



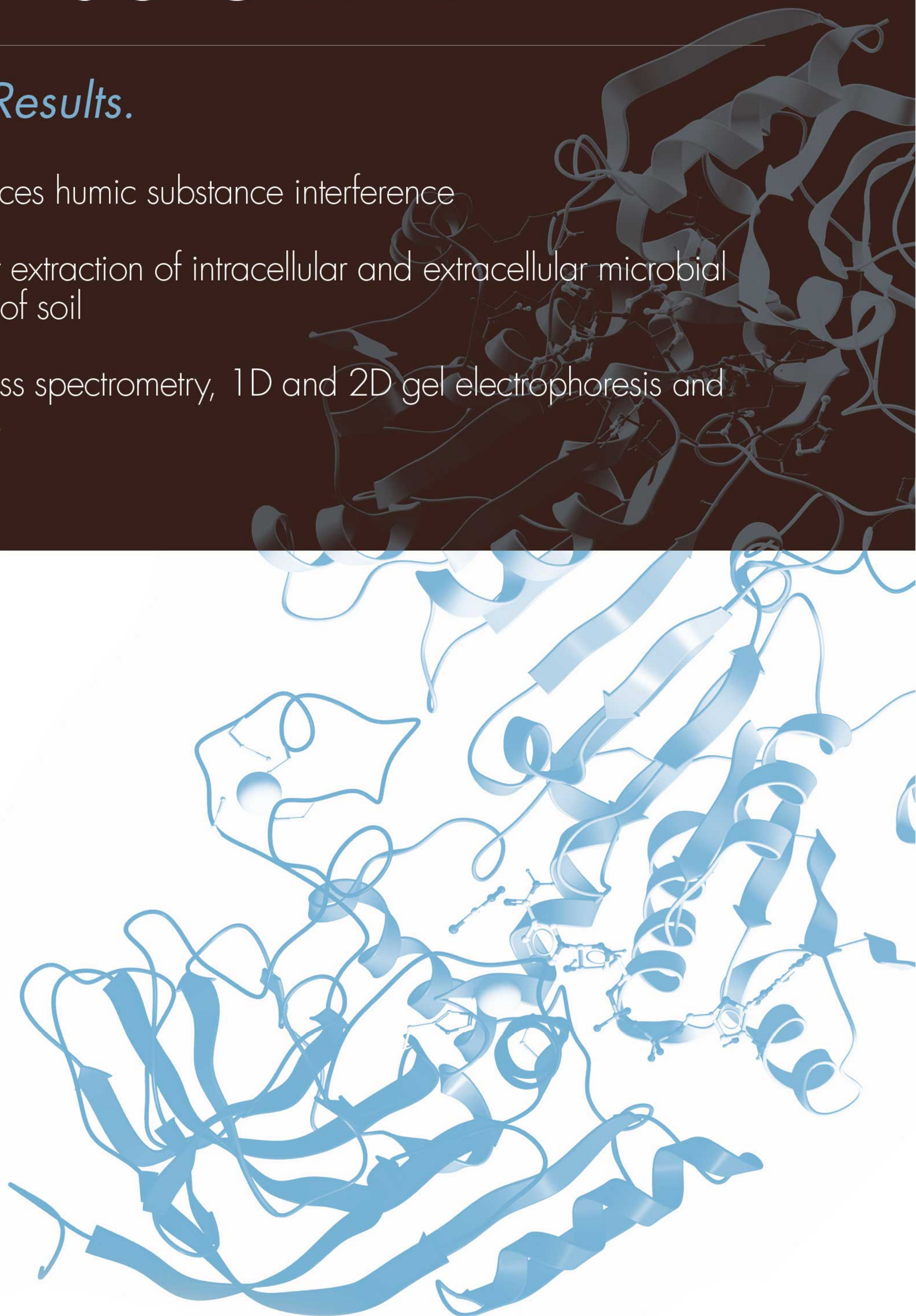
MO BIO
Laboratories, Inc.

NoviPure™ Soil Protein Extraction Kit

Pure Protein. Novel Results.

