

CURRICULUM VITAE AND BIBLIOGRAPHIC OUTLINE

NAME: Bonnie S. Dunbar

DATE AND PLACE OF BIRTH:

February 14, 1948

Sterling, Colorado, USA



EDUCATION

University of Colorado, Boulder	B.A.	1970	Zoology
University of Colorado, Boulder	M.A.	1971	Physiology
University of Tennessee, Knoxville	Ph.D.	1977	Zoology
University of California, Davis	Postdoc	1978	Biochemistry and Biophysics

PROFESSIONAL POSITIONS

1. 1971-1973-Scientist, Oceanography Mariculture, Inc. West Palm Beach, Florida.
2. 1973-1975-Staff Scientist, The Harbor Branch Foundation, Smithsonian Institution Marine Laboratory, Fort Pierce, Florida
3. 1978-1981 Staff Scientist, The Population Council, The Rockefeller University, New York, New York.
4. 1981-1984 Assistant Professor, Department of Cell Biology, Baylor College of Medicine, Houston, Texas.
5. 1984-1994-Associate Professor, Department of Cell Biology and Department of Obstetrics and Gynecology, Baylor College of Medicine, Houston, Texas.
6. 1994—Present Professor, Department of Molecular and Cellular Biology, Baylor College of Medicine, Houston, Texas (Adjunct Professor since 2002)
7. 2001-2002 Fulbright Scholar to Africa (Kenya), August 2001 to 2002
8. 2002 Honorary Lecturer, University of Nairobi, Nairobi, Kenya
9. 2004 to Present. Treasurer and Founding Member, African Biomedical Center (Nairobi, Kenya)
10. 2007 to Present. Visiting Scientist, University of Nairobi, Department of Biotechnology and Bioinformatics

PROFESSIONAL EXPERIENCE

TEACHING EXPERIENCE

1. **Graduate Teaching Assistant:** General Biology, (supervisor of 20 teaching assistants, teaching included both laboratories and lectures). Genetics, and Human Physiology (1975-1977), University of Tennessee, Knoxville, Tennessee.
2. **Medical Student Faculty** (lectures including Immunology, Connective Tissue, all Reproductive Biology subjects and all histology laboratories). Cell Biology and Histology. Baylor College of Medicine. 1982-2002.
3. **Graduate Student Courses at Baylor College of Medicine: (1982-2001)**

Lectures in Team taught courses

- Isolation and Characterization of Proteins
- Developmental Biology
- Membranes
- Reproductive Biology
- Carbohydrate structure and function

Course director

- Seminar course on “Roles of carbohydrates in glycoprotein function”;

- Seminar course on “Viral molecular mimicry and autoimmune diseases. Molecular and Cell Biology of Disease course”
- 4. **Department of Cell Biology:** Graduate Student Advisory Committee (Chairman) 1984-1985. Graduate Education Committee 1986-1995. Baylor College of Medicine: Graduate Education Admissions Committee. 1987-1989. Standing Exam Committee, 1989-1993, 1997-98. Student Advisor to Cell Biology Graduate student day, 1993.
- 5. **Lectures in Annual Workshop on Molecular Endocrinology and Hormone Action** (1982-1990) (Baylor College of Medicine - B.W. O'Malley and W. Schrader, Course Coordinators) (Best Speaker awards, 1987-1990).
- 6. **Course on Protein Characterization and Immunological Techniques.** Sponsored by World Health Organization, Guangzhou, China, 1985.
- 7. **Course on Two-Dimensional Polyacrylamide Electrophoresis and Immunological Techniques.** Sponsored by the Department of Cell Biology, Baylor College of Medicine (1987).
- 8. **Workshops on Two Dimensional Polyacrylamide Gel Electrophoresis and Immunological Techniques** for Kodak (Rockefeller University); U.T. Texas, Dallas; U.T. Texas, Houston; Massachusetts General Hospital; Fisher Scientific (U. Nebraska).
- 9. **Seminars and workshop on Two-Dimensional Polyacrylamide Gel Electrophoresis and Immunological Techniques** in Course on Protein Chemistry at Cold Spring Harbor NY (April, 1990).

