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**Publications of the NASA Space
Biology Program for 1980-1984**

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Publications of the NASA Space Biology Program for 1980–1984

Compiled by
Linda G. Pleasant and Judy L. Solberg
The George Washington University
Washington, D.C.

With an Introduction by
Thora W. Halstead
NASA Office of Space Science and Applications
Washington, D.C.



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PREFACE

The Space Biology Program, within the Office of Space Science and Applications of the National Aeronautics and Space Administration, was established to use the unique characteristics of the space environment to advance knowledge in the biological sciences (see Introduction for a detailed description of the Space Biology Program).

The intent in compiling this bibliography is twofold, first, to provide the scientific community with a listing of publications resulting from research pursued under the auspices of NASA's Space Biology Program, and secondly, to stimulate the exchange of information and ideas among scientists working in the different areas of the program. To facilitate this exchange process, we have identified Space Biology Program research principal investigators by asterisks. A listing of principal investigators and their affiliations can be found starting on page 97.

References are arranged by year under the headings "Plant Gravitational Research," "Animal Gravitational Research," and "General." Keyword title indexes appear on pages 85-93. This bibliography listing only includes references identified and entered into the Life Sciences Bibliography Data Base (housed at The George Washington University) as of August 15, 1984.

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INTRODUCTION

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THE NASA SPACE BIOLOGY PROGRAM

Thora W. Halstead
Life Sciences Division
Office of Space Science and Applications
National Aeronautics and Space Administration
Washington, DC 20546

Introduction

One of the major features of the physical environment on the surface of Earth is the constant presence of the force of gravity. Terrestrial gravity has important biological consequences for organisms living on Earth. The phenomenon of weightlessness which is encountered on spacecraft provides an excellent biological research opportunity, both because of its uniqueness to space and because of the importance of gravity to life on Earth. Access to space provides an opportunity to manipulate gravity from its norm of one down to almost zero, effectively providing the full spectrum of gravitational research capability for the first time. This capability, combined with the stability and pervasiveness of gravity on Earth, its obvious impact on biological evolution, and its continuing effect on the morphology, physiology, and behavior of living organisms, has led the Space Biology Program to concentrate its efforts and resources on investigating the biological significance of gravity.

Program Goals

The goals of the Space Biology Program are to: use the unique characteristics of the space environment, particularly microgravity, as a tool to advance knowledge in the biological sciences; understand how gravity has shaped and affected life on Earth; and understand how the space environment affects both plant and animal species, thereby enhancing our capability to use and explore space.

Program Scope

Research in the Space Biology Program is divided into three broad areas:

1. Gravity perception. The objectives are to identify gravity receptors in organisms sensitive to gravity and determine their structure and function, and to elucidate the mechanisms by which gravitational stimuli are perceived and transmitted to a responsive site.
2. Developmental biology. The objectives are to determine the effects of gravity, and especially weightlessness, as provided by spaceflight, on the genetic integrity,

cellular differentiation, reproduction, development, growth, maturation, and senescence of living systems; and to examine the evolutionary importance of gravity as a determinant of the form and function of terrestrial life.

3. Biological adaptation. This area includes the use of gravity's physiological effects to explore biological problems; and achievement of an understanding of how gravity affects and controls the physiology, morphology, and behavior of organisms, of how gravity and other environmental stimuli and stresses interact in this control, and of the biological mechanism by which living systems respond and adapt to altered gravity, particularly that of the space environment.

Research Opportunities

With the proven feasibility of the Space Shuttle, we now have a new capability of performing biological experiments in space. The opportunity has arrived to use the locker space within the Shuttle orbiter on a continuing space available basis. This will provide a valuable augmentation to the ongoing ground-based research program.

Spaceflight will provide the validation for many experimental hypotheses developed in ground-based research, while gravitational experiments on Earth will continue to hone the questions, provide the necessary baseline data, and develop spaceflight experimental protocol.

The experimental approach of the ground-based studies in the Space Biology Program is to manipulate gravity on Earth and develop weightless simulation models to: (1) develop and test gravitational hypotheses, (2) identify gravity-sensitive biological systems and interacting environmental response mechanisms, (3) analyze biological systems and mechanisms known to be gravity-sensitive, (4) analyze flight experiment data and iteratively expand ground research capability, and (5) plan and design future space experiments. In addition, research is conducted to understand how the uncontrollable biodynamic factors of the spacecraft will affect the results of the various flight experiments.

Focus of Program

The research focus of the Space Biology program is dependent upon several dynamic factors: the requirements of NASA, the characteristics of flight experiment opportunities, the sensitivity of specific biological systems to gravity, the scientific value of the research, the state of knowledge and technology in the specific scientific areas, the interest of scientists in studying the biological questions, and the

availability of funds to support the research.

Within the scope of the Space Biology Program, the current Program is focused on answering the following basic scientific questions:

1. What are the components of the gravity-sensing mechanisms of plants and animals? How do they perceive information? How is the information transmitted to evoke responses?
2. Does gravity influence fertilization and development of plants and animals, and can fertilization and development proceed normally in a near zero gravity environment? If gravity does affect fertilization and development, what are the sensitive physiological systems and how are they affected? If early development is affected by gravity, is it a result of an effect on the parent or a direct effect on the embryo itself?
3. What is the role of gravity in the formation of structural elements such as lignin, cellulose, silica, chitin, and bone calcium phosphates at the molecular level as well as at more complex organizational levels?
4. What role does gravity play in calcium-mediated physiological mechanisms and in calcium metabolism?
5. How does gravity as an environmental factor interact with other environmental factors to control the physiology, morphology, and behavior of organisms? Or, how do gravitational and other environmental stimuli interact in the control and direction of living forms? Can the action of gravity be replaced by different stimuli?

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PLANT GRAVITATIONAL RESEARCH

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PLANT GRAVITATIONAL RESEARCH

1984

1. BANDURSKI*, R.S.; SCHULZE, A.
DISTRIBUTION OF FREE PLUS ESTER INDOLE-3-ACETIC ACID
IN THE MESOCOTYL CORTEX OF GEO-STIMULATED ZEА MAYS
(ABSTRACT).
PLANT PHYSIOLOGY
75(1, SUPPL.): 178, 1984.
2. BIRO, R.L.; DAYE, S.; SERLIN, B.S.; TERRY, M.E.; DATTA,
N.; SOPORY, S.K.; ROUX*, S.J.
CHARACTERIZATION OF OAT CALMODULIN AND
RADIOIMMUNOASSAY OF ITS SUBCELLULAR DISTRIBUTION.
PLANT PHYSIOLOGY
75(2): 382-386, 1984.
3. BROWN*, A.H.; CHAPMAN, D.K.
CIRCUMNUTATION OBSERVED WITHOUT A SIGNIFICANT
GRAVITATIONAL FORCE IN SPACEFLIGHT.
SCIENCE
225: 230-232, 1984.
4. BROWN*, A.H.; CHAPMAN, D.K.
SPACEFLIGHT SHOWS CIRCUMNUTATION WITHOUT SIGNIFICANT
G-FORCE (ABSTRACT).
PLANT PHYSIOLOGY
75(1, SUPPL.): 179, 1984.
5. COSGROVE*, D.
MEASURING WALL EXTENSIBILITY BY IN VIVO STRESS
RELAXATION (ABSTRACT).
PLANT PHYSIOLOGY
75(1, SUPPL.): 62, 1984.
6. CRONAUER, S.S.; KRIKORIAN*, A.D.
MULTIPLICATION OF MUSA FROM EXCISED STEM TIPS.
ANNALS OF BOTANY
53: 321-328, 1984.
7. CRONAUER, S.S.; KRIKORIAN*, A.D.
RESPONSE LEVELS OF MUSA TO VARIOUS ASEPTIC CULTURE
TECHNIQUES (ABSTRACT).
PLANT PHYSIOLOGY
75(1, SUPPL.): 14, 1984.
8. DATTA, N.; SILBERMAN, L.G.; ROUX*, S.J.
DIFFERENTIAL REACTIVITY OF MONOCLONAL ANTIBODIES
WITH TRYPTIC PEPTIDES OF PHYTOCHROME (ABSTRACT).
PLANT PHYSIOLOGY
75(1, SUPPL.): 91, 1984.

9. DAYANANDAN, P.; KAUFMAN*, P.B.
ANALYSIS AND SIGNIFICANCE OF GRAVITY-INDUCED
ASYMMETRIC GROWTH IN THE GRASS LEAF-SHEATH PULVINUS.
ANNALS OF BOTANY
53: 29-44, 1984.
10. EDWARDS*, K.L.
ASYMMETRIC CALCIUM AND AUXIN IN ROOT GRAVITROPISM
(ABSTRACT).
PLANT PHYSIOLOGY
75(1, SUPPL.): 179, 1984.
11. EVANS*, M.; LEE, J.
RELATIONSHIP OF CALCIUM ASYMMETRY TO AUXIN MOVEMENT
IN ROOTS OF MAIZE (ABSTRACT).
PLANT PHYSIOLOGY
75(1, SUPPL.): 177, 1984.
12. FELDMAN*, L.J.
REGULATION OF ROOT DEVELOPMENT.
ANNUAL REVIEW OF PLANT PHYSIOLOGY
35: 223-242, 1984.
13. FELDMAN*, L.J.; ARROYAVE, N.J.
LIGHT-STIMULATED DISAPPEARANCE OF THE CAROTENOID
VIOLAXANTHIN IN THE ROOT CAP OF GRAVISTIMULATED
ROOTS OF CORN (ABSTRACT).
PLANT PHYSIOLOGY
75(1, SUPPL.): 179, 1984.
14. FELDMAN*, L.J.; GILDOW, V.
EFFECTS OF LIGHT ON PROTEIN PATTERNS IN
GRAVITROPICALLY STIMULATED ROOT CAPS OF CORN.
PLANT PHYSIOLOGY
74: 208-212, 1984.
15. HARRISON, M.; PICKARD*, B.G.
BURST OF ETHYLENE UPON HORIZONTAL PLACEMENT OF
TOMATO SEEDLINGS (ABSTRACT).
PLANT PHYSIOLOGY
75(1, SUPPL.): 87, 1984.
16. HASENSTEIN, K.-H.; RAYLE*, D.
THE EFFECT OF Ca^{++} ON AUXIN TRANSPORT AND SHOOT
GRAVITROPISM (ABSTRACT).
PLANT PHYSIOLOGY
75(1, SUPPL.): 105, 1984.
17. HOSHIZAKI*, T.
SIMULATED MICROGRAVITY EFFECTS ON REPRODUCTION OF
ARABIDOPSIS GROWN FOR THREE GENERATIONS ON
CLINOSTATS (ABSTRACT).

PLANT PHYSIOLOGY
75(1, SUPPL.): 179, 1984.

18. JAFFE*, M.J.; LEOPOLD*, A.C.
CALLOSE DEPOSITION DURING GRAVITROPISM OF ZEA MAYS
AND PISUM SATIVUM AND ITS INHIBITION BY
2-DEOXY-D-GLUCOSE.
PLANTA
161: 20-26, 1984.
19. KAUFMAN*, P.; SONG, I.; THOMPSON, P.; HSIEH, M.;
GHOSHEH, N.
EFFECTS OF STARCH-STATOLITH REMOVAL BY α -AMYLASE ON
THE NEGATIVE GRAVITROPIC RESPONSE OF BARLEY (HORDEUM
VULGARE) PULVINI (ABSTRACT).
PLANT PHYSIOLOGY
75(1, SUPPL.): 178, 1984.
20. KOMOSZYNSKI, M.A.; BANDURSKI*, R.S.
METABOLISM OF [³H]-5-INDOLE-3-ACETYL-MYO-INOSITOL-
[¹⁴C]-U- GALACTOSE BY SEEDLINGS OF ZEA MAYS
(ABSTRACT).
PLANT PHYSIOLOGY
75(1, SUPPL.): 108, 1984.
21. KRIKORIAN*, A.D.
DAYLILY AS AN EXPERIMENTAL SYSTEM FOR GRAVIMORPHO-
GENESIS STUDIES (ABSTRACT).
PLANT PHYSIOLOGY
75(1, SUPPL.): 179, 1984.
22. LEE, J.; EVANS*, M.
PHOTO-DEPENDENCE OF THE INDUCTION OF POLAR CALCIUM
TRANSPORT ACROSS CAPS OF GRAVISTIMULATED MAIZE ROOTS
(ABSTRACT).
PLANT PHYSIOLOGY
75(1, SUPPL.): 177, 1984.
23. LEMAY, R.; COWLES*, J.R.
LIGHT ENHANCEMENT OF LIGNIFICATION IN YOUNG PINE
SEEDLINGS (ABSTRACT).
PLANT PHYSIOLOGY
75(1, SUPPL.): 89, 1984.
24. MCFADDEN, J.; EVANS*, M.
EFFECT OF THE METHYLATION INHIBITOR,
3-DEAZA-ADENOSINE (DAA), ON GRAVITROPISM, CALCIUM
UPTAKE, AND ETHYLENE BIOSYNTHESIS IN ROOTS OF MAIZE
(ABSTRACT).
PLANT PHYSIOLOGY
75(1, SUPPL.): 21, 1984.
25. MIGLIACCIO, F.; RAYLE*, D.L.

SEQUENCE OF KEY EVENTS IN SHOOT GRAVITROPISM.
PLANT PHYSIOLOGY
75: 78-81, 1984.

26. MOMONOKI, Y.S.; BANDURSKI*, R.S.
EFFECT OF ENDOSPERM REMOVAL ON 7 NORMAL NAOH-LABILE
INDOLE-3-ACETIC ACID CONJUGATES IN SHOOTS AND ROOTS
OF ZEA MAYS SEEDLINGS.
PLANT PHYSIOLOGY
75: 67-69, 1984.
27. MOMONOKI, Y.S.; BANDURSKI*, R.S.
INDUCTION BY GRAVITY OF AN ASYMMETRIC DISTRIBUTION
OF [¹⁴C]-GLUCOSE AND [³H]-IAA-MYO-INOSITOL IN THE
MESOCOTYL OF ZEA MAYS (ABSTRACT).
PLANT PHYSIOLOGY
75(1, SUPPL.): 178, 1984.
28. MULKEY, T.J. (PI = M. EVANS)
COMPARISON OF THE KINETICS OF CALCIUM-INDUCED AND
GRAVITY-INDUCED CURVATURE OF MAIZE ROOTS (ABSTRACT).
PLANT PHYSIOLOGY
75(1, SUPPL.): 178, 1984.
29. NELSON, A.; EVANS*, M.
COMPUTER-BASED VIDEO DIGITIZER ANALYSIS OF
DIFFERENTIAL GROWTH IN GRAVI-RESPONDING ROOTS
(ABSTRACT).
PLANT PHYSIOLOGY
75(1, SUPPL.): 22, 1984.
30. NONHEBEL, H.M.; BANDURSKI*, R.S.
OXIDATION OF [³H]-OXINDOLE-3-ACETIC ACID IN
SEEDLINGS OF ZEA MAYS L. (ABSTRACT).
PLANT PHYSIOLOGY
75(1, SUPPL.): 108, 1984.
31. OLSON, J.; JACOBS*, W.P.
E.M. STUDY OF ORGANELLE DISTRIBUTION UNDER GRAVITY
IN THE GIANT CELL OF CAULERPA (ABSTRACT).
PLANT PHYSIOLOGY
75(1, SUPPL.): 85, 1984.
32. O'NEILL, R.A.; KAUFMAN*, P.B.; SONG, I.; WEINSTEIN, P.;
THOMPSON, P.R.; HSIEH, M.L.
CHANGES IN PROTEIN CONTENT AND ENZYME ACTIVITIES
ACCOMPANYING THE GRAVITROPIC CURVATURE RESPONSE IN
OAT (AVENA SATIVA) LEAF-SHEATH PULVINI (ABSTRACT).
PLANT PHYSIOLOGY
75(1, SUPPL.): 83, 1984.
33. PAPPAS, T.; MITCHELL*, C.A.
SIEMIC STRESS INHIBITION OF PHOTOSYNTHETIC

- PRODUCTIVITY AND LEAF GAS EXCHANGE IN GLYCINE MAX
(L.) MERR. CV. WELLS II (ABSTRACT).
PLANT PHYSIOLOGY
75(1, SUPPL.): 179, 1984.
34. PICKARD*, B.G.
VOLTAGE TRANSIENTS ELICITED BY SUDDEN STEP-UP OF
AUXIN.
PLANT, CELL AND ENVIRONMENT
7: 171-178, 1984.
35. REINECKE, D.M.; BANDURSKI*, R.S.
OXIDATION OF INDOLE-3-ACETIC ACID TO
OXINDOLE-3-ACETIC ACID BY AN ENZYME PREPARATION FROM
ZEA MAYS SEEDLINGS (ABSTRACT).
PLANT PHYSIOLOGY
75(1, SUPPL.): 108, 1984.
36. RIEHL, T.E.; JAFFE*, M.J.
PHYSIOLOGICAL STUDIES ON PEA TENDRILS. XIV. EFFECTS
OF MECHANICAL PERTURBATION, LIGHT, AND
2-DEOXY-D-GLUCOSE ON CALLOSE DEPOSITION AND TENDRIL
COILING.
PLANT PHYSIOLOGY
75: 679-687, 1984.
37. RORABAUGH, P.A.; SALISBURY*, F.
IS GRAVITROPIC BENDING IN DICOT STEMS MEDIATED BY A
CHANGE IN TISSUE SENSITIVITY? (ABSTRACT).
PLANT PHYSIOLOGY
75(1, SUPPL.): 104, 1984.
38. ROUX*, S.J.
CA²⁺ AND PHYTOCHROME ACTION IN PLANTS.
BIOSCIENCE
34(1): 25-29, 1984.
39. SACK, F.D.; SUYEMOTO, M.M.; LEOPOLD*, A.C.
AMYLOPLAST SEDIMENTATION KINETICS AND
GRAVIPERCEPTION IN CORN ROOTS (ABSTRACT).
PLANT PHYSIOLOGY
75(1, SUPPL.): 86, 1984.
40. SALISBURY*, F.B.; HILSCHER, H.; GILLESPIE, L.
THE MECHANICS OF GRAVITROPIC BENDING IN DICOT STEMS
(ABSTRACT).
PLANT PHYSIOLOGY
75(1, SUPPL.): 179, 1984.
41. SERLIN, B.; ROUX*, S.J.
INDUCTION OF CHLOROPLAST ROTATION IN NON-IRRADIATED
MOUGEOTIA WITH POSITION-DEPENDENT APPLICATION OF
A23187 TO SINGLE CELLS (ABSTRACT).

PLANT PHYSIOLOGY
75(1, SUPPL.): 90, 1984.

42. SERLIN, B.S.; SOPORY, S.K.; ROUX*, S.J.
MODULATION OF OAT MITOCHONDRIAL ATPase ACTIVITY BY
CA²⁺ AND PHYTOCHROME.
PLANT PHYSIOLOGY
74: 827-833, 1984.
43. SONG, I.; KAUFMAN*, P.; HSIEH, M.; THOMPSON, P.;
GHOSHEH, N.
EFFECTS OF THE GROWTH RETARDANT, ANCYMIDOL, ON
GA₃-PROMOTED GROWTH AND PROTEIN SYNTHESIS IN OAT
STEM SEGMENTS (ABSTRACT).
PLANT PHYSIOLOGY
75(1, SUPPL.): 186, 1984.
44. SONG, I.; KAUFMAN*, P.B.; O'NEILL, R.A.; HSIEH, M.L.;
THOMPSON, P.R.; GHOSHEH, N.
CHANGES IN PROTEIN PATTERNS DURING THE COURSE OF
GRAVITROPIC CURVATURE RESPONSE IN BARLEY (HORDEUM
VULGARE) LEAF-SHEATH PULVINI (ABSTRACT).
PLANT PHYSIOLOGY
75(1, SUPPL.): 177, 1984.
45. WHALEN, M.C.; FELDMAN*, L.J.
THE EFFECT OF ETHYLENE ON ROOT DEVELOPMENT IN CORN
(ABSTRACT).
PLANT PHYSIOLOGY
75(1, SUPPL.): 126, 1984.
46. WHITE, R.; SALISBURY*, F.
DOES ORIENTATION OF CELLULOSE MICROFIBRILS CHANGE IN
CELL WALLS OF GRAVISTIMULATED DICOT STEMS?
(ABSTRACT).
PLANT PHYSIOLOGY
75(1, SUPPL.): 103, 1984.
47. WOODDELL, W.; EVANS*, M.
COMPARATIVE ACID AND AUXIN DOSE/RESPONSE
RELATIONSHIPS IN ZUCCHINI HYPOCOTYLS (ABSTRACT).
PLANT PHYSIOLOGY
75(1, SUPPL.): 109, 1984.

1983

48. BANDURSKI*, R.S.
MOBILIZATION OF SEED INDOLE-3-ACETIC ACID RESERVES DURING GERMINATION.
IN: MOBILIZATION OF RESERVES IN GERMINATION (NOZZOLILLO, C.; LEA, P.J.; LOEWUS, F.A.; EDS.).
NEW YORK: PLENUM PRESS, P. 213-228, 1983 (RECENT ADVANCES IN PHYTOCHEMISTRY, VOL. 17)
49. BANDURSKI*, R.S.; SCHULZE, A.
GRAVITATIONAL EFFECTS ON PLANT GROWTH HORMONE CONCENTRATION.
ADVANCES IN SPACE RESEARCH
3(9): 229-235, 1983.
50. BANDURSKI*, R.S.; SCHULZE, A.; DAYANANDAN, P.; KAUFMAN*, P.B.
ASYMMETRIC DISTRIBUTION OF ENDOGENOUS INDOLE-3-ACETIC ACID IN ZEA MESOCOTYL CORTEX FOLLOWING GRAVISTIMULATION (ABSTRACT).
PLANT PHYSIOLOGY
72(1, SUPPL.): 146, 1983.
51. BANDURSKI*, R.S.; SCHULZE, A.; DAYANANDAN, P.; KAUFMAN*, P.B.
RESPONSE TO GRAVITY BY ZEA MAYS SEEDLINGS. 1. TIME COURSE OF THE RESPONSE.
PLANT PHYSIOLOGY
74: 284-288, 1983.
52. BEYL, C.A.; MITCHELL*, C.A.
ALTERATION OF GROWTH, EXUDATION RATE, AND ENDOGENOUS HORMONE PROFILES IN MECHANICALLY DWARFED SUNFLOWER.
JOURNAL OF THE AMERICAN SOCIETY FOR HORTICULTURAL SCIENCE
108(2): 259-262, 1983.
53. BIRO, R.L.; ROUX*, S.J.
QUANTIFICATION OF CALMODULIN IN ISOLATED ORGANELLES FROM OAT BY RADIOIMMUNOASSAY AND ANALYSIS OF CHLORPROMAZINE BINDING TO CALMODULIN IN VIVO (ABSTRACT).
PLANT PHYSIOLOGY
72(1, SUPPL.): 66, 1983.
54. BRITZ, S.J.; GALSTON*, A.W.
PHYSIOLOGY OF MOVEMENTS IN THE STEMS OF SEEDLING PISUM SATIVUM L. CV ALASKA. III. PHOTOTROPISM IN RELATION TO GRAVITROPISM, NUTATION, AND GROWTH.
PLANT PHYSIOLOGY
71: 313-318, 1983.
55. BROWN*, A.H.
RESISTANCE OF MATURE ARABIDOPSIS PLANTS TO MECHANICAL DEFORMATION IN RELATION TO G-FORCE DURING DEVELOPMENT.
PHYSIOLOGIST
26(6): S149-S150, 1983.

