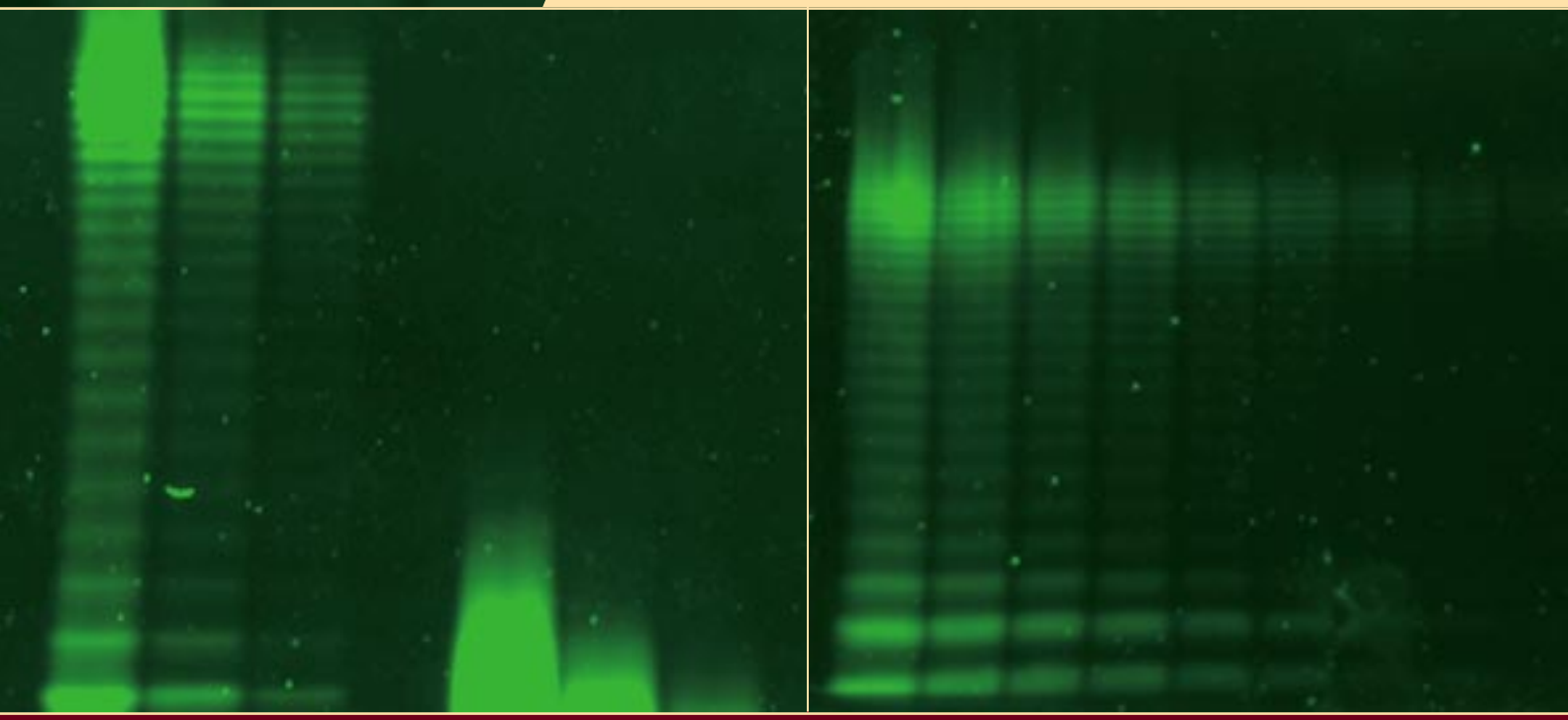
Pro-Q Emerald 300 Lipopolysaccharide Stain Kit

The most advanced system for staining lipopolysaccharides in gels



FAST	Staining is complete in less than three hours
SIMPLE	The procedure includes only three steps — fixation, oxidation and staining
SENSITIVE	Much more sensitive than silver staining techniques
EASY TO VISUALIZE	The stain can be visualized using standard UV illumination
MULTICOLOR CAPABILITIES	Compatible with SYPRO Ruby protein gel stain for detection of protein contaminants

Molecular Probes®

Technical Information

Molecular Probes' proprietary Pro-Q Emerald 300 Lipopolysaccharide Stain Kit provides the most advanced technology for detection of lipopolysaccharides (LPS) in gels.[1] Using this kit, it is possible to detect ladders from as little as 2 ng of LPS per gel lane in just a few hours. This sensitivity is at least 50 times that of silver staining, but is achieved using a much simpler procedure (Figure 1). The Pro-Q Emerald 300 reagent in the kit stains the periodate-oxidized carbohydrates of LPS with a bright green fluorescence that is easy to visualize using a simple UV transilluminator. Contaminating proteins can be easily visualized on the same gel by using the orange-red–fluorescent SYPRO Ruby protein gel stain (S-12000, S-12001, S-21900).

