Mina J. Bissell, Ph.D.

CURRICULUM VITAE

Title: Distinguished Scientist, Life Sciences Division, Lawrence Berkeley National Laboratory
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EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE	YEAR(s)	FIELD OF STUDY
Bryn Mawr College, Bryn Mawr, PA	Transferred	1959-61	Chemistry
Radcliffe/Harvard College, Cambridge, MA	A.B.	1963	Chemistry (honors)
Harvard University, Cambridge, MA	M.A.	1965	Bacteriology/Biochemistry
Harvard University, Cambridge, MA	Ph.D.	1969	Microbiology/Mol. Genetics

RESEARCH AND PROFESSIONAL EXPERIENCE:

Research Experience and Employment:

Milton Fellow, Harvard Univ. (1969–70); American Cancer Society Fellow (1970–72); Staff Biochemist (1972–76); Senior Staff, LBNL (1976–); Faculty, Graduate Group in Comparative Biochemistry (1979–), Graduate Group in Endocrinology (2001-), Molecular Toxicology (2002 -), Univ. of Calif., Berkeley; Visiting Wellcome Prof., Kettering Inst., Univ. of Cincinnati Medical School (1986–88); Director, Cell & Molecular Biology Division, LBNL (1988–92); Director, Life Sciences Division (includes Cell & Molecular Biology Division), LBNL (1992–2002); Associate Director, Biosciences, (1995-2002).; Distinguished Scientist (Nov. 2002-); Senior Advisor to the Laboratory Director on Biology (Nov. 2002-).

Awards and Honors (selected):

Medal for Top High School Student in the Country, Iran (1958); Medal of Amer. Inst. of Chemists for Top Chemistry Student at Radcliffe College (1962); Fogarty Senior Fellow (London, 1983–84); First Joseph Sadusk Award for Breast Cancer Research (1985);

Guggenheim Fellow (Paris, 1992-93); ASCB Women in Cell Biology Career Recognition Award (1993); Elected AAAS Fellow (1994); E.O. Lawrence Award, US Dept. of Energy (1996); President, American Society of Cell Biology (ASCB, 1997); Elected, Inst. of Medicine of the National Acad. of Sciences (1997); Exceptional Service Award, OBER, US Dept. of Energy (1997); Mellon Award, University of Pittsburgh (1998); Eli Lily/Clowes Award of the American Association for Cancer Research (AACR;1999); President, Int'l Society of Differentiation (ISD; 2000–2002); Honorary Doctorate, Pierre & Marie Curie University, Paris, France (2001); Innovator Award in Breast Cancer, US Department of Defense (2002); Elected to the American Academy of Arts and Sciences (2002); Komen Foundation Brinker Award (2003); Discovery Health Channel Medical Honor (2004); Honorary Doctorate, University of Copenhagen (2004); Distinguished Scientist Fellowship Award , OBER, US Dept. of Energy (2005); Ted Couch Lectureship and Award in Cancer Research, H. Lee Moffitt Cancer Center and Research Institute (2007); Pezcoller Foundation–AACR International Award for Cancer Research (2007); Elected to the American Philosophical Society (2007); More than 80 distinguished & named lectures.

National & International Committees and Review Boards (selected):

NIH Molecular Cytology Study Section (1981-85); NIH Gerontology & Geriatrics Review Study Section (1987–89); NIH Pathology B Study Section (1989–92); Board of Directors, Gordon Conferences (1993–98); Chair, 2 Gordon Research Conferences and 2 Keystone Conferences (1993, 96, 98, 05); Secretary of Energy's Advisory Committee BERAC (1995–1999); Chair, BERAC Subcommittee on Application of Genome and Structural Biology (1995); Chair, NASA Committee on the Role of Animal Research in Space (1996–97); Integration Panel, U.S. Army Breast Cancer Research Program (1995–1998); NCI Panel on "Preclinical Models of Cancer" (1997-98); Howard Hughes Medical Inst. Evaluation Panels, Washington, DC (1997/1999); Board of Directors, AACR (1999–2001);U.S. Representative to Council of Scientists, Human Frontier Science Program, Strasbourg, France (1998–2002); Advisory Committee, Burroughs Wellcome Career Awards (1998–2002); Human Rights Committee of National Academies (1999–2005); Institute of Defense Analysis, DSSG, Alexandria, VA (2000–); Advisory Board, Univ. Chicago Cancer Research Center (1998); AACR Science Policy and Legislative Affairs Committees (Current); External Advisory Committees: IBMC, Porto, Portugal (1999–), MIT Center for Environmental Health Sciences (2002–), Breakthrough Breast Cancer, London, UK (2002-), NCI/NCAB Focus Group on Cancer in the Organism (2004), Salk Institute Grant Regulator Program Project; Chair, Group on Cancer and Cancer Biology of the IOM of The National Academies (2005-2007); Member, NIH, Tumor Microenvironment Study Section (2005-); Nominating Committee, AACR (2006-2008).