GRADUATE STUDENTS TRAINED

Dr. Ken Washenik, M.D., Ph.D., Graduate Student,(Ph.D. June, 1991).Currently Assistant Professor, Department of Dermatopathology, New York University. (National awards for clinical and basic research)

Dr. Grace Maresh, Graduate Student, (Ph.D. May 1989) Currently faculty member at Tulane University)

Dr. Eric Schwoebel, Graduate Student, (Ph.D. May 1992) Currently Senior Scientist at Livingston, Laboratories (Mass. Inst. of Tech.)

Dr. Wendy Richardson, - (Ph.D. August, 1992). Currently on faculty of 4 year private College in Berkely, California.

Dr. Brendan Wilkins, Graduate Student - (Ph.D. February, 1995) Currently on the faculty of the University of Galway, Ireland

Thomas Ndolo, Institute of Primate Research, Nairobi Kenya Currently Asst. Prof. Colo. State Univ.

Mary Oguna, Institute of Primate Research, Nairobi Kenya,

POST DOCTORAL FELLOWS AND VISITING SCIENTISTS TRAINED

Dr. M. Gerrity, Assistant Professor and Head of Human In Vitro Fertilization Program, University of Wisconsin, Madison, Wisconsin.

Dr. David Wood, Research Associate, Scientist at XOMA Biotech Company, San Francisco, California.

Dr. Dan Drell, Project Director, Human Genome Project, Washington, D.C.

Dr. En Mei Niu, Visiting Scientist, The Population Council, N.Y. N.Y.

Dr. Liu Xue-Gao, Chairman, Department of Biology, Director, Institute of Reproductive Immunology, Jinan University, Guangzhou, China.

Dr. Li Tai-Ran, Professor, National Vaccine and Serum Institute, Beijing, China.

Dr. Shoba Seghal, Visiting Scientist, Chairman, Department of Immunopathology, Post-Graduate Institute of Science, Chandigarh, India.

Dr. Sheri Skinner, Postdoctoral Fellow and Research Instructor, Department of Cell Biology, Baylor College of Medicine, Houston, Texas. (January 1982-present).

Dr. Daniella Tavella, Research Associate, Department of Cell Biology, Baylor College of Medicine, Houston, Texas (now deceased).

Dr. Greg Shay, Department of Pediatrics, University of California, San Francisco, CA. Mr. Puish Bhatnagar, Research Associate, Post-Graduate Institute of Science, Chandigarh, India.

Dr. Therese M. Timmons, Research Associate, Research Instructor, 1985-1991. Currently director of research development at MD Anderson Cancer Institute.

Dr. Peter Cheung, Research Assistant Professor, former Department of Experimental Radiology, M.D. Anderson Cancer Institute, Houston, Texas.

Dr. Johannes Deitl, Visiting Scientist, Department of Obstetrics & Gynecology, University of Tuebingen, F.R.G.

Dr. Pious Adoyo, Institute of Primate Research, Nairobi Kenya

Dr. Takao Miyake, Visiting Scientist, Department of Obstetrics and Gynecology, Niigata University of Medicine.

Dr. Clive Polon, Research Associate - January 1989 - February, 1991. (south Africa) Department of Obstetrics and Gynecology, Baylor College of Medicine

Dr. Mangala Prasad, Postdoctoral Fellow - Research Associate, January 1989 to present.

Dr. Vaughan Lee, Postdoctoral Fellow, June 1988 to present.

Dr. Ni Wang, Visiting Scientist, - Beijing University, September 1998 to 2000

Dr. Goutham Kaul, Visiting Scientist, Government of India Scholar program

UNDERGRADUATE AND STUDENT TRAINING PROGRAMS

1. Sponsor of over 20 high-school and college undergraduate students for laboratory training Lectures and presentations in numerous grade schools and high schools in New York and Houston
2. Numerous lectures to grade school children in New York City and Houston on careers in science.
3. Keynote speaker at annual Iowa meeting for junior high girls on careers in science

SOCIETY MEMBERSHIPS

American Association for the Advancement of Science

Society for the Study of Reproduction

Endocrine Society

American Society for Cell Biology

Electrophoresis Society (Charter Member)

International Society of Reproductive Immunology

New York Academy of Sciences

The Enzyme Club of New York

American Society of Anatomists

American Society of Reproductive Immunology

COMMITTEES AND STUDY SECTIONS

1978-1981 The Population Council, The Rockefeller University - Policy Impact Committee.

