Control of Gene Expression

N. Maclean Department of Biology, University of Southampton, England May/June 1976, xii + 348 pp., £7.80/\$19.25 0.12.464950.5

This book sets out to review the important experimental systems in current use in the general area of the control of gene expression. It will be invaluable to all those researching into cell differentiation and gene expression in biochemical, medical, physiological and genetic laboratories, and to undergraduates reading biochemistry, cell biology and genetics.

Contents

The control of gene expression and its levels of action. Gene expression in prokaryotes. Experimental systems of differential gene function in eukaryotes – systems involving one type of protein. Experimental systems of differential gene function in eukaryotes – systems of limited complexity. Experimental systems of differential gene function in eukaryotes – systems not well understood in molecular terms. RNA involvement in gene expression. General concepts of gene regulation. Author index. Subject index.

The Genetics and Biology of Drosophila

Volumes 1a, 1b, 1c

edited by M. Ashburner Department of Genetics, University of Cambridge, England and E. Novitski Department of Biology, University of Oregon, Eugene, Oregon, USA

Volume 1 a

April/May 1976, xx + 530 pp., £16.80/\$41.75 0.12.064901.2

Volume 1 h

July/August 1976, xx + 504 pp., £16.80/\$42.50 0.12.064902.0

Volume 1 c

August/September 1976, xx+510 pp., £16.80/\$42.50 0.12.064903.9

Studies with *Drosophila*, in particular with *Drosophila melanogaster*, have contributed more to our understanding of heredity than studies with any other eukaryotes. Surprisingly, this is the first attempt since 1925 to publish a comprehensive account of the biology and genetics of *Drosophila*. It aims to collate the dauntingly large literature on the subject and to make more accessible the private language of the Drosophilist. In this way the work will be of value both to established research workers and to biologists in general. This remarkable and ambitious work has been divided into three series of volumes. Volumes 1a, 1b and 1c deal with the formal genetics of *Drosophila*, Volume 2 deals with its biology and development and Volume 3 with its evolution and ecology.

Academic Press

London New York San Francisco

A Subsidiary of Harcourt Brace Jovanovich, Publishers 24–28 Oval Road, London NW1, England 111 Fifth Avenue, New York, NY 10003, USA Australian office: PO Box 300, North Ryde, NSW 2113, Australia



Affinity chromatograph

Cells are isolated on the basis of reactive molecules located in the surface membranes.

CNBr-activated Sepharose® 6MB

(200-300 µm)

Macrobeads excellent flow properties do not physically trap cells

Pre-activated with cyanogen bromide



swell the gel, add ligand, mix to prepare the adsorbent

For further details see our brochure available on request.

Pharmacia (Great Britain) Ltd. Paramount House, 75 Uxbridge Road, London W5 5SS Telephone: 01-579 0102/7



Pharmacia Fine Chemicals

ANNOTATED BIBLIOGRAPHIES

These are duplicates of bibliographies prepared on request at the Commonwealth Bureau of Animal Breeding and Genetics, The King's Buildings, West Mains Road, Edinburgh, EH9 3JX, Scotland. In addition to the full title reference, the abstract published in *Animal Breeding Abstracts* is reproduced. Supplementary bibliographies (marked A and B) are prepared from time to time to bring some of the earlier ones up to date. The bibliographies can be obtained on application to the Director. The prices quoted include postage by ordinary mail, and the remittance should be sent with the order unless you want it posted by air mail. If the material is to be sent by air mail, do not send money with your request, you will receive an invoice which includes air mail postage. Some of the most recent bibliographies are listed. will receive an invoice which includes air mail postage. Some of the most recent bibliographies are listed below, but a full list is obtainable from the Bureau.

