

**Ann Anderson Kiessling**  
**Curriculum Vitae**

**Harvard Medical School**  
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**Bedford Research**  
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**Education:**

1964	BS	University of Virginia (Nursing)
1966	BS	Central Washington University (Chemistry)
1967	MS	Central Washington University (Organic Chemistry)
1971	PhD	Oregon State University (Biochemistry/Biophysics)

**Postdoctoral Training:**

1971	Research Associate	School of Medicine, Division of Oncology, University of Washington, Seattle (Laboratory of Dr. Paul Neiman)
1971-1973	Research Fellow	Memorial Sloan-Kettering Institute for Cancer Research (Laboratory of Dr. Lloyd Old)
1973-1976	Postdoctoral Scholar	Department of Medicine, University of California, San Diego (Laboratory of Dr. Mehran Goulian)

**Licensure:**

1991-	CLIA licensed Clinical Laboratory Director
1993-	American Association of Bioanalysts Licensed Laboratory Director in Andrology and Embryology

**Academic Appointments:**

1977-1981	Assistant Professor of Anatomy	Oregon Health Sciences University
1981-1985	Associate Professor of Anatomy	Oregon Health Sciences University
1983-1985	Associate Professor of Obstetrics and Gynecology	Oregon Health Sciences University
1985-1990	Associate Professor of Obstetrics, Gynecology and Reproductive Biology	Harvard Medical School
1990-	Associate Professor of Surgery	Harvard Medical School

**Professional Societies:**

1976-	American Association for the Advancement of Science
1980-	The New York Academy of Sciences
1981-	The American Society for Cell Biology
1982-	The American Fertility Society
1983-	The American Society for Microbiology
1989-	American Society for Biochemistry and Molecular Biology

**Narrative of Research, Teaching and Clinical Contributions**

**Research:** My graduate work focussed on replication of avian myeloblastosis virus, resulting in some of the earliest papers describing the characteristics of reverse transcriptase. The goal was to understand how infection with the virus led to malignant transformation of the cells. My first postdoctoral position was with Dr. Paul Neiman in Dr. E. Donnall Thomas's bone marrow transfer group, now at the Hutchinson Cancer Center in Seattle, Washington. Next, a rotation with Dr. Lloyd Old and Ted Boyse at Memorial Sloan-Kettering Cancer Center in New York, provided over a year of immunology training. While a postdoctoral fellow in the laboratory of Mehran Goulian, I detected reverse transcriptase activity in "normal" human cells, including placenta, leading to the first report that reverse transcriptase activity was not restricted to malignant and/or retrovirus infected cells. Because this finding supported the hypothesis of Howard Temin that reverse transcriptase may play a role in early cell commitment, and because of the similarities between "de-differentiated" cancer cells and uncommitted embryonic cells, I began a series of experiments with early cleaving mouse embryos in collaboration with Dr. Harry Weitlauf. We developed assay systems to detect both RNA polymerases and DNA polymerase activities in single mouse embryos. During the course of that work, two unexpected findings were revealed: 1) early cleaving mouse embryos contain readily detectable levels of enzyme activity with characteristics of reverse transcriptase, and 2) the mouse epididymis expresses remarkably high levels of both endogenous and exogenous retroviruses, both as partial genome transcripts and as whole virus particles. Subsequently, experiments were conducted in goat embryos to determine if reverse transcriptase activity could be detected in embryos from a species not known to contain a large repertoire of endogenous retrovirus sequences. This led to the first large series of goat embryo transfers in the early 80's. To further characterize DNA polymerases in early cleaving mouse embryos, it was necessary to develop culture systems which fully supported "normal" embryonic development, a research interest which has continued to the present. By 1983, two medical developments thrust my research interests into the forefront of clinical interest: human in vitro fertilization became standard of care for couples with infertility and AIDS was recognized as a semen-transmitted infection. I established the first In Vitro Fertilization laboratory in Oregon and conducted the earliest experiments to detect retrovirus particles in the seminal plasma of men with AIDS, or AIDS-related complex. I was recruited to Harvard Medical School in 1985 to head up the IVF laboratory at Brigham and Women's Hospital and continue my research in both early embryo development and semen transmission of HIV. Work in my laboratory has led to a number of discoveries about early embryo development in vitro, including a purine-induced block in M2 of the two cell mouse embryo, which leads to synchronization. More recent work has included studies of oocyte maturation, including elucidating the role of *cmos* in maintaining metaphase arrest. The current research emphasis is in two areas: one discovering reservoirs of HIV infection in male genitourinary tract tissues, and the other is developing reliable systems for parthenogenetic activation of mammalian eggs. Work in this laboratory has established that HIV in semen is genetically and quantitatively separate from HIV in blood of infected men. Thus, semen producing organs are a separate, isolated reservoir of HIV infection. Current work is directed at discovering the tissue and/or organ sources of semen HIV with emphasis on cell types infected and evolution of the quasispecies of virus present in semen relative to blood. The research with human eggs and mouse and human embryonic stem cells takes place in the separate laboratory of the Bedford Stem Cell Research Foundation, a Massachusetts public charity. Current projects are the derivation of oocytes from embryonic stem cells in culture and nuclear transplantation with donor eggs.