- ✓ **Cleaner Protein** - Reduces humic substance interference
- ✓ **Higher Yields** - Efficient extraction of intracellular and extracellular microbial protein from only 5 grams of soil
- ✓ **Accurate Results** in mass spectrometry, 1D and 2D gel electrophoresis and other proteomics applications

PROTEIN



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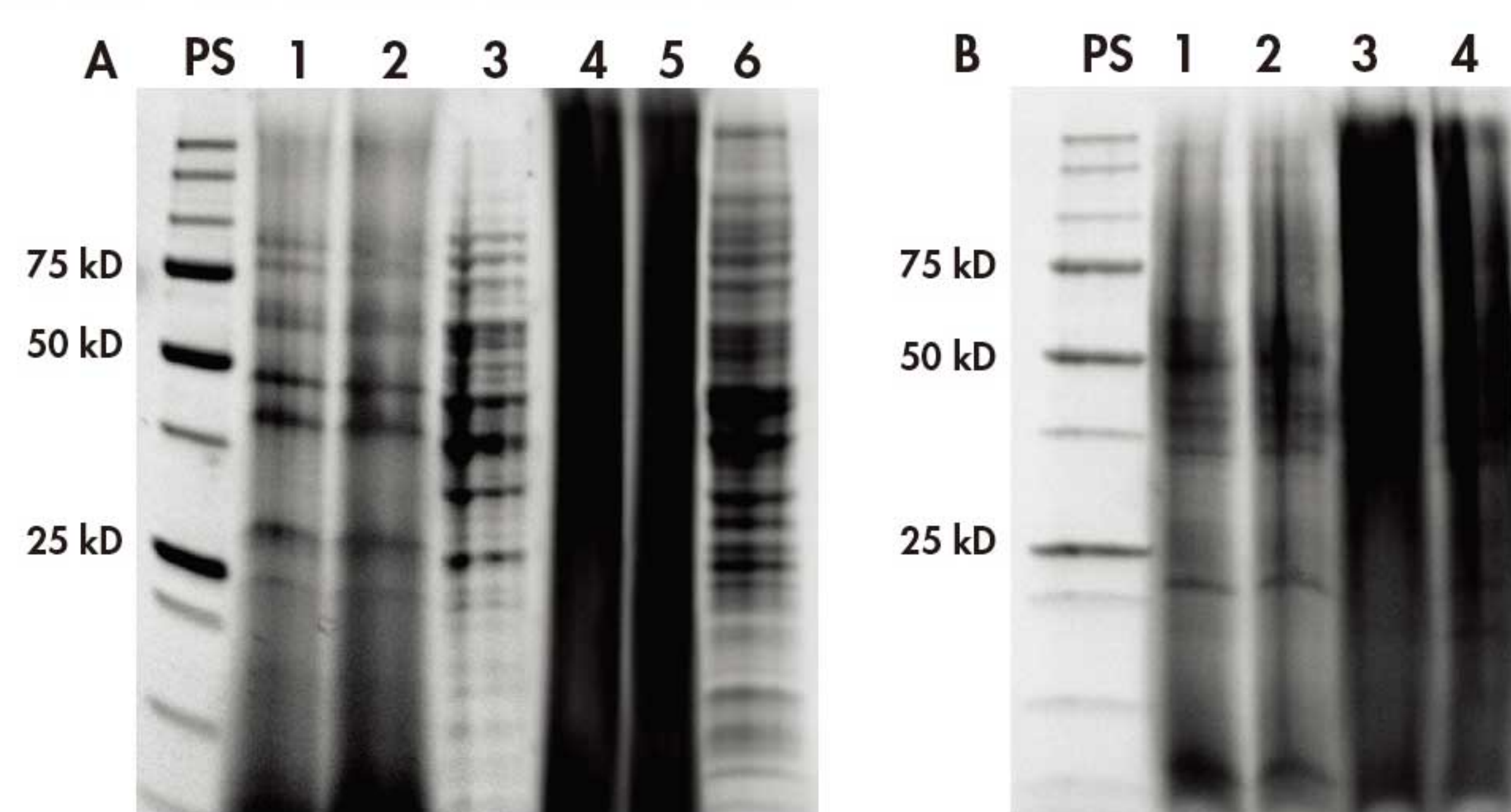
MC306(Rev5.2013)

