

CURRICULUM VITAE

Michael W. Berns, Ph.D.

Date of Birth: 1 December 1942

Place of Birth: Burlington, Vermont

Education:

Cornell University, Ithaca, NY, B.S., June 1964

Cornell University, Ithaca, NY, M.S., February 1966

Cornell University, Ithaca, NY, Ph.D., June 1968

Pasadena Foundation for Medical Research, Pasadena, CA, Postdoctoral, 1968-70

Positions

*The Arnold and Mabel Beckman Professor, University of California, Irvine, 1988-present.

*Professor Department of Biomedical Engineering, University of California, Irvine, 2001-present.

*Professor, Department of Surgery, University of California, Irvine, July 1, 1982-present.

*Adjunct Professor, Department of Biomedical Engineering, University of California, San Diego, 2000-present.

*Professor, Department of Developmental and Cell Biology, University of California, Irvine, July 1, 1976-present; Chairman, 1976-1981.

Founding Director, UCI Center for Biomedical Engineering, 1999-2000 (P.I. on Whitaker Foundation Award to establish Biomedical Engineering at UCI).

*President and Co-founder, Beckman Laser Institute and Medical Clinic (a non-profit corporation), Irvine, CA, 1982-present.

*Director, UCI Photonics Incubator, 1999-present.

Director, Beckman Laser Institute and Medical Clinic, Irvine, CA, 1982-2003.

Professor, Department of Electrical and Computer Engineering, University of California, Irvine, 1998- 2001

Professor, Graduate School of Management, University of California, Irvine, 1995-2003.

Founding Director, UCI Center for Biomedical Engineering, 1999-2000.

Consulting Professor of Dermatology, Stanford University, September 1991-1998.

Visiting Professor, Department of Biophysics, Moscow State University, 1979.

Associate Professor and Vice Chairman, Department of Developmental and Cell Biology, University of California, Irvine, January 1, 1973-June 30, 1976.

Assistant Professor, Department of Zoology, University of Michigan, Ann Arbor, June 1970-December 31, 1972.

*These are concurrently held appointments.

Boards and Panels

Editorial Board, Acta Laser Biology Sinica (2003-present)
Editorial Board, Journal of Morphology (past)
Editorial Board, Cell Biophysics (past)
Editorial Board, Laser Focus (past)
Editorial Board, Lasers in Surgery and Medicine (past)
Editorial Board, Lasers in the Life Sciences (past)
Editorial Board, Lasers and Applications (past)
Editorial Board, Journal of Laser Applications (past)
Editorial Board, Journal of Biomedical Optics (present)
Editorial Board, Diagnostic and Therapeutic Endoscopy (past)
U. S. National Academy of Sciences, Ad hoc committee on Lasers in Biology and Medicine, 1977
NIH Study Sections: Biotechnology, 1978; Chairman, Instrumentation, 1980; SBIR, 1989-92
Advisory Committee, European Physical Society Conference on Lasers in Photomedicine and Photobiology, 1979
ANSI Z136 Subcommittee on Laser Safety (Ophthalmic)
AIBS-AMRD Vision and Laser Bioeffects Peer Review Panel (American Institute of Biological Sciences)
Board of Directors (Founding), San Juan Capistrano Research Institute (past)
Board of Directors, Orange County American Cancer Society (past)
Advisory Board, UCI Women's Opportunity Center (past)
Medical Advisory Board, Houston Laser Institute (past)
Advisory Board, Pharmacyclics, Inc., Palo Alto, CA (past)
Scientific Advisory Board, Cell Robotics (past)
Research Task Force on Refractive Surgery, Allergan, Inc., Irvine, CA (past)
Steering Committee, Biomedical Optics Society (past)
Scientific Advisory Board, Oncosis, Inc., La Jolla, CA (past)
NIH Center for Scientific Review Advisory Committee, regular and ad hoc member (1998-2003)
Scientific Advisory Board, ICFO (Institute for Photonic Sciences), Barcelona, Spain (2004-)

