

# International ABSTRACTS of Biological Sciences

HONORARY EDITOR: DR C C N VASS

Published for the council of Biological and Medical Abstracts this journal covers the more important papers in experimental biology. Subjects are approached from a fundamental viewpoint with an emphasis placed on anatomy, odontology, microbiology, pharmacology, experimental pathology, immunology, experimental zoology, experimental botany, cytology, genetics and animal behaviour. The Journal's two largest sections deal with biochemistry and physiology and these are obtainable as separate publications at special subscription rates.

More than 500 journals are surveyed annually and some 50,000 abstracts are published in four volumes each of 3 issues containing an author index. A subject index is included with each quarterly issue.

Published monthly

## 1972 Annual Subscription Price

*Complete edition, including all author and subject indexes:*

(A) Government and public libraries, and industrial organisations 10% reduction for two-year subscription (1972-73), coupled with protection against any price increases during the period	£115.00	(\$315)
	£207.00	(\$567)
(B) University and hospital libraries 10% reduction for two-year subscription, coupled with protection against any price increases for the period	£100.00	(\$275)
	£180.00	(\$495)

*Sectional services at specially reduced prices:*

Available only to individuals or libraries whose institutions are paid up subscribers to the complete edition.

Biochemistry section	£5.00	(\$15)
Physiology section	£5.00	(\$15)

*Back volumes available:*

Volumes 1-60; years 1954 to 1971

Prices on request

Please write for a free inspection copy of this Journal

## Robert Maxwell & Co. Ltd.

HEADINGTON HILL HALL · OXFORD OX3 0BJ · ENGLAND

Genetical Research 19, 3

(i)

# GENETICAL RESEARCH

EDITORIAL BOARD

C. H. WADDINGTON (*Chairman*)  
CHARLOTTE AUERBACH    W. HAYES  
MARY F. LYON    R. RILEY  
A. ROBERTSON

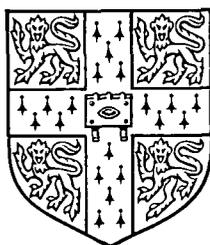
EXECUTIVE EDITOR

E. C. R. REEVE

ASSISTANT EXECUTIVE EDITOR

N. S. WILLETTS

**Volume 19. 1972**



CAMBRIDGE  
AT THE UNIVERSITY PRESS

1972

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, 1972.

*Printed in Great Britain at the University Printing House, Cambridge*

# CONTENTS

## No. 1 (February 1972)

PARRY, JAMES M. and ELIZABETH M. The genetic implications of u.v. light exposure and liquid-holding post-treatment in the yeast <i>Saccharomyces cerevisiae</i>	page 1
BULMER, M. G. The genetic variability of polygenic characters under optimizing selection, mutation and drift	17
TINGLE, M. and HALVORSON, H. O. Mutants in <i>Saccharomyces lactis</i> controlling both $\beta$ -glucosidase and $\beta$ -galactosidase activities	27
OHTA, TOMOKO. Fixation probability of a mutant influenced by random fluctuation of selection intensity	33
BRADLEY, DAVID E. A study of pili on <i>Pseudomonas aeruginosa</i>	39
HOI-SEN, YONG. Is subline differentiation a continuing process in inbred strains of mice?	53
STEWART, J. and MOWBRAY, S. Genetic analysis of physiological homeostasis: glomerular filtration rate following saline loading in mice	61
HAIGH, JOHN and MAYNARD SMITH, JOHN. Population size and protein variation in man	73
STANISICH, V. A. and HOLLOWAY, B. W. A mutant sex factor of <i>Pseudomonas aeruginosa</i>	91

## No. 2 (April 1972)

MARUYAMA, TAKEO. The average number and the variance of generations at particular gene frequency in the course of fixation of a mutant gene in a finite population	109
NEWCOMBE, K. D. and THRELKELD, S. F. H. Interspecific crosses and crossing over in <i>Neurospora</i>	115
AHMAD, A. F., BOND, D. J. and WHITEHOUSE, H. L. K. The effect of an inverted chromosome segment on intragenic recombination in another chromosome of <i>Sordaria brevicollis</i>	121
CARLSON, PETER S. The effects of inversions and the <i>C(3)G</i> mutation on intragenic recombination in <i>Drosophila</i>	129
EGOROV, I. K. and BLANDOVA, ZINAIDA K. Histocompatibility mutations in mice: chemical induction and linkage with the H-2 locus	133