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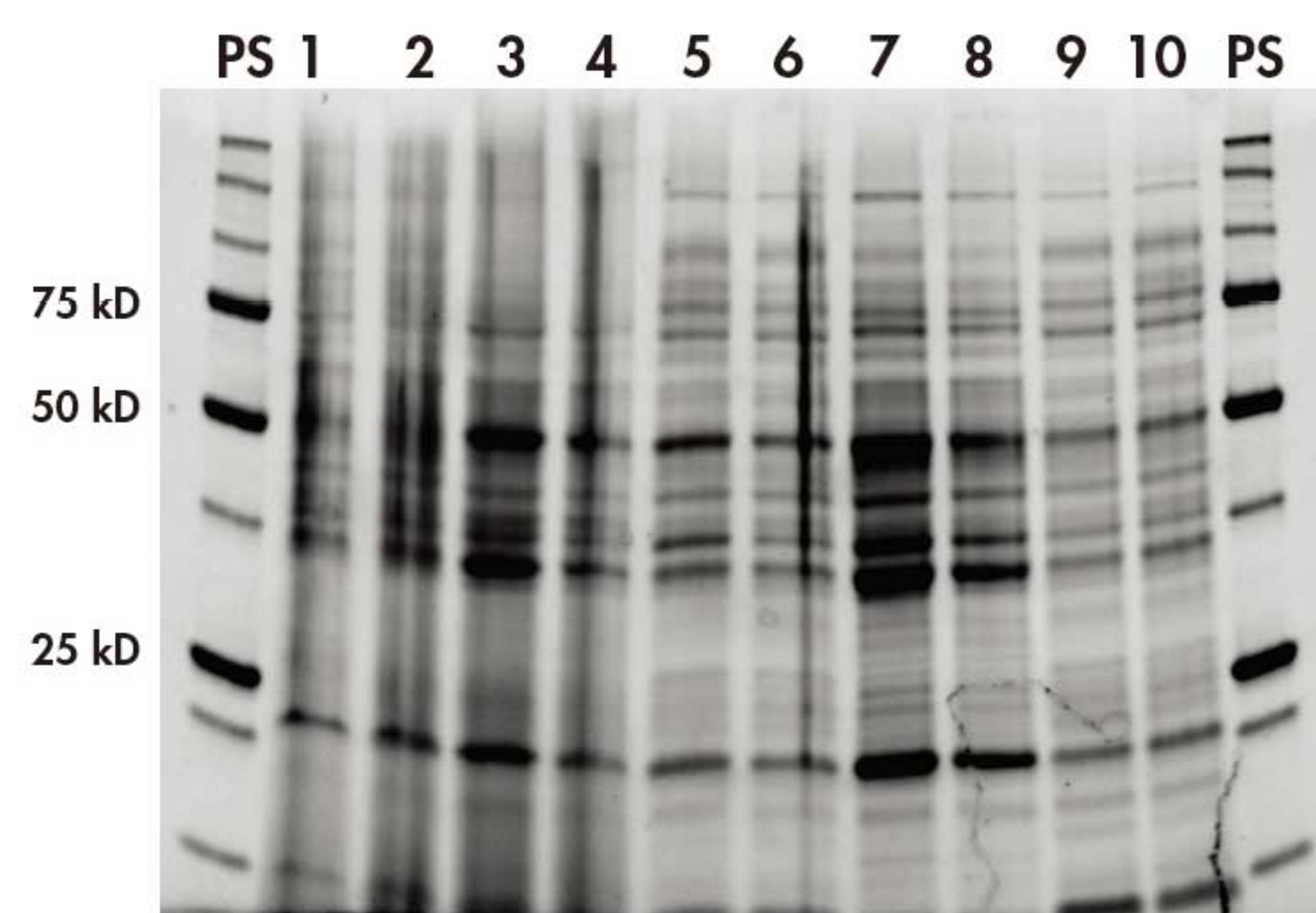
The NoviPure™ Soil Protein Extraction Kit is designed to extract extracellular and intracellular microbial protein from a wide range of soil types without co-extraction of interfering compounds such as humic substances. The patent-pending, two buffer extraction protocol utilizes bead beating with a mixture of glass and ceramic beads to efficiently lyse cells while solubilizing intracellular as well as extracellular protein. The end result is a protein pellet with considerably fewer impurities when compared to traditional extraction methods. The protein can be resuspended in any buffer desired for further analysis or storage. Protein extracted with the NoviPure™ Soil Protein Extraction Kit has been used successfully in 1D and 2D gel electrophoresis and mass spectrometry (2D LC – MS/MS). All reagents and plastics are certified protease and protein free to protect valuable samples.