Honors and Awards

The Arnold and Mabel Beckman Professor (Endowed Chair)
Lifetime Achievement Award, Society of Photo-Instrumentation Engineering (SPIE) (2006)
The Michael W. Berns Award for Research Excellence: established by the Vascular Birthmark Foundation to honor a distinguished researcher in the field of vascular biology and medicine (2007)
The UCI Medal (1994)
Member, Beckman Foundation Grants Council (1995-2005)
William B. Mark Award of the American Society for Lasers in Medicine and Surgery (1990)
Simon Fredericks Award from American Society for Aesthetic Plastic Surgeons, 1982
UCI Lauds and Laurels Award for Professional Achievement, 1985
Distinguished Service Award for Junior Faculty, University of Michigan, 1972
Outstanding Young Men of America, 1979
Elected Fellow of the American Association for Advancement of Science (AAAS), 1983
Elected Fellow, American Institute for Biomedical Engineering (2003)

Elected Fellow, The San Diego Zoological Society (2001)
Elected Gordon Conference Chairman: Lasers in Medicine and Biology, 1978, 1982
Special Award from International Union Against Cancer to organize a workshop: Lasers in Tumor Surgery, May 1981
Special Award: International Cancer Research Technology Transfer (ICRETT) with the Soviet Union, Kiev, U.S.S.R., April 7-28, 1977
Special Award from ICRETT to lecture in People's Republic of China, 1981
The Ortho Pharmaceutical Lectureship, American Fertility Society, 1991
Honored lecture: Harvard University Laser Center, 1991
Israeli-U.S. Binational Agreement Award, 1990
Elected Member, The Royal Society for Medicine of Ireland, 1991
Elected Member, Academy of Sciences and Letters of the Royal Society of Norway, 1992

Invited International Lectures and Symposia

Invited lecturer, NATO Summer School of Microbeams and Cell Biology, Stresa, Italy, June 1970
Invited lecturer, 27th International Meeting of the Societe de Chimie physique, Paris, France, 1975
Invited Plenary Speaker, IV International UV Symposium, East German Academy of Sciences, Kuhlungsborn, East Germany, April 5, 1977
Institute for Oncology Problems, Ukraine Academy of Sciences, Kiev, U.S.S.R., April 15, 1977
Moscow State University, Department of Cytology and Histology, Moscow, U.S.S.R., April 22, 1977
Institute for Molecular Biology, Academy of Sciences U.S.S.R., Moscow, U.S.S.R., April 23, 1977
Session Chairman, Symposium on Lasers in Medicine and Biology, Munich, West Germany, June 1977
Invited lecturer, Soviet Academy of Sciences conference on Lasers in Biology and Medicine, Dushanbe, U.S.S.R., October 1977
Institute for Cytology, Academy of Sciences U.S.S.R., Leningrad, U.S.S.R., October 30, 1977
P. N. Lebedev Physics Institute: Lasers in Genetic Engineering, Moscow, U.S.S.R., April 1979
Lecturer Series, "Mechanisms of Mitosis," Biology Faculty, Moscow University, Moscow, U.S.S.R., April-May 1979
Moscow State University, Department of Physics, Biophysics, Embryology, Cytology, 7 lectures on Cell Biophysics, Moscow, U.S.S.R., April-May 1979
Tbilisi University, Department of Biophysics: Lasers in Genetic Engineering, Tbilisi, U.S.S.R., May 1979
Institute for Chemical Physics, Academy of Sciences U.S.S.R.: Lasers in Engineering, Moscow, U.S.S.R., May 1979
Lecturer, NATO Advanced Study Institute, Lasers in Biology and Medicine, Lucca Lamioire, Italy, August 1979
Invited lecturer, Genetics Institute, Academia Sinica, Peking, People's Republic of China, May 1981
Invited lecturer, National Institute for Basic Biology Annual Conference, Tokyo, Japan, March 11-13, 1982
The Norwegian Academy of Technical Sciences and Royal Swedish Academy of Engineering Sciences, Lasers in Medical Science, Oslo, Norway, November 1988
Institution of Medical Biophysics, Karolinska Institute, Stockholm, Sweden, November 1988

Honored Plenary Speaker, Japan Institute for Advanced Medical Technology, January 1989
Invited Speaker, International Congress of Laser Surgery and Medicine, Lisbon, Portugal, April
21-23, 1990

Keynote Speaker, Laser Institute of America (2000)

Keynote Speaker, American Society for Laser Medicine and Surgery (2002)

Society Memberships and Positions

American Institute for Medical and Biological Engineering

Academy of Sciences of the Royal Society of Norway

President, Michigan branch, Tissue Culture Association, 1970

President, California branch, Tissue Culture Association, 1980

Vice President, American Society for Lasers in Medicine and Surgery (ASLMS), 1985