1983 Society for the Study of Reproduction - Education Committee.

1982-1986 Baylor College of Medicine, Animal Resources Committee: Chairman of subcommittee for Internal Facility Inspection for NIH reports; Subcommittee for Satellite Animal Facility. Committee for Publicity on Animal Research. (Including professional media training by Ogilvy & Mather Public Relations)

1984-1985 Society for the Study of Reproduction - Program Committee.

1984-1986 CBH - Graduate Student Advisory Panel (Chairman 1985-1986)

1984-1985 World Health Organization Task Force and Advisory Panel on Reproductive Immunology; World Health Organization Site Visit Team, Family Planning Institute, Guangzhou, China.

1986-1989 Graduate Student Admissions Committee.

1985-1997 Baylor College of Medicine Patent and Copyright Committee, Chairman, Subcommittee on Technology Transfer Policies.

- 1983-1987 Society for the Study of Reproduction - Reproductive Cell Biologists (Chairman); Program Committee; Education Committee.
- 1987 NIH Special Study Section on Immunological Contraceptive Development.
- 1987 NIH Study Section on Shared Instrumentation (Ad Hoc member).
- 1988 NIH Study Section on University-Industry grant (SIBR) project (Chairman).
- 1988-1990 National Science Foundation Study Panels, Regulatory Biology, Training Grant Program.
- 1988 NIH Study Special Study Section on Reproductive Biology
- 1990 Committee for Evaluation of Medical Student Liaisons
- 1990 Chairman, Committee of LCME Evaluation of Immunology and Microbiology
- 1991 NIH Site visit team for Technology Development panel.
- 1991 Medical Research Council of Canada, Site visit team for center project on reproductive biology.
- 1991 NIH Study section for Interinstitutional Contraceptive Center Projects
- 1991 NIH Study section for Prostate Cancer Center evaluation
- 1991 NIH Review Panel Site Visit - Harvard University Population Centers Grant
- 1991-1992 Ad hoc reviewer , USDA Reproductive Sciences Division
- 1993 NIH Study Panel, Molecular Immunology of Sexually Transmitted Diseases
- 1993-95 Baylor College Medicine, Medical school curriculum retreat committee, Extramural Graduate School committee, Cell Biology Graduate Student, Education committee, Adopt a Graduate Student Committee; Graduate, School Curriculum Committee; High School Summer Science Student Committee
- 1994-99 NIH Study Section of Reproductive Biology- Regular Member
- 1997 Advisor to National Institute of Health Contraceptive Development Branch
- 1999 NIH Working group on Global Health Issues
- 1999-2002 Advisor for NIH Joint working group for US/Indo Program (invited organizer of workshop in New Delhi, 2002 on "Role of Reproductive Tract in Sexually Transmitted Diseases)

INVITED SYMPOSIA OR KEYNOTE SPEAKER (Meetings, Congresses, and Courses)

1. Course and symposia on "Biochemistry of Gametes". University of Chile, Valdivia, Chile, (two Weeks). 1980.
2. International Congress on Animal Reproduction, Madrid, Spain, 1980.
3. American Society of Reproductive Immunology, New York, 1981.
4. International Congress of Reproductive Immunology, Banff, Canada, 1981.
5. Symposia on Reproductive Immunology, Jinan University, Guang Zhou, China, 1984.
6. Course on Biochemistry of Reproductive Immunology, Family Planning Institute, Guangzhou, China, 1985 (two weeks).
7. International Congress of Reproductive Immunology, Toronto, 1986.
8. Gordon Conferences, Mammalian Genital Tract, 1982, 1984, 1988, 1990; Fertilization, 1983, Gametogenesis, 1986
9. Molecular Endocrinology Workshop, Department of Cell Biology, Baylor College of Medicine, 1982-1990
10. NIH Workshop on Contraceptive Vaccines, Washington, D.C., 1984
11. Workshop on high-resolution two-dimensional gel electrophoresis, Argonne National Laboratory, Argonne, IL, 1984
12. Electrophoresis Society Symposia Annual Meeting, Tucson, Arizona, 1984
13. National Society of Electrophoresis, 1984
14. Fogherty Symposium on Reproductive Immunology, National Institutes of Health 1985
15. Obstetrics and Gynecology Travel Club, 1985, 1986 (Dr. Malinak, Organizer)
16. 14. Lectures and Laboratory Instruction at Post Graduate Institute, Chandigarh, India, 1986
17. 15. American Congress of Veterinary Medicine, Chicago, IL, 1987