UNRAU, P. and HOLLIDAY, R. Recombination during blocked chromosome replication in temperature-sensitive strains of <i>Ustilago maydis</i>	page 145
MCVITTE, ANNE. Genetic studies on flagellum mutants of <i>Chlamydomonas reinhardtii</i>	157
FREEDMAN, R. and BRENNER, S. Anomalous revertible r <sub>II</sub> mutants of phage T <sub>4</sub>	165
HEBERT, P. D. N., WARD, R. D. and GIBSON, J. B. Natural selection for enzyme variants among parthenogenetic <i>Daphnia magna</i>	173
KLEIN, JAN and KLEIN, DAGMAR. Position of the translocation break T(2;9)138Ca in linkage group IX of the mouse	177
MOODY, ERIC E. M. and RUNGE, RICHARD. The integration of autonomous transmissible plasmids into the chromosome of <i>Escherichia coli</i> K 12	181
RICHMOND, M. H. A comparison of the exo-penicillinases mediated by a chromosomal gene in a strain of <i>Staphylococcus aureus</i> PS 80 and by a plasmid gene in <i>Staphylococcus aureus</i> 8325	187

## No. 3 (June 1972)

WEIJER, J. and VIGFUSSON, N. V. Sexuality in <i>Neurospora crassa</i> . I. Mutations to male sterility	191
VIGFUSSON, M. V. and WEIJER, J. Sexuality in <i>Neurospora crassa</i> . II. Genes affecting the sexual development cycle	205
CATTANACH, B. M., WOLFE, H. G. and LYON, M. F. A comparative study of the costs of chimaeric mice and those of heterozygotes for X-linked genes	213
CATTANACH, B. M. and WILLIAMS, C. E. Evidence of non-random X chromosome activity in the mouse	229
DAY, T. H. and CLAYTON, R. M. Multiple changes in lens protein composition associated with the Cat <sup>Ft</sup> gene in the mouse	241
PEMBERTON, J. M. and HOLLOWAY, B. W. Chromosome mapping in <i>Pseudomonas aeruginosa</i>	251
BERLYN, MARY B. and GILES, NORMAN H. Studies of aromatic biosynthetic and catabolic enzymes in <i>Ustilago maydis</i> and in mutants of <i>U. violacea</i>	261
WHITTLE, J. R. S. and CHEN-SHAN, L. Cortical morphogenesis in <i>Paramecium aurelia</i> : mutants affecting cell shape	271
MOORE, DAVID. Genetic fine structure, site clustering and marker effect in the <i>ftt</i> cistron of <i>Coprinus</i>	281

*Contents*

v

JASPER, PAULA, WHITNEY, ELEANOR and SILVER, SIMON. Genetic locus determining resistance to phage BF23 and colicins E <sub>1</sub> , E <sub>2</sub> and E <sub>3</sub> in <i>Escherichia coli</i>	page 305
SHORT PAPER	
TOURÉ, B. and PICARD M. Consequences of double cross-over detections on the functional interpretation of segment '29' in <i>Podospora anserina</i>	313
BOOKS RECEIVED	321
INDEX	322

# GENETICAL RESEARCH

VOLUME 19, NUMBER 3, JUNE 1972

## CONTENTS

WEIJER, J. and VIGFUSSON, N. V. Sexuality in <i>Neurospora crassa</i> . I. Mutations to male sterility	page 191
VIGFUSSON, N. V. and WEIJER, J. Sexuality in <i>Neurospora crassa</i> . II. Genes affecting the sexual development cycle	205
CATTANACH, B. M., WOLFE, H. G. and LYON, M. F. A comparative study of the coats of chimaeric mice and those of heterozygotes for X-linked genes	213
CATTANACH, B. M. and WILLIAMS, C. E. Evidence of non-random X chromo- some activity in the mouse	229
DAY, T. H. and CLAYTON, R. M. Multiple changes in lens protein composition associated with the <i>Cat<sup>Pr</sup></i> gene in the mouse	241
PEMBERTON, J. M. and HOLLOWAY, B. W. Chromosome mapping in <i>Pseudomonas aeruginosa</i>	251
BERLYN, MARY B. and GILES, NORMAN H. Studies of aromatic biosynthetic and catabolic enzymes in <i>Ustilago maydis</i> and in mutants of <i>U. violacea</i>	261
WHITTLE, J. R. S. and CHEN-SHAN, L. Cortical morphogenesis in <i>Paramecium</i> <i>aurelia</i> : mutants affecting cell shape	271
MOORE, DAVID. Genetic fine structure, site clustering and marker effect in the <i>fr</i> cistron of <i>Coprinus</i>	281
JASPER, PAULA, WHITNEY, ELEANOR and SILVER, SIMON. Genetic locus determining resistance to phage BF23 and colicins E <sub>1</sub> , E <sub>2</sub> and E <sub>3</sub> in <i>Escherichia coli</i>	305
SHORT PAPER	
TOURÉ, B. and PICARD M. Consequences of double cross-over detections on the functional interpretation of segment '29' in <i>Podospora anserina</i>	313
BOOKS RECEIVED	320
INDEX	321

© Cambridge University Press, 1972

CAMBRIDGE UNIVERSITY PRESS

Bentley House, 200 Euston Road, London NW1 2DB

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

SUBSCRIPTION £6.00 net (U.S.A. \$19.50) per volume

SINGLE PARTS £2.60 net (U.S.A. \$8.00)

Printed in Great Britain at the University Printing House, Cambridge