President, American Society for Lasers in Medicine and Surgery, 1988

ASLMS Committees: Research Committee (1990)

Education Committee (1989)

Board of Directors (1983-88)

Government Liaison Committee (2001-2002)

Fellow, American Society for Lasers in Medicine and Surgery, 2002

Society of the Sigma Xi, 1965

American Association for the Advancement of Science, 1964-present

American Institute of Biological Sciences, 1969-1975

Tissue Culture Association, 1969 (past)

American Society of Zoologists, 1969-1975

American Society for Cell Biology, 1970-present

Society for Developmental Biology, 1971 (past)

American Society for Photobiology, 1975 (past)

New York Academy of Sciences (past)

American Society for Laser Medicine and Surgery

Alpha Omega Alpha, Surgical Honor Society, 1985 (past)

American Fertility Society (past)

Royal Society of Medicine of Ireland (past)

Research Interests

Basic light interactions with cells and tissues

Biophotonics/biomedical optics

Laser applications in human and veterinary medicine

Development of microscopy tools for cell biology and pathology

Manipulation of human and animal gametes

Mechanisms of cell division and other motile processes

Cell genetics

Computer enhancement of optical images

Cell structure and function studied by laser microsurgery

Optical trapping

Engineering of biomedical devices

Minimally invasive and remote sensing in humans and animals

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Patents

1. Tromberg, B. J., T. T. Tsay, M. W. Berns, L. O. Svaasand and R. C. Haskell. Apparatus and method for qualitative and quantitative measurements of optical properties of turbid media using frequency-domain photon migration. U. S. Patent No. 5,424,843.
2. Tadir, Y., and M. W. Berns. Light-Intra Uterine Device (L-IUD). U S. Patent No. 5,478,339.
3. Tadir, Y., B. Monk, B. J. Tromberg, G. Profeta and M. W. Berns. Vaginal speculum for photodynamic therapy. U. S. Patent No. 5,458,595.
4. Sonek, G. J., Y. Liu, B. J. Tromberg and M. W. Berns. High resolution biosensor for in-situ microthermometry. U.S. Patent No. 5,631,141.
5. Krasieva, T., A. Dvornikov, B. J. Tromberg and M. W. Berns. Fluorophore-polymer based illuminator for conventional light microscopy (TK Illuminator). U.S. Patent No. 5,734,498.
6. Allbritton, N., B. J. Tromberg, T. Krasieva, C. Sims and M. W. Berns. Laser micropipette combination for cell analysis. U.S. Patent No. 6,156,576.
7. Allbritton, N. L., C. E. Sims, M. W. Berns, G. D. Meredith, T. B. Krasieva and B. J. Tromberg. Method and apparatus for detecting enzymatic activity using molecules that change electrophoretic mobility. U.S. Patent No. 6,335,201.

Community Service

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| 1977-78 | President, Town Hall Association, Inc., San Juan Capistrano, California (member since 1975) |
| 1978 | Architectural Review Board, City of San Juan Capistrano, California |
| 1979-82 | Member, Planning Commission, San Juan Capistrano, California
Chairman, Planning Commission, San Juan Capistrano, California |
| 1985 | Advisory Board, UCI Women's Opportunity Center
Board of Directors, American Cancer Society, Orange County Chapter
Science Advisory Board, Orange County Science Museums and Exploratorium |
| 1990-
1991 | Board of Directors, San Juan Capistrano Research Institute
High Technology Industry Award Committee, Boy Scouts of America, Orange County Chapter |
| 1992 | Honorary Board Member, Orange County Protocol Foundation |
| 1994-
1994-
2001- | Board of Directors, Life Science Industry Council (LINC)
Board of Directors, Partnership 2010 (Orange County)
Research Committee, Zoological Society of San Diego |

Books

Biological Microirradiation. Prentice Hall Series on Biological Techniques, Englewood Cliffs, NJ, 200 pages, 1974. (Translated into Chinese, 1980.)

The Cell. Holt, Rinehart and Winston, New York, 1st edition, 1977; 2nd edition, 1983.

Japanese edition, 1981

Italian edition, 1981

Yugoslavian edition, 1981

Hematoporphyrin Derivative Photoradiation Therapy of Cancer. Michael W. Berns (ed.), Alan R. Liss, Inc., New York, 1984.