Number	Subject	Period covered	Number of references	Price
	- ·			
286	Blackhead Persian Sheep	1951–73	35	£1.35
287	The estimation of egg production: part- season records and their use in selec- tion	1952–74	54	£1.65
288	Oestrus diagnosis, factors affecting it and its relationship to conception in cattle, sheep and pigs	1951–75	120	£2.70
289	The effect of parity on birth weight and growth of cattle	1951–74	38	£1.20
290	Frozen semen in the pig	1958-74	49	£1.20
291	Goat production in the tropics	1968-75	82	£1.65
292	Milk recording methods (revised and updated: replaces 138 and 138 A)	1951–74	75	£1.95
293	Economic aspects of animal breeding	1957-75	57	£1.95
294	Birth weight and early body weight in sheep: entire males v. females	1962–75	71	£1.95
295	Conception rate in relation to: (1) age of fresh semen, and (2) time of insemination	1952–75	125	£2.70

GENETICAL RESEARCH

EDITORIAL BOARD

CHARLOTTE AUERBACH W. HAYES
R. H. PRITCHARD MARY F. LYON R. RILEY A. ROBERTSON

EXECUTIVE EDITOR

E. C. R. REEVE

ASSISTANT EXECUTIVE EDITOR

N. S. WILLETTS

Volume 27. 1976



CAMBRIDGE
AT THE UNIVERSITY PRESS
1976

PUBLISHED BY THE SYNDICS OF THE CAMBRIDGE UNIVERSITY PRESS

Bentley House, 200 Euston Road, London NW1 2DB

American Branch: 32 East 57th Street, New York, N.Y. 10022

© Cambridge University Press, 1975

Printed in Great Britain at the University Printing House, Cambridge

CONTENTS

No. 1 (February 1976)

OBITUARY: C. H. WADDINGTON	page 1
WALLACE, MARGARET E. Mapping an invisible lethal in the mouse	3
CLAXTON, J. H. and KONGSUWAN, KRITAYA. Non-autonomy in achaete mosaics of <i>Drosophila</i>	11
MAFIZUL ISLAM, A. B. M., HILL, W. G. and LAND, R. B. Ovulation rate of lines of mice selected for testis weight	23
Avise, John C. Genetics of plate morphology in an unusual population of threespine sticklebacks (Gasterosteus aculeatus)	33
Galizzi, A., Siccardi, A. G., Mazza, G., Canosi, U. and Polsinelli, M. A recombination test to classify mutants of <i>Bacillis subtilis</i> of identical phenotype	
BOND, D. J. and MACDONALD, M. D. The genetic control of protoperithecial production in <i>Sordaria brevicollis</i>	59
CHAPMAN, VICTOR, MILLER, T. E. and RILEY, RALPH. Equivalence of the A genome of bread wheat and that of <i>Triticum urartu</i>	69
Kaufman, M. H. The incidence of chromosomally unbalanced gametes in T(14;15)6 Ca heterozygote mice	77
HAIGH, JOHN and SMITH, JOHN MAYNARD. The hitch-hiking effect – a reply	85
SHORT PAPER	
EVANS, I. H. and WILKIE, D. Mitochondrial factors in the utilization of sugars in Saccharomyces cerevisiae	f 89
No. 2 (April 1976)	
EDITORIAL NOTE	95
Chang, Sheng-Yung and Kung, Ching. Selection and analysis of a mutant Paramedium tetraurelia lacking behavioural response to tetraethyl- ammonium	
Ruiz, Francoise, Adoutte, Andre, Rossingnol, Michèle and Beisson Janine. Genetic analysis of morphogenetic processes in <i>Paramecium</i> . I. A mutation affecting trichocyst formation and nuclear division	
BERGER, JAMES D. Gene expression and phenotypic change in <i>Paramecium tetraurelia</i> exconjugants	
HIWATASHI, KOICHI and MYOHARA, KOJI. A modifier gene involved in the expression of the dominant mating type allele in <i>Paramecium caudatum</i>	