18. 16. FASEB - Tutorial on Electrophoresis, Las Vegas, Nevada, 1988
19. 17. Workshop on Electrophoresis, (Kodak sponsored) Rockefeller University, 1988
20. 18. Annual Meeting of Cell Biology, 1989 - Symposia on "Role of Extracellular Matrix and Cell-Cell Interactions in Fertilization and Early Development"
17. Symposia on Reproductive Biology, Department of Obstetrics and Gynecology, Methodist Hospital, 1990
18. Workshop on Protein Chemistry. Cold Spring Harbor, 1990
19. Macromolecules, Genes and Computers (Human Genome Project) Waterville Valley, New Hampshire, 1989
20. Symposia on Reproductive Immunology, Annual Meeting of Anatomists, Philadelphia, April, 1990
21. Symposia of Annual Meeting of American Society of Reproductive Immunologists, Chicago, June, 1990.
22. Symposia of Annual Meeting of American Association for the Advancement of Science. Wash. D.C., 1991
23. Macromolecules, Genes and Computers (Human Genome Project); Telluride, Colorado 1991
24. National Institutes of Health Conference on Contraceptive Development, Bethesda, MD, February, 1992
25. 2nd International Congress: Advances in Reproductive Research in Man and Animals. Nairobi, Kenya, May, 1992
26. Symposium on Elephant Demography and Fertility Control. (Richard Leakey, director Kenya Wildlife services), Nairobi, Kenya, May, 1992
27. Symposium of Population Association of America, Cincinnati, Ohio, April, 1993
28. Symposium on Wildlife Contraception, (USDA sponsored) Denver, Colo. Oct. 1993
29. USAID-India Joint Program on Contraception - New Delhi, India, Oct. 1993
30. Symposium on Immunocontraception - Australia, February 1994
31. Symposium of International Society of Vaccines. Las Vegas, Nevada, June 1994
32. Symposia of Electrophoresis Society March, 1996
33. Symposium of the 10th World Congress on Human Reproduction (May 1996)
34. Meeting of the Institutes of Medicine (National Academy of Sciences, Wash. D.C.) on adverse reactions to the Hepatitis B vaccine (October 1998)
35. Symposium of the International meeting of Fertility and Sterility (joint meeting of the Germany and English SSF societies) (Germany, 1998)
36. Invited to testify before United States Congress: House Reform Committee on "Adverse Reactions to Hepatitis B vaccine (1999)
37. Invited speaker at 2nd International Vaccine Symposium, Alexandria Va, Sept. 2000
38. Invited speaker at 5th International Symposium on Fertility Control in Wildlife, Skukuza, South Africa, August, 2001
39. Invited speaker to European Parliament Brussels, Belgium April 2002

HONORS AND AWARDS

1. Award for best paper and presentation, Southwest Developmental Biology Symposium, Atlanta, GA, 1973.
2. Honorary Advisor to GuangZhou Committee of Science and Technology, City Government of Guang Zhou, 1984-present.
3. World Health Organization Advisory Panel, 1984-1988. repeat Site Visits of Institutes in Guangzhou, Chengdu and Beijing, China.
4. Nominated from Baylor College of Medicine for PEW Scholar Award.
5. Participant in NIH-Reagan-Ghandi Initiative Program.