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Associate Editor & Editorial Boards (current only):

Journal of Cell Science (2006-); Science (2005-); *The FASEB Journal* (2002–);*International Journal of Cancer* (1999–); *Breast Cancer Research* (1999–; Senior Editor: 2003-); *Molecular Medicine* (1997–); *Journal of Experimental Therapeutics*and Oncology (1995–); *Journal of Mammary Gland Biology* (1995–); *Cell Structure and Function* (1994–); *The Breast*

Journal (1994–); *Molecular Carcinogenesis*(1993–); *In Vitro Cellular and Developmental Biology* (1990–); *Journal of Cellular Biochemistry* (1990-).

Lectures (2005-Present): *Plenary, distinguished and named lectures are marked with an asterisk.*

MEMBERSHIP IN PROFESSIONAL SOCIETIES:

Harvard Chemical Society (1963–present)
American Society for Cell Biology (1974–present)
American Society for Biological Chemistry and Molecular Biology (1977–present)
American Association for the Advancement of Science (1978–present)
Tissue Culture Association (Life Member)
Society for Developmental Biology (1983–present)
American Association for Cancer Research (1988–present)
Sigma XI
International Society of Differentiation (1989–present)
International Society for Matrix Biology (1994–present)
American Society for Matrix Biology, Co-Founder (2000–present)

PATENTS:
Patents Issued: (5)

- United States Patent # 6,753,154: Human AZ-1 Gene, Variants thereof and Expressed Gene Products
- United States Patent # 6,982,151: Design of Novel Assays Based on the Newly Found Role of Dystroglycan and a-Dystroglycan Proteolysis in Tumor Cell Growth
- United States Patent # 5,846,536: Restoration of Normal Function in Cancer Cells
- United States Patent # 6,123,941: Method for Restoration of Normal Phenotype in Cancer Cells
- United States Patent # 6,287,790: Utilization of Nuclear Structure Proteins for Targeted Therapy and Detection of Proliferative and Differentiation Disorder

Patent Pending: (10)

PUBLICATIONS:
(****** denotes seminal publications; ***** denotes noteworthy publications)

- **Bissell MJ**. (1969) Mechanism of excretion of an extracellular enzyme (Coccus P). Ph.D. Thesis, *Harvard University.*
- **Bissell MJ**, Tosi R and Gorini L. (1971) Mechanism of excretion of a bacterial proteinase: factors controlling accumulation of the extracellular proteinase of a Sarcina strain (Coccus P). *J Bacterial* 105(3):1099-1109.

