

BIOCHEMICAL SOCIETY SYMPOSIA NO. 47

Messenger RNA and Ribosomes in Protein Synthesis

Edited by C. F. PHELPS
and H. R. V. ARNSTEIN

The Biochemical Society's Forty-Seventh Symposium, held in London in December 1981, assembled some of the leading workers in this area of biochemistry. The subjects for discussion were chosen for their timeliness and distinctiveness, and included accounts of ribosome and messenger RNA structure and function, initiation factors, caps and ribonucleoproteins, as well as consideration of the processes leading to the distribution of newly synthesized proteins within the cell. The papers presented are now published in this volume.

List of contents and authors:

Preface. Prokaryotic Ribosome Structure: a Kinetic View by C. G. Kurland. *Structural Aspects of Eukaryotic Ribosomes* by R. A. Cox & J. M. Kelly. *The Secondary Structure of Ribosomal RNA, and its Organization within the Ribosomal Subunits* by R. Brimacombe. *Secondary Structure of Eukaryotic Messenger RNA* by C. P. H. Vary & J. N. Vournakis. *Studies on the Structure and Biogenesis of Yeast Ribosomes* by M. Cannon. *Translation Mechanism in Prokaryotes: Structure and Expression of Escherichia coli Initiation Factor IF3 Gene* by M. Grunberg-Manago, M. Springer, J. A. Plumbridge, S. Blanquet, G. Fayat & C. Sacerdot. *How do Eukaryotic Ribosomes Recognize the Unique AUG Initiator Codon in Messenger RNA?* by M. Kozak. *5'-Terminal Caps, Cap-Binding Proteins and Eukaryotic mRNA Function* by A. J. Shatkin, E. Darzynkiewicz, Y. Furuichi, H. Kroath, M. A. Morgan, S. M. Tahara & M. Yamakawa. *Association of an M₁ 50000 Cap Binding Protein with the Cytoskeleton in BHK Cells* by H. Trachsel, A. Zumbé, C. Stähli, M. Hübelin & N. Sonenberg. *Messenger Ribonucleoprotein Complexes in Gene Expression* by H. R. V. Arnstein. *Mechanism of Protein Translocation Across the Endoplasmic Reticulum* by P. Walter & G. Blobel. *Synthesis and Maturation of the Erythrocyte Anion Transport Protein — an Internal Sequence for Membrane Insertion* by H. F. Lodish & W. A. Braell. *Subject Index.*

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BIOTECHNOLOGY

Edited by C. F. PHELPS
and P. H. CLARKE

The fourteen contributions forming this volume were presented at a London meeting of the Biochemical Society including the Society's Forty-Eighth Symposium 'Biotechnology', in December 1982. With today's increasing pressures to develop latest laboratory findings into practical industrial processes as quickly as possible the chosen theme of this Symposium was a timely one. The papers represent up-to-date reports from international biochemists whose work is of direct relevance to the wide areas of interests concerned with biotechnology, together with glimpses of the early development of its techniques and a look at its exciting future.

List of contents and authors:

Preface. How Biotechnology Developed at University College London by **E. M. Crook**. *The Future of Biotechnology* by **P. Dunnill**. *Carbohydrate Transformations by Immobilized Cells* by **C. Bucke**. *Biological Halogenation and Epoxidation* by **S. L. Neidleman & J. Geigert**. *High-Productivity Alcohol Fermentations using *Zymomonas mobilis** by **M. L. Skotnicki, R. G. Warr, A. E. Goodman, K. J. Lee & P. L. Rogers**. *The Problem of Lignin Biodegradation* by **L. Wallace, A. Paterson, A. McCarthy, U. Raeder, L. Ramsey, M. MacDonald, R. Haylock & P. Broda**. *Special Bacterial Polysaccharides and Polysaccharases* by **T. Harada**. *A New Era of Exploitation of Microbial Metabolites* by **A. L. Demain**. *Industrial Prospects for Thermophiles and Thermophilic Enzymes* by **B. S. Hartley & M. A. Payton**. *Anaerobic Fermentations – Some New Possibilities* by **J. G. Morris**. *Xenobiotic Degradation in Industrial Sewage: Haloaromatics as Target Substrates* by **H. J. Knackmuss**. *Genetic Analysis and Manipulation of Catabolic Pathways in *Pseudomonas** by **P. R. Lehrbach & K. N. Timmis**. *Plant Cell Cloning and Culture Products* by **L. H. Jones**. *A Hybrid Promoter and Portable Shine-Dalgarno Regions of *Escherichia coli** by **H. A. De Boer, L. J. Comstock, A. Hui, E. Wong & M. Vasser**. *Subject Index*.