**B. Funding as Principal Investigator:**

1980-1982	American Cancer Society (OCS1181A): "The possible role of DNA Polymerase in Cell Differentiation.
1980-1983	National Science Foundation (PCM7725445): DNA Polymerases in sperm and early embryos".
1983-1985	Biomedical Research Support Grant: "The presence of retrovirus in semen from patients with PGL or AIDS".
1985-1989	National Institutes of Health (HD21890): "Significance of DNA polymerases in mouse seminal fluid".
1986-1991	National Institutes of Health (HD21988): "Culture Media for Preimplantation Development".
1990-1995	National Institutes of Health (CA53899): Retroviruses associated with the human reproductive tract.
1997-2005	National Institutes of Health : "Role of the Male Genital Tract in HIV Disease".

**Bibliography:****Original Reports**

1. Weber GH, Kiessling AA, Beaudreau GS. DNA polymerase activity associated with strain MC29 tumor virus. *J Virol.* 1971; 7:214-20.
2. Kiessling AA, Weber GH, Deeney AO, Possehl EA, Beaudreau GS. DNA polymerase activity associated with a plasma particulate fraction from a patient with CLL. *J Virol.* 1971; 17:221-6.
3. Weber GH, Kiessling AA, Beaudreau GS. DNA polymerase activity in homogenates of cells infected with MC29 virus. *Biochem Biophys Res Commun.* 1971; 6:993-9.
4. Kiessling AA, Deeney AO, Beaudreau GS. DNA and RNA from AMV as templates for viral DNA polymerase. *Fed Eur Bio Soc Lett.* 1972; 20:57-60.
5. Kiessling AA, Neiman PE. RNA tumor virus DNA polymerase: activity with exogenous primers. *Biochim Biophys Acta* 1972; 272:147-55.
6. Kiessling AA, Goulian M. A comparison of the enzymatic responses of the DNA polymerases from four RNA tumor viruses. *Biochem Biophys Res Commun.* 1976; 71:1069-77.
7. Kiessling AA, Goulian M. Detection of reverse transcriptase activity in human cells. *Cancer Res.* 1979; 39:2062-9.
8. Kiessling AA, Weitlauf HM. DNA polymerase activity in preimplantation mouse embryos. *J Exp Zool.* 1979; 208:347-54.
9. Weitlauf HM, Kiessling AA, Buschman R. Comparison of DNA polymerase activity and cell division in normal and delayed-implanting mouse embryos. *J Exp Zool.* 1979; 209:467-72.
10. Weitlauf HM, Kiessling AA. Comparison of overall rates of RNA synthesis in implanting and delayed implanting mouse blastocysts in vitro. *Dev Biol.* 1980; 77:116-29.

