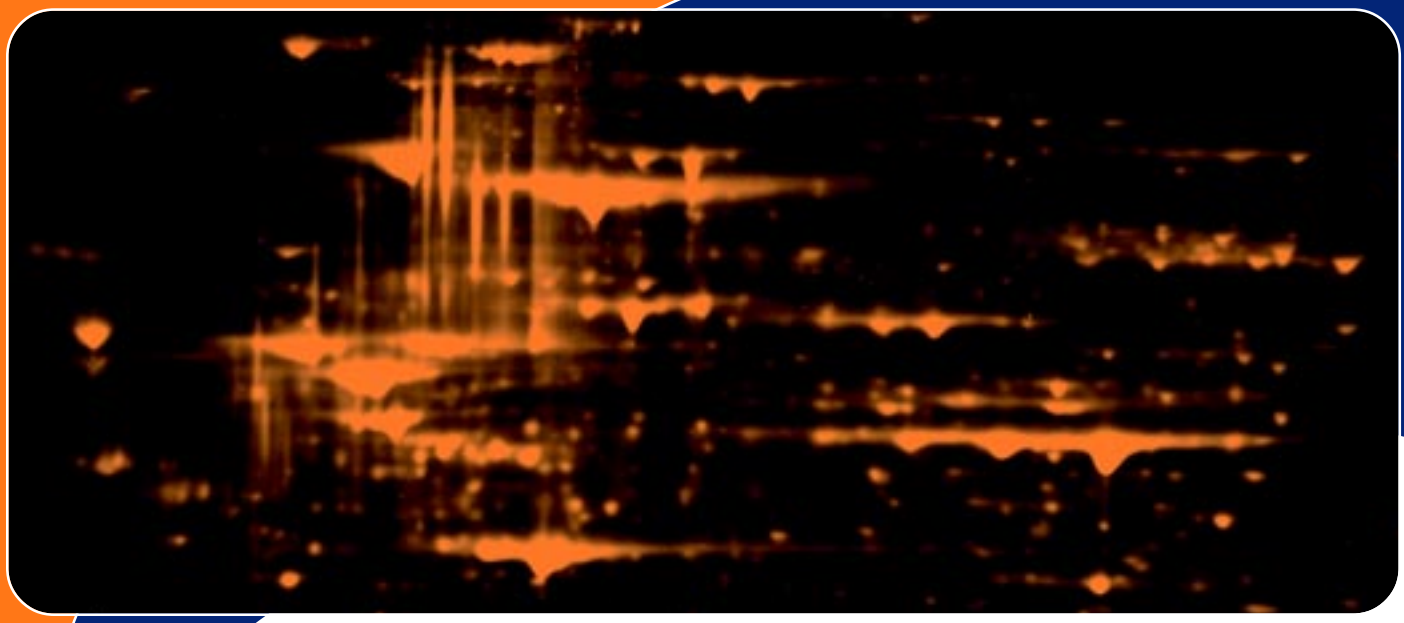
SYPRO Ruby Protein Gel Stain

Advanced staining technology for 2-D gels and proteomics



HIGHLY SENSITIVE	Detection limit rivals that of the best silver stains
SIMPLE	Ready-to-use stain requires no complex fixations or timed steps
QUANTITATIVE	Broad linear quantitation range and consistent gel-to-gel staining allow for accurate protein expression comparisons
COMPATIBLE	Staining is compatible with mass spectrometry or microsequencing
HIGH-THROUGHPUT	Simple staining procedure streamlines processing of multiple gels
EASY TO VISUALIZE	Can be visualized with UV transilluminators or laser scanners

Molecular Probes®

Technical Information

Created especially for the analysis of proteins in 2-D polyacrylamide gels, SYPRO Ruby protein gel stain is ideal for proteomics. It provides the same low nanogram sensitivity as the best silver staining techniques (Figure 1), but stains more proteins and has a much broader linear quantitation range — extending over three orders of magnitude (Figure 2). These features make it possible to obtain accurate protein quantitation for both highly expressed and minimally expressed proteins in the gel.[1] Using SYPRO Ruby protein gel stain, it is possible to detect as little as a 5% difference in staining intensities with a 95% confidence level.[2] The bright orange-red–fluorescent signal (~610 nm) has two excitation maxima (~280 and ~450 nm), making it easy to visualize using either a UV light source, such as a standard transilluminator, or a visible light source, such as a laser or a xenon-arc lamp. Accurate quantitation can be achieved using a CCD camera or a laser scanner.