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This technique offers advantages over conventional preparative column chromatography in that *separations are quick and recoveries are high* (due to minimal band tailing). Thus, it also becomes a valuable method for the preliminary purification of materials that require high-resolution HPLC separation.

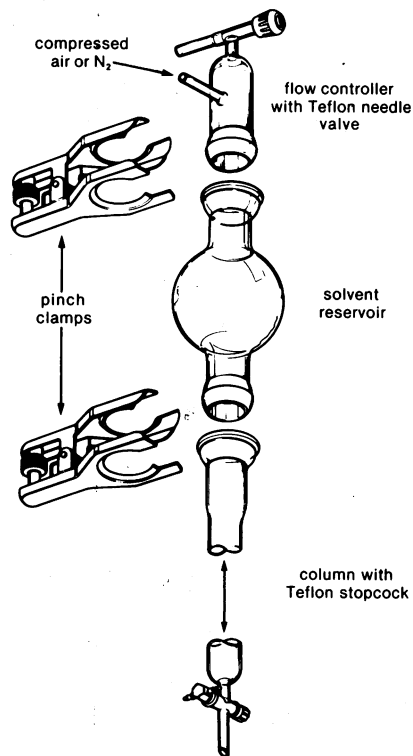
Columns are generally packed dry. First, a small plug of glass wool is inserted into the narrow neck above the column stopcock. Next, a thin layer of sand is introduced, followed by the adsorbent (usually 230- to 400-mesh silica gel 60,² added in one portion) and finally, another thin layer of sand. The elution solvent is then introduced at the top of the column, the flow controller is attached, and the system is pressurized to force all air out of the column.² The flow controller is removed, the sample is applied to the top of the column (a 20-25% solution in the eluant is recommended¹), and pressurization is resumed. A flow rate of 2 inches/minute is usually ideal for both packing and sample elution.

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1) Still, W.C.; Kahn, M.; Mitra, A. *J. Org. Chem.* **1978**, *43*, 2923.

2) Alternatively, it has been suggested that the solvent used for packing be allowed to percolate through the column without applying external pressure: see the Labnote by J.M. Chong and I.D. Suckling in *Aldrichim. Acta* **1983**, *16*, 66.



Flash Chromatography Column (Consists of column, flow controller, pinch clamp)*				Solvent Reservoir (Requires pinch clamp in column at right)		Pinch Clamp**		Packing Materials***	
Cap.	Joint	Cat. No.	Price	Cat. No.	Price	Cat. No.	Price		
100ml	28/12	Z10,409-4	\$149.05	Z12,123-1	\$34.50	Z10,708-5	\$15.00	23,677-2	Davisil™ silica gel, grade 633, 200-425 mesh, 60Å, 99 + % 100g \$13.80; 1kg \$64.50; 10kg \$564.40
200ml	50/30	Z10,410-8	\$185.00	Z12,125-8	\$52.70	Z10,709-3	\$27.00	22,719-6	Merck silica gel, grade 60, 230-400 mesh, 60Å 100g \$18.80 1kg \$86.00; 5kg \$306.40
400ml	50/30	Z10,411-6	\$202.50	Z12,126-6	\$53.75	Z10,709-3	\$27.00	27,474-7	Glass wool, Pyrex, fiber 0.002-0.003in. diam. \$33.00/1lb pkg
600ml	65/40	Z10,412-4	\$239.70	Z12,127-4	\$71.40	Z10,710-7	\$28.00	27,473-9	Sand, Ottawa, 50-70 mesh 1kg \$5.20; 5kg \$17.40
1,000ml	75/50	Z10,413-2	\$275.30	Z12,128-2	\$92.00	Z10,711-5	\$34.00		
2,000ml	75/50	Z11,725-0	\$292.50	Z12,129-0	\$97.40	Z10,711-5	\$34.00		

*Replacement columns and flow controllers are also available. See page 1352 of the 1982-1983 Aldrich Catalog/Handbook.

**Note that these pinch clamps are not identical to the pinch clamps furnished with the flash chromatography columns. When purchasing the solvent reservoir, this heavy-duty clamp must be purchased separately for use on the lower joint of the solvent reservoir bulb. The pinch clamp supplied with the column may be used on the upper joint of the bulb but not on the lower joint.

***Other grades of silica gel are also available.



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