- Sarner NZ, **Bissell MJ**, DiGirolamo L and Gorini L. (1971) Mechanism of excretion of a bacterial proteinase: demonstration of two proteolytic enzymes produced by a Sarcina strain (Coccus P). *J Bacterial* 105(3):1090-1098.
- **Bissell MJ**, Rubin H and Hatie C. (1971) Leakage as the source of overgrowth stimulating activity in Rous sarcoma transformed cultures. *Expt Cell Res* 68(2):404-410.
- **Bissell MJ**, Hatie C and Rubin H. (1972) Patterns of glucose metabolism in normal and virus-transformed cells in tissue culture. *J Natl Cancer Inst* 49(2):555-565.
- ***Bissell MJ**, White RC, Hatie C and Bassham JA. (1973) Dynamics of metabolism of normal and virus-transformed chick cells in culture. *Proc Natl Acad Sci* USA 70(10):2951-2955.
- Bassham JA, **Bissell MJ** and White RC. (1974) Quantitative tracer studies of metabolic dynamics of animal cells growing in tissue culture. *Analyt Biochem* 61:479(2)-491.
- **Bissell MJ**, Hatie C, Tischler AM and Calvin M. (1974) Preferential inhibition of the growth of virus-transformed cells in culture by rifazone-82, a new rifamycin derivative. *Proc Natl Acad Sci* USA 71(6):2520-2524.
- Dolberg DS and **Bissell MJ**. (1974) The side effects of amphotericin B-deoxycholate (fungizone) and nystatin in chick cells in culture. *In Vitro* 10:26-29.
- Dolberg DS, Bassham JA and **Bissell MJ**. (1975) Selective inhibition of the facilitated mode of sugar uptake by cytocharasin B in cultured chick fibroblasts.*Exp Cell Res* 96(1):129-137.
- Rambeck WA, **Bissell MJ** and Bassham JA. (1975) Metabolism in normal and virus-transformed chick embryo fibroblasts as observed with glucose labeled with 14C and tritium and with tritium labeled water. *Hoppe-Seyler's Z Physiol Chem* 356(2):203-212.
- **Bissell MJ**. (1976) Transport as a rate limiting step in glucose metabolism in virus-transformed cells: studies with cytochalasin B. J Cell Physiol 89(4):701-709.
- ****Bissell MJ**, Rambeck WA, White RC and Bassham JA. (1976) Glycerol phosphate shuttle in virus-transformed cells in culture. *Science* 191(4229):856-858.
- DeFrancesco L, Scheffler IE and **Bissell MJ**. (1976) A respiration-deficient Chinese hamster cell line with a defect in NADH-coenzyme Q reductase. *J Biol Chem* 251(15):4588-4595.
- Hawkes SP, Meehan TD and **Bissell MJ**. (1976) The use of fluorescamine as a probe for labeling the outer surface of the plasma membrane. *Biochem Biophys Res Com* 68(4):1226-1233.
- Szabo C, **Bissell MJ** and Calvin M. (1976) Inhibition of infectious Rous virus production by a rifamycin derivative. *J Virology* 18(2):445-453.
- Teng MH, Bartholomew JC and **Bissell MJ**. (1976) Insulin effect on the cell cycle: analysis of the kinetics of growth parameters in confluent chick cells. *Proc Natl Acad Sci* USA 73(9):3173-3177.
- ***Bissell MJ**, Farson D and Tung AS. (1977) Cell shape and hexose transport in normal and virus-transformed cells in culture. *J Supramolecular Structure* 6(1):1-12.
- Brooks GA, **Bissell MJ** and Bassham JA. (1977) Ion-retardation desalting of blood and other animal tissues for separation of soluble metabolites by two-dimensional chromatography. *Analytical Biochem* 83(2)):580-588.
- Chin S, **Bissell MJ** and Bassham JA. (1977) The consequences of bisulfite exposure in chick embryo fibroblast in culture. *Bull Environ Contam Toxicol* 18:749-757.

- Neff NT, Ross PA, Bartholomew JC and **Bissell MJ**. (1977) Leucine in cultured cells: its metabolism and use as a marker for protein turnover. *Exp Cell Res* 106(1):175-183.
- *****Schwarz RI and **Bissell MJ**. (1977) Dependence of the differentiated state on the cellular environment: Modulation of collagen synthesis in tendon cells. *Proc Natl Acad Sci* USA 74(10):4453-4457.
- ******Teng MH, Bartholomew J and **Bissell MJ**. (1977) Synergism between anti-microtubule agents and growth stimulants in enhancement of cell cycle traverse.*Nature* 268:739-741.
- Warshawsky D, Kerns E, **Bissell MJ** and Calvin M. (1977) Characterization of a photoproduct of 7,12-dimethylbenz[alpha]anthracene and its effect on chick-embryo cells in culture. *Biochem J* 164(3):481-486.
- Bissell DM, Levine G and **Bissell MJ**. (1978) Glucose metabolism by adult hepatocytes in primary culture and by cell lines from rat liver. *Am J Physiol* 234(3):C122-C130.
- Hughes AM, Tenforde TS, Calvin M, **Bissell MJ**, Tischler AN and Bennett EL.(1978) Inhibition of adenocarcinoma TA3 ascites tumor growth by rifamycin derivatives. *Oncology* 35(2):76-78.
- Levine GA, **Bissell MJ** and Bissell DM. (1978) Conversion of glucose to sorbitol and fructose by liver-derived cells in culture. *J Biol Chem* 253(17):5985-5989.
- Schwarz RI, Farson DA, Soo WJ and **Bissell MJ**. (1978) Primary avian tendon cells in culture. An improved system for understanding malignant transformation. *J Cell Biol* 79(3):672-679.
- *****Szabo C and **Bissell MJ**. (1978) The antiviral action of rifamycin derivative: formation of Rous sarcoma virus particles deficient in 60 to 70S RNA. *J Virol* 25:944-947.
- **Bissell MJ**. (1978) Equality for women scientists. *Grants Magazine* 1:4 331-334.
- **Bissell MJ**, Hatie C and Calvin M. (1979) Is the product of the src gene a promoter? *Proc Natl Acad Sci* USA 76(1):348-352.
- Emerman JT and **Bissell MJ**. (1979) A simple technique for detection and quantitation of lactose synthesis and secretion. *Analyt Biochem* 94(2):340-345.
- Parry G, Soo WJ and **Bissell MJ**. (1979) The uncoupled regulation of fibronectin and collagen synthesis in Rous sarcoma virus transformed avian tendon cells. *J Biol Chem* 254(23):11763-11766.
- Schwarz RI, Farson DA and **Bissell MJ**. (1979) Requirements for maintaining the embryonic state of avian tendon cells in culture. *In Vitro* 15(12):941-948.
- **Bissell MJ**, Bartholomew JC, Folkman J, Smith H and Stampfer M. (1979) Culture systems for studying malignancy. Meeting Report, *Cancer Research* 39:4293-4295 (with 19 other contributors).
- ***Bissell MJ**, Hatie C, Farson DA, Schwarz RI and Soo WJ. (1980) Ascorbic acid inhibits replication and infectivity of avian RNA tumor virus. *Proc Natl Acad Sci* USA 77(5):2711-2715.
- Emerman JT, Bartley JC and **Bissell MJ**. (1980) Interrelationship of glycogen metabolism and lactose synthesis in mammary epithelial cells of mice. *Biochem J* 192(2):695-702.
- ******Parry G, Bartholomew JC and **Bissell MJ**. (1980) Role of src gene in growth regulation of Rous sarcoma infected chicken embryo fibroblasts. *Nature* 288:720-722.