11. Kiessling AA, Weitlauf HM. Poly(A):oligo(dT)-stimulated DNA polymerase activity in preimplantation mouse embryos. *J Exp Zool.* 1981; 215:117-20.
12. Weitlauf HM, Kiessling AA. Activation of 'delayed implanting' mouse embryos in vitro *J. Reprod Fertil.* 1981; 29:191-202.
13. Ruta M, Bestwick R, Kiessling AA, Faust C, Linemeyer D, Scolnick E, Kabat D. Genetic structure of Rauscher spleen focus forming virus. *J Virol.* 45:1217-22.
14. Kiessling AA. Evidence that reverse transcriptase is a component of murine epididymal fluid. *Proc Soc Exp Biol Med.* 1984; 176:175-82.
15. Kiessling, AA, Hughes WH, Blankevoort MR. Superovulation and embryo transfer in the dairy goat. *J Am Vet Med Assoc.* 1986; 188:829-32.
16. Loutradis D, John D, Kiessling AA. Hypoxanthine causes a 2-cell block in random bred mouse embryos. *Biology Reproduction.* 1987; 37:311-316.
17. Goldman DS, Kiessling AA, Millette CF, Cooper GM. Expression of c-mos RNA in germ cells of male and female mice. *Proc Natl Acad Sci USA* 1987; 84:4509-4513.
18. Kiessling AA, Crowell RC, Connell RS. Sperm-associated retroviruses in the mouse epididymis. *Proc Natl Acad Sci USA.* 1987; 84:8667-8671.
19. John D, Kiessling AA. Improved Pronuclear Mouse embryo development over an extended pH range in Ham's F-10 Medium without protein. *Fertil and Steril.* 1988; 49:150-155.
20. Patton PE, Burry KA, Wolf DP, Kiessling AA, and Craemer MJ. The use of oral Contraceptives to regulate oocyte retrieval. *Fertil and Steril.* 1988; 49:716-718.
21. Han H-D, Kiessling AA. In vivo development of transferred mouse embryos conceived in vitro in simple and complex media. *Fertil. and Steril.* 1988; 50:159-163.
22. Montgomery V, Loutradis D, Tulchinski D, Kiessling AA. Follicle stimulating hormone-induced ovulation in intact and hypophysectomized female mice. *J Repro and Fertil.* 1988; 84:1-6.
23. Goldman D, Kiessling AA, Cooper G. Post-transcriptional processing suggests that *cmos* functions as a maternal message in mouse eggs. *Oncogene* 1988; 3:159-163.
24. Trune DR, and Kiessling AA. Decreased protein synthesis in cochlear nucleus following developmental auditory deprivation. *Hearing Research* 1988; 35:259-264.
25. Borzy MS, Connell RS, Kiessling AA. Detection of HIV in cell free seminal fluid. *J Acquired Immune Def Synd.* 1988; 1:419-424.
26. Jackson KV, and Kiessling AA. Fertilization and cleavage of mouse oocytes exposed to the conditions of human oocyte retrieval for in vitro fertilization. *Fertil and Steril.* 1989; 51:675-681.
27. Kiessling AA, Crowell RC, Fox C. Epididymis is a principal site of retroviral expression in the mouse. *Proc Nat'l Acad Sci.* 1989; 86:5109-5113.