Laser Application to Occlusive Vascular Disease (Lasers in Surgery and Medicine, Vol. 5, Number 3). Michael W. Berns and Mahmood Mirhoseini (eds.), Alan R. Liss, Inc., New York, 1985.

Lasers in Plastic Surgery and Dermatology. Bruce Achauer, Victoria Vander Kam and Michael W. Berns (eds.), Thieme Medical Publishers, Inc., New York, 1992.

Laser Manipulation of Cells and Tissues, M. W. Berns and K. O. Greulich (eds.). in Methods in Cell Biology, Vol. 82, San Diego, CA: Academic Press/Elsevier, 768 pp, 2007.

Popular Articles

"Carbon Copy World of Cloning," Britannica Yearbook of Science and the Future, Encyclopaedia Britannica, 1974.

"The Awesome Worlds Within a Cell" by Rick Gore, National Geographic 150: 372-373, 1976.

Published Articles

1. Berns, M. W. Mortality caused by kidney stones in spinach-fed frogs, Rana pipiens. *BioScience* 15: 297-298, 1965.
2. Berns, M. W., and L. D. Uhler. Blue frogs of the genus Rana. *Herpetologica* 22: 181-183, 1966.
3. Berns, M. W. Some genetic and histochemical aspects of the variant blue frog of the genus Rana. Master's Thesis, Cornell University, 1966.
4. Berns, M. W. Reconstruction using photographed serial sections. *Anat. Rec.* 159: 405-407, 1967.
5. Berns, M. W. Growth and morphogenesis during the post-embryonic development of a common spiroboloid milliped. Doctor of Philosophy Thesis, Cornell University, 1968.
6. Berns, M. W., and W. T. Keeton. Regulation of segment-building during the post-embryonic development of a common milliped. *Science* 161: 590-592, 1968.
7. Berns, M. W., and W. T. Keeton. Effect of semi-starvation on growth and morphogenesis during the larval stages of a common milliped Narceus annularis (RAF). *Biol. Bull.* 135:454-465, 1968.
8. Berns, M. W. The development of the copulatory organs (gonopods) of a spiroboloid milliped. *J. Morph.* 126: 447-461, 1968.
9. Berns, M. W. Morphogenesis of body segments and appendages during the larval development of a common milliped. *J. Morph.* 127: 341-353, 1969.
10. Berns, M. W., R. S. Olson and D. E. Rounds. In vitro production of chromosomal lesions using an argon laser microbeam. *Nature* 221: 74-75, 1969.
11. Berns, M. W., R. S. Olson and D. E. Rounds. Argon laser microirradiation of nucleoli. *J. Cell Biol.* 43: 621-626, 1969.
12. Berns, M. W., D. E. Rounds and R. S. Olson. Effects of laser microirradiation on chromosomes. *Exp. Cell Res.* 56: 292-298, 1969.
13. Berns, M. W., and D. E. Rounds. Cell surgery by laser. *Sci. Amer.* 222: 98-110, 1970.
14. Berns, M. W., and D. E. Rounds. Laser microbeam studies on tissue culture cells. *Ann. N. Y. Acad. Sci.* 168: 550-563, 1970.
15. Berns, M. W., Y. Ohnuki, D. E. Rounds and R. S. Olson. Modification of nucleolar expression following laser microirradiation of chromosomes. *Exp. Cell Res.* 60: 133-138, 1970.

