SDS-PAGE Gel Mix

Introduction

SDS-PAGE, sodium dodecyl sulfate polyacrylamide gel electrophoresis, is a technique used in biochemistry, genetics and molecular biology to separate proteins according to their molecular weight. Polyacrylamide gels are those which provide a means of separating proteins by size as they are porous.

Nepenthe SDS-PAGE Gel Mix is the basic SDS-PAGE gel preparation kit which contains all kinds of reagents needed to prepare the SDS-PAGE gel. The Gel Mix in this kit is the mixture of the gel buffer such as SDS and Tris-HCl, which simplify the procedure of gel preparation.

Most Western blot samples are run on denaturing gels (typically called SDS-PAGE; sodium dodecyl sulfate polyacrylamide gel electrophoresis). In denaturing gels, the sample loading buffer contains a detergent, sodium dodecyl sulfate (SDS), and a reducing agent (dithiothreitol or ß-mercaptoethanol) and the sample is heated prior to loading. The SDS linearizes proteins and makes them negatively charged while the reducing agent breaks disulfide bonds and disassembles the proteins' tertiary structures. The end result is linear proteins that migrate based on their molecular weight. Smaller proteins migrate faster through the gel while larger proteins migrate slower.

According to the different molecular weight of the target protein, different concentration of separating gel should be ordered.

Concentration of Separating Gel	Protein MW Range, kDa
6%	50~200kDa
8%	30~95kDa
10%	20~80kDa
12%	12~60kDa
15%	10~43kDa

There are two layers of the gel, namely Stacking or spacer gel, and Separating or resolving gel.

Stacking Gel - The stacking gel contains large pores of polyacrylamide gel (generally 4%). This gel is prepared with Tris buffer of pH 6.8 which is of about 2 pH units lower than that of the electrophoresis buffer. This gel is formed over the separating gel.

Separating Gel - The separating gel contains small pores of polyacrylamide gel (4-20%). The Tris buffer used is of pH 8.8. In this gel, macro molecules separate according to their size.

Cautions

- Read the entire procedure carefully before starting the experiment.
- Each 100 mg of powder A Buffer is dissolved with 1 mL of ddH2O.
- Aliquot 100 µL for each gel from A Buffer and store at -20 ^{o}C.
- This kit should be used within 6 months. Avoid freeze / thaw cycles.
- It is recommended that gels are prepared fresh as the protocol for each use.
- T Buffer is volatile and it is recommended to pipette in a chemical fume hood.
- It is recommended that the T Buffer vial is parafilmed and placed in a second sealable box after each usage.
- Avoid bubbles to avoid affecting the experimental results.
- Nepenthe Gel-Mix is designed for mini gels (8x10cm).
- This kit is for research use only. For your safety and health, please wear lab clothes and gloves.

Storage

Store separately for 6 months.

Order

Product	Pack	Catalog Number
SDS-PAGE Gel Mix %6	5 gels	NB00G000605
	10 gels	NB00G000610
	20 gels	NB00G000620
SDS-PAGE Gel Mix %8	5 gels	NB00G000805
	10 gels	NB00G000810
	20 gels	NB00G000820
SDS-PAGE Gel Mix %10	5 gels	NB00G001005
	10 gels	NB00G001010
	20 gels	NB00G001020
SDS-PAGE Gel Mix %12	5 gels	NB00G001205
	10 gels	NB00G001210
	20 gels	NB00G001220
SDS-PAGE Gel Mix %15	5 gels	NB00G001505
	10 gels	NB00G001510
	20 gels	NB00G001520