28. O'Keefe SJ, Wolfes H, Kiessling AA and Cooper GM. Microinjection of Antisense *c-mos* Oligonucleotides Prevents Meiosis II in the Maturing Mouse Egg. *Proc Nat'l Acad Sci.* 1989; 86:7038-7042.
29. Fissore R, Jackson KV and Kiessling AA. Mouse Zygote Development in Medium without Protein in Presence of Ethylenediaminetetraacetic Acid. *Biol of Repro.* 1989; 41:835-841 .
30. Nureddin A, Epsaro E and Kiessling AA. Purines Inhibit the Development of Mouse Embryos In Vitro. *J. Repro. and Fertil.* 1990; 90: 455-464.
31. Mehta T and Kiessling, AA. Developmental Potential of Mouse Embryos conceived in vitro and Cultured in Ethylenediaminetetraacetic Acid with or without Amino Acids or Serum. *Biol. of Reproduction* 1990; 43:600-606.
32. O'Keefe SA, Kiessling AA , and Cooper GM. The *cmos* gene product is required for cyclin b accumulation during meiosis of mouse egg. *Proc. Nat'l Acad. Sci..* 1991 88:7869-7872.
33. Pal, SA, SS Zinkel, AA Kiessling and GM Cooper. *c-mos* Expression in Mouse Oocytes is Controlled by Initiator-Related Sequences Immediately Downstream of the Transcription Initiation Site. 1991. *Molec. and Cell. Biol.* 11: 5190-5196.
34. Lawitts JA, Butler JE, Kiessling AA and Biggers JD. Growth and DNA Replication in Rabbit Blastocysts. *Molec. Reproduction and Dev.* 1991; 30:320-329.
35. Kiessling AA, Davis HW, Williams CS, Sauter RW, Harrison LW. Development and DNA Polymerase Activities in Cultured Preimplantation Mouse Embryos: Comparison with Embryos Developed In Vivo. *J Exper Zool.* 1991;258:34-47.
36. Fissore R, O'Keefe S, Kiessling AA. The Purine-Induced Block to Mouse Embryo Cleavage is Reversed by Compounds that Elevate Cyclic-Adenosine Monophosphate. *Biol. Reprod.* 1992;47:1105-1112.
37. Loutradis D, Kallianidis K, Drakakis P, Michalas S, Milingos S, Bletsas R, Aravantinos L, Creatsas G, Kiessling AA. Successful pregnancy in human IVF using BSA as a protein source in the transfer medium. 1992. *ARTA* 3: 233-238.
38. Pal SK, Crowell RC, Kiessling AA, Cooper GM. Expression of proto-oncogenes in mouse eggs and preimplantation embryos. *Mol Reprod Dev.* 1993;35:8-15.
39. Kiessling AA, Crowell RC, Brettler D, Forsberg A, Wolf B. HIV detection and differential leukocyte counts are accurate and safer with formaldehyde-fixed blood. *Blood* 1993;81:864-865.
40. Kiessling AA, Yin HZ, Purohit A, Kowal M, Wolf B. Formaldehyde-fixed semen is suitable and safer for leukocyte detection and DNA amplification. *Fertil Steril.* 1993;60:576-581.
41. Fitzgerald LM, Yin H, Kiessling AA. PCR amplification of HIV and cellular DNA sequences in formaldehyde-fixed, immunoreactive peripheral white blood cells. *BioTechniques.* 1993;15:128-133.

42. Mehta TS, Kiessling AA. The developmental potential of mouse embryos conceived in Ham's F-10 medium containing ethylenediaminetetraacetic acid. *Fertil Steril.* 1993;60:1088-1093.
43. Loutradis D, Kiessling AA, Kallianidis K, Siskos K, Creatsas G, Michalas S, Aravantinos D. A preliminary trial of human zygote culture in Ham's F-10 without hypoxanthine. *J Assist Reprod Genet.* 1993;10:271-275.
44. Pal SK, Torry D, Serta R, Crowell RC, Seibel MM, Cooper GM, Kiessling AA. Expression and potential function of the c-mos protooncogene in human eggs. *Fertil Steril.* 1994;61:496-503.
45. Yamauchi N, Kiessling AA, Cooper GM. The Ras/Raf signaling pathway is required for progression of mouse embryos through the two cell stage. *Molecular and Cellular Biology* 1994; 10: 6655-6662.
46. Loutradis D, Drakakis P, Michalas S, Hatzaki C, Kallianidis K, Aravantinos D and Kiessling AA. The effect of compounds altering the cAMP level on reversing the 2-cell block induced by hypoxanthine in mouse embryos in vitro. *Euro J Ob Gyn Reprod Biol.* 1995 (In Press).
47. Seibel MM, Kearnan M, Kiessling AA. Parameters predicting success for natural cycle IVF. *Fertil Steril.* 1995; 63: 1251-4.
48. Kiessling AA, Lamparelli N, Yin H-Z, Seibel MM, Eyre RC. Semen leukocytes: Friends or Foes? *Fertil Steril.* 1995; 64: 195-197.
49. Serta RS, Michalopoulos J, Seibel MM and Kiessling AA. Developmental potential of mouse oocytes matured in serum free culture. *Human Reproduction.* 1995; 10: 1810-1815.
50. Drakakis P, Loutradis D, Milingos S, Michalas S, Kallianidis K, Bletsas R, Aravantinos D and Kiessling AA. A preliminary study of the effect of growth hormone on mouse preimplantation embryo development in vitro. *Gynecol Obstet Invest* 1995; 40: 222-226.
51. Kiessling AA, Michalopoulos J and Serta R. Immature oocyte development. *Human Reproduction.* 1996, 11:2336.
52. Pierce, K, Kiessling AA, Fitzgerald LM, Silberstein M, Seibel, M. An improved method of preimplantation embryo biopsy" *Human Reproduction.* 1997, 13:1889.
53. Byrn RA, Zhang D, Eyre R, McGowan K, Kiessling AA. HIV-1 in semen: an isolated virus reservoir. *The Lancet.* 1997; 350: 1141.
54. Kiessling AA, Zhang D, Chhay H, Fitzgerald LI, Brettler D, Eyre RC, Steinberg J, McGowan K Byrn RA. Human Immunodeficiency Virus in semen arises from a genetically distinct virus reservoir. *AIDS Res and Human Retrovirus* 1998, 14: 33-41.
55. Byrn RA and Kiessling AA. Analysis of HIV in semen: indications of a genetically distinct virus reservoir. *J. of Reproductive Immunology,* 1998, 14: 161-176.
56. Kiessling AA. Expression of HIV LTR-coupled genes in early cleaving embryos. *Journal of Reproductive Immunology,* 1998, 41: 95-104.