56. BROWN*, A.H.
 THE SIGNIFICANCE OF GRAVITY ON BIOLOGICAL SYSTEMS.
 IN: PROCEEDINGS OF A WORKSHOP ON SPACE BIOLOGY, COLOGNE, GERMANY, MARCH 9-11, 1983.
 PARIS, FRANCE: EUROPEAN SPACE AGENCY, P. 3-9, 1983.
 (ESA SP-206)
57. BROWN*, A.H.; CHAPMAN, D.K.
 USE OF SIMULATED HYPOGRAVITY TO TEST A MODEL FOR CIRCUMNUTATION (ABSTRACT).
PLANT PHYSIOLOGY
 72(1, SUPPL.): 64, 1983.
58. CHISNELL, J.R.; BANDURSKI*, R.S.
 TRANSLOCATION OF [5-³H]IAA AND [5-³H]IAA-MYO-INOSITOL FROM THE ENDOSPERM TO THE SHOOT OF DARK-GROWN ZEA MAYS L. SEEDLINGS (ABSTRACT).
PLANT PHYSIOLOGY
 72, (1, SUPPL.): 27, 1983.
59. COSGROVE*, D.J.
 PHOTOCONTROL OF EXTENSION GROWTH: A BIOPHYSICAL APPROACH. PHILOSOPHICAL TRANSACTIONS OF THE ROYAL SOCIETY, LONDON, SERIES B 303: 453-465, 1983.
60. COWLES*, J.R.; SCHELD, H.W.; PETERSON, C.; LEMAY, R.
 PLANT GROWTH AND DEVELOPMENT IN NEAR WEIGHTLESSNESS (ABSTRACT).
PLANT PHYSIOLOGY
 72(1, SUPPL.): 97, 1983.
61. DAYANANDAN, P.; KAUFMAN*, P.B.
 EVIDENCE FOR A RADIAL, CENTRIFUGAL TRANSPORT OF GROWTH-PROMOTORS IN THE LEAF-SHEATH PULVINI OF GRASSES (ABSTRACT).
PLANT PHYSIOLOGY
 72(1, SUPPL.): 146, 1983.
62. DUMORTIER, F.M.; FLORES, H.E.; SHEKHAWAT, N.S.; GALSTON*, A.W.
 GRADIENTS OF POLYAMINES AND THEIR BIOSYNTHETIC ENZYMES IN COLEOPTILES AND ROOTS OF CORN.
PLANT PHYSIOLOGY
 72: 915-918, 1983.
63. DUMORTIER, F.M.; FLORES, H.E.; SHEKAWAT, N.S.; GALSTON*, A.W.
 REVERSE POLYAMINE GRADIENTS IN ETIOLATED PEA AND CORN SEEDLINGS (ABSTRACT).
PLANT PHYSIOLOGY
 72(1, SUPPL.): 110, 1983.
64. EDWARDS*, K.L.
 IMPLICATIONS FOR IAA IN GRAVITROPISM CONTROL OF CORN ROOTS

(ABSTRACT).
PLANT PHYSIOLOGY
72(1, SUPPL.): 145, 1983.

65. ERNER, Y.; JAFFE*, M.J.
THIGMOMORPHOGENESIS: MEMBRANE LIPID AND PROTEIN CHANGES IN
BEAN PLANTS AS AFFECTED BY MECHANICAL PERTURBATION AND
ETHREL.
PHYSIOLOGIA PLANTARUM
58: 197-203, 1983.
66. EVANS*, M.
THE MECHANISM OF ACTION OF AUXIN IN THE PROMOTION OF CELL
ELONGATION.
IN: ASPECTS OF PHYSIOLOGY AND BIO-CHEMISTRY OF PLANT HORMONES
(PUROHIT, S.S.; ED.).
LUDHIANA, INDIA: KALYANI PUBLISHERS, P. 69-92, 1983.
67. EVANS*, M.; LEE, J.; MULKEY, T.
GRAVITY-INDUCED POLAR TRANSPORT OF CALCIUM ACROSS ROOT TIPS
OF MAIZE (ABSTRACT).
PLANT PHYSIOLOGY
72(1, SUPPL.): 63, 1983.
68. FELDMAN*, L.J.
LIGHT-ENHANCED PROTEIN SYNTHESIS IN GRAVITROPICALLY
STIMULATED ROOT CAPS OF CORN (ABSTRACT).
PLANT PHYSIOLOGY
72(1, SUPPL.): 30, 1983.
69. FELDMAN*, L.J.
LIGHT-ENHANCED PROTEIN SYNTHESIS IN GRAVITROPICALLY
STIMULATED ROOT CAPS OF CORN.
PLANT PHYSIOLOGY
72: 833-836, 1983.
70. FITTER, M.S.; KRİKORIAN*, A.D.
GENERATION OF DAYLILY PLANTLETS FROM CELLS GROWN IN
SUSPENSION (ABSTRACT).
IN: GENETIC ENGINEERING: APPLICATIONS TO AGRICULTURE (OWENS,
L.D.; ED.).
TOTOWA, NJ: ROWMAN & ALLANHELD, P. 5, 1983. (BELTSVILLE
SYMPOSIUM ON AGRICULTURAL RESEARCH, VOL. 7)
71. FITTER, M.S.; KRİKORIAN*, A.D.
PLANT PROTOPLASTS.
SAN DIEGO, CA: CALBIOCHEM-BEHRING, AMERICAN HOECHST CORP., 28
P., 1983. (DOC. NO. 8134-1083)
72. FLORES, H.E.; GALSTON*, A.W.
OSMOTIC STRESS-INDUCED POLYAMINE ACCUMULATION (ABSTRACT).
PLANT PHYSIOLOGY
72(1, SUPPL.): 106, 1983.

73. GALSTON*, A.W.
LEAFLET MOVEMENTS IN SAManea.
IN: THE BIOLOGY OF PHOTORECEPTION (COSENS, D.J.;
VINCE-PRICE, D.; EDS.).
GREAT BRITAIN: SOCIETY FOR EXPERIMENTAL BIOLOGY, P. 541-559,
1983. (SOCIETY FOR EXPERIMENTAL BIOLOGY SYMPOSIUM 36)
74. GALSTON*, A.W.
POLYAMINES AS MODULATORS OF PLANT DEVELOPMENT.
BIOSCIENCE
33: 382-388, 1983.
75. GALSTON*, A.W.; FLORES, H.E.; YOUNG, N.D.
PUTRESCINE FORMATION BY ARGININE DECARBOXYLASE: A STRESS
RESPONSE IN CEREAL LEAVES (ABSTRACT).
PLANT PHYSIOLOGY
72(1, SUPPL.): 105, 1983.
76. GAYNOR, J.J.; GALSTON*, A.W.
PURIFICATION AND CHARACTERIZATION OF AMYLOPLASTS FROM
ETIOLATED EPICOTYLS OF PISUM SATIVUM.
PLANT AND CELL PHYSIOLOGY
24: 411-421, 1983.
77. HALSTEAD*, T.W.
GROWTH OF PLANTS IN EARTH ORBIT (ABSTRACT).
PLANT PHYSIOLOGY
72(1, SUPPL.): 64, 1983.
78. HARRIS, C.S.; SALISBURY*, F.B.
PLANT RESPONSES TO CLINOSTATING AND MECHANICAL STRESS: GROWTH
AND FLOWERING RESPONSES (ABSTRACT).
PLANT PHYSIOLOGY
72(1, SUPPL.): 63, 1983.
79. HARRISON, M.A.; KAUFMAN*, P.B.
ESTIMATES OF FREE AND BOUND INDOLE-3-ACETIC ACID AND ZEATIN
LEVELS IN RELATION TO REGULATION OF APICAL DOMINANCE AND
TILLER RELEASE IN OAT SHOOTS.
JOURNAL OF PLANT GROWTH REGULATION
2: 215-223, 1983.
80. HASENSTEIN, K.-H.; RAYLE*, D.
CELL WALL PH AND AUXIN TRANSPORT VELOCITY (ABSTRACT).
PLANT PHYSIOLOGY
72(1, SUPPL.): 145, 1983.
81. HAYES*, A.B.
AUXIN TRANSPORT INHIBITORS AND ETHYLENE IN PINTO BEAN LEAF
EPINASTY (ABSTRACT).
PLANT PHYSIOLOGY
72(1, SUPPL.): 106, 1983.

82. HEUCHERT, J.C.; MARKS, J.S.; MITCHELL*, C.A.
STRENGTHENING OF TOMATO SHOOTS BY GYRATORY SHAKING.
JOURNAL OF THE AMERICAN SOCIETY FOR HORTICULTURAL SCIENCE
108: 801-805, 1983.
83. HEUCHERT, J.C.; MITCHELL*, C.A.
INHIBITION OF SHOOT GROWTH IN GREENHOUSE-GROWN TOMATO BY
PERIODIC GYRATORY SHAKING.
JOURNAL OF THE AMERICAN SOCIETY FOR HORTICULTURAL SCIENCE
108: 795-800, 1983.
84. HOSHIZAKI*, T.
CLINOSTAT EFFECTS ON SHOOT AND ROOT OF ARABIDOPSIS.
PHYSIOLOGIST
26(6): S151-S152, 1983.
85. HOSHIZAKI*, T.
SEED TO SEED GROWTH OF ARABIDOPSIS ON A CLINOSTAT (ABSTRACT).
PLANT PHYSIOLOGY
72(1, SUPPL.): 62, 1983.
86. JACOBS*, W.P.; DAVIS, W.
EFFECTS OF GIBBERELIC ACID ON THE RHIZOME AND RHIZOIDS OF
THE ALGAL COENOCYTE, CAULERPA PROLIFERA, IN CULTURE.
ANNALS OF BOTANY
52: 39-41, 1983.
87. JACOBS*, W.P.; MATILSKY, M.B.
EVIDENCE THAT SEDIMENTING AMYLOPLASTS CONTROL
GRAVIMORPHOGENESIS IN AN ALGAL GIANT COENOCYTE (ABSTRACT).
PLANT PHYSIOLOGY
72(1, SUPPL.): 107, 1983.
88. KAUFMAN*, P.B.
GRAVITROPIC RESPONSES IN THE GRASS PULVINUS: MODEL SYSTEM
FOR ASYMMETRIC GROWTH.
IN: THE REGULATORY FUNCTIONS OF CALCIUM AND THE POTENTIAL
ROLE OF CALCIUM IN MEDIATING GRAVITATIONAL RESPONSES IN CELLS
AND TISSUES (ROUX, S.J.; ED.).
WASHINGTON, DC: NASA, P. 97-110, 1983. (NASA CP-2286)
89. KAUFMAN*, P.B.
PHYSIOLOGY AND BIOCHEMISTRY OF GIBBERELLINS IN DEVELOPING
SHOOTS OF GRASSES.
IN: ASPECTS OF PHYSIOLOGY AND BIO-CHEMISTRY OF PLANT HORMONES
(PUROHIT, S.S., ED.).
LUDHIANA, INDIA: KALYANI PUBLISHERS, P. 125-137, 1983.
90. KRIKORIAN*, A.D.
ASEPTIC CULTURE SYSTEMS FOR EXPERIMENTATION IN SPACE
(ABSTRACT).
PLANT PHYSIOLOGY

72(1, SUPPL.): 64, 1983.

91. KRIKORIAN*, A.D.
DEVELOPING HIGHER PLANT SYSTEMS IN SPACE.
IN: THE REGULATORY FUNCTIONS OF CALCIUM AND THE POTENTIAL
ROLE OF CALCIUM IN MEDIATING GRAVITATIONAL RESPONSES IN CELLS
AND TISSUES (ROUX, S.J., ED.).
WASHINGTON, D.C.: NASA, P. 83-96, 1983. (NASA CP-2286).
92. LEE, J.; KUZMANOFF, K.; MULKEY, T.; EVANS*, M.
VIDEO DIGITIZER ANALYSIS OF CHANGES IN RELATIVE GROWTH RATE
PATTERNS IN GRAVIRESPONDING ROOTS (ABSTRACT).
PLANT PHYSIOLOGY
72(1, SUPPL.): 90, 1983.
93. LEE, J.S.; MULKEY, T.J.; EVANS*, M.L.
REVERSIBLE LOSS OF GRAVITROPIC SENSITIVITY IN MAIZE ROOTS
AFTER TIP APPLICATION OF CALCIUM CHELATORS.
SCIENCE
220: 1375-1376, 1983.
94. LEE, J.S.; MULKEY, T.J.; EVANS*, M.L.
GRAVITY-INDUCED POLAR TRANSPORT OF CALCIUM ACROSS ROOT TIPS
OF MAIZE.
PLANT PHYSIOLOGY
73: 874-876, 1983.
95. MATILSKY, M.B.; JACOBS*, W.P.
REGENERATION IN THE COENOCYTTIC MARINE ALGA, CAULERPA, WITH
RESPECT TO GRAVITY.
AMERICAN JOURNAL OF BOTANY
70(4): 635-638, 1983.
96. MIGLIACCIO, F.; RAYLE*, D.
RELATIONSHIP BETWEEN H⁺ EFFLUX, AUXIN REDISTRIBUTION, AND
SHOOT GRAVITROPISM (ABSTRACT).
PLANT PHYSIOLOGY
72(1, SUPPL.): 90, 1983.
97. MOMONOKI, Y.S.; BANDURSKI*, R.S.
THE EFFECT OF DESEEDING ON AMIDE IAA IN MAIZE SEEDLINGS
(ABSTRACT).
PLANT PHYSIOLOGY
72(1, SUPPL.): 115, 1983.
98. MOMONOKI, Y.S.; SCHULZE, A.; BANDURSKI*, R.S.
EFFECT OF DESEEDING ON THE INDOLE-3-ACETIC ACID CONTENT OF
SHOOTS AND ROOTS OF ZEA MAYS SEEDLINGS.
PLANT PHYSIOLOGY
72: 526-529, 1983.
99. MUELLER, W.J.; SALISBURY*, F.B.
DIMENSIONAL CHANGES OF XANTHIUM STRUMARIUM L. (COCKLEBUR)

STEMS DURING GRAVITROPIC BENDING (ABSTRACT).
PLANT PHYSIOLOGY
72(1, SUPPL.): 62, 1983.

100. MULKEY, T.J.; EVANS*, M.L.; KUZMANOFF, K.M.
THE KINETICS OF ABSCISIC ACID ACTION ON ROOT GROWTH AND
GRAVITROPISM.
PLANTA
157: 150-157, 1983.
101. MULKEY, T.J.; EVANS*, M.; LEE, J.; KUZMANOFF, K.
EFFECTS OF CALCIUM ENTRY BLOCKERS ON GROWTH AND GRAVITROPISM
OF MAIZE ROOTS (ABSTRACT).
PLANT PHYSIOLOGY
72(1, SUPPL.): 63, 1983.
102. NONHEBEL, H.M.; REINECKE, D.M. (PI = R.S. BANDURSKI)
SYNTHESIS OF HIGH SPECIFIC ACTIVITY [5-³H]- AND [1-¹⁴C]
OXINDOLE-3-ACETIC ACID (ABSTRACT).
PLANT PHYSIOLOGY
72(1, SUPPL.): 116, 1983.
103. PAPPAS, T.; MITCHELL*, C.A.
MECHANICAL STRESS REGULATION OF GROWTH, TRANSPIRATION, AND
PHOTOSYNTHETIC PRODUCTIVITY OF GLYCINE MAX MERR. C.V. WELLS
(ABSTRACT).
PLANT PHYSIOLOGY
72(1, SUPPL.): 62, 1983.
104. PENGELLY, W.L.; BANDURSKI*, R.S.
ANALYSIS OF INDOLE-3-ACETIC ACID METABOLISM IN ZEA MAYS USING
DEUTERIUM OXIDE AS A TRACER.
PLANT PHYSIOLOGY
73: 445-449, 1983.
105. PRESSMAN, E.; HUBERMAN, M.; ALONI, B.; JAFFE*, M.J.
THIGMOMORPHOGENESIS: THE EFFECT OF MECHANICAL PERTURBATION
AND ETHREL ON STEM PITHINESS IN TOMATO [LYCOPERSICON
ESCULENTUM (MILL.) PLANTS].
ANNALS OF BOTANY
52: 93-100, 1983.
106. RACUSEN, R.H.; GALSTON*, A.W.
DEVELOPMENTAL SIGNIFICANCE OF LIGHT-MEDIATED ELECTRICAL
RESPONSES IN PLANT TISSUE.
IN: ENCYCLOPEDIA OF PLANT PHYSIOLOGY: NEW SERIES, VOLUME 16
(SHROPSHIRE, W., JR.; MOHR, H., EDS.).
NEW YORK: SPRINGER-VERLAG, P. 687-703, 1983.
107. REINECKE, D.M.; BANDURSKI*, R.S.
OXINDOLE-3-ACETIC ACID, AN INDOLE-3-ACETIC ACID CATABOLITE IN
ZEA MAYS.
PLANT PHYSIOLOGY

71: 211-213, 1983.

108. RIEHL, T.E.; JAFFE*, M.J.
THE EFFECT OF LIGHT AND DARKNESS ON COILING AND CALLOSE
DEPOSITION IN MECHANICALLY PERTURBED PEA TENDRILS (ABSTRACT).
PLANT PHYSIOLOGY
72(1, SUPPL.): 63, 1983.
109. ROUX*, S.J.
EVIDENCE FOR A REGULATORY ROLE OF CALCIUM IN GRAVITOPISM.
IN: THE REGULATORY FUNCTIONS OF CALCIUM AND THE POTENTIAL
ROLE OF CALCIUM IN MEDIATING GRAVITATIONAL RESPONSES IN CELLS
AND TISSUES (ROUX, S.J.; ED.).
WASHINGTON, DC: NASA, P. 2-13, 1983. (NASA CP-2286).
110. ROUX*, S.J.
A POSSIBLE ROLE FOR Ca^{2+} IN MEDIATING PHYTOCHROME RESPONSES.
IN: THE BIOLOGY OF PHOTORECEPTION, SOCIETY FOR EXPERIMENTAL
BIOLOGY SYMPOSIUM XXXVI (COSENS, D.J.; AND VINCE-PRICE, D.;
EDS.).
GREAT BRITAIN: SOCIETY FOR EXPERIMENTAL BIOLOGY, 561-580,
1983.
111. ROUX*, S.J.
A POSSIBLE ROLE FOR CALCIUM IONS IN THE MEDIATION OF
PHYTOCHROME RESPONSES.
CURRENT TOPICS IN PLANT BIOCHEMISTRY AND PHYSIOLOGY
1: 51, 1983.
112. ROUX*, S.J.; BIRO, R.L.; HALE, C.C., II.
CALCIUM MOVEMENTS AND THE CELLULAR BASIS OF GRAVITROPISM.
ADVANCES IN SPACE RESEARCH
3(9): 221-227, 1983.
113. SACK, F.D.; LEOPOLD*, A.C.
INTERACTION OF AMYLOPLAST SEDIMENTATION AND STREAMING IN
COLEOPTILE CELLS OF CORN (ABSTRACT).
PLANT PHYSIOLOGY
72(1, SUPPL.): 89, 1983.
114. SACK, F.D.; PRIESTLEY, D.A.; LEOPOLD*, A.C.
SURFACE CHARGE ON ISOLATED MAIZE-COLEOPTILE AMYLOPLASTS.
PLANTA
157: 511-517, 1983.
115. SALISBURY*, F.B.
GROUND-BASED STUDIES ON GRAVITROPISM AND ON MAXIMUM YIELD OF
WHEAT.
IN: PROCEEDINGS OF A WORKSHOP ON SPACE BIOLOGY, COLOGNE,
GERMANY, MARCH 9-11, 1983.
PARIS, FRANCE: EUROPEAN SPACE AGENCY, P. 17-19, 1983. (ESA
SP-206)

116. SHEKHAWAT, N.S.; GALSTON*, A.W.
 REGENERATION OF FOOD LEGUME LEAF PROTOPLASTS (ABSTRACT).
PLANT PHYSIOLOGY
 72(1, SUPPL.): 143, 1983.
117. SLOCUM, R.D.; ROUX*, S.J.
 CELLULAR AND SUBCELLULAR LOCALIZATION OF CALCIUM IN
 GRAVITIMULATED OAT COLEOPTILES AND ITS POSSIBLE SIGNIFICANCE
 IN THE ESTABLISHMENT OF TROPIC CURVATURE.
PLANTA
 157: 481-492, 1983.
118. SONG, I.; KAUFMAN*, P.B.
 CHANGES IN PROTEIN PATTERNS DURING THE COURSE OF
 GA₃-PROMOTED GROWTH IN OAT STEM SEGMENTS (ABSTRACT).
PLANT PHYSIOLOGY
 72(1, SUPPL.): 83, 1983.
119. SUN, D.; ROUX*, S.J.
 INHIBITION OF GRAVITROPISM IN OAT COLEOPTILES BY A CALCIUM
 CHELATOR, AND THE REVERSAL OF THIS INHIBITION BY CALCIUM
 (ABSTRACT).
PLANT PHYSIOLOGY
 72(1, SUPPL.): 66, 1983.
120. TAIZ, L.; RAYLE*, D.L.; EISINGER, W.
 ETHYLENE-INDUCED LATERAL EXPANSION IN ETIOLATED PEA STEMS.
 THE ROLE OF ACID SECRETION.
PLANT PHYSIOLOGY
 73: 413-417, 1983.
121. TAKAHASHI, H.; JAFFE*, M.J.
 THIGMOMORPHOGENESIS: ELICITOR ACTIVITY IN RESPONSE TO
 MECHANICAL PERTURBATION AND ITS ROLE IN THE ACCUMULATION OF
 PHYTOALEXIN-LIKE STRESS METABOLITE VIA ETHYLENE PRODUCTION
 (ABSTRACT).
PLANT PHYSIOLOGY
 72(1, SUPPL.): 64, 1983.
122. TELEWSKI, F.; JAFFE*, M.J.
 ON THE MECHANISM OF THIGMOMORPHOGENESIS IN CONIFERS
 (ABSTRACT).
PLANT PHYSIOLOGY
 72(1, SUPPL.): 64, 1983.
123. TELEWSKI, F.W.; WAKEFIELD, A.H.; JAFFE*, M.J.
 COMPUTER-ASSISTED IMAGE ANALYSIS OF TISSUES OF ETHREL-TREATED
PINUS TAEDA SEEDLINGS.
PLANT PHYSIOLOGY
 72: 177-181, 1983.
124. THOMAS, R.J.; HARRISON, M.A.; TAYLOR, J.; KAUFMAN*, P.B.
 ENDOGENOUS AUXIN AND ETHYLENE IN PELLIA (BRYOPHYTA).

PLANT PHYSIOLOGY
73: 395-397, 1983.

125. VERTUCCI, C.W.; LEOPOLD*, A.C.
BINDING ENERGIES OF WATER IN DRY SEEDS (ABSTRACT).
PLANT PHYSIOLOGY
72(1, SUPPL.): 54, 1983.
126. VERTUCCI, C.W.; LEOPOLD*, A.C.
DYNAMICS OF IMBIBITION BY SOYBEAN EMBRYOS.
PLANT PHYSIOLOGY
72: 190-193, 1983.
127. WAKEFIELD, A.; TELEWSKI, F.; JAFFE*, M.J.
MEASUREMENT OF GROWTH AND GRAVITROPISM BY VIDEO IMAGE
PROCESSING (ABSTRACT).
PLANT PHYSIOLOGY
72(1, SUPPL.): 63, 1983.
128. WHITE, R.G.; SALISBURY*, F.B.
EFFECTS OF A UNILATERAL APPLICATION OF ETHEPHON ON
GRAVITROPIC BENDING IN DICOT STEMS.
PLANT PHYSIOLOGY
72(1, SUPPL.): 63, 1983.
129. WILLIAMS, S.E.; PRIESTLEY, D.A.; LEOPOLD*, A.C.
EARLY LEAKAGE KINETICS OF INDIVIDUAL SOYBEAN SEEDS
(ABSTRACT).
PLANT PHYSIOLOGY
72(1, SUPPL.): 54, 1983.
130. WRIGHT, L.Z.; RAYLE*, D.L.
EVIDENCE FOR A RELATIONSHIP BETWEEN H⁺ EXCRETION AND AUXIN IN
SHOOT GRAVITROPISM.
PLANT PHYSIOLOGY
72: 99-104, 1983.

1982

131. BANDURSKI*, R.S.
AUXIN BIOSYNTHESIS AND METABOLISM.
IN: PLANT GROWTH SUBSTANCES 1982 (WAREING, P.F., ED.).
NEW YORK: ACADEMIC, P. 3-11, 1982.
132. BANDURSKI*, R.S.
GRAVITATIONAL EFFECTS ON PLANT GROWTH HORMONE CONCENTRATION
(ABSTRACT).
IN: ABSTRACTS, 24TH COSPAR MEETING, OTTAWA, CANADA, MAY
16-JUNE 2, 1982.
PARIS: COSPAR, P. 533, 1982.
133. BANDURSKI*, R.S.
METABOLISM OF MYO-INOSITOL ESTERS OF INDOLE-3-ACETIC ACID
(ABSTRACT).
FEDERATION PROCEEDINGS
41: 865, 1982.
134. BANDURSKI*, R.S.; SCHULZE, A.
GRAVITATIONALLY INDUCED ASYMMETRY IN THE DISTRIBUTION OF
INDOLE-3-ACETIC ACID (ABSTRACT).
PHYSIOLOGIST
25(4): 233, 1982.
135. BEYL, C.A.; MITCHELL*, C.A.
IN VITRO PROTECTION OF INDOLEACETIC ACID DURING THIN LAYER
CHROMATOGRAPHY.
HORTSCIENCE
17: 187-188, 1982.
136. BIRO, R.L.; HALE, C.C., II; WIEGAND, O.F.; ROUX*, S.J.
EFFECTS OF CHLORPROMAZINE ON GRAVITROPISM IN AVENA
COLEOPTILES (ABSTRACT).
PLANT PHYSIOLOGY
69(4, SUPPL.): 92, 1982.
137. BIRO, R.L.; HALE, C.C., II; WIEGAND, O.F.; ROUX*, S.J.
EFFECTS OF CHLORPROMAZINE ON GRAVITROPISM IN AVENA
COLEOPTILES.
ANNALS OF BOTANY
50: 737-747, 1982.
138. BRITZ, S.J.; GALSTON*, A.W.
LIGHT-ENHANCED PERCEPTION OF GRAVITY IN STEMS OF INTACT PEA
SEEDLINGS.
PLANTA
154: 189-192, 1982.
139. BRITZ, S.J.; GALSTON*, A.W.
PHYSIOLOGY OF MOVEMENTS IN STEMS OF SEEDLING PISUM SATIVUM L.
CV. ALASKA. I. EXPERIMENTAL SEPARATION OF NUTATION FROM

GRAVITROPISM.
PLANT PHYSIOLOGY
70: 264-271, 1982.