Figure 1. Cleaner protein is observed in compost samples extracted with NoviPure™ Soil Protein Extraction Kit.



(A) Total protein was extracted from 5 g of sterile compost samples spiked with *C. albicans* using either the NoviPure™ Soil Protein Extraction Kit (samples 1,2) or a method employing sucrose and phenol extractions¹ (4,5). A pure *C. albicans* culture was extracted using the NoviPure™ Soil Protein Extraction Kit (3) or sucrose/phenol as a control (6). (B) Total protein was extracted from 5 g sterile compost samples spiked with *E. coli* using either the NoviPure™ Soil Protein Extraction Kit (samples 1-2) or a method employing SDS and boiling² (3,4). Proteins (20 µl per sample) were run on a 1D SDS-PAGE gel and visualized using stain-free gels³. In each case, samples extracted with the NoviPure™ Soil Protein Extraction Kit contained fewer humic substances as evidenced by reduced background smearing, making it possible to visualize protein bands on a 1D gel.

Figure 2. High protein yields are observed from challenging soil types using the NoviPure™ Soil Protein Extraction Kit.



(1,2)-Freshwater Lake Sediment, (3,4)-Lagoon Sediment, (5,6)-Beach Sand, (7,8)-Agricultural Soil, (9,10)-Pure *E. coli* culture

Total protein was extracted from 5 g samples of sterile soil and sediments spiked with *E. coli* using the NoviPure™ Soil Protein Extraction Kit. Proteins (20 µl per