6. Thesis Advisor for Graduate (M.D., Ph.D.) Student (Kenneth Washenik) who won 1987 award for the American Medical Association for Overall Excellence of Research and the Mead Johnson Excellence of Research Award for Graduate Student Division at the 28th Annual National Student Research Forum.
7. Nominated for Director of Society for the Study of Reproduction
8. Postdoctoral fellow (Dr. Vaughn Lee) nominated for Young Investigator Award - Society for the Study of Reproduction. August 1991 meeting.
9. Griff T. Ross Memorial Lecturer (National Institutes of Child Health and Development) October, 1991
10. American Society of Cell Biology - Summer Fellowship to Sponsor High School Biology, (Two awards for two high school teachers,
11. Expert Panel for US Department of Agricultural, Division of Wildlife. May, 1992.
12. Workshop speaker for Techniques symposia on techniques, Society for the Study of Reproduction, July, 1992
13. Methodist Hospital Oncology Symposia - Award for best clinical research, April, 1993
14. Dr. Eric Schwoebel, former graduate student and director of students at the Institute or Primate Research in Nairobi, Kenya. Student of twinning institute award between BCM and the Institute of Primate Research in Kenya, Student, Dr. Mary Oguna awarded "Best young scientist researcher at the Pan-African meeting of Biochemistry and Molecular Biology.
15. National Institutes of Health - Honored as First Margaret Pittman Lecturer in recognition of pioneering work on contraceptive vaccine development – (October, 1994).
16. Advisory board of scientific research for the National Vaccine Information Center. (1998-present)
17. Advisory board of the National Humane Society. (1999- present)
18. Founding member of Baylor Research and Science Scholars (BRASS) (1995- present).
19. Advisory board of National Institutes of Health on International Development (Sept. 1999).
20. US/India Joint working group on Population I – January 2000 –2003
21. Consultant to the United States Humane Society August 1999 to 2003
22. Fulbright Scholarship to Africa (Kenya) August 2001 to August 2002

INVITED SPEAKER (Seminars)

The Rockefeller University, Columbia University, Cornell Medical School, Harvard Medical School, N.Y.U. at Stony Brook (New York), University of Southern Illinois, Colorado State University, University of California-Davis, University of Tennessee, University of Texas Medical Schools (Houston, San Antonio, and Dallas), The UpJohn Co., All Indian Institute of Sciences (New Delhi, India), University of Hawaii, Ortho Pharmaceutical Company, 3-M Company, Phillips Petroleum Biotechnology Co., Baylor College of Medicine, Reproductive Immunology Institute (Guangzhou, China), United States Department of Agriculture (Berkeley, California), University of Texas Medical School (Lubbock, TX), Baylor College of Medicine, Post Graduate Institute (Chandigarh, India), Texas A&M University, National Cancer Institute, University of Washington (Seattle), University of Arizona (Tucson), University of Alabama (Birmingham), Merck Pharmaceutical Company; University of Nebraska, North Carolina State University, Kodak Company, USDA Wildlife Laboratory, Denver, Co., National Institutes of Health, (Griff Ross Memorial Lecture, First Margaret Pittman Lecturer) Shering Pharmaceutical Co., Berlin, Germany, University of Georgia, Texas A&M University, University of Oklahoma, (Tulsa), University of Oklahoma Medical School (Oklahoma City), Dartmouth University.

EDITORIAL BOARDS

Member

Biology of Reproduction
 International Journal of Reproductive Immunology
 Journal of Reproductive Immunology

Ad Hoc Reviewer (Regular)

American Journal of Reproductive Immunology, Biochemistry, Developmental Biology, Electrophoresis, Endocrinology, Gamete Research, Journal of Cell Biology, Journal of Clinical Endocrinology and Metabolism, Journal of Experimental Biology and Medicine, Journal of Fertility and Sterility, Journal of Histochemistry and Cytochemistry, Journal of Reproduction and Fertility, Obstetrics and Gynecology, Science, Molecular Endocrinology, Molecular Reproduction, BioTechniques

