Strategies for Protein Purification and Characterization

A Laboratory Course Manual

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Investigators who have identified and cloned a gene of interest often want to isolate and characterize the protein product, yet the methods required are notoriously tricky for the inexperienced. For the past four years, a course has been held at Cold Spring Harbor Laboratory to teach scientists how to execute the major protein techniques by applying them to four distinct, representative types of molecule: a regulatory protein, a DNA-binding protein, a recombinant protein, and a membrane-bound receptor. This course has now been adapted in the form of a laboratory manual that covers a variety of bulk fractionation, electrophoretic, and chromatographic techniques. Step-by-step protocols are accompanied by troubleshooting advice and guidance on generalizing the techniques for other classes and types of protein. The emphasis throughout is on strategies for purification and characterization rather than automated instrumental analysis.

After years of rigorous testing, these techniques are robust and reliable, and are presented here with the clarity and completeness for which Cold Spring Harbor manuals are celebrated. The book is invaluable for specialists in genetics, microbiology, neuroscience, and cell biology who wish to develop expertise in working with proteins.

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COVER DNA microarrays for analyzing complex DNA samples. Shown is a two-color fluorescent scan of an 1.8-cm × 1.8-cm yeast array of λ clones of yeast genomic DNA. (For details, see Shalon et al., p. 639.)