140. BRITZ, S.J.; GALSTON*, A.W.
PHYSIOLOGY OF MOVEMENTS IN STEMS OF SEEDLING PISUM SATIVUM L.
CV. ALASKA. II. THE ROLE OF THE APICAL HOOK AND OF AUXIN IN
NUTATION.
PLANT PHYSIOLOGY
70: 1401-1404, 1982.
141. BROOKS, C.A.; MITCHELL*, C.A.
ACTION OF METABOLIC INHIBITORS ON LETTUCE SEED GERMINATION
(ABSTRACT).
PLANT PHYSIOLOGY
69(4, SUPPL.): 154, 1982.
142. BROWN*, A.H.; CHAPMAN, D.K.
THE FIRST PLANTS TO FLY ON SHUTTLE (ABSTRACT).
PHYSIOLOGIST
25(4): 284, 1982.
143. BROWN*, A.H.; CHAPMAN, D.K.
THE FIRST PLANTS TO FLY ON SHUTTLE.
PHYSIOLOGIST
25(6) S5-S8, 1982.
144. CHABOT, J.F.; CHANDRA, S.; MORRISON, G.H.; LEOPOLD*, A.C.
STUDIES ON THE DISTRIBUTION OF CALCIUM IN ROOT CAP CELLS
USING ION MICROSCOPY (ABSTRACT).
PLANT PHYSIOLOGY
69(4, SUPPL.): 77, 1982.
145. CHANDRA, S.; CHABOT, J.F.; MORRISON, G.H.; LEOPOLD*, A.C.
LOCALIZATION OF CALCIUM IN AMYLOPLASTS OF ROOT-CAP CELLS
USING ION MICROSCOPY.
SCIENCE
126: 1221-1223, 1982.
146. CHISNELL, J.R.; BANDURSKI*, R.S.
ISOLATION AND CHARACTERIZATION OF INDOL-3-YL-ACETYL-
MYO-INOSITOL FROM VEGETATIVE TISSUE OF ZEA MAYS (ABSTRACT).
PLANT PHYSIOLOGY
69(4, SUPPL.): 55, 1982.
147. COHEN, J.D. (PI = R.S. BANDURSKI)
IDENTIFICATION AND QUANTITATIVE ANALYSIS OF
INDOLE-3-ACETYL-L-ASPARTATE FROM SEEDS OF GLYCINE MAX L.
PLANT PHYSIOLOGY
70: 749-753, 1982.
148. COHEN, J.D.; BANDURSKI*, R.S.
CHEMISTRY AND PHYSIOLOGY OF THE BOUND AUXINS.

ANNUAL REVIEW OF PLANT PHYSIOLOGY
33: 403-430, 1982.

149. CORCUERA, L.J.; BANDURSKI*, R.S.
BIOSYNTHESIS OF INDOL-3-YL-ACETYL-MYO-INOSITOL ARABINOSIDE
IN KERNELS OF ZEА MAYS L.
PLANT PHYSIOLOGY
70: 1664-1666, 1982.
150. CORCUERA, L.J.; MICHALCZUK, L.; BANDURSKI*, R.S.
ENZYMIC SYNTHESIS OF INDOL-3-YLACETYL-MYO-INOSITOL
GALACTOSIDE.
BIOCHEMICAL JOURNAL
207: 283-290, 1982.
151. COWLES*, J.R.; SCHELD, H.W.; PETERSON, C.; LEMAY, R.
LIGNIFICATION IN YOUNG PLANTS EXPOSED TO THE NEAR-ZERO
GRAVITY OF SPACE FLIGHT.
PHYSIOLOGIST
25(6): S129-S130, 1982.
152. COWLES*, J.R.; SCHELD, H.W.; PETERSON, C.; LEMAY, R.
RESPONSE OF YOUNG PLANT SEEDLINGS TO SPACE FLIGHT ON STS-3
(ABSTRACT).
PHYSIOLOGIST
25(4): 284, 1982.
153. DAI, Y.-R.; GALSTON*, A.W.
KINETICS OF ARGININE DECARBOXYLASE INDUCTION FOLLOWING
GIBBERELLIN TREATMENT (ABSTRACT).
PLANT PHYSIOLOGY
69(4, SUPPL.): 83, 1982.
154. DAYANANDAN, P.; FRANKLIN, C.I.; KAUFMAN*, P.B.
CONTROL OF GRAVITY-INDUCED CELL ELONGATION IN LEAF SHEATH
PULVINI OF BARLEY AND OATS (ABSTRACT).
PLANT PHYSIOLOGY
69(4, SUPPL.): 87, 1982.
155. DAYANANDAN, P.; FRANKLIN, C.I.; KAUFMAN*, P.B.
LINKAGE BETWEEN GRAVITY PERCEPTION AND RESPONSE IN THE GRASS
LEAF-SHEATH PULVINUS.
PHYSIOLOGIST
25(6): S101-S102, 1982.
156. ERNER, Y.; JAFFE*, M.J.
THIGMOMORPHOGENESIS: THE INVOLVEMENT OF AUXIN AND ABSCISIC
ACID IN GROWTH RETARDATION DUE TO MECHANICAL PERTURBATION.
PLANT AND CELL PHYSIOLOGY
23: 935-941, 1982.
157. EVANS*, M.L.; MULKEY, T.J.
ASYMMETRIC EFFLUX OF PROTONS AS A MEDIATOR OF GRAVITROPISM IN

ROOTS (ABSTRACT).
PHYSIOLOGIST
25(4): 234, 1982.

158. EVANS*, M.L.; MULKEY, T.J.
COMPARATIVE EFFECTS OF AUXIN AND ABSCISIC ACID ON GROWTH,
HYDROGEN ION EFFLUX AND GRAVITROPISM IN PRIMARY ROOTS OF
MAIZE.
IN: PLANT GROWTH SUBSTANCES 1982 (WAREING, P.F.; ED.).
NEW YORK: ACADEMIC, P. 33-42, 1982.
159. EVANS*, M.L.; MULKEY, T.J.
THE EFFECT OF ABA ON GROWTH IN CORN ROOTS (ABSTRACT).
PLANT PHYSIOLOGY
69(4, SUPPL.): 76, 1982.
160. EVANS*, M.L.; MULKEY, T.J.
A REEVALUATION OF THE ROLE OF ABSCISIC ACID IN ROOT
GRAVITROPISM.
PHYSIOLOGIST
25(6): S109-S110, 1982.
161. FELDMAN*, L.J.
FORMATION AND PARTIAL CHARACTERIZATION OF GROWTH INHIBITORS
FROM CULTURED AND INTACT ROOT CAPS.
ANNALS OF BOTANY
50: 747-756, 1982.
162. FELDMAN*, L.J.
PROTEIN SYNTHESIS IN GEOSTIMULATED ROOT CAPS.
PHYSIOLOGIST
25(6): S105-S106, 1982.
163. FELDMAN*, L.J.
PROTEIN SYNTHESIS IN GEOSTIMULATED ROOT CAPS OF CORN
(ABSTRACT).
PHYSIOLOGIST
25(4): 233, 1982.
164. FLORES, H.E.; GALSTON*, A.W.
ANALYSIS OF POLYAMINES IN HIGHER PLANTS BY HIGH PERFORMANCE
LIQUID CHROMATOGRAPHY.
PLANT PHYSIOLOGY
69: 701-706, 1982.
165. FLORES, H.E.; GALSTON*, A.W.
EFFECT OF OSMOTIC STRESS AND GRAVITROPISM ON POLYAMINE
TITER AND DISTRIBUTION (ABSTRACT).
PLANT PHYSIOLOGY
69(4, SUPPL.): 57, 1982.
166. FLORES, H.E.; GALSTON*, A.W.
POLYAMINES AND PLANT STRESS: ACTIVATION OF PUTRESCINE

BIOSYNTHESIS BY OSMOTIC SHOCK.
SCIENCE
217: 1259-1261, 1982.

167. FUHRER, J.; KAUR-SAWHNEY, R.; SHIH, L.-M.; GALSTON*, A.W.
INHIBITION OF ETHYLENE BIOSYNTHESIS AND SENESCENCE IN EXCISED
OAT LEAVES BY 1,3-DIAMINOPROPANE AND SPERMIDINE (ABSTRACT).
PLANT PHYSIOLOGY
69(4, SUPPL.): 137, 1982.
168. GALSTON*, A.W.; DAI, Y.-R.; FLORES, H.E.; YOUNG, N.D.
THE CONTROL OF ARGININE DECARBOXYLASE ACTIVITY IN HIGHER
PLANTS.
ADVANCES IN POLYAMINE RESEARCH
4: 381-393, 1982.
169. GALSTON*, A.W.; FLORES, H.E.; KAUR-SAWHNEY, R.
POLYAMINE FORMATION BY ARGININE DECARBOXYLASE AS A TRANSDUCER
OF HORMONAL, ENVIRONMENTAL AND STRESS STIMULI IN HIGHER
PLANTS (ABSTRACT).
PHYSIOLOGIST
25(4): 285, 1982.
170. GALSTON*, A.W.; FLORES, H.E.; KAUR-SAWHNEY, R.
POLYAMINE FORMATION BY ARGININE DECARBOXYLASE AS A TRANSDUCER
OF HORMONAL, ENVIRONMENTAL AND STRESS STIMULI IN HIGHER
PLANTS.
PHYSIOLOGIST
25(6): S137-S138, 1982.
171. GALSTON*, A.W.; KAUR-SAWHNEY, R.
POLYAMINES: ARE THEY A NEW CLASS OF PLANT GROWTH REGULATORS?
IN: PLANT GROWTH SUBSTANCES 1982 (WAREING, P.F., ED.).
NEW YORK: ACADEMIC, P. 451-461, 1982.
172. GAYNOR, J.J.; GALSTON*, A.W.
PURIFICATION AND CHARACTERIZATION OF AMYLOPLASTS FROM
ETIOLATED EPICOTYLS OF PISUM SATIVUM (ABSTRACT).
PLANT PHYSIOLOGY
69(4, SUPPL.): 99, 1982.
173. GAYNOR, J.J.; GALSTON*, A.W.
ISOLATED STATOCYTES FROM ETIOLATED PEA EPICOTYLS: A MODEL
SYSTEM FOR THE STUDY OF GRAVIPERCEPTION AT A CELLULAR LEVEL
(ABSTRACT).
PHYSIOLOGIST
25(4): 232, 1982.
174. HARRISON, M. (PI = P.B. KAUFMAN)
THE ROLE OF CYTOKININ AND AUXIN TRANSPORT IN APICAL DOMINANCE
(ABSTRACT).
PLANT PHYSIOLOGY
69(4, SUPPL.): 37, 1982.

175. HARRISON, M.A.; KAUFMAN*, P.B.
DOES ETHYLENE PLAY A ROLE IN THE RELEASE OF LATERAL BUDS
(TILLERS) FROM APICAL DOMINANCE IN OATS?
PLANT PHYSIOLOGY
70: 811-814, 1982.
176. HAYES*, A.B.
GRAVITROPIC BASIS OF LEAF BLADE NASTIC CURVATURES (ABSTRACT).
PHYSIOLOGIST
25(4): 284, 1982.
177. HAYES*, A.B.
GRAVITROPIC BASIS OF LEAF BLADE NASTIC CURVATURES.
PHYSIOLOGIST
25(6): S133-S134, 1982.
178. HAYES*, A.B.
NASTIC CURVATURE OF BEAN LEAF BLADES AND PETIOLES (ABSTRACT).
PLANT PHYSIOLOGY
69(4, SUPPL.): 56, 1982.
179. HOSHIZAKI*, T.
EFFECT OF CLINOSTAT AND CULTURAL CONDITIONS ON THE SEED TO
SEED GROWTH OF ARABIDOPSIS AND CARDAMINE: INITIAL RESULTS
(ABSTRACT).
PHYSIOLOGIST
25(4): 284, 1982.
180. HOSHIZAKI*, T.
EFFECT OF CULTURAL CONDITIONS ON THE SEED-TO-SEED GROWTH OF
ARABIDOPSIS AND CARDAMINE: A STUDY OF GROWTH RATES AND
REPRODUCTIVE DEVELOPMENT AS AFFECTED BY TEST TUBE SEALS.
PHYSIOLOGIST
25(6): S127-S128, 1982.
181. JACOBS*, W.P.; DAVIS, W.
DIFFERENTIAL EFFECTS OF GIBBERELIC ACID ON DEVELOPMENT OF
THREE ORGANS OF THE MARINE, GIANT COENOCYTE, CAULERPA
PROLIFERA (ABSTRACT).
PHYSIOLOGIST
25(4): 285, 1982.
182. JAFFE*, M.J.
THE INTERACTIONS OF THIGMIC, GRAVITIC AND DROUGHT
PERTURBATIONS ON CALLOSE AND ETHYLENE PRODUCTION IN PLANTS
(ABSTRACT).
PHYSIOLOGIST
25(4): 285, 1982.
183. JAFFE*, M.J.; HUBERMAN, M.; PRESSMAN, E.; ALONI, B.
THE USE OF COMPUTER IMAGE ANALYSIS TO STUDY THE INHIBITION OF
PITHINESS BY MECHANICAL PERTURBATION OR ETHREL (ABSTRACT).

PLANT PHYSIOLOGY
69(4, SUPPL.): 58, 1982.

184. KAUFMAN*, P.B.; DAYANANDAN, P.
GRAVITROPISM.
IN: 1982-1983 MCGRAW-HILL YEARBOOK OF SCIENCE AND TECHNOLOGY.
NEW YORK: MCGRAW-HILL, P. 241-244, 1982.
185. KAUFMAN*, P.B.; DAYANANDAN, P.
LINKAGE BETWEEN GRAVITY PERCEPTION AND RESPONSE IN THE GRASS
LEAF-SHEATH PULVINUS (ABSTRACT).
PHYSIOLOGIST
25(4): 233, 1982.
186. KAUFMAN*, P.B.; DAYANANDAN, P.; MEUDT, W.
GROWTH PROMOTION BY BRASSINOSTEROID IN SHEATH PULVINI OF
GRASSES (ABSTRACT).
PLANT PHYSIOLOGY
69(4, SUPPL.): 12, 1982.
187. KAUFMAN*, P.B.; DAYANANDAN, P.; THOMAS, R.J.; TAYLOR, J.;
UMBERFIELD, R.J.
COMPARATIVE ANALYSIS OF RAPID GROWTH RESPONSES USING THREE
MODEL SYSTEMS: CONOCEPHALUM CARPOCEPHALUM-STALK, PELLIA SETA,
AND AVENA INTERNODE.
JOURNAL OF THE HATTORI BOTANICAL LABORATORY
51: 195-201, 1982.
188. KRIKORIAN*, A.D.
CLONING HIGHER PLANTS FROM ASEPTICALLY CULTURED TISSUES AND
CELLS.
BIOLOGICAL REVIEWS
57: 151-218, 1982.
189. KRIKORIAN*, A.D.
PLANT CELLS, EMBRYOS, GROWTH AND DEVELOPMENT IN SPACE
(ABSTRACT).
PHYSIOLOGIST
25(40): 284, 1982.
190. KRIKORIAN*, A.D.; O'CONNOR, S.A.
SOME KARYOLOGICAL OBSERVATIONS ON PLANTS GROWN IN SPACE.
PHYSIOLOGIST
25(6): S125-S126, 1982.
191. KUZMANOFF, K.M.; EVANS*, M.L.
A CALMODULIN-LIKE PROTEIN IN CORN ROOTS: EVIDENCE FOR ITS
EXISTENCE AND POTENTIAL INVOLVEMENT IN ROOT GROWTH
(ABSTRACT).
PLANT PHYSIOLOGY
69(4, SUPPL.): 56, 1982.
192. MATILSKY, M.B. (PI = W.P. JACOBS)

REDISTRIBUTION OF AMYLOPLASTS IN INVERTED CAULERPA PROLIFERA
RHIZOME TIPS (ABSTRACT).
PHYSIOLOGIST
25(4): 233, 1982.

193. MATILSKY, M.B. (PI = W.P. JACOBS)
REDISTRIBUTION OF AMYLOPLASTS IN INVERTED CAULERPA PROLIFERA
RHIZOME TIPS (ABSTRACT).
PHYSIOLOGIST
25: 233, 1982.
194. MICHALCZUK, L.; BANDURSKI*, R.S.
ENZYMIC SYNTHESIS OF 1-⁰-INDOL-3-YLACETYL-BETA-D-GLUCOSE AND
INDOL-3-YLACETYL-MYO-INOSITOL.
BIOCHEMICAL JOURNAL
207: 273-281, 1982.
195. MICHALCZUK, L.; CHISNELL, J.R.₃ (PI = R.S. BANDURSKI)
ENZYMATIC SYNTHESIS OF 5-³H-INDOLE-3-ACETIC ACID AND
5-³H-INDOLE-3-ACETYL-MYO-INOSITOL FROM 5-³H-L-TRYPTOPHAN.
JOURNAL OF LABELLED COMPOUNDS AND RADIOPHARMACEUTICALS
19: 121-128, 1982.
196. MULKEY, T.J.; EVANS*, M.L.
SUPPRESSION OF DIFFERENTIAL ACID EFFLUX AND GEOTROPISM IN
CORN ROOTS TREATED WITH AUXIN TRANSPORT INHIBITORS
(ABSTRACT).
PLANT PHYSIOLOGY
69(4, SUPPL.): 55, 1982.
197. MULKEY, T.J.; EVANS*, M.L.
SUPPRESSION OF ASYMMETRIC ACID EFFLUX AND GRAVITROPISM IN
MAIZE ROOTS TREATED WITH AUXIN TRANSPORT INHIBITORS OR SODIUM
ORTHOVANADATE.
JOURNAL OF PLANT GROWTH REGULATION
1: 259-265, 1982.
198. O'NEILL, S.D.; LEOPOLD*, A.C.
AN ASSESSMENT OF PHASE TRANSITIONS IN SOYBEAN MEMBRANE LIPIDS
AND MIXED PHOSPHOLIPID VESICLES (ABSTRACT).
PLANT PHYSIOLOGY
69(4, SUPPL.): 108, 1982.
199. O'NEILL, S.D.; LEOPOLD*, A.C.
AN ASSESSMENT OF PHASE TRANSITIONS IN SOYBEAN MEMBRANES.
PLANT PHYSIOLOGY
70: 1405-1409, 1982.
200. PAPPAS, T.; MITCHELL*, C.A.
MECHANICAL STRESS REGULATION OF GROWTH AND PHOTOSYNTHETIC
PRODUCTIVITY OF GLYCINE MAX MERR. CV. WELLS II UNDER
DIFFERENT ENVIRONMENTAL REGIMES (ABSTRACT).
PHYSIOLOGIST

25(4): 285, 1982.

201. PAPPAS, T.; MITCHELL*, C.A.
MECHANICAL STRESS REGULATION OF GROWTH AND PHOTOSYNTHETIC
PRODUCTIVITY OF GLYCINE MAX (L.) MERR. CV. WELLS II UNDER
DIFFERENT ENVIRONMENTAL REGIMES.
PHYSIOLOGIST
25(6): S135-S136, 1982.
202. PENGELLY, W.L.; HALL, P.J.; SCHULZE, A.; BANDURSKI*, R.S.
DISTRIBUTION OF FREE AND ESTER INDOLE-3-ACETIC ACID IN THE
CORTEX AND STELE OF THE ZEA MAYS MESOCOTYL.
PLANT PHYSIOLOGY
69: 1304-1307, 1982.
203. RAYLE*, D.L.; MIGLIACCIO, F.
ROLE OF AUXIN AND PROTONS IN PLANT SHOOT GRAVITROPISM
(ABSTRACT).
PHYSIOLOGIST
25(4): 233, 1982.
204. RAYLE*, D.L.; MIGLIACCIO, F.; WATSON, E.
ROLE OF AUXIN AND PROTONS IN PLANT SHOOT GRAVITROPISM.
PHYSIOLOGIST
25(6): S103-S104, 1982.
205. REINECKE, D.M.; BANDURSKI*, R.S.
QUANTITATION OF OXINDOL-3-YL-ACETIC ACID IN ZEA MAYS
(ABSTRACT).
PLANT PHYSIOLOGY
69(4, SUPPL): 55, 1982.
206. RIEHL, T.E.; JAFFE*, M.J.
COILING OF PEA TENDRILS WITH REGARD TO LIGHT AND THE
DEPOSITION OF CALLOSE (ABSTRACT).
PLANT PHYSIOLOGY
69(4, SUPPL.): 87, 1982.
207. RIEHL, T.E.; JAFFE*, M.J.
PHYSIOLOGICAL STUDIES ON PEA TENDRILS. XII. EFFECTS OF
TEMPERATURE ON CONTACT COILING AND UNCOILING.
PHYSIOLOGIA PLANTARUM
55: 187-191, 1982.
208. RIEHL, T.E.; JAFFE*, M.J.
PHYSIOLOGICAL STUDIES ON PEA TENDRILS. XIII. RESPIRATION IS
NECESSARY FOR CONTACT COILING.
PHYSIOLOGIA PLANTARUM
55: 192-196, 1982.
209. ROUX*, S.J.
CALCIUM MOVEMENTS AND THE CELLULAR BASIS OF GRAVITROPISM
(ABSTRACT).

IN: ABSTRACTS, 24TH COSPAR MEETING, OTTAWA, CANADA, MAY
16-JUNE 2, 1982.
PARIS: COSPAR, P. 533, 1982.

210. ROUX*, S.J.; BIRO, R.L.
QUANTITATION OF CHLORPROMAZINE-BOUND CALMODULIN DURING
CHLORPORMAZINE INHIBITION OF GRAVITROPISM (ABSTRACT).
PHYSIOLOGIST
25(4): 234, 1982.
211. ROUX*, S.J.; BIRO, R.L.
QUANTITATION OF CHLORPROMAZINE-BOUND CALMODULIN DURING
CHLORPROMAZINE INHIBITION OF GRAVITROPISM.
PHYSIOLOGIST
25(6): S107-S108, 1982.
212. ROUX*, S.J.; SLOCUM, R.D.
ROLE OF CALCIUM IN MEDIATING CELLULAR FUNCTIONS IMPORTANT FOR
GROWTH AND DEVELOPMENT IN HIGHER PLANTS.
IN: CALCIUM AND CELL FUNCTION, VOL. III (CHEUNG, W.Y.; ED.).
NEW YORK: ACADEMIC, P. 409-453, 1982.
213. SACK, F.D.; LEOPOLD*, A.C.
CHARACTERISTICS OF STATOLITHS FROM ROOTCAPS AND COLEOPTILES
(ABSTRACT).
PHYSIOLOGIST
25(4): 232, 1982.
214. SACK, F.D.; LEOPOLD*, A.C.
CHARACTERISTICS OF STATOLITHS FROM ROOTCAPS AND COLEOPTILES.
PHYSIOLOGIST
25(6): S97-S98, 1982.
215. SALISBURY*, F.B.; MUELLER, W.J.; BLOTTER, P.T.; HARRIS, C.S.;
WHITE, R.G.; GILLESPIE, L.S.; SLIWINSKI, J.E.
THE MECHANICS OF GRAVITROPIC BENDING IN LEAFY DICOT STEMS.
PHYSIOLOGIST
25(6): S111-S112, 1982.
216. SALISBURY*, F.B.; MUELLER, W.; SLIWINSKI, J.; WHEELER, R.;
HARRIS, C.
THE MECHANICS OF GRAVITROPIC BENDING IN LEAFY DICOT STEMS
(ABSTRACT).
PHYSIOLOGIST
25(4): 234, 1982.
217. SALISBURY*, F.B.; SLIWINSKI, J.E.; MUELLER, W.J.; HARRIS, C.S.
HOW STEMS BEND UP.
UTAH SCIENCE
43(2): 42-49, 1982.
218. SALISBURY*, F.B.; WHEELER, R.M.; SLIWINSKI, J.E.; MUELLER, W.J.
PLANTS, GRAVITY, AND MECHANICAL STRESSES.

UTAH SCIENCE
43(1): 14-21, 1982.