TELEVISION PRODUCTIONS AND PROGRAMS

1. WFAA-TV: American Broadcasting Company affiliate in Dallas, Texas as Association for the Advancement of Science Mass Media Intern (1976).
2. Cancer: The Clues in the Cell, B. Dunbar, Writer, Producer, and Narrator (30 minute documentary). WFAA, 1976
3. Children's Series on "Biology of the Cell" and "Marine Biology" for the Mr. Peppermint Show. B. Dunbar, Producer (10 programs). WFAA, 1976
4. Live Morning Talk Shows on Medical Research, WFAA, 1976
5. Channel 8: Joyce Gay Report - Interview, Houston, Texas, September, 1990
6. Channels 2, 11, 29. Multiple evening news reports - Houston, Texas, 1991-1998. ABC affiliate, Miami, 1998 (Emmy award winning series on adverse reactions to Hepatitis B vaccine.
7. Discovery Channel - Beyond 2000 - 20 min. segment on contraceptive vaccine research and interview (International - US 1993)
8. Interview for ABC 20/20 on autoimmune reactions following Hepatitis B vaccination and viral molecular mimicry and autoimmune diseases

PATENTS AND PATENT EXPERT WITNESS EXPERIENCE

1. Method of Preparation and Use for Zona Pellucida Antigens and Antibodies for Sterilization and Contraception (Patent #4,996,297 issued, 1991)
2. Monoclonal antibody for diagnostic and therapeutic use in ovarian cancer. (patent issued 1995)
3. Contraceptive vaccine comprising a glycosylated 55 kDa zona pellucida protein immunogen and method of use of the same in contraception (Patent #US5,637,300, 6/10/97)
4. Methods of preparation and use for zona pellucida antigens and antibodies for sterilization and contraception (Patent # 5820863 issued 10/13/1998)
5. Expert witness for Praxis/American Cyanamide. Successful defense of patent on Hibtiter vaccine
6. Expert witness to US Committee for Vaccine Adverse Reactions October 2004.

BOOKS

1. B.S. Dunbar (sole author) (1987) Two-Dimensional Gel Electrophoresis and Immunological Techniques, 372 pages, Plenum Press, New York. (over 6000 copies sold) (Edition Two, In preparation)
2. B.S. Dunbar, and M. O'Rand (Editors) (1991) A Comparative Overview of Mammalian Fertilization (23 chapters, Plenum Press, NY).
3. B.S. Dunbar, (Editor). (1993) Protein Blotting Techniques. At request of Series Editors R. Rickwood and D. Hames; IRL Series on Practical Approaches in Biochemistry. (Second edition in preparation) Press, NY.

PUBLICATIONS (Over 100)

1. B.S. Dunbar and P.W. Winston (1974) The site of active uptake of atmospheric water in larvae of Tenebrio molitor. J. Insect Physiol. 21:495-500.