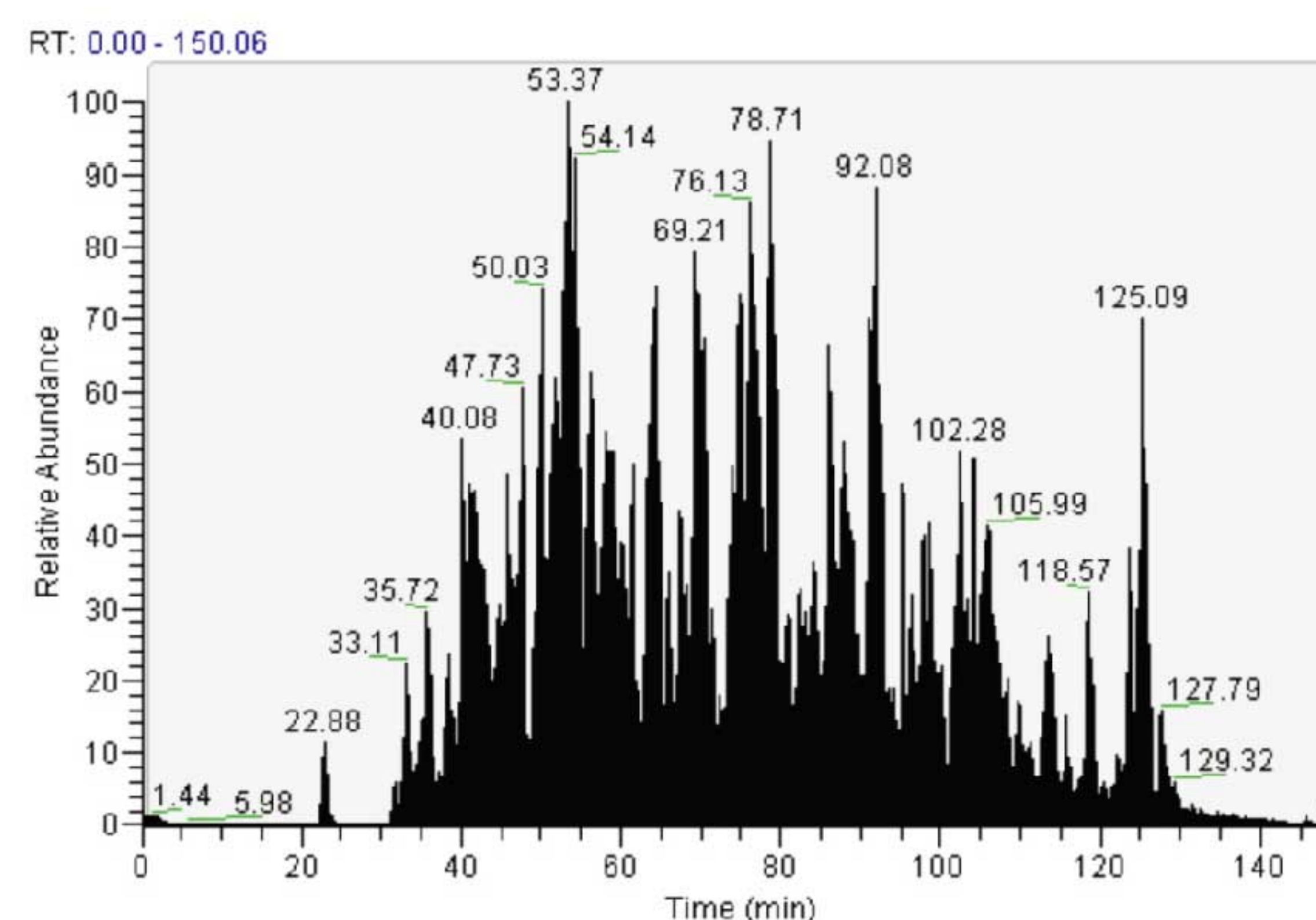
sample) were run on a 1D SDS-PAGE gel and visualized using stain-free gels³. Protein bands were easily visualized in all cases, and matched the *E. coli* culture control.

Figure 3. Successful results in 2D SDS-PAGE using protein extracted with the NoviPure™ Soil Protein Extraction Kit.



Protein was extracted from 5 g sterile compost samples spiked with *E. coli* using the NoviPure™ Soil Protein Extraction Kit. Proteins (20 µl per sample), were analyzed by 2D SDS-PAGE in the pH range 3-10 and visualized using silver staining. Protein was easily visualized with no interference from humic substances.

Figure 4. Accurate results in 2D LC – MS/MS using protein extracted with the NoviPure™ Soil Protein Extraction Kit.



Total ion chromatogram data showing base peaks of protein. Image is fraction 4 of SCX cation exchange. Protein was extracted from 5 g sterile compost samples spiked with *E. coli* using the NoviPure™ Soil Protein Extraction Kit. Proteins were digested and peptide enriched using reverse phase ion exchange and analyzed with 2D LC – MS/MS. Raw spectra were searched against SwissProt protein database (March 2013 release). 1076 unique proteins were identified.

¹ Taylor & Williams, 2013 Microb. Ecol. 59:390-99

² Chourey *et al.* 2010. Jo. Proteome Res. 9:6615-22

³ BIORAD Mini PROTEAN® TGX Stain-Free™ Gels

Specifications

Extraction Method	Patent-pending two buffer extraction method
Lysis Method	Bead Beating
Starting Amount	2 - 5 g
Equipment Required	Vortex 50 ml MO BIO Vortex Adapter Refrigerated Centrifuge for 50 ml tube (≤4500 x g) Refrigerated Microcentrifuge (20,000 x g)

Order information

Catalog No.	Description	Quantity
30000-20	NoviPure™ Soil Protein Extraction Kit	20 preps

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