219. SHEKHAWAT, N.S.; STOWE, B.B.; GALSTON*, A.W.
LIPID RELEASE DURING OAT LEAF PROTOPLAST ISOLATION
(ABSTRACT).
PLANT PHYSIOLOGY
69(4, SUPPL.): 147, 1982.
220. SLOCUM, R.D.; GALSTON*, A.W.
A COMPARATIVE STUDY OF MONOCOT AND DICOT ROOT DEVELOPMENT IN
NORMAL (EARTH) AND HYPOGRAVITY (SPACE) ENVIRONMENTS.
PHYSIOLOGIST
25(6): S131-S132, 1982.
221. SLOCUM, R.D.; GALSTON*, A.W.
A COMPARATIVE STUDY OF MONOCOT AND DICOT ROOT DEVELOPMENT IN
NORMAL (EARTH) AND HYPOGRAVITY (SPACE) ENVIRONMENTS
(ABSTRACT).
PHYSIOLOGIST
25(4): 284, 1982.
222. SLOCUM, R.D.; ROUX*, S.J.
AN IMPROVED METHOD FOR THE SUBCELLULAR LOCALIZATION OF
CALCIUM USING A MODIFICATION OF THE ANTIMONATE PRECIPITATION
TECHNIQUE.
JOURNAL OF HISTOCHEMISTRY AND CYTOCHEMISTRY
30(7): 617-629, 1982.
223. TAKIHASHI, H.; JAFFE*, M.J.
THE INTERACTION OF CALLOSE AND ETHYLENE IN
THIGMOMORPHOGENESIS.
PHYSIOLOGIST
25(6): S139-S140, 1982.
224. WAKEFIELD, A.H.; TELEWSKI, F.W.; JAFFE*, M.J.
A MICROCOMPUTER-BASED DIGITIZED VIDEO ANALYSIS SYSTEM
(ABSTRACT).
PLANT PHYSIOLOGY
69(4, SUPPL.): 157, 1982.
225. WRIGHT, L.Z.; RAYLE*, D.L.
INHIBITION OF SHOOT GEOTROPISM BY NEUTRAL BUFFERS.
PLANT PHYSIOLOGY
69: 278-279, 1982.
226. YOUNG, N.D.; GALSTON*, A.W.
ACID STRESS INDUCES ACCUMULATION OF PUTRESCINE IN EXCISED OAT
LEAF SEGMENTS (ABSTRACT).
PLANT PHYSIOLOGY
69(4, SUPPL.): 58, 1982.

1981

227. BAKER*, R.; HENDRIX, J.; CURTIS, C.R.
LONG-TERM EFFECTS OF WEIGHTLESSNESS ON A BIOLOGICAL SYSTEM --
K301.
IN: FINAL REPORTS OF U.S. PLANT AND RADIATION
DOSIMETRY EXPERIMENTS FLOWN ON THE SOVIET SATELLITE COSMOS
1129 (HEINRICH, M.R.; SOUZA, K.A.; EDS.).
MOFFETT FIELD, CA: NASA, AMES RESEARCH CENTER, P. 29-39, MAY
1981. (NASA TM-81288)
228. BROWN*, A.H.
MUTATION OF HELIANTHUS ANNUUS IN A MICROGRAVITY ENVIRONMENT.
IN: SPACELAB MISSION 1 EXPERIMENT DESCRIPTION-SECOND EDITION
(CRAVEN, P.D., ED.).
HUNTSVILLE, ALABAMA: NASA, MARSHALL SPACE FLIGHT CENTER: P.
V33-V35, 1981. (NASA TM-82448)
229. BROWN*, A.H.; CHAPMAN, D.K.
COMPARATIVE PHYSIOLOGY OF PLANT BEHAVIOUR IN SIMULATED
HYPOGRAVITY.
ANNALS OF BOTANY
47: 225-228, 1981.
230. BROWN*, A.H.; CHAPMAN, D.K.
INITIATION OF MUTATION IN SUNFLOWER HYPOCOTYLS.
IN: ADVANCES IN PHYSIOLOGICAL SCIENCES, VOL. 19:
GRAVITATIONAL PHYSIOLOGY (HIDEG, J.; GAZENKO, O.; EDS.).
NEW YORK: PERGAMON, P. 257-260, 1981.
231. CHAPMAN, D.K.; BROWN*, A.H.
CIRCUMMUTATION AUGMENTED IN CLINOSTATED PLANTS BY A TACTILE
STIMULUS.
IN: LIFE SCIENCES AND SPACE RESEARCH, VOL. 19 (HOLMQUIST,
W.R.; ED.).
NEW YORK: PERGAMON, P. 103-107, 1981.
232. CHARPENTIER, B.A.; COWLES*, J.R.
RAPID METHOD OF ANALYZING PHENOLIC COMPOUNDS IN PINUS
ELLIOTTI USING HIGH-PERFORMANCE LIQUID CHROMATOGRAPHY.
JOURNAL OF CHROMATOGRAPHY
208: 132-136, 1981.
233. CHARPENTIER, B.A.; COWLES*, J.R.
SEPARATION AND IDENTIFICATION OF THE MAJOR PHENOLIC COMPOUNDS
IN DEVELOPING SLASH PINE SEEDLINGS (ABSTRACT).
PLANT PHYSIOLOGY
67(4, SUPPL.): 143, 1981.
234. COHEN, J.D. (PI = R.S. BANDURSKI)
INDOLYLIC AUXINS OF SOYBEAN SEED (ABSTRACT).
PLANT PHYSIOLOGY
67(4, SUPPL.): 2, 1981.

235. COHEN, J.D. (PI = R.S. BANDURSKI)
SYNTHESIS OF ^{14}C -LABELED INDOLE-3-ACETYLASPARTIC ACID.
JOURNAL OF LABELLED COMPOUNDS AND RADIOPHARMACEUTICALS
18(9): 1393-1396, 1981.
236. DAI, Y.-R.; GALSTON*, A.W.
SIMULTANEOUS PHYTOCHROME-CONTROLLED PROMOTION AND INHIBITION
OF ARGININE DECARBOXYLASE ACTIVITY IN BUDS AND EPICOTYLS OF
ETIOLATED PEAS.
PLANT PHYSIOLOGY
67(2): 266-269, 1981.
237. DAYANANDAN, P.; FRANKLIN, C.I.; KAUFMAN*, P.B.
GRAVITY PERCEPTION AND ASYMMETRIC GROWTH IN PLANTS: A MODEL
DERIVED FROM THE GRASS PULVINUS.
PHYSIOLOGIST
24(6): S113-S114, 1981.
238. DAYANANDAN, P.; KAUFMAN*, P.B.
GRAVITY PERCEPTION AND ASYMMETRIC GROWTH IN PLANTS: A MODEL
DERIVED FROM THE GRASS PULVINUS (ABSTRACT).
PFLUGERS ARCHIV
391(SUPPL.): R69, 1981.
239. DAYANANDAN, P.; KAUFMAN*, P.
A MODEL FOR THE LOCALIZATION OF GRAVITROPIC SENSITIVITY IN
GRASS PULVINI (ABSTRACT).
PLANT PHYSIOLOGY
67(4, SUPPL.): 4, 1981.
240. EPSTEIN, E.; COHEN, J.D. (PI = R.S. BANDURSKI)
MICROSCALE PREPARATION OF PENTAFLUOROBENZYL ESTERS:
ELECTRON-CAPTURE GAS CHROMATOGRAPHIC DETECTION OF
INDOLE-3-ACETIC ACID FROM PLANTS.
JOURNAL OF CHROMATOGRAPHY
209: 413-420, 1981.
241. FALKENSTEIN, K.F.; JACOBS*, W.P.
HORMONES IN THE ALGA CAULERPA (ABSTRACT).
PLANT PHYSIOLOGY
67(4, SUPPL.): 70, 1981.
242. FELDMAN*, L.J.
LIGHT-INDUCED INHIBITORS FROM INTACT AND CULTURED CAPS OF ZEA
ROOTS.
PLANTA
153: 471-475, 1981.
243. FITTER, M.S.; KRIKORIAN*, A.D.
RECOVERY OF TOTIPOTENT CELLS AND PLANTLET PRODUCTION FROM
DAYLILY PROTOPLASTS.
ANNALS OF BOTANY

48: 591-597, 1981.

244. HARRISON, M. (PI = P.B. KAUFMAN)
ETHYLENE INVOLVEMENT IN THE BIPHASIC PATTERN OF LATERAL BUD
(TILLER) RELEASE IN OATS (ABSTRACT).
PLANT PHYSIOLOGY
67(4, SUPPL.): 71, 1981.
245. HAYES*, A.B.
THE INTERACTION OF AUXIN AND ETHYLENE IN THE MAINTENANCE OF
LEAF BLADE FORM IN PHASEOLUS VULGARIS L. VAR. PINTO.
AMERICAN JOURNAL OF BOTANY
68(6): 733-740, 1981.
246. HAYES*, A.B.; LIPPINCOTT, J.A.
THE TIMING OF AND EFFECT OF TEMPERATURE ON AUXIN-INDUCED
HYPONASTIC CURVATURE OF THE BEAN PRIMARY LEAF BLADE.
AMERICAN JOURNAL OF BOTANY
68: 305-311, 1981.
247. HEUCHERT, J.C.; MITCHELL*, C.A.
CHARACTERIZATION OF STEM STRENGTHENING IN MECHANICALLY-
STRESSED TOMATO (ABSTRACT).
PLANT PHYSIOLOGY
67(4, SUPPL.): 17, 1981.
248. JAFFE*, M.J.
THIGMOMORPHOGENESIS AND THIGMONASTY.
IN: MCGRAW-HILL YEARBOOK OF SCIENCE AND TECHNOLOGY 1980-1981.
NEW YORK: MCGRAW-HILL, P. 394-395, 1981.
249. KAUFMAN*, P.; DAYANANDAN, P.
EARLY GROWTH RESPONSES OF AVENA SHOOTS TO GIBBERELIC ACID
(ABSTRACT).
PLANT PHYSIOLOGY
67(4, SUPPL.): 148, 1981.
250. KAUFMAN*, P.B.; DAYANANDAN, P.; TAKEOKA, Y.; BIGELOW, W.C.;
JONES, J.D.; ILER, R.
SILICA IN SHOOTS OF HIGHER PLANTS.
IN: SILICON AND SILICEOUS STRUCTURES IN BIOLOGICAL SYSTEMS
(SIMPSON, T.; VOLCANI, B.; EDS.).
NEW YORK: SPRINGER-VERLAG, P. 409-449, 1981.
251. KAUFMAN*, P.B.; DAYANANDAN, P.; THOMAS, R.J.; TAYLOR, J.
COMPARATIVE ANALYSIS OF RAPID GROWTH RESPONSES USING THREE
MODEL SYSEMS: CONOCEPHALUM CARPOCEPHALA, PELLIA SETAE, AND
AVENA INTERNODES (ABSTRACT).
PRESENTED AT THE 13TH INTERNATIONAL BOTANICAL CONGRESS,
SYDNEY, AUSTRALIA, AUG. 21-28, 1981.
252. KAUFMAN*, P.B.; GHOSHEH, N.S.; LEE, M.; CARLSON, T.J.; JONES,
J.D.; RIGOT, W.; BIGELOW, W.C.; KRAUS, S.; MOORE, P.H.

EFFECT OF GIBBERELIC ACID ON SILICA CONTENT AND DISTRIBUTION
IN SUGARCANE.

PLANT PHYSIOLOGY
68: 314-317, 1981.

253. KRİKORIAN*, A.D.; DUTCHER, F.R.; QUINN, C.E.; STEWARD*, F.C.
GROWTH AND DEVELOPMENT OF CULTURED CARROT CELLS AND EMBRYOS
UNDER SPACEFLIGHT CONDITIONS.
IN: LIFE SCIENCES AND SPACE RESEARCH, VOL. 19 (HOLMQUIST,
W.R.; ED.).
NEW YORK: PERGAMON, P. 117-127, 1981.
254. KRİKORIAN*, A.D.; DUTCHER, F.R.; QUINN, C.E.; STEWARD*, F.C.
GROWTH AND DEVELOPMENT OF CARROT CELLS AND EMBRYOS IN
SPACE--K302.
IN: FINAL REPORTS OF U.S. PLANT AND RADIATION
DOSIMETRY EXPERIMENTS FLOWN ON THE SOVIET SATELLITE COSMOS
1129 (HEINRICH, M.R.; SOUZA, K.A.; EDS.).
MOFFETT FIELD, CA: NASA, AMES RESEARCH CENTER, P. 57-121, MAY
1981. (NASA TM-81288)
255. KRİKORIAN*, A.D.; KANN, R.P.
PLANTLET PRODUCTION FROM MORPHOGENETICALLY COMPETENT CELL
SUSPENSIONS OF DAYLILY.
ANNALS OF BOTANY
47: 679-686, 1981.
256. KRİKORIAN*, A.D.; KANN, R.P.; STAICU, S.A.
DEVELOPMENT OF, AND KAROTYPE STABILITY IN, PLANTS OF
HEMEROCALLIS REARED VIA SUSPENSION CULTURE (ABSTRACT).
ENVIRONMENTAL AND EXPERIMENTAL BOTANY
21(3-4): 428, 1981.
257. KRİKORIAN*, A.D.; STAICU, S.A.; KANN, R.P.
KARYOTYPE ANALYSIS OF A DAYLILY CLONE REARED FROM ASEPTICALLY
CULTURED TISSUES.
ANNALS OF BOTANY
47: 121-131, 1981.
258. MULKEY, T.J.; KUZMANOFF, K.M.; EVANS*, M.L.
CORRELATIONS BETWEEN PROTON-EFFLUX PATTERNS AND GROWTH PATTERNS
DURING GEOTROPISM AND PHOTOTROPISM IN MAIZE AND SUNFLOWER.
PLANTA
152: 239-241, 1981.
259. OMRAN, R.; COWLES*, J.R.
RESPONSIVENESS OF YOUNG PINE SEEDLINGS TO GRAVITY (ABSTRACT).
PLANT PHYSIOLOGY
67(4, SUPPL.): 114, 1981.
260. PENGELLY, W.L.; BANDURSKI*, R.S.
LONGITUDINAL DISTRIBUTION OF INDOLE-3-ACETIC ACID IN THE
CORTEX AND VASCULAR STELE OF THE DARK-GROWN ZEA MAYS

MESOCOTYL (ABSTRACT).
PLANT PHYSIOLOGY
67(4, SUPPL.): 2, 1981.

261. PENGELLEY, W.L.; BANDURSKI*, R.S.; SCHULZE, A.
VALIDATION OF A RADIOIMMUNOASSAY FOR INDOLE-3-ACETIC ACID
USING GAS CHROMATOGRAPHY-SELECTED ION MONITORING-MASS
SPECTROMETRY.
PLANT PHYSIOLOGY
68: 96-98, 1981.
262. PHARIS, R.P.; LEGGE, R.L.; NOMA, M.; KAUFMAN*, P.B.; GHOSHEH,
N.S.; LACROIX, J.D.; HELLER, K.
CHANGES IN ENDOGENOUS GIBBERELLINS AND THE METABOLISM OF
[³H]GA₄ AFTER GEOSTIMULATION IN SHOOTS OF THE OAT PLANT
(AVENA SATIVA).
PLANT PHYSIOLOGY
67: 892-897, 1981.
263. REINECKE, D.M.; BANDURSKI*, R.S.
CARBOXYL RETENTION DURING INDOLE-3-ACETIC ACID CATABOLISM
(ABSTRACT).
PLANT PHYSIOLOGY
67(4, SUPPL.): 3, 1981.
264. ROUX*, S.; MCENTIRE, K.; HALE, C., II.
OAT CALMODULIN: PURIFICATION, CHARACTERIZATION, AND RELEVANCE
TO PHYTOCHROME ACTION (ABSTRACT).
PLANT PHYSIOLOGY
67(4, SUPPL.): 103, 1981.
265. ROUX*, S.J.; MCENTIRE, K.; SLOCUM, R.D.; CEDEL, T.E.; HALE, C.C.,
II.
PHYTOCHROME INDUCES PHOTOREVERSIBLE CALCIUM FLUXES IN A
PURIFIED MITOCHONDRIAL FRACTION FROM OATS.
PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA
78(1): 283-287, 1981.
266. SALISBURY*, F.B.
RESPONSES TO PHOTOPERIOD.
IN: PHYSIOLOGICAL PLANT ECOLOGY I: RESPONSES TO THE PHYSICAL
ENVIRONMENT (LANGE, O.L.; NOBEL, P.S.; OSMOND, C.B.; ZIEGLER,
H.; EDS.).
NEW YORK: SPRINGER-VERLAG, P. 135-167, 1981.
(ENCYCLOPEDIA OF PLANT PHYSIOLOGY, NEW SERIES, VOL. 12A)
267. SALISBURY*, F.B.
TWILIGHT EFFECT: INITIATING DARK MEASUREMENT IN
PHOTOPERIODISM OF XANTHIUM.
PLANT PHYSIOLOGY
67: 1230-1238, 1981.
268. SALISBURY*, F.B.; SLIWINSKI, J.E.

TWO MODELS FOR GRAVITY PERCEPTION IN DICOT STEMS (ABSTRACT).
IN: ABSTRACTS, AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF
SCIENCE, PACIFIC DIVISION, 62ND ANNUAL MEETING, EUGENE, OR,
JUNE 14-19, 1981.

SAN FRANCISCO: AAAS, PACIFIC DIVISION, P. 15, 1981.

269. SALISBURY*, F.B.; WHEELER, R.M.
INTERPRETING PLANT RESPONSES TO CLINOSTATING. 1. MECHANICAL
STRESSES AND ETHYLENE.
PLANT PHYSIOLOGY
67: 677-685, 1981.
270. SALISBURY*, F.B.; WHEELER, R.M.; SLIWINSKI, J.E.; MUELLER, W.J.
SOME FEATURES OF GRAVITROPISM IN DICOT STEMS (ABSTRACT).
PRESENTED AT THE 13TH INTERNATIONAL BOTANICAL CONGRESS,
SYDNEY, AUSTRALIA, AUG. 21-28, 1981.
271. SATTER, R.L.; GALSTON*, A.W.
MECHANISMS OF CONTROL OF LEAF MOVEMENTS.
ANNUAL REVIEW OF PLANT PHYSIOLOGY
32: 83-110, 1981.
272. SLIWINSKI, J.E.; SALISBURY*, F.B.
RELATION OF GRAVITROPIC BENDING TO CELLULAR COMPRESSION AND
TENSION, AND LOCALIZATION OF GRAVITY PERCEPTION IN DICOT
STEMS (ABSTRACT).
IN: ABSTRACTS, AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF
SCIENCE, PACIFIC DIVISION, 62ND ANNUAL MEETING, EUGENE, OR,
JUNE 14-19, 1981.
SAN FRANCISCO: AAAS, PACIFIC DIVISION, P. 15, 1981.
273. SLOCUM, R.D.; BIRO, R.L.; ROUX*, S.J.
CALCIUM LOCALIZATION IN LIGHT AND GRAVITROPICALLY STIMULATED
PLANT ORGANS (ABSTRACT).
PLANT PHYSIOLOGY
67(4, SUPPL.): 104, 1981.
274. TELEWSKI, F.W.; JAFFE*, M.J.
THE EFFECT OF FLEXING, WIND OR ETHREL ON THE GROWTH OF PINUS
TAEDA SEEDLINGS (ABSTRACT).
PLANT PHYSIOLOGY
67(4, SUPPL.): 18, 1981.
275. TELEWSKI, F.W.; JAFFE*, M.J.
THIGMOMORPHOGENESIS: CHANGES IN THE MORPHOLOGY AND CHEMICAL
COMPOSITION INDUCED BY MECHANICAL PERTURBATION IN 6-MONTH-OLD
PINUS TAEDA SEEDLINGS.
CANADIAN JOURNAL OF FOREST RESEARCH
11: 380-387, 1981.
276. WARD, E.W.; MUELLER, W.J.; BLOTTER, P.T.; SALISBURY*, F.B.
QUANTIFYING THE FORCES EXERTED BY THE STEMS OF RICINUS
COMMUNIS L. DURING GRAVITROPIC BENDING.

IN: ABSTRACTS, AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF
SCIENCE, PACIFIC DIVISION, 62ND ANNUAL MEETING, EUGENE,
OR, JUNE 14-19, 1981.

SAN FRANCISCO: AAAS, PACIFIC DIVISION, P. 16, 1981.

277. WHEELER, R.M.; SALISBURY*, F.B.
ETHYLENE IN GRAVITROPISM OF DICOT SHOOTS (ABSTRACT).
IN: ABSTRACTS, AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF
SCIENCE, PACIFIC DIVISION, 62ND ANNUAL MEETING, EUGENE, OR,
JUNE 14-19, 1981.
SAN FRANCISCO: AAAS, PACIFIC DIVISION, P. 16-17, 1981.
278. WHEELER, R.M.; SALISBURY*, F.B.
GRAVITROPISM IN HIGHER PLANT SHOOTS. 1. A ROLE FOR ETHYLENE.
PLANT PHYSIOLOGY
67: 686-690, 1981.
279. WHEELER, R.M.; SALISBURY*, F.B.
STEM BENDING CAUSED BY UNILATERAL APPLICATION OF GROWTH
REGULATORS TO INTACT PLANTS (ABSTRACT).
PLANT PHYSIOLOGY
67(4, SUPPL.): 4, 1981.

1980

280. AKERS, S.W.; MITCHELL*, C.A.
STIMULATION OF PLANT GROWTH BY MECHANICAL VIBRATION
(ABSTRACT).
HORTSCIENCE
15(3): 428, 1980.
281. BIRO, R.L.; HUNT, E.R., JR.; ERNER, Y.; JAFFE*, M.J.
THIGMOMORPHOGENESIS: CHANGES IN CELL DIVISION AND ELONGATION
IN THE INTERNODES OF MECHANICALLY-PERTURBED OR ETHREL-TREATED
BEAN PLANTS.
ANNALS OF BOTANY
45: 655-664, 1980.
282. BRENNAN, T.; JACOBS*, W.P.
POLARITY AND THE MOVEMENT OF [¹⁴C]INDOL-3-YLACETIC ACID IN
THE COENOCYTE, CAULERPA PROLIFERA.
ANNALS OF BOTANY
46(1): 129-131, 1980.
283. BRITZ, S.J.; GALSTON*, A.W.
EXPERIMENTAL SEPARATION OF NUTATION FROM TROPIC RESPONSES
IN PEA SEEDLINGS (ABSTRACT).
PLANT PHYSIOLOGY
65(6, SUPPL.): 134, 1980.
284. BROWN*, A.H.; CHAPMAN, D.K.
INITIATION OF NUTATION IN SUNFLOWER HYPOCOTYLS.
PHYSIOLOGIST
23(6): S135-S136, 1980.
285. CHAPMAN, D.K.; VENDITTI, A.L.; BROWN*, A.H.
GRAVITY FUNCTIONS OF CIRCUMNUTATION BY HYPOCOTYLS OF
HELIANTHUS ANNUUS IN SIMULATED HYPOGRAVITY.
PLANT PHYSIOLOGY
65: 533-536, 1980.
286. ERNER, Y.; BIRO, R.; JAFFE*, M.J.
THIGMOMORPHOGENESIS: EVIDENCE FOR A TRANSLOCATABLE
THIGMOMORPHOGENETIC FACTOR INDUCED BY MECHANICAL PERTURBATION
OF BEANS (PHASEOLUS VULGARIS).
PHYSIOLOGIA PLANTARUM
50: 21-25, 1980.
287. ERNER, Y.; JAFFE*, M.J.
THIGMOMORPHOGENESIS: THE INVOLVEMENT OF AUXIN AND ABSCISIC
ACID IN GROWTH RETARDATION DUE TO MECHANICAL PERTURBATION.
PLANT AND CELL PHYSIOLOGY
23: 935-941, 1982.
288. HALE, C.C., II; MCENTIRE, K.; ROUX*, S.J.
ANALYSIS OF PROTEINS ON MEMBRANE-ENVELOPED BEADS PHAGOCYTIIZED

BY OAT PROTOPLASTS (ABSTRACT).
PLANT PHYSIOLOGY
65(6, SUPPL.): 147, 1980.