2. J. Russo, C.B. Metz, and B. Dunbar (1974) Membrane damage to immunologically immobilized rabbit spermatozoa visualized by immunofluorescence and scanning electron microscopy. *Biol. Repro.* 13(2):136-139.
3. B.S. Dunbar, M.G. Munoz, C.T. Cordle, and C.B. Metz (1975) Inhibition of fertilization in vitro by treatment of rabbit spermatozoa with univalent isoantibodies to rabbit sperm hyaluronidase. *J. Repr. Fert.* 47-49.
4. C.A. Shivers and B.S. Dunbar (1977) Autoantibodies to zona pellucida: a possible cause of infertility in women. (Cover photograph) *Science* 197:1082-1084.
5. B.S. Dunbar and J.C. Daniel, Jr. (1979) High molecular weight components of rabbit uterine fluids. *Biol. Repr.* 21:723-733.
6. B.S. Dunbar, N.J. Wardrip, and J.L. Hedrick (1980) Isolation, physicochemical properties and macromolecular composition of the zona pellucida from porcine oocytes. *Biochem.* 19(2):356-365.
7. B.S. Dunbar and B.D. Raynor (1980) Characterization of porcine zona pellucida antigens. *Biol. Repro.* 22:941-954.
8. B.S. Dunbar, C. Liu, and D.W. Sammons (1980) Identification of the three major proteins of porcine and rabbit zonae pellucidae by two-dimensional gel electrophoresis: Comparison with follicular fluid, sera and ovarian cell proteins. *Biol. Repro.* 24:1111-1124.
9. M. Gerrity, E. Niu, and B.S. Dunbar (1981) A specific radioimmunoassay for evaluation of serum antibodies to zona pellucida antigens. *J. Reprod. Immunol.* 3:59-70.
10. D.M. Wood and B.S. Dunbar (1981) Direct detection of two cross-reactive antigens between porcine and rabbit zonae pellucidae by radioimmunoassay and immunoelectrophoresis. *J. Expt. Zool.* 217:423-433.
11. D. Wood, C. Liu, and B.S. Dunbar (1981) The effect of allo-immunization and hetero-immunization with zonae pellucidae on fertility in rabbits. *Biol. Reprod.* 25(2):439-450.
12. C.E. Swenson and B.S. Dunbar (1981) Specificity of sperm-zona interaction. *J. Expt. Zool.* 219(1):97-104.
13. C.E. Swenson, J. VanHamont, and B.S. Dunbar (1983) Specific protein differences among strains of Ureaplasma urealyticum as analyzed by two-dimensional gel electrophoresis and a sensitive silver stain. *Internat. J. System. Bacter.* Vol. 33(2):417-421.
14. C. Yeung, D. Ingolia, C. Bobonis, B. Dunbar, M. Riser, M. Siciliano, and R. Kellems (1983) Selective overproduction of adenosine deaminase in cultured mouse cells. *J. Biol. Chem.* 258(13):8338-8345.
15. B. Dunbar, D. Bundman, and B.S. Dunbar (1983) A rapid laboratory method for developing contact prints of silver-stained polyacrylamide gels. *Electrophoresis* 4:258-259.
16. D. Drell, D. Wood, D. Bundman, and B.S. Dunbar (1984) Comparison of the immunological response in rats and rabbits to porcine zona pellucida. *Biol. Reprod.* 30:445-457.

17. D. Drell and B.S. Dunbar (1984) Monoclonal antibodies to rabbit and pig zonae pellucidae differentiate species cross-reactive and unique antigenic determinants. *Biol. Reprod.* 30:435-444.
18. D. Wolgemuth, J. Celenza, and B.S. Dunbar (1984) Formation of the rabbit zona pellucida and its relationship to ovarian follicular development. *Devel. Biol.* 106:1-14.
19. R. Simmen, B.S. Dunbar, V. Guerriero, J. Chafouleas, J. Clark, and A. Means (1984) Estrogen stimulates the transient association of calmodulin and myosin light chain kinase with the chicken liver nuclear matrix. *J. Cell Biol.* 99:588-593.
20. S.M. Skinner, T. Mills, H.J. Kirchick, and B.S. Dunbar (1984) Immunization with zona pellucida proteins results in abnormal ovarian follicular differentiation and inhibition of gonadotropin-induced steroid secretion. *Endocrin.* 115(6):2418-2432.
21. B.D. Dunbar, D.S. Bundman, D. Schmika, and B.S. Dunbar (1985) Identification of cultivar-specific proteins of wheat (*T. aestivum* L.) by high-resolution two-dimensional polyacrylamide gel electrophoresis and color-based silver stain. *Electrophoresis* 6:39-43.
22. B.S. Dunbar, A. Dudkewicz, and D.S. Bundman (1985) Proteolysis of specific porcine zona pellucida glycoproteins by boar acrosin. *Biol. Reprod.* 32:619-630.
23. B.S. Dunbar, and D.S. Bundman (1987) Evidence for a structural role of the major glycoprotein of the pig zona pellucida. *J. Repr. Fert.* 81:363-376.
24. T.M. Timmons, G.A. Maresh, D.S. Bundman, and B.S. Dunbar (1987) Use of specific monoclonal and polyclonal antibodies to define distinct antigens of porcine zona pellucida. *Biol. Reprod.* 36:1275-1287.
25. B.S. Dunbar (1987) Overview: The use of for two-dimensional electrophoresis combined with immunological techniques. *BioTechniques* 5(3):218-226.
26. S.M. Skinner, E.M. Niu, D.S. Bundman, C. Lo, and B.S. Dunbar (1987) Use of immunoaffinity purified antibodies to zona pellucida to compare alloimmunization of male and female rabbits. *J. Repr. Immun.* 12:81-92.
27. G.A. Maresh, and B.S. Dunbar (1987) Antigenic comparison of five species of mammalian zonae pellucidae. *J. Exp. Zool.* 244:299-307.
28. G. Maresh and B.S. Dunbar (1988) A rapid method for preparing tissue culture media for analysis by gel electrophoresis. *Electrophoresis* 9:54-57.
29. K. Washenik and B.S. Dunbar (1988) Identification and characterization of an abundant ovarian protein associated with sexual maturation in the rabbit. *Endocrinology* 122(4):1663-1671.
30. B.S. Dunbar, C. Lo, and V. Stevens (1989) Effect of immunization with purified porcine zona pellucida proteins on ovarian function in baboons. *Fertil. Steril.* 52(2):311-318.
31. P. Bhatnagar, S.K. Gupta, B. Dunbar and S. Sehgal (1989) Necessity of adjuvants for including effective antibody response to zona pellucida antigens. *Experientia*:45(8):759-762.
32. B.S. Dunbar (1990) Ovarian Antigens and Infertility. *Am. J. Repr. Immunol.* 21(1):28-31.

