Benchmarks

5. **Garcia-Barreno, B., T. Delgado and J.A. Melero.** 1996. Identification of protein regions involved in the interaction of human respiratory syncytial virus phosphoprotein and nucleoprotein: significance for nucleocapsid assembly and formation of cytoplasmic inclusions. *J. Virol.* 70:801-808.
6. **Harlow, E. and D. Lane.** 1988. *Antibodies: A Laboratory Manual.* CSH Laboratory Press, Cold Spring Harbor, New York.
7. **Laemmli, U.K.** 1970. Cleavage of structural proteins during the assembly of the head of bacteriophage T4. *Nature* 227:680-685.
8. **Mallipeddi, S.K., B. Lupiani and S.K. Samal.** 1996. Mapping the domains on the phosphoprotein of bovine respiratory syncytial virus required for N-P interaction using a two-hybrid system. *J. Gen. Virol.* 77:1019-1023.
9. **Mazumder, B., G. Adhikary and S. Barik.** 1994. Bacterial expression of human respiratory syncytial viral phosphoprotein P and identification of Ser²³⁷ as the site of phosphorylation by cellular casein kinase II. *Virology* 205:93-103.
10. **Mazumder, B. and S. Barik.** 1994. Requirement of casein kinase II-mediated phosphorylation for the transcriptional activity of human respiratory syncytial virus phosphoprotein P: transdominant negative phenotype of phosphorylation-defective P mutants. *Virology* 205:104-111.

11. **Towbin, H., T. Staehelin and J. Gordon.** 1979. Electrophoretic transfer of proteins from polyacrylamide gels to nitrocellulose sheets: procedure and some applications. *Proc. Natl. Acad. Sci. USA* 76:4350-4354.
12. **Tuazon, P.T. and J.A. Traugh.** 1991. Casein kinase I and 2 - multifunctional serine protein kinases: structure, function, and regulation. *Adv. Second Messenger Phosphoprotein Res.* 23:123-164.

This research was supported by NIH Grant No. A137938 and a grant-in-aid award No. AL G970031 from the American Heart Association (Alabama Affiliate). We thank Dr. James Gaubatz for the use of his slot-blot apparatus. Address correspondence to Dr. Sainen Barik, Department of Biochemistry and Molecular Biology, University of South Alabama, College of Medicine, MSB 2140, 307 University Boulevard, Mobile, AL 36688-0002, USA. Internet: sbarik@jaguar1.usouthal.edu

Received 22 January 1998; accepted 16 June 1998.

Emily Burke and Sainen Barik
University of South Alabama
College of Medicine
Mobile, AL, USA

Southern Hybridization in Shampoo

BioTechniques 25:582 (October 1998)

In nucleic acid hybridizations, the blocking agent for nylon or charged nylon membranes is the detergent sodium dodecyl sulfate (SDS). Therefore, an inexpensive shampoo was tested as a cheap, pre-dissolved source of dodecyl sulfate. For routine Southern blotting and probing, a diluted solution of Gillette's White Rain shampoo (ca. \$1.39 per 443 mL) was found to be a perfectly suitable blocking agent and hybridization medium.

Figure 1 shows a blot of λ phage restriction fragments (ca. 0.5 μ g per lane) after transfer to a Zeta-Probe[®] membrane (Bio-Rad, Hercules, CA, USA), probing with a ³²P-radiolabeled subclone (7 μ Ci) (2), washing and auto-

Figure 1. Southern hybridization in 0.4x shampoo. A radiolabeled subclone of λ phage was hybridized in 0.4x White Rain shampoo to restriction fragments of λ phage that had been immobilized on Zeta-Probe membrane.

radiography. The probe was denatured by boiling and then hybridized to the blot in 0.4x White Rain shampoo (listed ingredients: water, ammonium dodecyl sulfate, ammonium lauryl sulfate, lauramide DEA, sodium chloride, fragrance, palmitic acid, citric acid, tetrasodium EDTA, methylchloroisothiazone and methylisothiazone) at 65°C with 0.25 mL of solution per cm² of membrane. The blot was washed as usual in 0.2x saline-sodium citrate (SSC), 0.2% SDS at 65°C and subsequently autoradiographed. No background hybridization was evident, and the sensitivity of detection was comparable to that obtained with the hybridization solution of Church and Gilbert (1).

REFERENCES

1. **Church, G.M. and W. Gilbert.** 1984. Genomic sequencing. *Proc. Natl. Acad. Sci. USA* 81:1991-1995.
2. **Feinberg, A. and B. Vogelstein.** 1982. A technique for radiolabeling DNA restriction fragments to high specific activity. *Anal. Biochem.* 132:6-13.

Thanks to Tom Brutnell and Jean Lynch for helpful discussions. Address correspondence to Dr. Bruce P. May, EPG Research Foundation, 111 East Shore Road, Manhasset, NY, 11030, USA. Internet: broose@idt.net

Received 17 June 1998; accepted 10 July 1998.

Bruce P. May
EPG Research Foundation
Manhasset, NY, USA