

Protein Purification

Additional Affinity Purification

Anti-V5 Agarose Affinity Gel

A 7345 antibody produced in mouse 1 mL
 2-8°C **Purified immunoglobulin, Clone V5-10**
 Suitable for affinity purification and immunoprecipitation of V5 tagged fusion proteins.
 Recognizes V5 Tag (GKPIPPLLGLDST) fusion proteins
 Suspension of beaded agarose (1:1 v/v) in 0.01 M phosphate buffered saline, containing 15 mM sodium azide.
 Capacity (V5 fusion protein) 2.5 nmol/mL

V5

V 7754 (CGKPIPPLLGLDST) 4 mg
 -20°C **minimum 97% (HPLC), Lyophilized powder** 25 mg
 The amino acid sequence corresponds to amino acids 95-108 of non-structural protein V and to RNA polymerase α subunit (P protein), of Paramyxovirus SV5 with an N-terminal cysteine. The peptide is useful for displacement of V5-tagged fusion proteins from anti-V5 antibody in immunoassays. The successful inhibition of antibody binding of V5 peptide demonstrates binding is specific.
 calculated mol wt 1524.8 Da

Protein Quantitation

Bicinchoninic Acid Kit for Protein Determination

BCA-1 (BCA protein assay) 1 kit
 2-8°C **for 200-1000 $\mu\text{g/ml}$ protein**
 Proteins reduce alkaline Cu(II) to Cu(I) in a concentration-dependent manner. Bicinchoninic acid is a highly specific chromogenic reagent for Cu(I), forming a purple complex with an absorbance maximum at 562 nm. The absorbance is directly proportional to protein concentration. This is an alternative to the Folin-Ciocalteu reagent for protein determination.

Features and Benefits

- Simple, sensitive colorimetric assay for proteins
- Two stable reagents are used for the working solution
- Faster and easier than the Lowry protein assay
- Compatible with many detergents both ionic and nonionic
- Less variation between different proteins than the Bradford dye-binding assay
- Adaptable for use in microwell plates sufficient for approx. 500 assays (tests + controls)

Components:

Bicinchoninic Acid Solution, 1 L
 4% (w/v) $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ Solution, 25 mL
 Protein Standard Solution, 5 \times 1 mL

References

1. Lowry, O.H., et al., Protein measurement with the Folin phenol reagent *J. Biol. Chem.* **193**, 265-275 (1951)
2. Smith, P.K., et al., Measurement of protein using bicinchoninic acid. *Anal. Biochem.* **150**, 76-85 (1985)
3. Brown, R.E., et al., Protein measurement using bicinchoninic acid: elimination of interfering substances. *Anal. Biochem.* **180**, 136-139 (1989)
4. Wiehelman, K., Braun, R. and Fitzpatrick, J., Investigation of the bicinchoninic acid protein assay: identification of the groups responsible for color formation. *Anal. Biochem.* **175**, 231-237 (1988)
 R: 36/37/38 S: 26-36

Bicinchoninic Acid solution

B 9643 (BCA solution) 1 L
 RT **liquid**
 Also available as part of the Bicinchoninic Acid Kit for Protein Determination (BCA-1).
 suitable for determination of protein concentration
 Color. clear, colorless
References
 Smith, P.K., et al., Measurement of protein using bicinchoninic acid. *Anal. Biochem.* **150**, 76-85 (1985)
 R: 36/37/38 S: 26-36

QuantiPro™ BCA Assay Kit

QP-BCA **for 0.5-30 $\mu\text{g/ml}$ protein** 1 kit
 RT
 Based on the alkaline reduction of Cu(II) to Cu(I) by proteins, and the formation of a bicinchoninic acid:Cu(I) complex having an absorbance maximum at 562 nm
 Can be used to measure very dilute protein concentrations in very small sample volumes. Accurately measures protein concentrations from 0.5 to 30 $\mu\text{g/ml}$ in tube assays and 1 to 20 $\mu\text{g/ml}$ in 96- or 384-well plate assays.

NEW

Features and Benefits

- Accurate across a broad range of protein concentrations
- High sensitivity; linear response from 0.5 to 30 $\mu\text{g/ml}$ of protein
- Stable color complex
- Reduced susceptibility to detergents

Components:

QuantiPro buffer QA, 250 mL
 QuantiPro BCA QB, 250 mL
 Protein Standard Solution: 1.0 mg/ml bovine serum albumin in 0.15 M NaCl with 0.05% sodium azide (flame-sealed glass ampules), 10 \times 1 mL
 4% Copper(II) sulfate pentahydrate solution, 12 mL

References

1. Wiehelman, K., Investigation of the bicinchoninic acid protein assay: identification of the groups responsible for color formation. *Anal. Biochem.* **175**, 231 (1988)
2. Brown, R.E., Protein measurement using bicinchoninic acid: elimination of interfering substances *Anal. Biochem.* **180**, 136 (1989)
 R: 60-22-37/38-41-43-63 S: 53-26-27-36/37/39-45

Bradford Reagent

B 6916 (Coomassie® dye binding protein assay, 500 mL
 2-8°C Protein dye reagent)
for 1-1,400 $\mu\text{g/ml}$ protein
 This protein assay is based on complexing of proteins with Brilliant Blue G. The protein sample is mixed with the reagent and then read at 595 nm after a short incubation at room temperature.
Features and Benefits

- The reagent is ready to use. No mixing or dilution required.
- Color development is rapid. Only a five minute incubation and then the sample is read a 595 nm.
- Reducing sugars and reducing substances along with thiols do not interfere with this reagent.
- Reagent is suitable for micro (1-10 $\mu\text{g/ml}$) and standard (50-1400 $\mu\text{g/ml}$) assays.
- Can be used in microwell plate assays.
- Inexpensive assay.