57. Maione, B, Lavitrano M, Spadafora C, Kiessling AA. Sperm-mediated gene transfer in mice. 1998. *Molec Repro Dev* 50: 406-409.
58. Eyre RC, Yin H-Z and Kiessling, AA. Prostate specific antigen is detectable in formalin-fixed semen. *British Journal of Urology*. 1999, 83: 622-688.
59. Eyre RC, Zheng G and AA Kiessling. Multiple drug resistance mutations in human immunodeficiency virus in semen but not blood of a man on antiretroviral therapy. *Urology*. 2000, 55: 591-594.
60. Kiessling AA and S Markoulaki. Interaction of gametes with exogenous genes: possible opportunities for incorporation into embryonic genome. *Molecular Reproduction and Development*. 2000, 56: 271-274.
61. Cibelli JB, AA Kiessling, K Cunniff, C Richards, RP Lanza, MD West. Somatic Cell Nuclear Transfer in Humans: Pronuclear and Early Embryonic Development. *J of Regenerative Medicine* 2001, 2: 25-31.
62. Okamoto M, R. Byrn, RC Eyre, T Mullen, P Church and AA Kiessling. Seminal plasma induces programmed cell death in cultured peripheral blood mononuclear cells. *AIDS Research and Human Retroviruses*, 2002, 18: 797-803.
63. Green RM, DeVries KP, Bernstein J, Goodman KW, Kaufmann R, Kiessling AA, Levin SR, Moss SL, Tauer CA. Overseeing research on therapeutic cloning: a private ethics board responds to its critics. *Hastings Center Report*, 2002, 32: 27-33.
64. Mullen T, Kiessling RL, Kiessling AA. Distinct populations of leukocytes in semen producing organs of the normal, hemicastrated and vasectomized mouse. *AIDS Research and Human Retroviruses*, 2003, 19: 235-243.

### **Reviews/Books/Monographs/Computer animations**

1. Weitlauf HM, Kiessling AA. Activity of RNA and DNA polymerases in delayed implanting mouse embryos. In: Glasser SR, Bullock DW, eds. *Cellular and molecular aspects of implantation*. New York: Plenum Publishing Co., 1981:125-36.
2. Kiessling AA, Blankevoort M. Effect of low temperature storage on the viability of transferred goat embryos. *Dairy Goat J*. 1981; 59:58-60.
3. Kiessling AA, Blankevoort M. Embryo transplants. *Dairy Goat J*. 1983; 61:96-8.
4. Blankevoort M, Kiessling AA, Skinner N. Success of direct and delayed transfer of goat embryos. *Dairy Goat J*. 1983; 61:1019-21.
6. Cooper GM, Goldman DS, Kiessling AA, and Millette CF. The Expression of Oncogenes in Germ Cells. In: Haseltine F, ed. *Meiotic Inhibition: Molecular Control of Meiosis*. New York: Alan R. Liss, Inc. 1988:275-289.
7. Kiessling AA, Loutradis D, McShane PM, and Jackson KV. Fertilization in Trypsin-treated oocytes. In: *In Vitro Fertilization and other Assisted Reproduction*, Annals of The New York Academy of Sciences. 1988; 541:614-620.

