ProtTech™

Staining A Gel For Protein Identification

The gel can be stained by many different methods, including Coomassie Blue staining, colloidal Coomassie staining, Cu-staining, Zn-staining, fluorescent dye staining and silver staining. We strongly recommend using colloidal, coomassie-based staining, due to its high detection sensitivity, low cost, and its non-hazardous nature for handling and disposal. For example, SimpleBlue(TM) SafeStain kit (Cat. No. LC6060) from Invitrogen is able to detect as little as 7 ng BSA, and protein bands can develop within a very short time. Since this staining method does not require any other chemicals, such as methanol or acetic acid, and waste can be disposed of down the drain, the overall cost of this staining (less than $2 per gel) is lower than that of traditional coomassie staining. Other vendors offer similar colloidal coomassie staining kits. We also accept gel samples with other staining, like Zn/Cu staining, and fluorescent dye staining However, our quality guarantee (free of any charge for a failed identification) will not be applicable to these types of gel samples since the amount of protein may be too low for identification. For example, some fluorescent dye staining have the detection sensitivity less than 1 ng, which amount is probably too low for a confident protein identification.

Traditional Silver staining is not compatible to mass spectrometric analysis, but several modified silver staining procedures which eliminate the use of glutaraldehyde- and formaldehyde- based sensitizer claim to be more compatible to MS analysis. There are several commercially available silver staining kits which all claim to be MS compatible. However, based on our experience, the yield of peptide from in-gel digestion of a “MS compatible” silver stained gel band is still much lower than that from a colloidal Coomassie stained gel band with same amount of protein. Although we do accept silver stained gel samples, we encourage our customers to make effort to purify enough protein sample for using colloidal Coomassie, Cu or Zn staining (its detection limit around 10 ng), and use silver staining when purifying more protein is too difficult. The effort to optimize a purification procedure are often paid back greatly in a long run since it often lead to high success rate in identification of these protein at high confidence level, and such experience is important to future work.