289. HALE, C.C., II; ROUX*, S.J.
PHOTOREVERSIBLE CALCIUM FLUXES INDUCED BY PHYTOCHROME IN OAT
COLEOPTILE CELLS.
PLANT PHYSIOLOGY
65: 658-662, 1980.
290. HARRISON, M. (PI = P.B. KAUFMAN)
REGULATION OF TILLER RELEASE IN OAT SHOOTS (AVENA SATIVA L.)
(ABSTRACT).
PLANT PHYSIOLOGY
65(6, SUPPL.): 76, 1980.
291. HARRISON, M.A.; KAUFMAN*, P.B.
HORMONAL REGULATION OF LATERAL BUD (TILLER) RELEASE IN OATS
(AVENA SATIVA L.).
PLANT PHYSIOLOGY
66: 1123-1127, 1980.
292. HUNT, E.R., JR.; JAFFE*, M.J.
THIGMOMORPHOGENESIS: THE INTERACTION OF WIND AND TEMPERATURE
IN THE FIELD ON THE GROWTH OF PHASEOLUS VULGARIS L.
ANNALS OF BOTANY
45: 665-672, 1980.
293. JACOBS*, W.P.; OLSON, J.
DEVELOPMENTAL CHANGES IN THE ALGAL COENOCYTE CAULERPA
PROLIFERA (SIPHONALES) AFTER INVERSION WITH RESPECT TO
GRAVITY.
AMERICAN JOURNAL OF BOTANY
67(2): 141-146, 1980.
294. JAFFE*, M.J.
MORPHOGENETIC RESPONSES OF PLANTS TO MECHANICAL STIMULI OR
STRESS.
BIOSCIENCE
30(4): 239-243, 1980.
295. JAFFE*, M.J.; BIRO, R.; BRIDLE, K.
THIGMOMORPHOGENESIS: CALIBRATION OF THE PARAMETERS OF THE
SENSORY FUNCTION IN BEANS.
PHYSIOLOGIA PLANTARUM
49: 410-416, 1980.
296. KAUFMAN*, P.; DAYANANDAN, P.; PHARIS, R.; REID, D.; GHOSHEH, N.;
LACROIX, D.
REGULATION OF NEGATIVE GEOTROPIC CURVATURE IN AVENA (OAT)
PULVINI BY NON-PULVINAR PARTS OF THE SHOOT (ABSTRACT).
PLANT PHYSIOLOGY
65(6, SUPPL.): 156, 1980.

297. KAUFMAN*, P.; DAYANANDAN, P.; PHARIS, R.; REID, D.; GHOSHEH, N.; LACROIX, D.
REGULATION OF NEGATIVE GEOTROPIC CURVATURE IN AVENA (OAT) PULVINI BY AUXIN, GIBBERELLIN AND ETHYLENE (ABSTRACT).
PLANT PHYSIOLOGY
65(6, SUPPL.): 35, 1980.
298. KRIKORIAN*, A.D.; KANN, R.P.
MASS BLOOMING OF A DAYLILY CLONE REARED FROM CULTURED TISSUES.
HEMEROCALLIS JOURNAL
34(1): 35-38, 1980.
299. LAU, Y.-L.; SCHELD, H.W.; COWLES*, J.R.
PHENYLALANINE AMMONIA-LYASE ACTIVITY IN CALLUS CULTURES OF PINUS ELLIOTTI.
PHYSIOLOGIA PLANTARUM
49: 299-303, 1980.
300. LEMAY, R.B.; COWLES*, J.R.
THE EFFECT OF LIGHT ON THE RECOVERY OF LIGNIN SYNTHESIS IN DEVELOPING PINE SEEDLINGS (ABSTRACT).
PLANT PHYSIOLOGY
65(6, SUPPL.): 144, 1980.
301. MUELLER, W.J.; SALISBURY*, F.B.
A MACROSCOPIC STUDY OF A RESTRICTED GRAVITROPIC RESPONSE (ABSTRACT).
PLANT PHYSIOLOGY
65(6, SUPPL.): 133, 1980.
302. OMRAN, R.G.; COWLES*, J.R.
DISTRIBUTION OF PHENYLALANINE AMMONIA-LYASE AND PHENYLALANYL-tRNA SYNTHETASE ACTIVITIES IN DEVELOPING PLANT TISSUES (ABSTRACT).
PLANT PHYSIOLOGY
65(6, SUPPL.): 27, 1980.
303. PAPPAS, T.; MITCHELL*, C.A.
DRY WEIGHT AND PHOTOSYNTHATE DISTRIBUTION IN MECHANICALLY-STRESSED GLYCINE MAX (L.) MERR. PLANTS (ABSTRACT).
HORTSCIENCE
15(3): 429, 1980.
304. PRIESTLEY, D.A.; LEOPOLD*, A.C.
PREPARATION OF INTACT AMYLOPLASTS FROM GEOSENSITIVE TISSUES (ABSTRACT).
PLANT PHYSIOLOGY
65(6, SUPPL.): 66, 1980.
305. RACUSEN, R.H.; GALSTON*, A.W.

PHYTOCHROME MODIFIES BLUE-LIGHT-INDUCED ELECTRICAL CHANGES IN
CORN COLEOPTILES.
PLANT PHYSIOLOGY
66: 534-535, 1980.

306. SALISBURY*, F.B.; WHEELER, R.M.; SLIWINSKI, J.E.; MUELLER, W.J.
ETHYLENE AND MECHANICAL STRESSES IN CLINOSTATED PLANTS
(ABSTRACT).
PLANT PHYSIOLOGY
65(6, SUPPL.): 134, 1980.
307. SLIWINSKI, J.E.; SALISBURY*, F.B.
A MICROSCOPIC STUDY OF THE RESTRICTED GRAVITROPIC RESPONSE
(ABSTRACT).
PLANT PHYSIOLOGY
65(6, SUPPL.): 134, 1980.
308. SLOCUM, R.D.; ROUX*, S.J.
IMMUNOELECTRON MICROSCOPIC LOCALIZATION OF PHYTOCHROME IN
ORGANELLE POPULATIONS ISOLATED FROM ETIOLATED OAT SHOOTS
(ABSTRACT).
PLANT PHYSIOLOGY
65(6): 101, 1980.
309. WHEELER, R.M.; SALISBURY*, F.B.
ETHYLENE INHIBITORS SLOW GRAVITROPIC RESPONSE IN MATURE
SHOOTS (ABSTRACT).
PLANT PHYSIOLOGY
65(6, SUPPL.): 134, 1980.
310. WHEELER, R.M.; SALISBURY*, F.B.
GRAVITROPISM IN PLANT STEMS MAY REQUIRE ETHYLENE.
SCIENCE
209: 1126-1127, 1980.
311. WIEGAND, O.F.; HALE, C.C., II; ROUX*, S.J.
CHLORPROMAZINE PROMOTION OF EXTENSION GROWTH AND INHIBITION
OF GEOTROPISM (ABSTRACT).
PLANT PHYSIOLOGY
65(6, SUPPL.): 75, 1980.

ANIMAL GRAVITATIONAL RESEARCH

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ANIMAL GRAVITATIONAL RESEARCH

1984

312. FULLER*, C.A.
ACUTE PHYSIOLOGICAL RESPONSES OF SQUIRREL MONKEYS
EXPOSED TO HYPERDYNAMIC ENVIRONMENTS.
AVIATION, SPACE, AND ENVIRONMENTAL MEDICINE
55: 226-230, 1984.
313. GUPTA, R.C.; MISULIS, K.E.; DETTBARN*, W.-D.
STATUS OF ENZYMES CATALYZING SYNTHESIS AND HYDROLYSIS
OF ACETYLCHOLINE IN HYPOKINETIC RAT (ABSTRACT).
FEDERATION PROCEEDINGS
43(3): 548, 1984.
314. JASPERS, S.R.; TISCHLER*, M.E.
REGULATION OF GLUTAMINE PRODUCTION IN SOLEUS MUSCLES
FROM HYPOKINETIC/HYPODYNAMIC RATS (ABSTRACT).
FEDERATION PROCEEDINGS
43(6): 1549, 1984.
315. JOYNER, M.J.; ENOKA, R.M.; RANKIN, L.L.; VOLZ, K.A.;
STUART*, D.G.
NEURAL FACTORS IN WHOLE-MUSCLE FATIGUE OF RAT SOLEUS
AND MEDIAL GASTROCNEMIUS MUSCLES (ABSTRACT).
CLINICAL RESEARCH
32: 56A, 1984.
316. MONSON, C.B.; HOROWITZ*, J.M.
IMPAIRMENT OF THERMOGENESIS AND HEAT CONSERVATION IN
RATS DURING 3 HOURS OF 3-G EXPOSURE.
AVIATION, SPACE, AND ENVIRONMENTAL MEDICINE
55: 542-545, 1984.
317. MONSON, C.B.; HOROWITZ*, J.M.; OYAMA*, J.
THERMOREGULATION DURING COLD EXPOSURE AT 2.1 G IN RATS
ADAPTED TO HYPERGRAVIC FIELDS (ABSTRACT).
FEDERATION PROCEEDINGS
43(4): 907, 1984.
318. NEFF, A.W.; WAKAHARA, M.; JURAND, A.; MALACINSKI*, G.M.
EXPERIMENTAL ANALYSES OF CYTOPLASMIC REARRANGEMENTS
WHICH FOLLOW FERTILIZATION AND ACCOMPANY SYMMETRIZATION
OF INVERTED XENOPUS EGGS.
JOURNAL OF EMBRYOLOGY AND EXPERIMENTAL MORPHOLOGY
80: 197-224, 1984.
319. ROSENBERG, G.D.; CAMPBELL, S.C.; SIMMONS*, D.J.
THE EFFECTS OF SPACEFLIGHT ON THE MINERALIZATION OF RAT
INCISOR DENTIN.
PROCEEDINGS OF THE SOCIETY FOR EXPERIMENTAL BIOLOGY AND

MEDICINE

175(4): 429-437, 1984.

320. ROSS*, M.D.
THE ORGANIZATION OF THE GRAVITY RECEPTOR END ORGAN:
CLUES TO THE PERIPHERAL COMPONENT IN SPACE-MOTION
SICKNESS (ABSTRACT).
AVIATION, SPACE, AND ENVIRONMENTAL MEDICINE
55: 445, 1984.
321. ROSS*, M.D.; POTE, K.G.
SOME PROPERTIES OF OTOCONIA.
PHILOSOPHICAL TRANSACTION OF THE ROYAL SOCIETY OF
LONDON, SERIES B: BIOLOGICAL SCIENCE
304: 445-452, 1984.
322. STEFFEN, J.M.; MUSACCHIA*, X.J.
THYMIC INVOLUTION AND ADRENAL RESPONSES IN THE
SUSPENDED RAT MODEL FOR WEIGHTLESSNESS (ABSTRACT).
PHYSIOLOGIST
27(4): 261, 1984.
323. STEFFEN, J.M.; ROBB, R.; DOMBROWSKI, M.J.; MUSACCHIA*,
X.J.; MANDEL, A.D.; SONNENFELD, G.
A SUSPENSION MODEL FOR HYPOKINETIC/HYPODYNAMIC AND
ANTIORTHOSTATIC RESPONSES IN THE MOUSE.
AVIATION, SPACE, AND ENVIRONMENTAL MEDICINE
55: 612-616, 1984.
324. TEMPLETON*, G.H.; PADALINO, M.; MANTON, J.; GLASBERG, M.;
SILVER, C.J.; SILVER, P.; DE MARTINO, G.; LECONEY, T.;
KLUG, G.; HAGLER, H.; SUTKO, J.L.
INFLUENCE OF SUSPENSION HYPOKINESIA ON RAT SOLEUS
MUSCLE.
JOURNAL OF APPLIED PHYSIOLOGY: RESPIRATORY,
ENVIRONMENTAL AND EXERCISE PHYSIOLOGY
56: 278-286, 1984.
325. TEMPLETON*, G.H.; PADALINO, M.; MANTON, J.; LECONEY, T.;
HAGLER, H.; GLASBERG, M.
THE INFLUENCE OF RAT SUSPENSION-HYPOKINESIA ON THE
GASTROCNEMIUS MUSCLE.
AVIATION, SPACE, AND ENVIRONMENTAL MEDICINE
55: 381-386, 1984.
326. WAKAHARA, M.; NEFF, A.W.; MALACINSKI*, G.M.
TOPOLOGY OF THE GERM PLASM AND DEVELOPMENT OF
PRIMORDIAL GERM CELLS IN INVERTED AMPHIBIAN EGGS.
DIFFERENTIATION
26(3): 203-210, 1984.

1983

327. ANTON-ERXLEBEN, F.; MIQUEL*, J.; PHILPOTT, D.E.
FINE-STRUCTURAL CHANGES IN THE MIDGUT OF OLD DROSOPHILA
MELANOGASTER.
MECHANISMS OF AGEING AND DEVELOPMENT
23: 265-276, 1983.
328. BIKLE*, D.D.; HERMAN, R.H.
CALCIUM POTENTIATES THE CYCLIC NUCLEOTIDE AND PHOSPHATURIC
RESPONSE TO PARATHYROID HORMONE INFUSION.
JOURNAL OF CLINICAL ENDOCRINOLOGY AND METABOLISM
56: 11-17, 1983.
329. BIKLE*, D.D.; MUNSON, S.J.
CALCIUM TRANSPORT BY DUODENAL BRUSH BORDER MEMBRANES AS A
FUNCTION OF POSITION ON THE VILLUS: DIFFERENTIAL REGULATION
BY 1,25(OH)²D (ABSTRACT).
CLINICAL RESEARCH
31: 92A, 1983.
330. CHEN, T.L.; CONE, C.M.; MOREY-HOLTON*, E.; FELDMAN, D.
1 ALPHA,25-DIHYDROXYVITAMIN D₃ RECEPTORS IN CULTURED RAT
OSTEOBLAST-LIKE CELLS. GLUCOCORTICOID TREATMENT INCREASES
RECEPTOR CONTENT.
JOURNAL OF BIOLOGICAL CHEMISTRY
258: 4350-4355, 1983.
331. DUKE*, J.C.
SUPPRESSION OF MORPHOGENESIS IN EMBRYONIC MOUSE LIMBS EXPOSED
IN VITRO TO EXCESS GRAVITY.
TERATOLOGY
27: 427-436, 1983.
332. DUNN*, C.D.R.; JOHNSON, P.C.; LANGE, R.D.
HEMATOPOIESIS IN ANTIORTHOSTATIC, HYPOKINESIC RATS.
PHYSIOLOGIST
26(6): S133-S134, 1983.
333. FINCK*, A.
THE GRAVITY SENSE OF ARANEUS SERICATUS (ABSTRACT).
PAPER PRESENTED AT AMERICAN ARACHNOLOGICAL SOCIETY 1983
EASTERN DIVISION MEETING, ATHENS, OHIO, JUNE 24-27, 1983.
334. FLEMING, J.E.; MIQUEL*, J.
EFFECTS OF TEMPERATURE ON THE METABOLIC RATE OF YOUNG AND OLD
DROSOPHILA.
EXPERIENTIA
39: 267-268, 1983.
335. FULLER*, C.A.
SLEEP-WAKE RESPONSES OF SQUIRREL MONKEYS EXPOSED TO

HYPERDYNAMIC ENVIRONMENTS.
PHYSIOLOGIST
26(6): S90-S91, 1983.

336. FULLER*, C.A.; GRIFFIN, D.W.; HOROWITZ*, J.M.
CIRCADIAN RESPONSES OF MAMMALS TO THE HYPERDYNAMIC
ENVIRONMENT (ABSTRACT).
PHYSIOLOGIST
26(4): A32, 1983.
337. GIACCHINO, J.L.; SCHERTEL, E.R.; HOROWITZ*, J.M.; HORWITZ, B.A.
EFFECT OF P-CHLOROPHENYLALANINE ON THERMOREGULATION IN
UNRESTRAINED RATS.
AMERICAN JOURNAL OF PHYSIOLOGY
244: R299-R302, 1983.
338. HOLTON*, E.
BONE AND CALCIUM ALTERATION DURING SPACEFLIGHT.
IN: THE REGULATORY FUNCTIONS OF CALCIUM AND THE POTENTIAL
ROLE OF CALCIUM IN MEDIATING GRAVITATIONAL RESPONSES IN CELLS
AND TISSUES (ROUX, S.J., ED.).
WASHINGTON, D.C.: NASA, P. 111-126, 1983. (NASA CP-2286).
339. HOROWITZ*, J.
GRAVITATIONAL STUDY OF THE CENTRAL NERVOUS SYSTEM.
IN: THE REGULATORY FUNCTIONS OF CALCIUM AND THE POTENTIAL
ROLE OF CALCIUM IN MEDIATING GRAVITATIONAL RESPONSES IN CELLS
AND TISSUES (ROUX, S.J., ED.).
WASHINGTON, DC; NASA, P. 127-132, 1983. (NASA CP-2286)
340. HOROWITZ*, J.M.; HORWITZ, B.A.; MONSON, C.B.
THERMOREGULATION IN COLD- AND NONCOLD-ACCLIMATED RATS COLD
EXPOSED IN HYPERGRAVIC FIELDS.
PHYSIOLOGIST
26(6): S169-S172, 1983.
341. JASPERS, S.R.; FAGAN, J.M.; TISCHLER*, M.E.
EFFECT OF LIMB IMMOBILIZATION ON PROTEIN TURNOVER AND REDOX
STATE IN MUSCLES OF HYPOKINETIC RATS (ABSTRACT).
FEDERATION PROCEEDINGS
42: 1815, 1983.
342. JEE, W.S.S.; WRONSKI, T.J.; MOREY*, E.R.; KIMMEL, D.B.
EFFECTS OF SPACEFLIGHT ON TRABECULAR BONE IN RATS.
AMERICAN JOURNAL OF PHYSIOLOGY
244: R310-R314, 1983.
343. JONES, T.A.; HOROWITZ*, J.M.
BONE-CONDUCTED AUDITORY STIMULATION IN UNRESTRAINED,
UNANESTHETIZED ANIMALS.
JOURNAL OF NEUROSCIENCE METHODS
7: 261-267, 1983.

344. MALACINSKI*, G.
POLARITY OF THE AMPHIBIAN EGG.
IN: THE REGULATORY FUNCTIONS OF CALCIUM AND THE POTENTIAL
ROLE OF CALCIUM IN MEDIATING GRAVITATIONAL RESPONSES IN CELLS
AND TISSUES (ROUX, S.J.; ED.).
WASHINGTON, DC: NASA, P. 133-141, 1983. (NASA CP-2286)
345. MANN, S.; PARKER, S.B.; ROSS*, M.D.; SKARNULIS, A.J.; WILLIAMS,
R.J.P.
THE ULTRASTRUCTURE OF THE CALCIUM CARBONATE BALANCE ORGANS OF
THE INNER EAR: AN ULTRA-HIGH RESOLUTION ELECTRON MICROSCOPY
STUDY.
PROCEEDINGS OF THE ROYAL SOCIETY OF LONDON, SERIES B:
BIOLOGICAL SCIENCES
218: 415-424, 1983.
346. MIQUEL*, J.; BINNARD, R.; FLEMING, J.E.
ROLE OF METABOLIC RATE AND DNA-REPAIR IN DROSOPHILA AGING:
IMPLICATIONS FOR THE MITOCHONDRIAL MUTATION THEORY OF AGING.
EXPERIMENTAL GERONTOLOGY
18: 167-171, 1983.
347. MIQUEL*, J.; JOHNSON, J.E., JR.; CERVOS-NAVARRO, J.
COMPARISON OF CNS AGING IN HUMANS AND EXPERIMENTAL ANIMALS.
IN: BRAIN AGING: NEUROPATHOLOGY AND NEUROPHARMACOLOGY
(CERVOS-NAVARRO, J.; SARKANDER, H.-I.; EDS.).
NEW YORK: RAVEN, P. 231-258, 1983. (AGING, VOL. 21)
348. MONSON, C.B.; HOROWITZ*, J.M.; HORWITZ, B.A.
EVIDENCE FOR PARALLEL THERMOCONTROLLERS IN RATS EXPOSED TO
HYPERGRAVIC FIELDS (ABSTRACT).
FEDERATION PROCEEDINGS
42: 1124, 1983.
349. MONSON, C.B.; HOROWITZ*, J.M.; HORWITZ, B.A.
HYPERGRAVIC FIELDS AND PARALLEL CONTROLLERS FOR
THERMOREGULATION.
JOURNAL OF APPLIED PHYSIOLOGY: RESPIRATORY, ENVIRONMENTAL AND
EXERCISE PHYSIOLOGY
55(3): 990-995, 1983.
350. MUSACCHIA*, X.J.; STEFFEN, J.M.
THE VALIDITY OF AN ANIMAL MODEL FOR EXPERIMENTS RELATED TO
WEIGHTLESSNESS.
PHYSIOLOGIST
26(6): S37-S40, 1983.
351. MUSACCHIA*, X.J.; STEFFEN, J.M.; DEAVERS, D.R.
RAT HINDLIMB MUSCLE RESPONSES TO SUSPENSION
HYPOKINESIA/HYPODYNAMIA.
AVIATION, SPACE, AND ENVIRONMENTAL MEDICINE
54: 1015-1020, 1983.

352. NACE*, G.W.
GRAVITY AND POSITIONAL HOMEOSTASIS OF THE CELL.
ADVANCES IN SPACE RESEARCH
3(9): 159-168, 1983.
353. NEFF, A.W.; WAKAHARA, M.; JURAND, A.; MALACINSKI*, G.M.
RESPONSE OF AMPHIBIAN EGG CYTOPLASM TO NOVEL GRAVITY
ORIENTATION AND CENTRIFUGATION.
PHYSIOLOGIST
26(6): S143-S144, 1983.
354. PACE*, N.; RAHLMANN, D.F.
THERMONEUTRAL ZONE AND SCALING OF METABOLIC RATE ON BODY MASS
IN SMALL MAMMALS.
PHYSIOLOGIST
26(6): S51-S52, 1983.
355. PACE*, N.; SECORD, T.
PRIMATE METABOLIC SYSTEM FOR SHUTTLE.
PAPER PRESENTED AT THE 13TH INTERSOCIETY CONFERENCE ON
ENVIRONMENTAL SYSTEMS, SAN FRANCISCO, CA, JULY 11-13, 1983, 9
P. (SAE TECHNICAL PAPER-831096)
356. PACE*, N.; SMITH*, A.H.
SCALING OF METABOLIC RATE ON BODY MASS IN SMALL MAMMALS AT
2.0 G.
PHYSIOLOGIST
26(6): S125-S126, 1983.
357. PAYNE, J.P.; JUDY, M.M.; TEMPLETON*, G.H.; BLACK, T.D.
FRAUNHOFER DIFFRACTION OF LIGHT BY STRIATED MUSCLE: THE
MYOFIBRIL AS A PHASE GRATING (ABSTRACT).
BIOPHYSICAL JOURNAL
41: 259A, 1983.
358. PITTS*, G.C.; USHAKOV, A.S.; PACE*, N.; SMITH*, A.H.; RAHLMANN,
D.F.; SMIRNOVA, T.A.
EFFECTS OF WEIGHTLESSNESS ON BODY COMPOSITION IN THE RAT.
AMERICAN JOURNAL OF PHYSIOLOGY
244: R332-R337, 1983.
359. ROBB, R.; STEFFEN, J.M.; SONNENFELD, G.; MUSACCHIA*, X.J.;
DOMBROWSKI, M.J.
MOUSE MODEL FOR STUDIES OF HYPOKINESIA AND ANTIORTHOSTASIS
(ABSTRACT).
FEDERATION PROCEEDINGS
42: 1123, 1983.
360. ROBERTS*, W.E.; MOZSARY, P.K.; SMITH, R.K.
BONE MODELING AND REMODELING RESPONSE TO LOADS APPLIED
VIA RIGID ENDOSSEOUS IMPLANTS (ABSTRACT).
JOURNAL OF DENTAL RESEARCH
62(S): 686, 1983.

361. ROSS*, M.
 CALCIUM IONS, STORES, AND MODULATORS: WHAT IS THE GRAVITY RECEPTOR CONNECTION?
 IN: THE REGULATORY FUNCTIONS OF CALCIUM AND THE POTENTIAL ROLE OF CALCIUM IN MEDIATING GRAVITATIONAL RESPONSES IN CELLS AND TISSUES (ROUX, S.J.; ED.).
 WASHINGTON, DC: NASA, P. 147-163, 1983. (NASA CP-2286)
362. ROSS*, M.D.
 GRAVITY AND THE CELLS OF GRAVITY RECEPTORS IN MAMMALS.
ADVANCES IN SPACE RESEARCH
 3(9): 179-190, 1983.
363. ROSS*, M.D.; BOURNE, C.
 INTERRELATED STRIATED ELEMENTS IN VESTIBULAR HAIR CELLS OF THE RAT.
SCIENCE
 220: 622-624, 1983.
364. SCIBETTA, S.M.; CAREN, L.D.; OYAMA*, J.
 THE EFFECTS OF HYPERGRAVITY ON THE RATE OF ANTIBODY FORMATION IN THE RAT.
PHYSIOLOGIST
 26(6): S135-S136, 1983.
365. SIMMONS*, D.J.; GRAZMAN, B.; RUSSELL, J.E.; WALKER, W.V.; BIKLE*, D.D.; MOREY*, E.R.
 SIMULATING CERTAIN ASPECTS OF HYPOGRAVITY: EFFECTS ON BONE MATURATION IN THE NON-WEIGHT BEARING SKELETON.
AVIATION, SPACE, AND ENVIRONMENTAL MEDICINE
 54: 1080-1084, 1983.
366. SIMMONS*, D.J.; RUSSELL, J.E.; WINTER, F.; TRAN VAN, P.; VIGNERY, A.; BARON, R.; ROSENBERG, G.D.; WALKER, W.V.
 EFFECT OF SPACEFLIGHT ON THE NON-WEIGHT-BEARING BONES OF RAT SKELETON.
AMERICAN JOURNAL OF PHYSIOLOGY
 244: R319-R326, 1983.
367. SMITH*, A.H.
 THE ROLE OF CHRONIC ACCELERATION IN GRAVITATIONAL PHYSIOLOGY.
PHYSIOLOGIST
 26(6): S47-S50, 1983.
368. SPECTOR, M.; TURNER, R.T.; MOREY-HOLTON*, E.; BAYLINK, D.J.; BELL, N.H.
 ARRESTED BONE FORMATION DURING SPACE FLIGHT RESULTS IN A HYPOMINERALIZED SKELETAL DEFECT.
PHYSIOLOGIST
 26(6): S110-S111, 1983.
369. SPENGLER, D.M.; MOREY*, E.R.; CARTER, D.R.; TURNER, R.T.; BAYLINK, D.J.