16. Berns, M. W., R. S. Olson and D. E. Rounds. Enzyme inactivation with ultraviolet laser energy (2650 Å). *Science* 169: 1215-1217, 1970.
17. Berns, M. W., and K. S. Narayan. A histochemical and ultrastructural analysis of the dermal chromatophores of the variant ranid blue frog. *J. Morph.* 132: 169-180, 1970.
18. Berns, M. W., N. Gamaleja, R. Olson, C. Duffy and D. E. Rounds. Argon laser microirradiation of mitochondria in rat myocardial cells in tissue culture. *J. Cell Physiol.* 76: 207-214, 1970.
19. Berns, M. W., S. El-Kadi, R. S. Olson and D. E. Rounds. Laser photosensitization and metabolic inhibition of tissue culture cells treated with quinacrine hydrochloride. *Life Sci.* 9: 1061-1069, 1970.
20. Berns, M. W. A simple and versatile argon laser microbeam. *Exp. Cell Res.* 65: 470-473, 1971.
21. Berns, M. W., W. K. Cheng, A. D. Floyd and Y. Ohnuki. Chromosome lesions produced with an argon laser microbeam without dye sensitization. *Science* 171: 903-905, 1971.
22. Berns, M. W., and W. K. Cheng. Mitotic blockage following laser microirradiation of prophase chromosomes. *Life Sci.* 11: 97-105, 1972.
23. Berns, M. W., D. C. L. Gross, W. K. Cheng and D. Woodring. Argon laser microirradiation of mitochondria in rat myocardial cells in tissue culture. II. Correlation of morphology and function in irradiated single cells. *J. Molec. Cell. Cardiol.* 4: 71-83, 1972.
24. Berns, M. W., D. C. L. Gross and W. K. Cheng. Argon laser microirradiation of mitochondria in rat myocardial cells in tissue culture. III. Irradiation of multicellular groups. *J. Molec. Cell. Cardiol.* 4: 427-433, 1972.
25. Berns, M. W., and A. D. Floyd. Chromosome microdissection by laser: a cytochemical and functional analysis. *Exp. Cell Res.* 67: 305-310, 1971.
26. Berns, M. W., and W. K. Cheng. Are chromosomal secondary constrictions nucleolar organizers: a re-examination using a laser microbeam. *Exp. Cell Res.* 69: 185-192, 1971.
27. Berns, M. W., W. K. Cheng and G. Hoover. Cell division after laser microirradiation of mitotic chromosomes. *Nature* 233: 122-123, 1971.
28. Ohnuki, Y., D. E. Rounds, R. S. Olson and M. W. Berns. Laser microbeam irradiation of the juxtannucleolar region of prophase nucleolar chromosomes. *Exp. Cell Res.* 71: 132-144, 1972.
29. Berns, M. W., A. D. Floyd, K. Adkisson, W. K. Cheng, L. Moore, G. Hoover, K. Ustick, S. Burgott and T. Osial. Laser microirradiation of the nucleolar organizer in cells of rat

- kangaroo (Potorous tridactylis): reduction of the nucleolar number and the production of micronucleoli. *Exp. Cell Res.* 75: 424-432, 1972.
30. Berns, M. W. Partial cell irradiation with a tunable organic dye laser. *Nature* 240: 483-485, 1972.
 31. Berns, M. W., and C. Salet. Laser microbeams for partial cell irradiation. *Int. Rev. Cytol.* 33: 131-156, 1972.
 32. Adkisson, K. P., D. Baic, S. Burgott, W. K. Cheng and M. W. Berns. Argon laser microirradiation of mitochondria in rat myocardial cells in tissue culture. IV. Ultrastructural and cytochemical analysis of minimal lesions. *J. Molec. Cell. Cardiol.* 5: 559-564, 1973.
 33. Berns, M. W., and W. K. Cheng. Argon laser microirradiation of mitochondria in rat myocardial cells in tissue culture. V. Pacemaker vs. non-pacemaker cells. *Life Sci.* 12: 469-474, 1973.
 34. Basehoar, G., and M. W. Berns. Cloning of rat kangaroo (PTK2) cells following laser microirradiation of selected mitotic chromosomes. *Science* 179: 1333-1334, 1973.
 35. Berns, M. W. Biological microbeam irradiation with lasers. *Proc. SPIE Vol.* 41: 111-115, 1973.
 36. McBride, G., J. LaBounty, J. Adams and M. Berns. The totipotency and relationship of seta-bearing cells to thallus development in the green alga Coleochaete scutata. A laser microbeam study. *Dev. Biol.* 37: 90-99, 1974.
 37. Rattner, J. B., and M. W. Berns. Light and electron microscopy of laser microirradiated chromosomes. *J. Cell Biol.* 62: 526-533, 1974.
 38. Berns, M. W. Recent progress in laser microbeams. *Int. Rev. Cytol.* 39: 383-411, 1974.
 39. Berns, M. W. Laser microirradiation of chromosomes. *Cold Spring Harbor Symp.* 38: 165-174, 1974.
 40. Brinkley, L., and M. W. Berns. Laser microdissection of actinomycin D segregated nucleoli. *Exp. Cell Res.* 87: 417-422, 1974.
 41. Berns, M. W. Directed chromosome loss by laser microirradiation. *Science* 186: 700-705, 1974.
 42. Rattner, J. B., M. Lifshits, S. Meredith and M. W. Berns. Argon laser microirradiation of mitochondria in rat myocardial cells. VI. Correlation of contractility and ultrastructure. *J. Molec. Cell. Cardiol.* 8: 239-248, 1976.
 43. Berns, M. W., J. B. Rattner, S. Meredith and M. Witter. Current laser microirradiation studies. *Ann. N. Y. Acad. Sci.* 267: 160-175, 1976.