8. Kiessling AA, and Cooper GM. The Expression of Oncogenes in Mammalian Embryogenesis. In: Rosenblum IY, and Heyner S. Chapter in Regulation of Growth and Development, CRC Press. 1989.
9. Kiessling AA. Retroviruses and Reproduction. Fertil and Steril. 1989. 51:756-758.
10. Anderson SC, Cooper GM and Kiessling AA. Meiosis in Motion. 1991. VHS format exhibited at the World Congress of Assisted Reproduction, Paris, France, 1991 and at the Cell Biology Meeting, Boston, MA, 1991.
11. Kiessling AA. The Role of Assisted Reproductive Technologies in Yielding HIV-Free Offspring of HIV-Infected Parents. In: Mellica F, ed. AIDS and Human Reproduction, S. Karger AG, Basel Switzerland. 1992:139-144.
12. Kiessling AA. Semen transmission of human immunodeficiency virus. Letter, Fertil Steril. 1992;58:667-669.
13. Kiessling AA. HIV in semen. Letter, JAMA. 1992;268:2651.
14. Kiessling AA. Detection of human immunodeficiency virus in blood or semen by polymerase chain reaction. Reply, Fertil Steril. 1993;59:1143-1144.
15. Seibel MM, Kiessling AA. Compensating egg donors: equal pay for equal time? Letter, New Engl J Med. 1993;328:737.
16. Seibel MM, Kiessling AA. Oocyte maturation. Assist Reprod Review. 1993;3:2-5.
17. Seibel MM, Kiessling AA, Bernstein J, Levin S (Eds), Technological Advances in Infertility and Their Psychosocial, Legal and Ethical Implications. 1993. New York, Springer-Verlag.
18. Kiessling AA. The Expression of Proto-Oncogenes in Mammalian Gametes and Embryos. In: Seibel MM, Kiessling AA, Bernstein J, Levin S (Eds), Technological Advances in Infertility and Their Psychosocial Legal and Ethical Implications. New York, Springer-Verlag. 1993.
19. Kiessling AA. The Role of the Embryo in Prenatal Diagnosis. In: Seibel MM, Kiessling AA, Bernstein J, Levin S (Eds), Technological Advances in Infertility and Their Psychosocial Legal and Ethical Implications. New York, Springer-Verlag. 1993.
20. Kiessling AA. Human immunodeficiency virus in semen. Current Opinion in Urology. 1994;4:60-65.
21. Kiessling RL and Kiessling AA. The Life Cycle of HIV. 1996. Computer animation created for distribution to primary care physicians in Fiji as part of a "Train the Trainer" project funded by The World Aids Foundation.
22. Kiessling AA. Should Assisted Reproductive Technology be used to aid HIV infected men have children? Contemporary OB/Gyn, July, 2000.
23. Kiessling AA. In the stem cell debate, new concepts need new words. Nature 413: 453, 2001.



24. Kiessling AA and Anderson SC. Human Embryonic Stem Cells, 2003, Jones and Bartlett, Publishers
25. Kiessling AA, 2004, Isolation of Human Immunodeficiency Virus Type I from Semen and Vaginal Fluids in Retrovirus Protocols I, Humana Press
26. Kiessling AA, S J Eyre and B M Desmarais, 2004, Detection of Drug-resistant HIV-1 Strains in Retrovirus Protocols I, Humana Press
27. Kiessling AA, What is an Embryo?, Connecticut Law Review, 2004, University of Connecticut School of Law.