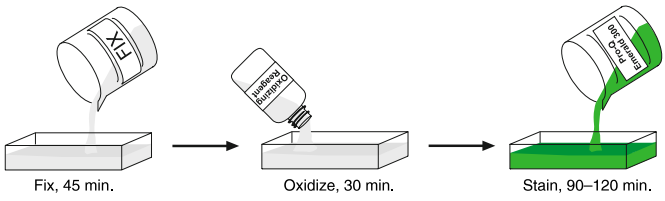


Figure 1. *Detecting LPS with Pro-Q Emerald 300 glycoprotein detection reagent is simple. After fixation, carbohydrates are oxidized and then the gel is incubated with the Pro-Q Emerald 300 reagent.*

Lipopolysaccharides, also known as endotoxins, are a family of complex glycolipid molecules located on the surface of gram-negative bacteria. They play a large role in protecting the bacterium from host defense mechanisms and antibiotics and trigger septic shock in humans. The structure of LPS can be analyzed by SDS polyacrylamide gel electrophoresis — "smooth" strains of bacteria, which can survive in the host, have a heterogeneous mixture of LPS polymers that separates into a characteristic ladder pattern (Figures 2 and 3), whereas "rough" mutants, which cannot survive in the host, have truncated, low molecular weight structures that cluster near the bottom of the gel (Figure 2). These patterns have conventionally been detected using silver staining.[2–4] However, despite the long and complex procedures required, silver staining provides poor sensitivity and cannot differentiate LPS from proteins in the sample. Staining the LPS with Pro-Q Emerald 300 dye is faster, easier, and considerably more sensitive.

Materials Supplied

- Pro-Q Emerald 300 reagent
- Pro-Q Emerald 300 staining buffer
- Oxidizing reagent
- LPS standard
- A detailed protocol

Each kit provides sufficient materials to stain approximately ten 8 cm x 10 cm gels.

Ordering Information

P-20495 Pro-Q™ Emerald 300 Lipopolysaccharide Gel Stain Kit

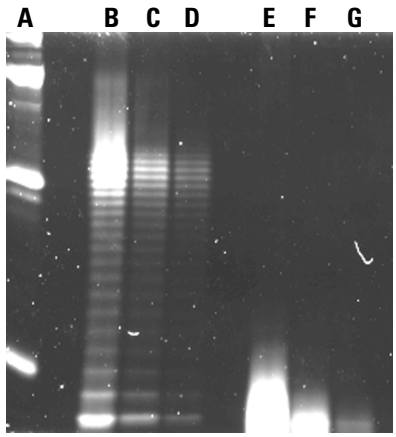


Figure 2. *Lipopolysaccharides (LPS) detected using the Pro-Q Emerald 300 Lipopolysaccharide Gel Stain Kit after electrophoresis through a 13% polyacrylamide gel. The lanes contain (A) CandyCane glycoprotein molecular weight standards (~250 ng/band), (B) 4 µg, (C) 1 µg or (D) 0.25 µg of LPS from Escherichia coli smooth serotype 055:B5; or (E) 4 µg, (F) 1 µg or (G) 0.25 µg of LPS from Escherichia coli rough mutant EH100 (Ra mutant).*

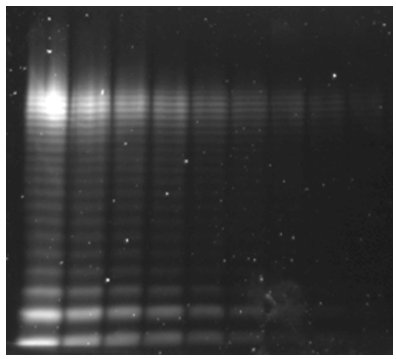


Figure 3. *Decreasing amounts (left to right) of lipopolysaccharides from Escherichia coli smooth serotype 055:B5 were loaded onto a 13% polyacrylamide gel, electrophoresed and stained with Pro-Q Emerald 300 reagent.*

References

1. Steinberg, T.H., et al., Proteomics, 2001, in press; **2.** J Clin Microbiol 28, 2627 (1990); **3.** Microbiol Immunol 35, 331 (1991); **4.** J Biochem Biophys Methods 26, 81 (1993).

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