44. Berns, M. W., K. Leonardson and M. Witter. Laser microbeam irradiation of rat kangaroo cells (PTK₂) following selective sensitization with bromodeoxyuridine and ethidium bromide. *J. Morph.* 149: 327-337, 1976.
45. Rattner, J. B., and M. W. Berns. Centriole behavior in early mitosis of rat kangaroo cells (PTK₂). *Chromosoma* 54: 387-395, 1976.
46. Branch, A. D., and M. W. Berns. Nucleoli and ploidy in Potorous cells (PTK₂) in vitro. *Chromosoma* 56: 33-40, 1976.
47. Meredith, S., and M. W. Berns. Light and electron microscopy of laser microirradiated nucleoli and nucleoplasm in tissue culture cells. *J. Morph.* 150: 785-803, 1976.
48. Waymire, K., M. Kitzes, S. Meredith, G. Twiggs and M. W. Berns. Argon laser microirradiation of mitochondria in rat myocardial cells in tissue culture. VII. Fibrillation in ventricle and auricle cells. *J. Cell Physiol.* 89: 345-353, 1976.
49. Berns, M. W. A possible two-photon effect in vitro using a focused laser beam. *Biophys. J.* 16: 973-977, 1976.
50. Berns, M. W., J. B. Rattner, S. Brenner and S. Meredith. The role of the centriolar region in animal cell mitosis: a laser microbeam study. *J. Cell Biol.* 72: 351-367, 1977.
51. Rattner, J. B., and M. W. Berns. Distribution of microtubules during centriole separation in rat kangaroo (Potorous) cells. *Cytobios* 15: 37-43, 1976.
52. Brenner, S., A. Branch, S. Meredith and M. W. Berns. The absence of centrioles from spindle poles of rat kangaroo (PTK₂) cells undergoing meiotic-like reduction division in vitro. *J. Cell Biol.* 72: 368-379, 1977.
53. Kitzes, M., G. Twiggs and M. W. Berns. Alteration of membrane electrical activity in rat myocardial cells following selective laser microbeam irradiation. *J. Cell Physiol.* 93: 99-104, 1977.
54. Berns, M. W., and S. M. Richardson. Continuation of mitosis after selective laser microbeam destruction of the centriolar region. *J. Cell Biol.* 75: 977-982, 1977.
55. Strahs, K. R., J. M. Burt and M. W. Berns. Contractility changes in cultured cardiac cells following laser microirradiation of myofibrils and the cell surface. *Exp. Cell Res.* 113: 75-83, 1978.
56. Peterson, S. P., and M. W. Berns. Effect of psoralen and near UV on vertebrate cells in culture: comparison of laser with standard lamp. *Photochem. Photobiol.* 27: 367-370, 1978.