### Teaching/Invited Lectures:

- |           |   |
|-----------|---|
| 1979      | Lecturer on "Reverse Transcriptase Activity in Nonmalignant Cells," Department of Biochemistry Symposium, Oregon Health Sciences University                           |
| 1982-1985 | Director, Developmental Biology Course (Human Embryology for freshman medical students), Oregon Health Sciences University  |
| 1984      | Invited Lecturer on "In Vitro Fertilization," Grand Rounds, Department of Obstetrics and Gynecology, Oregon Health Sciences University                                |
| 1985      | Invited Speaker on "Retrovirus Expression in the Reproductive Tract of Mice," LHRRB Seminar Series, Harvard Medical School  |
| 1985      | Symposium Director, "Embryo Transfer in Large Animals," Pan American Congress, Sao Paulo, Brazil, 1985.   |
| 1986      | Lecturer on "Fertilization and Early Embryo Development," Fertility and Endocrine Resident Conference   |
| 1986      | Invited Lecturer on "Retroviruses in the Male Reproductive System," American Gynecologic Travel Club, Boston  |
| 1987-1988 | Lecturer on "Fertilization," Reproductive Endocrinology Postgraduate Course, Harvard Medical School   |
| 1988      | Invited Lecturer on "Fertilization in the 90's" Grand Rounds, Department of Obstetrics, Gynecology and Reproductive Biology, Harvard Medical School                   |
| 1988      | Invited Lecturer on "Retrovirus expression in the male reproductive tract", UCLA Spring Seminar Series, UCLA, Los Angeles, Calif.                                     |
| 1988      | Invited Lecturer on "Retrovirus expression in the male reproductive tract", LHRRB Seminar Series, Boston, Massachusetts   |
| 1988      | Invited Lecturer, "Normal Sexual Differentiation: Pseudohermaphroditism," IV European Congress on Pediatric and Adolescent Gynecology, Rhodes Island, Greece          |
| 1988      | Invited Lecturer, "Regulation of Oocyte Maturation" Satellite Workshop on In Vitro Fertilization Embryo Transfer and GIFT, Rodos Palace Hotel, Rhodes Island, Greece. |
| 1989      | Invited Lecturer on "Oocyte Maturation" Grand Rounds, Department of Obstetrics and Gynecology and Reproductive Biology, Brigham and Women's Hospital                  |
| 1990      | Invited Lecturer, "Reproductive Tract Retroviruses", Department Seminar Series, Department of Anatomy and Cell Biology, Tufts Medical School                          |

- 1990 Course Co-Director, "Technological Advances in Infertility Treatment", Harvard Medical School, Department of Continuing Education, Cambridge MA
- 1990 Course Lecture "The Expression of Oncogenes in Mammalian Gametes and Embryos," Cambridge, MA
- 1990 Course Lecture "The Role of the Embryo in Prenatal Diagnosis," Cambridge, MA
- 1990 Invited Speaker, "The Role of Assisted Reproductive Technologies in Producing HIV-free offspring from HIV-Infected Parents," and Session chairman, The First International Symposium on AIDS and Reproduction, Dec., 1990, Genoa, Italy
- 1990 Invited Lecturer, "Reproductive Tract Retroviruses," AIDS Research Group Seminar Series, Children's Hospital, Boston, Ma.
- 1991 Invited Faculty, American College of Obstetrics and Gynecology, October 1991, "What the Obstetrician/Gynecologist should know about AIDS," Quebec City, Quebec, Canada.
- 1991 Invited Lecturer, "New Horizons in Human Fertilization," Museum of Science, "Two of Every Sort," Exhibition, Boston, MA,
- 1992 Invited Lecturer, "Purine-induced Blockade of Early Cleaving Mouse Embryos," Spring Lecture Series, Northeastern University, Boston
- 1992 Invited Lecturer, "Retrovirus Expression in Male Reproductive Tract Tissues" Division of AIDS, Department of Hematology/oncology, Albany Medical College, Albany, New York
- 1993 Invited Lecturer, "New Horizons in Human Fertilization," National Association of Biology Teachers 1993 National Convention, Boston, MA, Nov., 1993.
- 1994 Invited Faculty, Assisted Reproductive Technology Forum, "The First Three Cell Cycles of the Mammalian Embryo," Toyama, Japan
- 1994 Invited Speaker, "Can an HIV-free pregnancy be achieved?" Department of Medicine, Grand Rounds, Cambridge Hospital, Cambridge MA, December
- 1995 Invited Lecturer, "Cell Cycle Controls during Early Human Development", Mitera Hospital, Athens, Greece March, 1995
- 1995 Invited Lecturer, "The First Three Cell Cycles of the Mammalian Embryo," Centre for Reproduction and Early Human Development, Monash University, Melbourne Australia, March, 1995
- 1995 Invited Lecturer, "The First Three Cell Cycles of the Mammalian Embryo," Department of Veterinary Science, University of Massachusetts, Amherst MA, May, 1995
- 1995 Invited Lecturer, "Cell Cycle Controls during Early Human Development," Department of Obstetrics and Gynecology, New England Medical Center, Boston, MA, September, 1995
- 1996 Invited Faculty, National Institutes of Health Workshop on Semen Transmission of HIV, National Library of Medicine, Bethesda, MD, February, 1996
- 1996 Director, World Aids Foundation Workshop to Train Health Care Professionals, Nadi, Fiji  
Lectures: "HIV Disease and the Immune System" and "Maternal-Fetal Transmission of HIV Infection."
- 1997 Invited Faculty, Hellenic National Congress of Obstetrics and Gynecology, Crete, May, 1997 "AIDS and Reproduction"
- 1997 Invited Faculty, Sienna Symposium, HIV and Gametes, Sienna, Italy, October, 1997