33. N. Virji, D.M. Phillips, and B.S. Dunbar (1990) Identification of extracellular proteins in the rat cumulus oophorus. *Molec. Repr. and Develop.* 25, 339-344.
34. G.A. Maresh, T. Timmons, and B. Dunbar (1990) Effects of extracellular matrix on the expression of specific ovarian proteins of cultured primary ovarian follicles. *Biol. Repr.* 43:965-976.
35. K. Moore, B. Dunbar, Bousfield, G.R. and D. N. Ward (1990) The heterogeneity of porcine 32,000 Mr inhibin alpha subunit: a gel electrophoresis study. *Endocrinology* 127(3):1477-1486.
36. F.D. Ledley, H.E. Grenette, B.S. Dunbar, and S. Woo (1991) Murine phenyl-alanine hydrolase: homology and divergence from human phenyl-alanine hydroxylase. *Biochem. J.* 267: 399-406.
37. E. Schwoebel, M. Prasad, S. Avery, P. Cheung, T. Timmons, B. Wilkins, and B. Dunbar (1991) Isolation and characterization of a cDNA encoding the rabbit 55K ZP glycoprotein. *J. Biol. Chem.* 266(1):7214-7219.
38. S. Skinner and B. Dunbar. (1992). Localization of a carbohydrate antigenic determinant shared between oocytes and ovarian surface epithelium. *J. Histochem. Cytochem.* 40(7):1031-1036.
39. C. Miller, R. Fayer-Hosken, T. Timmons, A. Cudle and B. Dunbar (1992) Characterization of equine zona pellucida proteins by electrophoresis and immunological techniques. *J. Repr. Fertil.* 96:815-825.
40. E. Schwoebel, C. Vandevort, V. Lee, C. Lo and B. Dunbar, (1992). Molecular analysis of the Antigenicity and Immunogenicity of Recombinant ZP Proteins in a non-human primate model. *Biol. Repr.* 47:857-865.
41. V. Lee, and B. Dunbar. (1992). Developmental expression of the rabbit 55-Kda zona pellucida protein and mRNA in ovarian follicles. *Develop. Biol.* 155:371-382.
42. B. Dunbar. Post-translational modification of proteins: complexities of analysis of structure and function. (1992) *Computers. Chem.* 16(2):145-152.
43. Lacy, W.R., Washenik, K., Cook, R. and Dunbar, B. (1993). Molecular cloning and expression of an abundant rabbit ovarian protein with 20 alpha Hydroxysteroid dehydrogenase activity. *Molec. Endo.* 7(1):58-66.
44. V. Lee, E. Schwoebel, M. Prasad, T. Timmons, R. Cook and B. Dunbar (1993) Isolation and characterization of a cDNA encoding the rabbit 75Kd zona pellucida protein *J. Biol. Chem.* 268(17):12412-12417.
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ABSTRACTS

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