57. Berns, M. W., M. Kitzes, J. B. Rattner, J. Burt and S. Meredith. Laser microirradiation of cells. VI. UV Kolloquium "UV-Strahlen in Biologie und Medizin," Cuhlungsborn, East Germany, April 4-7, 1977. *Acta biol. med. germ.* 38: 1285-1293, 1979.
58. Berns, M. W., K. R. Strahs, S. P. Peterson, K. G. Gilmer-Waymire and S. Brenner. Laser microirradiation of cells. *Proc. Symp. Lasers in Medicine and Biology, Gesellshf. Strah und Umweltf.*, Vol. 5, 1977.
59. Berns, M. W., M. Kitzes, K. R. Strahs, J. Burt, S. Peterson, S. Brenner, M. Hammer-Wilson and L.-H. Liaw. Laser microirradiation of cells. *Elektronika-Soviet J. of Quantum Electronics* 5: 2252-2258, 1978.
60. Peterson, S. P., and M. W. Berns. Chromatin influence on the function and formation of the nuclear envelope shown by laser-induced psoralen photoreaction. *J. Cell Sci.* 32: 197-213, 1978.
61. Peterson, S. P., and M. W. Berns. Evidence for centriolar region RNA functioning in spindle formation in dividing PTK₂ cells. *J. Cell Sci.* 34: 289-301, 1978.
62. Burt, J. M., K. R. Strahs and M. W. Berns. Correlation of cell surface alterations with contractile response in laser microbeam irradiated myocardial cells: a scanning electron microscope study. *Exp. Cell Res.* 118: 341-351, 1979.
63. Strahs, K. R., and M. W. Berns. Laser microirradiation of stress fibers and intermediate filaments in non-muscle cells from cultured rat heart. *Exp. Cell Res.* 119: 31-45, 1979.
64. Kitzes, M. C., and M. W. Berns. Electrical activity of rat myocardial cells in culture: La⁺⁺⁺ induced alterations. *Amer. J. Physiol.:Cell Physiol.* 6: C87-C95, 1979.
65. Peterson, S. P., and M. W. Berns. Mitosis in flat PTK₂-human hybrid cells. *Exp. Cell Res.* 120: 223-236, 1979.
66. Berns, M. W. Fluorescence analysis of cells using a laser light source. *Cell Biophysics* 1: 1-13, 1979.
67. Berns, M. W., L. K. Chong, M. Hammer-Wilson, K. Miller and A. Siemens. Genetic microsurgery by laser: establishment of a clonal population of rat kangaroo cells (PTK₂) with a directed deficiency in a chromosomal nucleolar organizer. *Chromosoma* 73: 1-8, 1979.
68. Peterson, S. P., and M. W. Berns. The centriolar complex. *Int. Rev. Cytol.* 64: 81-106, 1980.
69. Brenner, S. L., L.-H. Liaw and M. W. Berns. Laser microirradiation of kinetochores in mitotic PTK₂ cells: chromatid separation and micronucleus formation. *Cell Biophysics* 2: 139-152, 1980.

70. Cremer, T., S. P. Peterson, C. Cremer and M. W. Berns. Laser microirradiation of Chinese hamster cells at wavelength 365 nm. Effects of psoralen and caffeine. *Radiat. Res.* 85: 529-543, 1981.
71. Cremer, T., A. Turner, L.-H. Liaw and M. W. Berns. Giant cell formation produced by laser microbeam irradiation of chromatin in Chinese hamster cells. *Exp. Cell Res.* 134: 49-63, 1981.
72. Siemens, A. E., M. C. Kitzes and M. W. Berns. Hydrazine effects on vertebrate cells in vitro. *Toxicol. Appl. Pharmacol.* 55: 378-392, 1980.
73. McNeill, P. A., and M. W. Berns. Chromosome behavior after laser microirradiation of a single kinetochore in mitotic PTK₂ cells. *J. Cell Biol.* 88: 543-553, 1981.
74. Edwards, J. S., S.-W. Chen and M. W. Berns. Cercal sensory development following laser microlesions of embryonic apical cells in Acheta domesticus. *J. Neurosc.* 1: 250-258, 1981.
75. Liaw, L.-H. L., and M. W. Berns. Electron microscope autoradiography on serial sections of pre-selected single living cells. *J. Ultrastruct. Res.* 75: 187-194, 1981.
76. Berns, M. W., J. Aist, J. Edwards, K. Strahs, J. Girton, P. McNeill, J. B. Rattner, M. Kitzes, M. Hammer-Wilson, L.-H. Liaw, A. Siemens, M. Koonce, S. Peterson, S. Brenner, J. Burt, R. Walter, D. van Dyk, J. Coulombe, T. Cahill and G. S. Berns. Laser microsurgery in cell and developmental biology. *Science* 213: 505-513, 1981.
77. Siemens, A., R. J. Walter, L.-H. Liaw and M. W. Berns. Laser stimulated fluorescence of submicron regions within single mitochondria of rhodamine treated myocardial cells in culture. *Proc. Natl. Acad. Sci. USA* 79: 466-470, 1982.
78. Aist, J. R., and M. W. Berns. Mechanics of chromosome separation during mitosis in Fusarium (*Fungi impercti*): new evidence from ultrastructural and laser microbeam experiments. *J. Cell Biol.* 91: 446-458, 1981.
79. Walter, R. J., and M. W. Berns. Computer enhanced video microscopy: digitally processed microscopic images can be produced in real time. *Proc. Natl. Acad. Sci. USA* 78: 6927-6931, 1981.
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