EFFECTS OF SPACEFLIGHT ON STRUCTURAL AND MATERIAL STRENGTH OF GROWING BONE.
PROCEEDINGS OF THE SOCIETY FOR EXPERIMENTAL BIOLOGY AND MEDICINE
174: 224-228, 1983.

370. STEFFEN, J.M.; MUSACCHIA*, X.J.
ALTERED NUMBERS OF GLUCOCORTICOID RECEPTORS IN CARDIAC MUSCLE FROM SUSPENDED HYPOKINETIC/HYPODYNAMIC RATS (ABSTRACT).
FEDERATION PROCEEDINGS
42: 1123, 1983.
371. STERN, P.H.; HALLORAN*, B.P.; DELUCA, H.F.; HEFLEY, T.J.
RESPONSIVENESS OF VITAMIN D-DEFICIENT FETAL RAT LIMB BONES TO PARATHYROID HORMONE IN CULTURE.
AMERICAN JOURNAL OF PHYSIOLOGY
244: E421-E424, 1983.
372. TISCHLER*, M.E.; JASPERS, S.R.; FAGAN, J.M.
PREVENTION OF METABOLIC ALTERATIONS CAUSED BY SUSPENSION HYPOKINESIA IN LEG MUSCLES OF RATS.
PHYSIOLOGIST
26(6): S98-S99, 1983.
373. WRONSKI, T.J.; MOREY*, E.R.
ALTERATIONS IN CALCIUM HOMEOSTASIS AND BONE DURING ACTUAL AND SIMULATED SPACE FLIGHT.
MEDICINE AND SCIENCE IN SPORTS AND EXERCISE
15(5): 410-414, 1983.
374. WRONSKI, T.J.; MOREY*, E.R.
EFFECT OF SPACEFLIGHT ON PERIOSTEAL BONE FORMATION IN RATS.
AMERICAN JOURNAL OF PHYSIOLOGY
244: R305-R309, 1983.
375. WRONSKI, T.J.; MOREY*, E.R.
INHIBITION OF CORTICAL AND TRABECULAR BONE FORMATION IN THE LONG BONES OF IMMOBILIZED MONKEYS.
CLINICAL ORTHOPAEDICS AND RELATED RESEARCH
181: 269-276, 1983.
376. WRONSKI, T.J.; MOREY*, E.R.
RECOVERY OF THE RAT SKELETON FROM THE ADVERSE EFFECTS OF SIMULATED WEIGHTLESSNESS.
METABOLIC BONE DISEASE AND RELATED RESEARCH
4: 347-352, 1983.

1982

377. ABBOTT*, U.K.
AVIAN EMBRYONIC DEVELOPMENT IN HYPERDYNAMIC ENVIRONMENTS.
FINAL REPORT.
DAVIS, CA: U. CALIFORNIA, DAVIS, 13 P., MARCH 1982.
(NASA CR-173339)
378. BIKLE*, D.D.; GLOBUS, R.K.; MOREY*, E.R.
CALCIUM TRANSPORT FROM THE INTESTINE AND INTO BONE IN A RAT
MODEL SIMULATING WEIGHTLESSNESS (ABSTRACT).
PHYSIOLOGIST
25(4): 302, 1982.
379. BIKLE*, D.D.; GLOBUS, R.K.; MOREY*, E.R.
CALCIUM TRANSPORT FROM THE INTESTINE AND INTO BONE IN A RAT
MODEL SIMULATING WEIGHTLESSNESS.
PHYSIOLOGIST
25(6): S143-S144, 1982.
380. DALIGCON, B.C.; OYAMA*, J.
INCREASED GLUCONEOGENESIS IN HYPER-G STRESSED RATS
(ABSTRACT).
PHYSIOLOGIST
25(4): 212, 1982.
381. DALIGCON, B.C.; OYAMA*, J.
INCREASED GLUCONEOGENESIS IN HYPER-G STRESSED RATS.
PHYSIOLOGIST
25(6): S87-S88, 1982.
382. DOTY*, S.B.; MOREY-HOLTON*, E.
CHANGES IN OSTEOBLASTIC ACTIVITY DUE TO SIMULATED WEIGHTLESS
CONDITIONS (ABSTRACT).
PHYSIOLOGIST
25(4): 302, 1982.
383. DOTY*, S.B.; MOREY-HOLTON*, E.R.
CHANGES IN OSTEOBLASTIC ACTIVITY DUE TO SIMULATED WEIGHTLESS
CONDITIONS.
PHYSIOLOGIST
25(6): S141-S142, 1982.
384. DUNN*, C.D.R.; JOHNSON, P.C.; LEACH, C.S.
FLUID SHIFTS AND ERYTHROPOIESIS: RELEVANCE TO THE "ANEMIA" OF
SPACEFLIGHT (ABSTRACT).
PHYSIOLOGIST
25(4): 196, 1982.
385. DUNN*, C.D.R.; JOHNSON, P.C.; LEACH, C.S.
FLUID SHIFTS AND ERYTHROPOIESIS: RELEVANCE TO THE "ANEMIA" OF
SPACE FLIGHT.
PHYSIOLOGIST

25(6): S79-S80, 1982.

386. ECONOMOS, A.C.; BALLARD, R.C.; MIQUEL*, J.; BINNARD, R.; PHILPOTT, D.E.
ACCELERATED AGING OF FASTED DROSOPHILA: PRESERVATION OF PHYSIOLOGICAL FUNCTION AND CELLULAR FINE STRUCTURE BY THIAZOLIDINE CARBOXYLIC ACID (TCA).
EXPERIMENTAL GERONTOLOGY
17: 105-114, 1982.
387. ECONOMOS, A.C.; BALLARD, R.C.; MIQUEL*, J.; LINDSETH, K.A.
INCREASED RATE OF LIVING AND RATE OF AGING OF RATS EXPOSED TO HYPERGRAVITY (ABSTRACT).
AGE
5: 143, 1982.
388. ECONOMOS, A.C.; MIQUEL*, J.; BALLARD, R.C.; BLUNDEN, M.; LINDSETH, K.A.; FLEMING, J.; PHILPOTT, D.E.; OYAMA*, J.
EFFECTS OF SIMULATED INCREASED GRAVITY ON THE RATE OF AGING OF RATS: IMPLICATIONS FOR THE RATE OF LIVING THEORY OF AGING.
ARCHIVES OF GERONTOLOGY AND GERIATRICS
1: 349-363, 1982.
389. FINCK*, A.
GRAVITO-INERTIAL SENSITIVITY OF THE SPIDER; ARANEUS SERICATUS (ABSTRACT).
PHYSIOLOGIST
25(4): 258, 1982.
390. FINCK*, A.
GRAVITO-INERTIAL SENSITIVITY OF THE SPIDER: ARANEUS SERICATUS.
PHYSIOLOGIST
25(6): S121-S122, 1982.
391. FLEMING, J.E.; MIQUEL*, J.
EXPERIMENTAL SUPPORT FOR THE RATE OF LIVING THEORY OF AGING IN DROSOPHILA (ABSTRACT).
AGE
5: 143, 1982.
392. FLEMING, J.E.; MIQUEL*, J.; COTTRELL, S.F.; YENGOYAN, L.S.; ECONOMOS, A.C.
IS CELL AGING CAUSED BY RESPIRATION-DEPENDENT INJURY TO THE MITOCHONDRIAL GENOME?
GERONTOLOGY
28: 44-53, 1982.
393. FULLER*, C.A.; WILLIAMS, B.A.
PRIMATE THERMAL SENSITIVITY TO SHORT HYPERACCELERATION PROFILES (ABSTRACT).
PHYSIOLOGIST
25(4): 213, 1982.

394. FULLER*, C.A.; WILLIAMS, B.A.
SHORT HYPERDYNAMIC PROFILES INFLUENCE PRIMATE TEMPERATURE
REGULATION.
PHYSIOLOGIST
25(6): S91-S92, 1982.
395. GLOBUS, A.; MOREY-HOLTON*, E.
COMPUTER-ASSISTED IMAGE ANALYSIS OF CROSS-SECTIONAL BONE
GROWTH (ABSTRACT).
CALCIFIED TISSUE INTERNATIONAL
34(SUPPL.): S7, 1982.
396. HOLTON*, E.M.
EFFECTS OF WEIGHTLESSNESS ON BONE AND MUSCLE OF RATS.
IN: SPACE GERONTOLOGY (MIQUEL, J.; ECONOMOS, A.C.; EDS.).
WASHINGTON, DC: NASA, P. 59-66, 1982. (NASA CP-2248)
397. HOROWITZ*, J.M.; MONSON, C.B.; HORWITZ, B.A.
EFFECTS OF RESTRAINT ON TWO MODES OF HEAT PRODUCTION OF COLD-
EXPOSED RATS IN HYPERGRAVIC FIELDS (ABSTRACT).
PHYSIOLOGIST
25(4): 212, 1982.
398. HULTER, H.N.; TOTO, R.D.; ILNICKI, L.P.; HALLORAN*, B.;
SEBASTIAN, A.
METABOLIC ALKALOSIS IN EXPERIMENTAL HYPERPARATHYROIDISM:
ROLES OF CONTINUOUS PTH EXCESS AND OF PLASMA 1,25-(OH)₂D₃
CONCENTRATION (ABSTRACT).
KIDNEY INTERNATIONAL
21: 235, 1982.
399. JASPERS, S.; TISCHLER*, M.E.
CORRELATION OF QUANTITY AND THE METABOLISM OF PROTEIN IN
HINDLIMB MUSCLES OF HYPOKINETIC RATS.
FEDERATION PROCEEDINGS
41: 867, 1982.
400. JONES, T.A.; HOFFMAN, L.; HOROWITZ*, J.M.
ALTERED AUDITORY FUNCTION IN RATS EXPOSED TO HYPERGRAVIC
FIELDS (ABSTRACT).
PHYSIOLOGIST
25(4): 213, 1982.
401. JONES, T.A.; HOFFMAN, L.; HOROWITZ*, J.M.
ALTERED AUDITORY FUNCTION IN RATS EXPOSED TO HYPERGRAVIC
FIELDS.
PHYSIOLOGIST
25(6): S93-S94, 1982.
402. JUDY, M.M.; SUMMEROUR, V.; LECONEY, T.; ROA, R.L.; TEMPLETON*,
G.H.
MUSCLE DIFFRACTION THEORY: RELATIONSHIP BETWEEN DIFFRACTION

SUBPEAKS AND DISCRETE SARCOMERE LENGTH DISTRIBUTIONS.
BIOPHYSICAL JOURNAL
37: 475-487, 1982.

403. KEEFE*, J.R.
TIMING OF NEURON DEVELOPMENT IN THE RODENT VESTIBULAR SYSTEM
(ABSTRACT).
PHYSIOLOGIST
25(4): 257, 1982.
404. KEEFE*, J.R.
TIMING OF NEURON DEVELOPMENT IN THE RODENT VESTIBULAR SYSTEM.
PHYSIOLOGIST
25(6): S115-S116, 1982.
405. KERR, T.P.; ROSS*, M.D.; ERNST, S.A.
CELLULAR LOCALIZATION OF Na⁺, K⁺-ATPase IN THE MAMMALIAN
COCHLEAR DUCT: SIGNIFICANCE FOR COCHLEAR FLUID BALANCE.
AMERICAN JOURNAL OF OTOLARYNGOLOGY
3: 332-338, 1982.
406. MALACINSKI*, G.M.
REVERSAL OF EARLY PATTERN FORMATION IN INVERTED AMPHIBIAN
EGGS (ABSTRACT).
PHYSIOLOGIST
25(4): 258, 1982.
407. MEYERS, D.G. (PI = A.H. BROWN)
GRAVITY RECEPTORS IN A MICROCRUSTACEAN WATER FLEA: FUNCTION
OF ANTENNAL-SOCKET SETAE IN DAPHNIA MAGNA (ABSTRACT).
PHYSIOLOGIST
25(4): 259, 1982.
408. MEYERS, D.G.; FARMER, J.M. (PI = A.H. BROWN)
GRAVITY RECEPTORS IN A MICROCRUSTACEAN WATER FLEA:
SENSITIVITY OF ANTENNAL-SOCKET SETAE IN DAPHNIA MAGNA.
PHYSIOLOGIST
25(6): S123-S124, 1982.
409. MIQUEL*, J.
COMPARISON BETWEEN THE WEIGHTLESSNESS SYNDROME AND AGING.
IN: SPACE GERONTOLOGY (MIQUEL, J.; ECONOMOS, A.C.; EDS.).
WASHINGTON, DC: NASA P. 1-7, 1982. (NASA CP-2248)
410. MIQUEL*, J.; FLEMING, J.E.
EXPERIMENTAL SUPPORT FOR THE MITOCHONDRIAL MUTATION THEORY OF
CELL AGING (ABSTRACT).
AGE
5: 142-143, 1982.
411. MIQUEL*, J.; FLEMING, J.; ECONOMOS, A.C.
ANTIOXIDANTS, METABOLIC RATE AND AGING IN DROSOPHILA.
ARCHIVES OF GERONTOLOGY AND GERIATRICS

1: 159-165, 1982.

412. MONSON, C.B.; HOROWITZ*, J.M.; HORWITZ, B.A.
RESTRAINT HYPOTHERMIA IN COLD-EXPOSED RATS AT 3 G AND 1 G.
PHYSIOLOGIST
25(6): S89-S90, 1982.
413. MOREY-HOLTON*, E.R.; BOMALASKI, M.D.; WRONSKI, T.J.
IS SUPPRESSION OF BONE FORMATION DURING SIMULATED
WEIGHTLESSNESS GRADUAL AND RELATED TO GLUCOCORTICOID LEVELS?
(ABSTRACT).
PHYSIOLOGIST
25(4): 302, 1982.
414. MOREY-HOLTON*, E.R.; BOMALASKI, M.D.; ENAYATI-GORDON, E.;
GONSALVES, M.R.; WRONSKI, T.J.
IS SUPPRESSION OF BONE FORMATION DURING SIMULATED
WEIGHTLESSNESS RELATED TO GLUCOCORTICOID LEVELS?
PHYSIOLOGIST
25(6): S145-S146, 1982.
415. MUSACCHIA*, X.J.; STEFFEN, J.M.
SHORT TERM (1 AND 3 DAY) CARDIOVASCULAR ADJUSTMENTS TO
SUSPENSION ANTIORTHOSTASIS IN RATS (ABSTRACT).
PHYSIOLOGIST
25(4): 304, 1982.
416. MUSACCHIA*, X.J.; STEFFEN, J.M.
SHORT TERM (1 AND 3 DAY) CARDIOVASCULAR ADJUSTMENTS TO
SUSPENSION ANTIORTHOSTASIS IN RATS.
PHYSIOLOGIST
25(6): S163-S164, 1982.
417. MYERS, S.F.; ROSS*, M.D.
ULTRASTRUCTURAL CHANGES IN THE VESTIBULAR APPARATUS OF
STREPTOZOTOCIN DIABETIC RATS (ABSTRACT).
ANATOMICAL RECORD
202: 134A, 1982.
418. NACE*, G.W.
EXPLORATION OF POSSIBLE GRAVITATIONAL INFLUENCES ON
FERTILIZATION AND INITIATION OF DEVELOPMENT (ABSTRACT).
IN: ABSTRACTS, 24TH COSPAR MEETING, OTTAWA, CANADA, MAY
16-JUNE 2, 1982.
PARIS: COSPAR, P. 536, 1982.
419. NACE*, G.W.
GRAVITY AND POSITIONAL HOMEOSTASIS OF THE CELL (ABSTRACT).
PHYSIOLOGIST
25(4): 258, 1982.
420. NACE*, G.W.; MANDERS, E.K.
MARKING INDIVIDUAL AMPHIBIANS.

JOURNAL OF HERPETOLOGY
16: 309-311, 1982.

421. NEFF, A.W.; MALACINSKI*, G.M.
REVERSAL OF EARLY PATTERN FORMATION IN INVERTED AMPHIBIAN EGGS.
PHYSIOLOGIST
25(6): S119-S120, 1982.
422. OYAMA*, J.
METABOLIC EFFECTS OF HYPERGRAVITY ON EXPERIMENTAL ANIMALS.
IN: SPACE GERONTOLOGY (MIQUEL, J.; ECONOMOS, A.C.; EDS.).
WASHINGTON, DC: NASA, P. 37-51, 1982. (NASA CP-2248)
423. PACE*, N.; MOREY-HOLTON*, E.; RAHLMANN, D.F.; SMITH*, A.H.
BODY COMPOSITION OF 80-DAY-OLD AND 270-DAY-OLD RATS AFTER 14 DAYS OF HINDQUARTER SUSPENSION.
BERKELEY: U. CALIFORNIA, ENVIRONMENTAL PHYSIOLOGY LABORATORY, 79 P., DEC. 1982. (EPL-82-2)
424. PACE*, N.; RAHLMANN, D.F.
ESTIMATION OF BODY SKELETAL MUSCLE MASS FROM BODY CREATINE CONTENT (ABSTRACT).
PHYSIOLOGIST
25(4): 212, 1982.
425. PACE*, N.; RAHLMANN, D.F.
ESTIMATION OF SKELETAL MUSCLE MASS FROM BODY CREATINE CONTENT.
PHYSIOLOGIST
25(6): S83-S84, 1982.
426. PACE*, N.; RAHLMANN, D.F.; SMITH*, A.H.; PITTS*, G.C.; USHAKOV, A.S.; SMIRNOVA, T.A.
BODY COMPOSITION DATA FROM THE RAT SUBJECTS OF COSMOS 1129 EXPERIMENT K-316.
BERKELEY: U. CALIFORNIA, ENVIRONMENTAL PHYSIOLOGY LABORATORY, 63 P., JAN. 15, 1982. (EPL-82-1; NASA CR-168678)
427. PITTS*, G.C.
EFFECTS OF CHRONIC ACCELERATION ON BODY COMPOSITION.
PHYSIOLOGIST
25(6): S13-S16, 1982.
428. POPOVIC*, V.; POPOVIC, P.; HONEYCUTT, C.
PRETREATMENT WITH LEVODOPA AND ASPIRIN BENEFICIAL IN EXPERIMENTAL DECOMPRESSION SICKNESS.
IN: PREPRINTS OF 1982 ANNUAL SCIENTIFIC MEETING, AEROSPACE MEDICAL ASSOCIATION, BAL HARBOUR, FL, MAY 10-13, 1982.
WASHINGTON, DC: AEROSPACE MEDICAL ASSOCIATION, P. 291-292, 1982.
429. POPOVIC*, V.; POPOVIC, P.; HONEYCUTT, C.

- HUMORAL CHANGES IN ANTIORTHOSTATIC RATS (ABSTRACT).
PHYSIOLOGIST
 25(4): 196, 1982.
430. POPOVIC*, V.; POPOVIC, P.; HONEYCUTT, C.
 HORMONAL CHANGES IN ANTIORTHOSTATIC RATS.
PHYSIOLOGIST
 25(6): S77-S78, 1982.
431. POPOVIC*, V.P.
CARDIOVASCULAR ADAPTATIONS DURING LONG-TERM ALTERED GRAVITY.
FINAL REPORT.
 ATLANTA, GA: EMORY UNIVERSITY, 41 P., SEPT. 30 1982.
 (NASA CR-169438)
432. RAREY, K.E.; ROSS*, M.D.
 A SURVEY OF THE EFFECTS OF LOOP DIURETICS ON THE ZONULAE
 OCCLUDENTES OF THE PERILYMPH-ENDOLYMPH BARRIER BY FREEZE
 FRACTURE.
ACTA OTOLARYNGOLOGY
 94: 307-316, 1982.
433. ROBERTS*, W.E.; SMITH, R.K.; COHEN, J.A.
 CHANGE IN ELECTRICAL POTENTIAL WITHIN PERIODONTAL LIGAMENT OF
 A TOOTH SUBJECTED TO OSTEOGENIC LOADING.
 IN: FACTORS AND MECHANISMS INFLUENCING BONE GROWTH (DIXON,
 A.D.; SARNAT, B.G.; EDS.).
 NEW YORK: ALAN R. LISS, P. 527-534, 1982.
434. ROSS*, M.D.
 GRAVITY AND THE CELLS OF GRAVITY RECEPTORS (ABSTRACT).
 IN: ABSTRACTS, 24TH COSPAR MEETING, OTTAWA, CANADA, MAY
16-JUNE 2, 1982.
 PARIS: COSPAR, P. 536, 1982.
435. ROSS*, M.D.
 STRIATED ORGANELLES IN HAIR CELLS OF RAT INNER EAR MACULAS:
 DESCRIPTION AND IMPLICATIONS FOR TRANSDUCTION (ABSTRACT).
PHYSIOLOGIST
 25(4): 257, 1982.
436. ROSS*, M.D.
 STRIATED ORGANELLES IN HAIR CELLS OF RAT INNER EAR MACULAS:
 DESCRIPTION AND IMPLICATION FOR TRANSDUCTION.
PHYSIOLOGIST
 25(6): S113-S114, 1982.
437. ROSS*, M.D.; ERNST, S.A.; KERR, T.P.
 POSSIBLE FUNCTIONAL ROLES OF Na⁺, K⁺-ATPase IN THE INNER
 EAR AND THEIR RELEVANCE TO MENIERE'S DISEASE.
AMERICAN JOURNAL OF OTOLARYNGOLOGY
 3: 353-360, 1982.

438. RYABY, J.T.; DOTY*, S.B.
ELECTROMAGNETIC FIELD EFFECTS ON SKELETAL TISSUE IN VITRO
(ABSTRACT).
JOURNAL OF THE ELECTROCHEMICAL SOCIETY
129: C133, 1982.
439. SECORD, T.C. (PI = N. PACE)
PRIMATE METABOLIC SYSTEM (PMS) FLIGHT VERIFICATION ANALYSIS.
FINAL REPORT.
HUNTINGTON BEACH, CA: MCDONNELL DOUGLAS ASTRONAUTICS COMPANY,
45 P., MAY 1982. (MDC H0056)
440. SIMMONS*, D.J.; GRAZMAN, B.; CHANG, S.-L.; RUSSELL, J.E.; SMITH,
K.C.; NUSSBAUM, N.; OLOFF, C.M.
SOME SKELETAL EFFECTS OF LAND-BASED MODELS FOR HYPOGRAVITY IN
THE RHESUS MONKEY MANDIBLE: EFFECTS OF CHRONIC TETRACYCLINE
TREATMENT VS POSTCRANIAL IMMOBILIZATION (ABSTRACT).
PHYSIOLOGIST
25(4): 302, 1982.
441. SIMMONS*, D.J.; KENT, G.N.; JILKA, R.L.; SCOTT, D.M.; FALLON, M.;
COHN, D.V.
FORMATION OF BONE BY ISOLATED, CULTURED OSTEOBLASTS IN
MILLIPORE DIFFUSION CHAMBERS.
CALCIFIED TISSUE INTERNATIONAL
34: 291-294, 1982.
442. SMITH*, A.H.
ENHANCEMENT OF CHRONIC ACCELERATION TOLERANCE BY SELECTION
(ABSTRACT).
PHYSIOLOGIST
25(4): 212, 1982.
443. SMITH*, A.H.
ENHANCEMENT OF CHRONIC ACCELERATION TOLERANCE BY SELECTION.
PHYSIOLOGIST
25(6): S85-S86, 1982.
444. STEFFEN, J.M.; MUSACCHIA*, X.J.
EFFECT OF SUSPENSION HYPOKINESIA/HYPODYNAMIA ON
GLUCOCORTICOID RECEPTOR LEVELS IN RAT HINDLIMB MUSCLES
(ABSTRACT).
PHYSIOLOGIST
25(4): 303, 1982.
445. STEFFEN, J.M.; MUSACCHIA*, X.J.
EFFECT OF SUSPENSION HYPOKINESIA/HYPODYNAMIA ON
GLUCOCORTICOID RECEPTOR LEVELS IN RAT HINDLIMB MUSCLES.
PHYSIOLOGIST
25(6): S151-S152, 1982.
446. STEFFEN, J.M.; MUSACCHIA*, X.J.; DEEVERS, D.R.
MUSCULAR, FLUID AND ELECTROLYTE RESPONSES DURING 2 WEEKS OF

SUSPENSION RESTRAINT (ABSTRACT).
FEDERATION PROCEEDINGS
41: 1753, 1982.