iv Contents

NG, STEPHEN F. Extra cytoproct mutant in Paramecium tetraurelia: genetical study	a page 143
Dilts, Judith A. Covalently closed, circular DNA in kappa endosymbion of $Paramecium$	ts 161
Aufderheide, Karl. Synchrony of division in mass cultures of <i>Paramecia tetraurelia</i> by a selective density-labelling technique	ım 171
KOIZUMI, SADAAKI and KOBAYASHI, SUMIKO. A study on the mate-kille toxin by microinjection in <i>Paramecium</i>	er 179
Jones, Warren R. Oral morphogenesis during asexual reproduction in Paramecium tetraurelia	in 18 7
SUNDARARAMAN, V. and HANSON, EARL D. Longitudinal microtubules and their functions during asexual reproduction in <i>Paramecium tetraurele</i>	
GRIMES, GARY W. Laser microbeam induction of incomplete doublets of $Oxytricha\ fallax$	of 213
Preer, John R., Jr. Quantitative predictions of random segregation mode of the ciliate macronucleus	els 227
NYBERG, DENNIS. Are macronuclear subunits in <i>Paramecium</i> functional diploid?	ly 239
BIRKY, C. WILLIAM, JR and SKAVARIL, RUSSELL V. Maintenance of genet homogeneity in systems with multiple genomes	ic 249
MIYAKE, AKIO and BLEYMAN, LEA K. Gamones and mating types in the genus <i>Blepharisma</i> and their possible taxonomic application	he 267
PELVAT, B. and DE HALLER, G. Macronuclear DNA in Stentor coeruleus: first approach to its characterization	a 277
BUTZEL, H. M. and MAYER, L. Effects of actinomycin D and puromycin upon excystment of Didinium nastutum	on 291
NANNEY, D. L. Calcium chloride effects on nuclear development in Tetrahymena	in 297
COLGIN-BUKOVSAN, LAURA ANN. The genetics of mating type in the su torian Tokophyra lemnarum	.c- 303
CHELALA, CESAR A. and MARGOLIN, PAUL. Evidence that HT mutar strains of bacteriophage P22 retain an altered form of substrate specificity in the formation of transducing particles in Salmonella typhimuriu	fi-
DICAMELLI, RALPH FRANCIS and BALBINDER, ELIAS. The association of tryptophan synthetase subunits from <i>Escherichia coli</i> and <i>Salmonel typhimurium</i> in homologous and heterologous combinations	
RONEN, AMIRAM and LEVINE, MYRON. Lysogenization by phage Pacarrying amber mutations in genes 12 and 18	22 335

Contents v

PASTERNAK, J. and BARRELL, R. Quantitation of nuclear DNA in Ascaris lumbricoides: DNA constancy and chromatin diminution pa		
A selected list of the published writings of Tracy M. Sonneborn		349
No. 3. (June 1976)		
Nassar, R. F. and Cook, R. D. Non-randomness of nucleotide bases in $mRNA$ codons.	in	353
LACY, GEORGE H. and LEARY, JOHN V. Plasmid-mediated transmission of chromosomal genes in <i>Pseudomonas glycinea</i>	of	363
DE BOER, P. Male meiotic behaviour and male and female litter size in mic with the $T(2;8)26H$ and $T(1;13)70H$ reciprocal translocations	ce	369
HAYES, J. F. and McCarthy, J. C. The effects of selection at different ages for high and low body weight on the pattern of fat deposition is mice		389
Wong, C. L. and Dunn, N. W. Combined chromosomal and plasmid encoded control for the degradation of phenol in <i>Pseudomonas putida</i>	n-	405
HOLLIDAY, R., HALLIWELL, R. E., EVANS, M. W. and ROWELL, V. Genetic characterization of rec-1, a mutant of Ustilago maydis defective in		
repair and recombination		413
Index		455

GENETICAL RESEARCH

VOLUME 27, NUMBER 3, JUNE 1976

CONTENTS

NASSAR, R. F. and COOK, R. D. Non-randomness of nucleotide bases in mRNA codons	\ page 353
LACY, GEORGE H. and LEARY, JOHN V. Plasmid-mediated transmission o chromosomal genes in <i>Pseudomonas glycinea</i>	f 3 63
DE BOER, P. Male meiotic behaviour and male and female litter size in mice with the T(2;8)26H and T(1;13)70H reciprocal translocations	e 369
HAYES, J. F. and MCCARTHY, J. C. The effects of selection at different ages for high and low body weight on the pattern of fat deposition in mice	r 3 89
WONG, C. L. and DUNN, N. W. Combined chromosomal and plasmid encoded control for the degradation of phenol in <i>Pseudomonas putida</i>	d 405
HOLLIDAY, R., HALLIWELL, R. E., EVANS, M. W. and ROWELL, V. Genetic characterization of rec-1, a mutant of Ustilago maydis defective in repair and	d
recombination	413
INDEX	455

© Cambridge University Press 1976

CAMBRIDGE UNIVERSITY PRESS

Bentley House, 200 Euston Road, London NW 1 2 DB 32 East 57th Street, New York, N.Y. 10022