 Data sheet included with each bottle.
 Coomassie is a trademark of ICI Americas

Protein Quantitation

(Continuation of)

Bradford Reagent

References

- Bradford, M., A rapid and sensitive method for the quantitation of microgram quantities of protein utilizing the principle of dye-binding. *Anal. Biochem.* **72**, 248-254 (1976)
 - Compton, S.J., and Jones, C.G., Mechanism of dye response and interference in the Bradford protein assay. *Anal. Biochem.* **151**, 369-374 (1985)
 - Tal, M., et al., Why does Coomassie Brilliant Blue® interact differently with different proteins? A partial answer. *J. Biol. Chem.* **260**, 9976 (1985)
 - Spittgerber, A.G., Sohl, J., Nonlinearity in protein assays by the Coomassie® blue dye-binding method. *Anal. Biochem.* **179**, 198 (1989)
 - Rubin, R.W., and Warren, R.W., Quantitation of microgram amounts of protein in SDS-mercaptoethanol-tris electrophoresis sample buffer. *Anal. Biochem.* **83**, 773-777 (1977)
 - Friedenauer, D., and Berlet, H.H., Sensitivity and variability of the Bradford protein assay in the presence of detergents. *Anal. Biochem.* **178**, 263-268 (1989)
- R: 20/21/22-34-68/20/21/22 S: 26-36/37/39-45

Copper(II) sulfate solution

C 2284 (Cupric sulfate standard) 25 mL
RT CAS No. 7758-98-7

4 % (w/v) (prepared from copper (II) sulfate pentahydrate)

Also available as part of the Bicinchoninic Acid Kit for Protein Determination (BCA-1).
 suitable for determination of total protein (Recommended use with BCA solution (B 9643) for total protein determination.)
 R: 60-22-37/38-41-43-63 S: 53-23-26-36/37/39-45

Protein Standards, Micro Standard

P 0914 (Albumin from bovine serum, protein standard) 5 amps
2-8°C 10 amps
 CAS No. 9048-46-8

liquid

1 mg bovine serum albumin/ml in 0.15 M NaCl
 Protein standard for all protein assays. Sealed ampules provide assurance that the concentration will be correct with every assay.
 Sealed ampules
 contains 0.05% sodium azide as preservative
 Color. clear, colorless
 Ampule of 1 mL

Protein standard

P 0834 (Albumin from bovine serum, protein standard) 10 × 1 mL
2-8°C CAS No. 9048-46-8

liquid

2 mg bovine serum albumin/ml in 0.9% NaCl containing 0.05% sodium azide
 A more concentrated solution for all protein assays.
 Sealed ampules provide assurance that the concentration will be correct with every assay.
 Color. clear, colorless

Protein Electrophoresis

Kits and reagents for Western blotting See: Western Blotting Reagents Page 59

Protein staining reagents See: Protein Staining Reagents Page 61

Proteogel IPG Strip, 7 cm, pH 3-10

I 2531 Gel Matrix: Polyacrylamide, 4%T, 3%C 12 each
-20-0°C Gel Backing: Polyester Film

NEW

Proteogel IPG Strip, 7 cm, pH 3-5

I 3031 Gel Matrix: Polyacrylamide, 4%T, 3%C 12 each
-20-0°C Gel Backing: Polyester Film

NEW

Proteogel IPG Strip, 7 cm, pH 4-7

I 2906 Gel Matrix: Polyacrylamide, 4%T, 3%C 12 each
-20-0°C Gel Backing: Polyester Film

NEW

Proteogel IPG Strip, 7 cm, pH 5-8

I 3156 Gel Matrix: Polyacrylamide, 4%T, 3%C 12 each
-20-0°C Gel Backing: Polyester Film

NEW

Proteogel IPG Strips, 7 cm, pH 6-11

I 7406 Gel Matrix: Polyacrylamide 4%T, 3%C 12 each
2-8°C Gel Backing: Polyester Film

NEW

Proteogel IPG Strip, 7 cm, pH 8-11

I 3281 Gel Matrix: Polyacrylamide, 4%T, 3%C 12 each
-20-0°C Gel Backing: Polyester Film

NEW

Proteogel IPG Strip, 11 cm, pH 3-10

I 3406 Gel Matrix: 4%T, 3%C 12 each
-20-0°C Gel Backing: Polyester Film

NEW

Proteogel IPG Strip, 11 cm, pH 3-5

I 3656 Gel Matrix: Polyacrylamide, 4%T, 3%C 12 each
-20-0°C Gel Backing: Polyester Film

NEW

Proteogel IPG Strip, 11 cm, pH 4-7

I 3531 Gel Matrix: Polyacrylamide, 4%T, 3%C 12 each
-20-0°C Gel Backing: Polyester Film

NEW