The staining procedure is very straightforward — after a short fixation, gels are simply incubated in the stain and washed (Figure 3). Unlike silver staining, no timed steps are required — gels can be left in the dye solution for long periods without overstaining. This simplified staining protocol results in very consistent gel-to-gel results; same-spot intensity comparisons between identical 2-D gels show a correlation of 0.9.[3] In addition, the streamlined staining procedure makes it possible to process multiple gels simultaneously without investing in robotic staining devices. The amount of hazardous organic waste generated is greatly reduced compared to silver staining, minimizing the hassles associated with waste disposal.

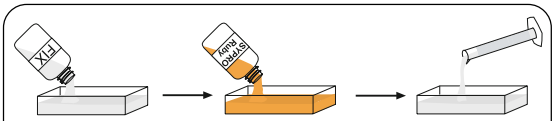


Figure 3. Staining with SYPRO Ruby protein gel stain is simple — just fix, stain and wash.

SYPRO Ruby protein gel stain is a noncovalent stain that does not require aldehyde fixation. Thus, it is compatible with subsequent Edman microsequencing or mass spectrometry (Figure 4), either of which can be performed immediately after staining, with no modification steps.[1,3] As little as 75 fmol of stained protein can be recovered from the gel and accurately identified using MALDI-TOF mass spectrometry.[3]

Materials Supplied

SYPRO Ruby protein gel stain is supplied as a ready-to-use solution in 200 mL, 1 L and 5 L sizes. The 1 L size stains ~20 minigels or two large 2-D gels. The 5 L size is provided in a box with a convenient spigot for dispensing the stain.

Ordering Information

S-12000	SYPRO Ruby protein gel stain	1 L
S-12001	SYPRO Ruby protein gel stain	200 mL
S-21900	SYPRO Ruby protein gel stain *bulk packaging*	5 L

References

1. Electrophoresis 21, 2509 (2000); **2.** Molecular Probes, unpublished data; **3.** Electrophoresis 21, 3673 (2000).

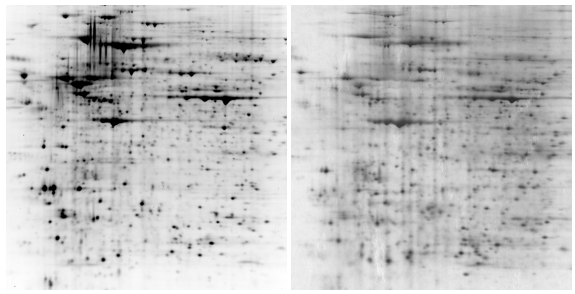


Figure 1. SYPRO Ruby protein gel stain compared to a silver stain. Proteins from a fibroblast cell lysate were run on identical 2-D gels and stained with SYPRO Ruby protein gel stain (left) or silver stain (right). The grayscale values of the gel stained with SYPRO Ruby dye have been inverted for easier comparison with the silver-stained gel.

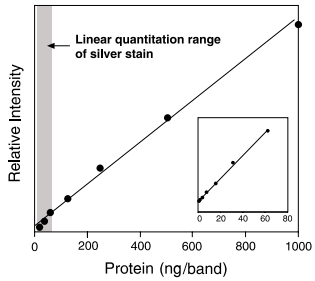


Figure 2. Linear quantitation range of SYPRO Ruby protein gel stain compared to silver stain. Amounts of carbonic anhydrase ranging from 1 ng to 1000 ng were separated by SDS-PAGE and stained with SYPRO Ruby protein gel stain. The inset shows the lower part of the range from 1 ng to 60 ng protein. Staining intensities were quantitated using the Bio-Rad Molecular Imager FX System. For comparison, the gray band shows the linear range for the same protein detected with silver staining.

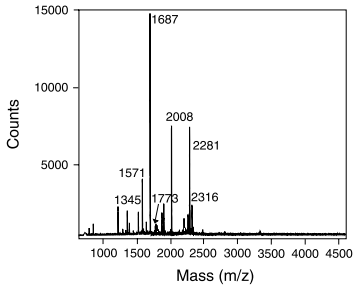


Figure 4. Mass spectroscopic profile of chicken ovalbumin obtained after SDS-PAGE and staining with SYPRO Ruby protein gel stain. Data courtesy of Elena Chernokalskaya and Mary Lopez, Genomic Solutions, Inc.

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