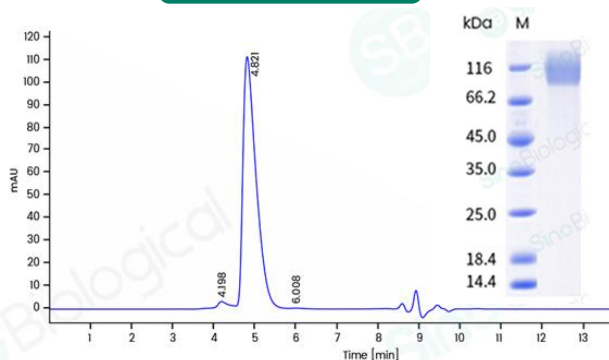
ProPure™ Endotoxin-Free Protein

- ✓ Surpassing industry standards (< **0.5** EU/mg)
- ✓ High purity
- ✓ High stability and lot-to-lot consistency
- ✓ Ideal for animal immunogenicity studies

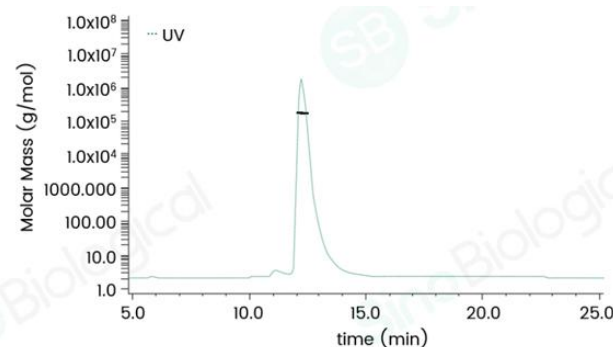


ProPure™

High Purity >95%



MALS-Verified >95%



Active & High Stability