447. STUART*, D.G.; ENOKA, R.M.
WEIGHTLESSNESS HYPOKINESIA: SIGNIFICANCE OF MOTOR UNIT
STUDIES (ABSTRACT).
PHYSIOLOGIST
25(4): 303, 1982.
448. STUART*, D.G.; ENOKA, R.M.
WEIGHTLESSNESS HYPOKINESIA: SIGNIFICANCE OF MOTOR UNIT
STUDIES.
PHYSIOLOGIST
25(6): S157-S158, 1982.
449. TEMPLETON*, G.H.; MANTON, J.; SILVER, P.; GLASBURG, M.; SUTKO, J.
INFLUENCE OF SUSPENSION-HYPOKINESIA ON RAT SKELETAL MUSCLE
(ABSTRACT).
PHYSIOLOGIST
25(4): 303, 1982.
450. TEMPLETON*, G.H.; PADALINO, M.; GLASBERG, M.; MANTON, J.; SILVER,
P.; SUTKO, J.
EVALUATION OF THE RESPONSE OF RAT SKELETAL MUSCLE TO A MODEL
OF WEIGHTLESSNESS.
PHYSIOLOGIST
25(6): S153-S154, 1982.
451. TISCHLER*, M.E.; JASPERS, S.
SYNTHESIS OF AMINO ACIDS IN WEIGHT BEARING AND NON-WEIGHT
BEARING LEG MUSCLES OF SUSPENDED RATS (ABSTRACT).
PHYSIOLOGIST
25(4): 303, 1982.
452. TISCHLER*, M.E.; JASPERS, S.R.
SYNTHESIS OF AMINO ACIDS IN WEIGHT BEARING AND NON-WEIGHT
BEARING LEG MUSCLES OF SUSPENDED RATS.
PHYSIOLOGIST
25(6): S155-S156, 1982.
453. WRONSKI, T.J.; MOREY*, E.R.
SKELETAL ABNORMALITIES IN RATS INDUCED BY SIMULATED WEIGHT-
LESSNESS.
METABOLIC BONE DISEASE AND RELATED RESEARCH
4: 69-75, 1982.
454. WRONSKI, T.J.; MOREY-HOLTON*, E.R.
ALTERATIONS IN CALCIUM METABOLISM AND BONE STRUCTURE DURING
SPACE FLIGHT IN MAN AND RATS (ABSTRACT).
IN: ABSTRACTS, 24TH COSPAR MEETING, OTTAWA, CANADA, MAY
16-JUNE 2, 1982.
PARIS: COSPAR, P. 539, 1982.

1981

455. BIKLE*, D.D.; ZOLOCK, D.T.; MORRISSEY, R.L.
ACTION OF VITAMIN D ON INTESTINAL CALCIUM TRANSPORT.
ANNALS OF THE NEW YORK ACADEMY OF SCIENCES
372: 481-501, 1981.
456. BURTON, R.R.; BURNS, J.W.; SMITH*, A.H.
RESTRAINT OF ANIMALS IN SPACE RESEARCH.
PHYSIOLOGIST
24(6): S41-S44, 1981.
457. CANN, C.E.; ADACHI, R.R.; MOREY-HOLTON*, E.
BONE RESORPTION AND CALCIUM ABSORPTION IN RATS DURING
SPACEFLIGHT.
IN: ADVANCES IN PHYSIOLOGICAL SCIENCES, VOL 19: GRAVITATIONAL
PHYSIOLOGY (HIDEG, J.; GAZENKO, O.; EDS.).
NEW YORK: PERGAMON, P. 121-127, 1981.
458. CHUNG, H.-M.; MALACINSKI*, G.M.
A COMPARATIVE STUDY OF THE EFFECTS OF EGG ROTATION (GRAVITY
ORIENTATION) AND UV IRRADIATION ON ANURAN VS. URODELE
AMPHIBIAN EGGS.
DIFFERENTIATION
18: 185-189, 1981.
459. ECONOMOS, A.C.; MIQUEL*, J.; BALLARD, R.C.; JOHNSON, J.E., JR.
VARIATION: PRINCIPLES AND APPLICATIONS IN THE STUDY OF CELL
STRUCTURE AND AGING.
IN: AGING AND CELL STRUCTURE, VOL. 1 (JOHNSON, J.E., JR.;
ED.).
NEW YORK: PLENUM, P. 187-214, 1981.
460. FELL, R.D.; GLADDEN, L.B.; STEFFEN, J.; MUSACCHIA*, X.J.
FATIGABILITY OF HYPOKINETIC RAT GASTROCNEMIUS MUSCLE
(ABSTRACT).
PHYSIOLOGIST
24(4, SUPPL.): 30, 1981.
461. FELLER, D.D.; GINOZA, H.S.; MOREY*, E.R.
ATROPHY OF RAT SKELETAL MUSCLES IN SIMULATED WEIGHTLESSNESS.
PHYSIOLOGIST
24(6): S9-S10, 1981.
462. FLEMING, J.E.; LEON, H.A.; MIQUEL*, J.
EFFECTS OF ETHIDIUM BROMIDE ON DEVELOPMENT AND AGING OF
DROSOPHILA: IMPLICATIONS FOR THE FREE RADICAL THEORY OF
AGING.
EXPERIMENTAL GERONTOLOGY
16(3): 287-293, 1981.
463. FLEMING, J.E.; YENGOYAN, L.S.; MIQUEL*, J.
RATE OF LIVING IN DROSOPHILA: EFFECTS OF VARIOUS ANTIOXIDANTS

ON LIFE SPAN AND OXYGEN CONSUMPTION (ABSTRACT).

AGE

4(4): 132, 1981.

464. FULLER*, C.A.; TREMOR, J.; CONNOLLY, J.P.; WILLIAMS, B.A.
TEMPERATURE AND BEHAVIORAL RESPONSES OF SQUIRREL MONKEYS TO
2G ACCELERATION.
PHYSIOLOGIST
24(6): S111-S112, 1981.
465. HOFFMAN, L.F.; SMITH*, A.H.
CHRONIC ACCELERATION AND BRAIN DENSITY.
PHYSIOLOGIST
24(6): S101-S102, 1981.
466. HOFFMAN, L.F.; SMITH*, A.H.
CHRONIC ACCELERATION AND BRAIN DENSITY (ABSTRACT).
PFLUGERS ARCHIV
391(SUPPL.): R67, 1981.
467. HOROWITZ*, J.M.; HORWITZ, B.A.; OYAMA*, J.
ALTERATIONS IN HEAT LOSS AND HEAT PRODUCTION MECHANISMS IN
RATS EXPOSED TO HYPERGRAVIC FIELDS.
IN: ADVANCES IN PHYSIOLOGICAL SCIENCES, VOL. 19:
GRAVITATIONAL PHYSIOLOGY (HIDEG, J.; GAZENKO, O.; EDS.).
NEW YORK: PERGAMON, P. 221-224, 1981.
468. JONES, T.A.; HOROWITZ*, J.M.
CORE TEMPERATURE AND BRAINSTEM AUDITORY EVOKED POTENTIALS AS
COMPLIMENTARY NONINVASIVE MEASURES OF CENTRAL NEURAL FUNCTION
DURING EXPOSURE TO HYPERGRAVIC FIELDS.
PHYSIOLOGIST
24(6): S107-S108, 1981.
469. KEEFE*, J.R.
EXPERIMENT K-313: RAT AND QUAIL ONTOGENESIS.
IN: FINAL REPORTS OF U.S. RAT EXPERIMENTS FLOWN ON THE SOVIET
SATELLITE COSMOS 1129 (HEINRICH, M.R.; SOUZA, K.A.; EDS.).
MOFFETT FIELD, CA: NASA, AMES RESEARCH CENTER, P. 325-362,
AUG. 1981. (NASA TM-81289)
470. KERR, T.P.; ROSS*, M.D.; ERNST, S.A.
CELLULAR LOCALIZATION OF TRANSPORT ATPase IN THE LATERAL WALL
OF THE COCHLEAR DUCT: A REASSESSMENT (ABSTRACT).
ANATOMICAL RECORD
199(3): 138A, 1981.
471. MALACINSKI*, G.M.; CHUNG, H.M.
ESTABLISHMENT OF THE SITE OF INVOLUTION AT NOVEL LOCATIONS ON
THE AMPHIBIAN EMBRYO.
JOURNAL OF MORPHOLOGY
169: 149-159, 1981.

472. MALACINSKI*, G.M.; YOUN, B.W.
 THE DYNAMICS OF EARLY PATTERN FORMATION IN AMPHIBIAN
 EMBRYOGENESIS: USE OF ULTRAVIOLET IRRADIATION AS A PROBE.
NETHERLANDS JOURNAL OF ZOOLOGY
 31(1): 38-49, 1981.
473. MIQUEL*, J.; ECONOMOS, A.C.; BENSCH, K.G.
 INSECT VS. MAMMALIAN AGING.
 IN: AGING AND CELL STRUCTURE, VOL. 1 (JOHNSON, J.E., JR.;
 ED.).
 NEW YORK: PLENUM, P. 347-379, 1981.
474. MIQUEL*, J.; FLEMING, J.
DROSOPHILA RESEARCH AND THE FREE RADICAL THEORY OF AGING
 (ABSTRACT).
AGE
 4(4): 132, 1981.
475. MONDON, C.E.; DOLKAS, C.B.; OYAMA*, J.
 ENHANCED SKELETAL MUSCLE INSULIN SENSITIVITY IN YEAR-OLD RATS
 ADAPTED TO HYPERGRAVITY.
AMERICAN JOURNAL OF PHYSIOLOGY
 240: E482-E488, 1981.
476. MONSON, C.B.; HOROWITZ*, J.M.
 SIMULATION OF THERMOREGULATION IN SEROTONIN-DEPLETED RATS
 SUBJECTED TO ACCELERATION FIELDS.
COMPUTER PROGRAMS IN BIOMEDICINE
 13: 9-17, 1981.
477. MOREY*, E.R.; WRONSKI, T.J.; CANN, C.E.
 BONE TURNOVER AND SPACE FLIGHT.
 IN: PREPRINTS OF 1981 ANNUAL SCIENTIFIC MEETING,
AEROSPACE MEDICAL ASSOCIATION, SAN ANTONIO, TX, MAY 4-7, 1981.
 WASHINGTON, DC: AEROSPACE MEDICAL ASSOCIATION, P. 112-113,
 1981.
478. MOREY-HOLTON*, E.; WRONSKI, T.J.
 ANIMAL MODELS FOR SIMULATING WEIGHTLESSNESS.
PHYSIOLOGIST
 24(6): S45-S48, 1981.
479. MUSACCHIA*, X.J.; DEEVERS, D.R.
 A NEW RAT MODEL FOR STUDIES OF HYPOKINESIA AND
 ANTIORTHOSTASIS.
 IN: ADVANCES IN PHYSIOLOGICAL SCIENCES, VOL. 19:
GRAVITATIONAL PHYSIOLOGY (HIDEG, J.; GAZENKO, O.; EDS.).
 NEW YORK: PERGAMON, P. 149-152, 1981.
480. MUSACCHIA*, X.J.; DEEVERS, D.R.
 THE REGULATION OF CARBOHYDRATE METABOLISM IN HIBERNATORS
 (ABSTRACT).
CRYOBIOLOGY

18(1): 90, 1981.

481. MUSACCHIA*, X.J.; STEFFEN, J.; DEEVERS, D.
SUSPENSION RESTRAINT: SIMULATION OF WEIGHTLESSNESS
(ABSTRACT).
PFLUGERS ARCHIV
391(SUPPL.): R62, 1981.
482. MUSACCHIA*, X.J.; STEFFEN, J.M.; DEEVERS, D.R.
SUSPENSION RESTRAINT: INDUCED HYPOKINESIA AND ANTIORTHOSTASIS
AS A SIMULATION OF WEIGHTLESSNESS.
PHYSIOLOGIST
24(6): S21-S22, 1981.
483. NACE*, G.W.; TREMOR, J.W.
CLINOSTAT EXPOSURE AND SYMMETRIZATION OF FROG EGGS.
PHYSIOLOGIST
24(6): S77-S78, 1981.
484. NACE*, G.W.; TREMOR, J.W.
CLINOSTAT EXPOSURE AND SYMMETRIZATION OF FROG EGGS
(ABSTRACT).
PFLUGERS ARCHIV
391(SUPPL.): R63, 1981.
485. NUTTALL, A.L.; ROSS*, M.D.
AUDITORY PHYSIOLOGY.
IN: OTOLARYNGOLOGY (ENGLISH, G.M.; ED.).
HAGERSTOWN, MD: HARPER & ROW, P. 1-77, 1981.
486. PACE*, N.; RAHLMANN, D.F.; SMITH*, A.H.
SCALING OF METABOLIC RATE ON BODY MASS IN SMALL LABORATORY
MAMMALS.
IN: ADVANCES IN PHYSIOLOGICAL SCIENCES, VOL. 19:
GRAVITATIONAL PHYSIOLOGY (HIDEG, J.; GAZENKO, O.; EDS.).
NEW YORK: PERGAMON, P. 213-216, 1981.
487. PACE*, N.; RAHLMANN, D.F.; SMITH*, A.H.; PITTS*, G.C.
EFFECTS OF THE COSMOS 1129 SOVIET PASTE DIET ON BODY
COMPOSITION IN THE GROWING RAT.
BERKELEY: U. CALIFORNIA, ENVIRONMENTAL PHYSIOLOGY LABORATORY,
1981. (EPL 81-1)
488. PACE*, N.; SMITH*, A.H.
GRAVITY, AND METABOLIC SCALE EFFECTS IN MAMMALS.
PHYSIOLOGIST
24(6): S37-S40, 1981.
489. PACE*, N.; SMITH*, A.H.; CORNELIUS, C.E.
SCIENTIFIC JUSTIFICATION AND DEVELOPMENT PLAN FOR A METABOLIC
RESEARCH FACILITY TO CONDUCT ANIMAL STUDIES IN SPACE.
BERKELEY: U. CALIFORNIA, ENVIRONMENTAL PHYSIOLOGY
LABORATORY, 87 P., SEPT 1981. (EPL 81-2)

490. PITTS*, G.C.; OYAMA*, J.
RESPONSE OF RAT BODY COMPOSITION TO SIMULTANEOUS EXERCISE AND
CENTRIFUGATION AT 3.14G (ABSTRACT).
PFLUGERS ARCHIV
391(SUPPL.): R66, 1981.
491. PITTS*, G.C.; OYAMA*, J.
RESPONSE OF RAT BODY COMPOSITION TO SIMULTANEOUS EXERCISE AND
CENTRIFUGATION AT 3.14G.
PHYSIOLOGIST
24(6): S95-S96, 1981.
492. PLEASANT, L.; AXELROD, P.T.
A COMPENDIUM OF HYPOKINETIC AND HYPODYNAMIC ANIMAL STUDIES.
WASHINGTON, DC: NASA, 729 P., 1981. (NASA CR-3485)
493. POPOVIC*, V.
ANTIORTHOSTATIC HYPOKINESIA AND CIRCULATION IN THE RAT
(ABSTRACT).
PFLUGERS ARCHIV
391(SUPPL.): R61, 1981.
494. POPOVIC*, V.
ANTIORTHOSTATIC HYPOKINESIA AND CIRCULATION IN THE RAT.
PHYSIOLOGIST
24(6): S15-S16, 1981.
495. POPOVIC*, V.
ANTIORTHOSTATIC HYPOKINESIA AND CIRCULATORY CHANGES IN THE
RAT.
IN: PREPRINTS OF 1981 ANNUAL SCIENTIFIC MEETING,
AEROSPACE MEDICAL ASSOCIATION, SAN ANTONIO, TX, MAY 4-7,
1981.
WASHINGTON, DC: AEROSPACE MEDICAL ASSOCIATION, P. 152-153,
1981.
496. RADICE, G.P.; NEFF, A.W.; MALACINSKI*, G.M.
THE INTRACELLULAR RESPONSES OF FROG EGGS TO NOVEL
ORIENTATIONS TO GRAVITY.
PHYSIOLOGIST
24(6): S79-S80, 1981.
497. RADICE, G.P.; NEFF, A.W.; MALACINSKI*, G.M.
THE INTRACELLULAR RESPONSES OF FROG EGGS TO NOVEL
ORIENTATIONS TO GRAVITY (ABSTRACT).
PFLUGERS ARCHIV
391(SUPPL.): R63, 1981.
498. ROBERTS*, W.E.; MOZSARY, P.G.; HOLTON*, E.M.
EFFECTS OF WEIGHTLESSNESS ON OSTEOBLAST DIFFERENTIATION IN
RAT MOLAR PERIODONTIUM.
IN: PREPRINTS OF 1981 ANNUAL SCIENTIFIC MEETING,

AEROSPACE MEDICAL ASSOCIATION, SAN ANTONIO, TX, MAY 4-7, 1981.
WASHINGTON, DC: AEROSPACE MEDICAL ASSOCIATION, P. 114-115,
1981.

499. ROBERTS*, W.E.; MOZSARY, P.G.; MOREY*, E.R.
SUPPRESSION OF OSTEOBLAST DIFFERENTIATION DURING
WEIGHTLESSNESS.
PHYSIOLOGIST
24(6): S75-S76, 1981.
500. ROBERTS*, W.E.; MOZSARY, P.G.; MOREY-HOLTON*, E.
K305: QUANTITATIVE ANALYSIS OF SELECTED BONE PARAMETERS.
SUPPLEMENTAL REPORT 1: EFFECTS OF WEIGHTLESSNESS ON
OSTEOBLAST DIFFERENTIATION IN RAT MOLAR PERIODONTIUM.
IN: FINAL REPORTS OF U.S. RAT EXPERIMENTS FLOWN ON THE SOVIET
SATELLITE COSMOS 1129 (HEINRICH, M.R.; SOUZA, K.A.; EDS.).
MOFFETT FIELD, CA: NASA, AMES RESEARCH CENTER, P. 127-148,
AUG. 1981. (NASA-TM-81289)
501. ROCKSTEIN, M.; LOPEZ, T.; MIQUEL*, J.; BOZCUK, A.N.
AGE-RELATED ACTIVITY CHANGES IN ACTOMYOSIN ATPase AND
ARGININE PHOSPHOKINASE IN MALE DROSOPHILA MELANOGASTER MEIG.
GERONTOLOGY
27(6): 301-305, 1981.
502. ROSS*, M.D.
THE EFFECTS OF DIURETICS ON REISSNER'S MEMBRANE.
SCANDANAVIAN AUDIOLOGY
(SUPPL. 14.): 157-171, 1981.
503. ROSS*, M.D.
REISSNER'S MEMBRANE AND THE SPIRAL LIGAMENT IN NORMAL RATS
AND THOSE TREATED WITH ETHACRYNIC ACID.
IN: MENIERE'S DISEASE: PATHOGENESIS, DIAGNOSIS AND TREATMENT
(VOSTEEN, K.-H.; ET AL.; EDS.).
NEW YORK: GEORG THIEME VERLAG, P. 76-86, 1981.
504. ROSS*, M.D.; CORSON, C.; POTE, K.G.; CLOKE, P.L.
IN VITRO STUDIES OF ⁴⁵Ca UPTAKE AND EXCHANGE BY OTOCONIA.
IN: ADVANCES IN PHYSIOLOGICAL SCIENCES, VOL. 19:
GRAVITATIONAL PHYSIOLOGY (HIDEG, J.; GAZENKO, O.; EDS.).
NEW YORK: PERGAMON, P. 243-246, 1981.
505. ROSS*, M.D.; POTE, K.G.; RAREY, K.E.; VERMA, L.M.
MICRODISC GEL ELECTROPHORESIS IN SODIUM DODECYL SULFATE OF
ORGANIC MATERIAL FROM RAT OTOCONIAL COMPLEXES.
ANNALS OF THE NEW YORK ACADEMY OF SCIENCES
374: 808-819, 1981.
506. SABELMAN, E.E.; HOLTON*, E.M.; ARNAUD, C.D.
EXPERIMENT K-314: FETAL AND NEONATAL RAT BONE AND JOINT
DEVELOPMENT FOLLOWING IN UTERO SPACEFLIGHT.
IN: FINAL REPORTS OF U.S. RAT EXPERIMENTS FLOWN ON

THE SOVIET SATELLITE COSMOS 1129 (HEINRICH, M.R.; SOUZA, K.A.; EDS.).
MOFFETT FIELD, CA: NASA, AMES RESEARCH CENTER, P. 363-404,
AUG. 1981. (NASA TM-81289)

507. SIMMONS*, D.J.
ADAPTATION OF THE RAT SKELETON TO WEIGHTLESSNESS AND ITS
PHYSIOLOGICAL MECHANISMS: RESULTS OF ANIMAL EXPERIMENTS
ABOARD THE COSMOS-1129 BIOSATELLITE.
PHYSIOLOGIST
24(6): S65-S68, 1981.
508. SIMMONS*, D.J.; RUSSELL, J.E.; WINTER, F.; BARON, R.; VIGNERY, A.;
THUC, T.V.; ROSENBERG, G.D.; WALKER, W.
BONE GROWTH IN THE RAT MANDIBLE DURING SPACEFLIGHT.
IN: ADVANCES IN PHYSIOLOGICAL SCIENCES, VOL 19: GRAVITATIONAL
PHYSIOLOGY (HIDEG, J.; GAZENKO, O.; EDS.).
NEW YORK: PERGAMON PRESS, P. 139-145, 1981.
509. SIMMONS*, D.J.; RUSSELL, J.E.; WINTER, F.; WALKER, W.V.;
ROSENBERG, G.D.; TRAN VAN, P.; BARON, R.; VIGNERY, A.
EFFECT OF SPACEFLIGHT ON THE GROWTH AND MATURATION OF THE RAT
MANDIBLE (COSMOS-1129 BIOSATELLITE PROGRAM).
IN: PREPRINTS OF 1981 ANNUAL SCIENTIFIC MEETING, AEROSPACE
MEDICAL ASSOCIATION, SAN ANTONIO, TX, MAY 4-7, 1981.
WASHINGTON, DC: AEROSPACE MEDICAL ASSOCIATION, P. 116-117,
1981.
510. SMITH*, A.H.; ABBOTT*, U.K.
EMBRYONIC DEVELOPMENT DURING CHRONIC ACCELERATION (ABSTRACT).
PFLUGERS ARCHIV
391(SUPPL.): R62, 1981.
511. SMITH*, A.H.; ABBOTT*, U.K.
EMBRYONIC DEVELOPMENT DURING CHRONIC ACCELERATION.
PHYSIOLOGIST
24(6): S73-S74, 1981.
512. SMITH*, A.H.; BURTON, R.R.
GRAVITATIONAL ADAPTATION OF ANIMALS.
IN: ADVANCES IN PHYSIOLOGICAL SCIENCES, VOL. 19:
GRAVITATIONAL PHYSIOLOGY (HIDEG, J.; GAZENKO, O.; EDS.).
NEW YORK: PERGAMON, P. 209-212, 1981.
513. STEFFEN, J.M.; MUSACCHIA*, X.J.; DEEVERS, D.R.
MUSCLE ATROPHY AND COMPOSITION IN THE SUSPENDED HYPOKINETIC
RAT: A MODEL FOR WEIGHTLESSNESS (ABSTRACT).
FEDERATION PROCEEDINGS
40: 608, 1981.
514. TURNER, R.T.; BOBYN, J.D.; DUVALL, P.; MOREY*, E.R.; BAYLINK,
D.J.; SPECTOR, M.
EVIDENCE FOR ARRESTED BONE FORMATION DURING SPACEFLIGHT.

PHYSIOLOGIST
24(6): S97-S98, 1981.