- Lecture: "HIV LTR Driven Gene Expression in Mouse and Human Fertilized Eggs"
- 1998 Invited Speaker, University of San Francisco, "Semen Transmission of HIV"
- 1999 Invited Speaker, Tufts School of Medicine, Division of Infectious Disease, "Semen: an isolated reservoir of HIV infection"
- 1999 Invited Speaker, Northwestern University School of Medicine, "Semen: an isolated reservoir of HIV infection"
- 2000 Invited Speaker, National Institutes of Health, Laboratory of Dr. Tony Fauci, "HIV infection in the male genital tract"
- 2000 Invited Speaker, 2000 TALA National Meeting, "Challenges and Options for Living with HIV Disease" Boca Raton, FL
- 2000 Invited Speaker, Department of Biology, Boston University, "Biology of Human Immunodeficiency Virus and Risks of Sexual Transmission"
- 2000 Invited Speaker, Brandeis University, Department of Biology, "Reproductive concerns and sexually transmitted diseases"
- 2001 Invited Speaker, New England Medical Center, Division of Reproductive Endocrinology, "Reproductive options for couples living with HIV Disease"
- 2001 Invited Speaker, Brandeis University, Department of Biology, "Reproductive concerns and sexually transmitted diseases"
- 2002 Invited Speaker, Department of Medicine, Travis Hospital, "Stem Cells and their potential therapeutic uses"
- 2002 Invited Speaker, Department of Obstetrics and Gynecology, University of Virginia School of Medicine "Risks of Sexual Transmission of HIV disease"
- 2002 Invited Speaker, Brandeis University, Department of Biology, "Reproductive concerns and sexually transmitted diseases"
- 2002 Keynote Address, : Fourth International Conference on Transgenic Animals, Shanghai, China "Human Embryonic Stem Cells: The Present and the Future"
- 2003 Invited Dinner Speaker, Society for Women's Health, Winston-Salem, North Carolina, "Human Eggs for Stem Cell Research"
- 2003 Invited Speaker, Physicians with Parkinson's, Dana Farber Cancer Institute, "Stem Cells: The Present and the Future"
- 2003 Keynote Address, Endocrinology and Reproductive Biology Program Annual Symposium, University of Wisconsin, Madison, WI: "Stem Cells to Gametes: The Cycle of Life"
- 2003 Invited Speaker, Grand Rounds, Department of Obstetrics and Gynecology, University of South Carolina School of Medicine "Human Embryonic Stem Cells: The Present and the Future"
- 2003 Invited Speaker, Division of Infectious Diseases Teaching Conference, University of South Carolina School of Medicine, "Semen Transmission of HIV disease"
- 2004 Invited Grand Rounds, Joint Surgical Grand Rounds, University of Massachusetts Memorial Hospital and St. Vincent Hospital, "Stem Cells and the Surgeon"

### Patents:

- 1997 Kiessling AA, "Process for simultaneously disinfecting and fixing biological fluids"  
US Patent No 5618664