515. TURNER, R.T.; SPECTOR, M.; MOREY-HOLTON*, E.; BAYLINK, D.J.
EVIDENCE FOR ARRESTED BONE FORMATION DURING SPACE FLIGHT
(ABSTRACT).
PFLUGERS ARCHIV
391(SUPPL.): R66, 1981.
516. USHAKOV, A.S.; SMIRNOVA, T.A.; PITTS*, G.C.; PACE*, N.; SMITH*,
A.H.
K-316: EFFECTS OF WEIGHTLESSNESS ON BODY COMPOSITION IN THE
RAT.
IN: FINAL REPORTS OF U.S. RAT EXPERIMENTS FLOWN ON THE
SOVIET SATELLITE COSMOS 1129 (HEINRICH, M.R.; SOUZA, K.A.;
EDS.).
MOFFETT FIELD, CA: NASA, AMES RESEARCH CENTER, P. 415-426,
AUG. 1981. (NASA-TM-81289)
517. USHAKOV, A.S.; SMIRNOVA, T.A.; PITTS*, G.C.; PACE*, N.; SMITH*,
A.H.; RAHLMANN, D.F.
EFFECT OF THE MISSION COSMOS-1129 ON BODY COMPOSITION IN THE
RAT.
IN: ADVANCES IN PHYSIOLOGICAL SCIENCES, VOL. 19:
GRAVITATIONAL PHYSIOLOGY (HIDEG, J.; GAZENKO, O.; EDS.).
NEW YORK: PERGAMON, P. 47-53, 1981.
518. WALTHALL, W.W.; HARTMAN*, H.B.
RECEPTORS AND GIANT INTERNEURONS SIGNALING GRAVITY
ORIENTATION INFORMATION IN THE COCKROACH ARENIVAGA.
JOURNAL OF COMPARATIVE PHYSIOLOGY-A
142: 359-369, 1981.
519. WRONSKI, T.J.; HALSTEAD*, T.W.; MOREY*, E.R.
SKELETAL CHANGES DURING ACTUAL AND SIMULATED SPACE FLIGHT.
IN: PREPRINTS OF 1981 ANNUAL SCIENTIFIC MEETING, AEROSPACE
MEDICAL ASSOCIATION, SAN ANTONIO, TX, MAY 4-7, 1981.
WASHINGTON, DC: AEROSPACE MEDICAL ASSOCIATION, P. 150-151,
1981.
520. WRONSKI, T.J.; MOREY-HOLTON*, E.R.
SKELETAL ABNORMALITIES IN RATS DURING SIMULATED
WEIGHTLESSNESS (ABSTRACT).
PFLUGERS ARCHIV
391(SUPPL.): R60, 1981.
521. WRONSKI, T.J.; MOREY-HOLTON*, E.; CANN, C.E.; ARNAUD, C.D.;
BAYLINK, D.J.; TURNER, R.T.; JEE, W.S.S.
K305: QUANTITATIVE ANALYSIS OF SELECTED BONE PARAMETERS.
IN: FINAL REPORTS OF U.S. RAT EXPERIMENTS FLOWN ON THE SOVIET
SATELLITE COSMOS 1129 (HEINRICH, M.R.; SOUZA, K.A.; EDS.).
MOFFETT FIELD, CA: NASA, AMES RESEARCH CENTER, P. 101-125,
AUG. 1981. (NASA-TM-81289)

522. WRONSKI, T.J.; MOREY-HOLTON*, E.; JEE, W.S.S.
SKELETAL ALTERATIONS IN RATS DURING SPACE FLIGHT.
IN: LIFE SCIENCES AND SPACE RESEARCH, VOL. 19 (HOLMQUIST,
W.R.; ED.).
NEW YORK: PERGAMON, P. 135-140, 1981.
523. YOUN, B.W.; MALACINSKI*, G.M.
SOMITOGENESIS IN THE AMPHIBIAN XENOPUS LAEVIS: SCANNING
ELECTRON MICROSCOPIC ANALYSIS OF INTRASOMITIC CELLULAR
ARRANGEMENTS DURING SOMITE ROTATION.
JOURNAL OF EMBRYOLOGY AND EXPERIMENTAL MORPHOLOGY
64: 23-43, 1981.

1980

524. DEAVERS, D.R.; MUSACCHIA*, X.J.
WATER METABOLISM AND RENAL FUNCTION DURING HIBERNATION AND
HYPOTHERMIA.
FEDERATION PROCEEDINGS
39: 2969-2973, 1980.
525. DEAVERS, D.R.; MUSACCHIA*, X.J.; MEININGER, G.A.
MODEL FOR ANTIORTHOSTATIC HYPOKINESIA: HEAD-DOWN TILT EFFECTS
ON WATER AND SALT EXCRETION.
JOURNAL OF APPLIED PHYSIOLOGY: RESPIRATORY, ENVIRONMENTAL AND
EXERCISE PHYSIOLOGY
49(4): 576-582, 1980.
526. ECONOMOS, A.C.; BALLARD, R.C.; MIQUEL*, J.; BINNARD, R.; FLEMING,
J.; WEBER, H.
PROTECTIVE EFFECTS OF THIOPROLINE IN AGING DROSOPHILA
(ABSTRACT).
AGE
3(4): 118, 1980.
527. ECONOMOS, A.C.; MIQUEL*, J.
USEFULNESS OF STOCHASTIC ANALYSIS OF BODY WEIGHT AS A TOOL IN
EXPERIMENTAL AGING RESEARCH.
EXPERIMENTAL AGING RESEARCH
6(5): 417-430, 1980.
528. ECONOMOS, A.C.; MIQUEL*, J.; FLEMING, J.; JOHNSON, J.E., JR.
IS THERE INTRINSIC MITOCHONDRIAL AGING? (ABSTRACT).
AGE
3(4): 117, 1980.
529. FELLER, D.D.; GINOZA, H.S.; MOREY*, E.R.; OYAMA*, J.
PROTEOLYTIC ACTIVITY OF ATROPHIED AND HYPERTROPHIED SOLEUS
MUSCLE FROM RATS (ABSTRACT).
FEDERATION PROCEEDINGS
39: 818, 1980.
530. HOROWITZ*, J.M.; HORWITZ, B.A.; OYAMA*, J.
ALTERATIONS IN HEAT LOSS AND HEAT PRODUCTION MECHANISMS IN
RAT EXPOSED TO HYPERGRAVIC FIELDS.
PHYSIOLOGIST
23(6): S119-S120, 1980.
531. JORDAN*, J.P.; SYKES, H.A.; CROWNOVER, J.C.; SCHATTE, C.L.;
SIMMONS, J.B., II; JORDAN, D.P.
SIMULATED WEIGHTLESSNESS: EFFECTS ON BIOENERGETIC BALANCE.
AVIATION, SPACE, AND ENVIRONMENTAL MEDICINE
51: 132-136, 1980.
532. KOBAYASHI, M.; MONDON, C.E.; OYAMA*, J.
INSULIN BINDING AND GLUCOSE UPTAKE OF ADIPOCYTES IN RATS

ADAPTED TO HYPERGRAVITATIONAL FORCE.
AMERICAN JOURNAL OF PHYSIOLOGY
238(4): E330-E335, 1980.

533. MAH*, R.W.
VESTIBULAR RESEARCH FACILITY (ABSTRACT).
IN: SPACE-ENVIRONMENT WORKSHOP FOR LIFE SCIENTISTS.
WASHINGTON, D.C.: NASA, P. 56-57, 1980.
534. MIQUEL*, J.; ECONOMOS, A.C.; FLEMING, J.; JOHNSON, J.E., JR.
MITOCHONDRIAL ROLE IN CELL AGING.
EXPERIMENTAL GERONTOLOGY
15: 575-591, 1980.
535. MOREY*, E.R.; WRONSKI, T.J.
DIGITAL IMAGE PROCESSING OF BONE: PROBLEMS AND POTENTIALS.
METABOLIC BONE DISEASE AND RELATED RESEARCH
2S: 463-468, 1980.
536. MUSACCHIA*, X.J.; DEEVERS, D.R.
A NEW RAT MODEL FOR STUDIES OF HYPOKINESIA AND
ANTIORTHOSTASIS.
PHYSIOLOGIST
23(6): S91-S92, 1980.
537. MUSACCHIA*, X.J.; DEEVERS, D.R.; MEININGER, G.A.; DAVIS, T.P.
A MODEL FOR HYPOKINESIA: EFFECTS ON MUSCLE ATROPHY IN THE
RAT.
JOURNAL OF APPLIED PHYSIOLOGY: RESPIRATORY, ENVIRONMENTAL AND
EXERCISE PHYSIOLOGY
48(3): 479-486, 1980.
538. PACE*, N.; RAHLMANN, D.F.; SMITH*, A.H.
SCALING OF METABOLIC RATE ON BODY MASS IN SMALL LABORATORY
MAMMALS.
PHYSIOLOGIST
23(6): S115-S116, 1980.
539. REED, R.D.; PACE*, N.
ENERGY STATUS AND OXIDATION-REDUCTION STATUS IN RAT LIVER AT
HIGH ALTITUDE (3.8 km).
AVIATION, SPACE, AND ENVIRONMENTAL MEDICINE
51(5): 448-453, 1980.
540. REED, R.D.; PACE*, N.
ENERGY STATUS AND OXIDATION-REDUCTION STATUS IN RAT LIVER AT
HIGH ALTITUDE (3.8 KM).
AVIATION, SPACE, AND ENVIRONMENTAL MEDICINE
51(6): 595-602, 1980.
541. ROSS*, M.D.
CALCIUM ION UPTAKE AND EXCHANGE IN OTOCONIA.
ADVANCES IN OTO-RHINO-LARYNGOLOGY

25: 26-33, 1979.

542. ROSS*, M.D.; POTE, K.G.; CLOKE, P.L.; CORSON, C.
IN VITRO $^{45}\text{Ca}^{++}$ UPTAKE AND EXCHANGE BY OTOCONIAL COMPLEXES IN
HIGH AND LOW K^+/Na^+ FLUIDS.
PHYSIOLOGIST
23(6): S129-S130, 1980.
543. SALAMAT, M.S.; ROSS*, M.D.; PEACOR, D.R.
OTOCONIAL FORMATION IN THE FETAL RAT.
ANNALS OF OTOLOGY, RHINOLOGY AND LARYNGOLOGY
89: 229-238, 1980.
544. SCHERTEL, E.R.; HOROWITZ*, J.M.; HORWITZ, B.A.
EFFECTS OF GRAVITATIONAL PROFILES ON THE RAT'S THERMO-
REGULATORY RESPONSE TO COLD.
JOURNAL OF APPLIED PHYSIOLOGY: RESPIRATORY, ENVIRONMENTAL AND
EXERCISE PHYSIOLOGY
49(4): 663-668, 1980.
545. SIMMONS*, D.J.
CIRCADIAN RHYTHMS IN BONE.
METABOLIC BONE DISEASE AND RELATED RESEARCH
S2: 137-149, 1980.
546. SMITH*, A.H.; BURTON, R.R.
GRAVITATIONAL ADAPTATION OF ANIMALS.
PHYSIOLOGIST
23(6): S113-S114, 1980.
547. STEFFEN, J.M.; DEEVERS, D.R.; MUSACCHIA*, X.J.
INCREASED EXCRETION OF WATER, UREA, Na^+ AND K^+ DURING
HEAD-DOWN-TILT HYPOKINESIA: A QUESTION OF DIET OR
ANTIORTHOSTASIS (ABSTRACT).
PHYSIOLOGIST
23(4): 84, 1980.
548. USHAKOV, A.S.; SMIRNOVA, T.A.; PITTS*, G.C.; PACE*, N.; SMITH*,
A.H.; RAHLMANN, D.F.
BODY COMPOSITION OF RATS FLOWN ABOARD COSMOS-1129.
PHYSIOLOGIST
23(6): S41-S44, 1980.

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GENERAL

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GENERAL

1984

549. HALSTEAD*, T.W., ED.
NASA SPACE BIOLOGY PROGRAM, ANNUAL SYMPOSIUM PROGRAM
AND ABSTRACTS, ARLINGTON, VA, OCTOBER 12-14, 1983.
WASHINGTON, DC: NASA, 1984. (NASA CP-2299)
550. HALSTEAD*, T.W.; BROWN*, A.H.; FULLER*, C.A.; OYAMA*, J.
ARTIFICIAL GRAVITY STUDIES AND DESIGN CONSIDERATIONS
FOR SPACE STATION CENTRIFUGES.
PRESENTED AT 14TH INTERSOCIETY CONFERENCE ON
ENVIRONMENTAL SYSTEMS, SAN DIEGO, CA, JULY 16-18,
1984.
551. HALSTEAD*, T.W.; DUTCHER, F.R.; PLEASANT, L.G.
1983-84 NASA SPACE BIOLOGY ACCOMPLISHMENTS.
WASHINGTON, DC: NASA, 1984 (NASA TM-86654)

1983

552. HALSTEAD*, T.W.
EMERGING OPPORTUNITIES IN THE SPACE BIOLOGY
PROGRAM. SPACE SCIENCE & APPLICATIONS NOTICE.
WASHINGTON, DC: NASA, SEPT. 1983.
553. HALSTEAD*, T.W.; PLEASANT, L.G.
1982 NASA SPACE BIOLOGY ACCOMPLISHMENTS.
WASHINGTON, DC: NASA, 1983. (NASA TM-86244)
554. KEEFE*, J.R.; KRIKORIAN*, A.D.
GRAVITATIONAL BIOLOGY ON THE SPACE STATION.
PRESENTED AT THE 13TH INTERSOCIETY CONFERENCE ON
ENVIRONMENTAL SYSTEMS, SAN FRANCISCO, CA, JULY
11-13, 1983. (SAE TECHNICAL PAPER 831133)
555. MUSACCHIA*, X.J.
THE NASA SPACE BIOLOGY RESEARCH ASSOCIATES PROGRAM:
A HISTORIC REVIEW, JUNE 1980-JUNE 1983.
LOUISVILLE, KY: U. LOUISVILLE, 1983.
556. ROUX*, S.J.
THE REGULATORY FUNCTIONS OF CALCIUM AND THE
POTENTIAL ROLE OF CALCIUM IN MEDIATING GRAVITATIONAL
RESPONSES IN CELLS AND TISSUES, PROCEEDINGS OF A
WORKSHOP, FASEB, BETHESDA, MD, SEPT. 16-18, 1982.
WASHINGTON, DC: NASA, 1983. (NASA CP-2286)

1982

557. HALSTEAD*, T.W.
THE NASA SPACE BIOLOGY PROGRAM.
PHYSIOLOGIST 25(6): S53-S56, 1982.
558. HALSTEAD*, T.W.
SPACE BIOLOGY.
IN: MCGRAW-HILL ENCYCLOPEDIA OF SCIENCE AND
TECHNOLOGY, 5TH ED., VOL. 12.
NEW YORK: MCGRAW-HILL BOOK CO., P. 709-714, 1982.
559. HALSTEAD*, T.W.
WEIGHTLESSNESS.
IN: MCGRAW-HILL ENCYCLOPEDIA OF SCIENCE AND
TECHNOLOGY, 5TH ED., VOL. 14.
NEW YORK: MCGRAW-HILL BOOK CO., P. 591-595, 1982.

1981

560. HALSTEAD*, T.W., ED.
AIBS/NASA SPACE BIOLOGY SYMPOSIUM, BETHESDA, MD,
NOV. 19-20, 1981.
ROSSLYN, VA; AIBS, 1981.
561. HALSTEAD*, T.W.
SYMPOSIUM ON GRAVITATIONAL PHYSIOLOGY: CHAIRMAN'S
INTRODUCTION.
PHYSIOLOGIST 24(6): S23, 1981.

1980

562. HALSTEAD*, T.W., ED.
AIBS/NASA SPACE BIOLOGY SYMPOSIUM, AMES RESEARCH
CENTER, MOFFETT FIELD, CA, OCT. 2-3, 1980.
ROSSLYN, VA: AIBS, 1980.

KEYWORD INDEXES

(WORDS TAKEN FROM TITLES OF ARTICLES)

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PRINCIPAL INVESTIGATORS

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PRINCIPAL INVESTIGATORS
OF THE SPACE BIOLOGY PROGRAM

PI	REFERENCES
U.K. Abbott Environmental Physiology Lab University of California Davis, CA 95616	377, 510, 511
R. Baker Colorado State University Dept. Botany & Plant Pathology Ft. Collins, CO 80521	227
Robert Bandurski Department of Botany and Plant Pathology Michigan State University East Lansing, Michigan 48824-1312	1, 20, 26, 27, 30, 35, 48, 49, 50, 51, 58, 97, 98, 102, 104, 107, 131, 132, 133, 134, 146, 147, 148, 149, 150, 194, 195, 202, 205, 234, 235, 240, 260, 261, 263
Daniel D. Bikle Department of Medicine Veterans Administration Medical Center and University of California San Francisco, CA 94121	328, 329, 365, 378, 379, 455
Allan H. Brown Department of Biology University of Pennsylvania Philadelphia, PA 19104	3, 4, 55, 56, 57, 142, 143, 228, 229, 230, 231, 284, 285, 407, 408, 550
Daniel Cosgrove Department of Biology Pennsylvania State University University Park, PA 16802	5, 59
Joe R. Cowles Department of Biology University of Houston Houston, TX 77004	23, 60, 151, 152, 232, 233, 259, 299, 300, 302
Wolf-D. Dettbarn Department of Pharmacology Vanderbilt University Nashville, TN 37212	313

Stephen B. Doty Department of Orthopedic Research and Anatomy/Cell Biology Columbia University New York, NY 10032	382, 383, 438
Jackie C. Duke Dental Science Institute University of Texas Dental Branch P.O. Box 20068 Houston, TX 77225	331
C.D.R. Dunn Division of Experimental Biology Baylor College of Medicine Houston, TX 77030	332, 384, 385
Kathryn L. Edwards Biology Department Kenyon College Gambler, OH 43022	10, 64
Michael L. Evans Department of Botany Ohio State University Columbus, OH 43210	11, 22, 24, 28, 29, 47, 66, 67, 92, 93, 94, 100, 101, 157, 158, 159, 160, 191, 196, 197, 258
Lewis J. Feldman Department of Botany University of California Berkeley, CA 94720	12, 13, 14, 45, 68, 69 161, 162, 163, 242
Alfred Finck Department of Psychology Temple University Philadelphia, PA 19122	333, 389, 390
Charles A. Fuller Division of Biomedical Sciences University of California at Riverside Riverside, CA 92521	312, 335, 336, 393, 394, 464, 550
Arthur W. Galston Department of Biology Yale University New Haven, CT 06511	54, 62, 63, 72, 73, 74, 75, 76, 106, 116, 138, 139, 140, 153, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 219, 220, 221, 226, 236, 271, 283, 305

William F. Ganong Department of Physiology University of California San Francisco, CA 94143	New PI in 1984.
Bernard P. Halloran Department of Medicine University of California San Francisco, CA 94143	371, 398
Thora W. Halstead Code EBR NASA Headquarters Washington, D.C. 20546	77, 519, 549, 550, 551 552, 553, 557, 558, 559, 560, 561, 562
H.B. Hartman Department of Biological Sciences Texas Tech University Lubbock, TX 79409	518
Alice Bourke Hayes Department of Natural Science Loyola University of Chicago Chicago, IL 60611	81, 176, 177, 178, 245, 246
E.M. Holton (see Emily Morey-Holton)	
John. M. Horowitz Department of Animal Physiology University of California Davis, CA 95616	316, 317, 336, 337, 339, 340, 343, 348, 349, 397, 400, 401, 412, 467, 468, 476, 530, 544
Takashi Hoshizaki Jet Propulsion Laboratory California Institute of Technology Pasadena, CA 91109	17, 84, 85, 179, 180
W.P. Jacobs Department of Biology Princeton University Princeton, New Jersey 08544	31, 86, 87, 95, 181, 192, 193, 241, 282, 293
M.J. Jaffe Biology Department Wake Forest University Winston-Salem, NC 27109	18, 36, 65, 105, 108, 121, 122, 123, 127, 156, 182, 183, 206, 207, 208, 223, 224, 248, 274, 275, 281, 286, 287, 292, 294, 295

J.P. Jordan Department of Biochemistry Colorado State University Fort Collins, CO 80521	531
Peter B. Kaufman Department of Cellular and Molecular Biology Division of Biological Sciences University of Michigan Ann Arbor, MI 48109	9, 19, 32, 43, 44, 50, 51, 61, 79, 88, 89, 118, 124, 154, 155, 174, 175, 184, 185, 186, 187, 237, 238, 239, 244, 249, 250, 251, 252, 262, 290, 291, 296, 297
J.R. Keefe Department of Anatomy School of Medicine Case Western Reserve University Cleveland, OH 44106	403, 404, 469, 554
A.D. Krikorian Department of Biochemistry Division of Biological Sciences State University of New York at Stony Brook Stony Brook, NY 11794	6, 7, 21, 70, 71, 90, 91 188, 189, 190, 243, 253, 254, 255, 256, 257, 298, 554
R.W. Mah Code LB Ames Research Center Moffett Field, CA 94035	533
A. Carl Leopold Boyce Thompson Institution Ithaca, NY 14853	18, 39, 113, 114, 125, 126, 129, 144, 145, 198, 199, 213, 214, 304
George M. Malacinski Department of Biology Indiana University Bloomington, IN 47405	318, 326, 344, 353, 406 421, 458, 471, 472, 496 497, 523
Jaime Miquel Code LR Ames Research Center Moffett Field, CA 94035	327, 334, 346, 347, 386, 387, 388, 391, 392, 409 410, 411, 459, 462, 463 473, 474, 501, 526, 527, 528, 534
Cary A. Mitchell Department of Horticulture Purdue University West Lafayette, IN 47907	33, 52, 82, 83, 103, 135 141, 200, 201, 247, 280, 303

E.R. Morey (see Emily Morey-Holton)

Emily Morey-Holton Biomedical Research Division Ames Research Center Moffett Field, CA 94035	330, 338, 342, 365, 368, 369, 373, 374, 375, 376, 378, 379, 382, 383, 395, 396, 413, 414, 423, 453, 454, 457, 461, 477, 478, 498, 499, 500, 506, 514, 515, 519, 520, 521, 522, 529, 535
X.J. Musacchia Department of Physiology & Biophysics University of Louisville Louisville, KY 40292	322, 323, 350, 351, 359, 370, 415, 416, 444, 445, 446, 460, 479, 480, 481, 482, 513, 524, 525, 536, 537, 547, 555
G.W. Nace Division of Biological Sciences The University of Michigan Ann Arbor, MI 48109	352, 418, 419, 420, 483, 484
Jiro Oyama Code LR Ames Research Center Moffett Field, CA 94035	317, 364, 380, 381, 388, 422, 467, 475, 490, 491, 529, 530, 532, 550
Nello Pace Environmental Physiology Laboratory University of California Berkeley, CA 94720	354, 355, 356, 358, 423, 424, 425, 426, 439, 486, 487, 488, 489, 516, 517, 538, 539, 540, 548
Barbara G. Pickard Biology Department Washington University Saint Louis, MO 63130	15, 34
G.C. Pitts University of Virginia School of Medicine Charlottesville, VA 22908	358, 426, 427, 487, 490, 491, 516, 517, 548
V.J. Popovic Department of Physiology School of Medicine Emory University Atlanta, GA 30322	428, 429, 430, 431, 493, 494, 495
David L. Rayle Department of Botany San Diego State University San Diego, CA 92182	16, 25, 80, 96, 120, 130, 203, 204, 225

W. Eugene Roberts Department of Orthodontics University of the Pacific School of Dentistry San Francisco, CA 94115	360, 433, 498, 499, 500
Muriel D. Ross Department of Anatomy and Cell Biology University of Michigan Ann Arbor, MI 48109	320, 321, 345, 361, 362, 363, 405, 417, 432, 434, 435, 436, 437, 470, 485, 502, 503, 504, 505, 541, 542, 543
Stanley J. Roux Department of Botany University of Texas at Austin Austin, TX 78712	2, 8, 38, 41, 42, 53, 109, 110, 111, 112, 117, 119, 136, 137, 209, 210, 211, 212, 222, 264, 265, 273, 288, 289, 308, 311, 556
Frank B. Salisbury Plant Science Department Utah State University Logan, UT 84322	37, 40, 46, 78, 99, 115, 128, 215, 216, 217, 218, 266, 267, 268, 269, 270, 272, 276, 277, 278, 279, 301, 306, 307, 309, 310
David J. Simmons Department of Surgery Division of Orthopedic Surgery Washington University School of Medicine St. Louis, Mo 63110	319, 365, 366, 440, 441, 507, 508, 509, 545
Arthur H. Smith Environmental Physiology Lab University of California Berkeley, CA 94720	356, 358, 367, 423, 426, 442, 443, 456, 465, 466, 486, 487, 488, 489, 510, 511, 512, 516, 517, 538, 546, 548
F.C. Steward Department of Biochemistry Division of Biological Sciences State University of New York at Stony Brook Stony Brook, NY 11794	253, 254
Douglas G. Stuart Department of Physiology University of Arizona Tucson, AZ 85724	315, 447, 448

Gordon Templeton
University of Texas Health Science
at Dallas
5323 Harry Hines Blvd.
Dallas, TX 75235

324, 325, 357, 402, 449
450

Marc. E. Tischler
Department of Biochemistry
Arizona Health Sciences Center
Tucson, AZ 85724

314, 341, 372, 399, 451,
452

Debra J. Wolgemuth
Department of Human Genetics and
Development
Columbia University College of
Physicians and Surgeons
New York, NY 10032

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