- Vessal M, Choun MO, **Bissell MJ** and Bissell DM. (1980) Fructose utilization and altered cytochrome P-450 in cultured hepatocyte from adult rats. *Biochem Biophys Acta* 631:201-210.
- Bartley JC, Emerman JT and **Bissell MJ**. (1981) Metabolic cooperativity between mammary epithelial cells and adipocytes of mice. *Am J Physio* 241:C240-C208.
- ***Bissell MJ**. (1981) The differentiated state of normal and malignant cells or how to define a "normal" cell in culture. *Int Rev Cytol* 70:27-100.
- **Bissell MJ**, Nemethy EK, Riddle L and Calvin M. (1981) Testing for tumor promoters in Euphorbia lathyris: analysis of possible health hazards. *Bull Environ Contamination & Toxicol* 27(6):894-902.
- Emerman JT, Bartley JC and **Bissell MJ**. (1981) Glucose metabolic patterns as markers of functional differentiation in freshly isolated and cultured mouse mammary epithelial cells. *Exp Cell Res* 134(1):241-250.
- Laszlo A, Radke K, Chin S and **Bissell MJ**. (1981) Tumor promoters alter gene expression and protein phosphorylation in avian cells in culture. *Proc Natl Acad Sci*USA 78(10):6241-6245.
- ***Schwarz RI, Mandell RN and **Bissell MJ**. (1981) Ascorbate induction of collagen synthesis as a means for elucidating a mechanism of quantitative control of tissue-specific function. *Mol Cell Biol* 1(9):843-853.
- ****Bissell MJ**, Hall HG and Parry G. (1982) How does extracellular matrix direct gene expression? *J Theor Biol* 99(1):31-68.
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- Hall HG, Farson DA, Chin S and **Bissell MJ**. (1982) Extracellular matrix and morphogenesis: collagen overlay induces lumen formation by epithelial cell lines. In:*The Extracellular Matrix*, pp. 233-238.
- Parry G, Lee E and **Bissell MJ**. (1982) Modulation of the differentiated phenotype of cultured mouse mammary epithelial cells by collagen substrata. In: *The Extracellular Matrix* pp. 303-308.
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- Laszlo A and **Bissell MJ**. (1983) TPA induces simultaneous alterations in the synthesis and organization of vimentin. *Exp Cell Res* 148(1):221-234.
- ****Dolberg DS and **Bissell MJ**. (1984) Inability of Rous sarcoma virus to cause sarcomas in the avian embryo. *Nature* 309(5968):552-556.
- Lee EY, Parry G and **Bissell MJ**. (1984) Modulation of secreted proteins of mouse mammary epithelial cells by the collagenous substrata. *J Cell Biol* 98(1):146-155.
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- **Bissell MJ**, Lee EY-H, Li M-L, Chen L-H and Hall HG. (1985) Role of extracellular matrix and hormones in modulation in tissue-specific functions in culture: Mammary gland as a model for endocrine sensitive tissues. In: Rogers CH, Coffey DC, Cunha GR, Grayhack JT, Hunman F and Horton R eds. Benign Prostatic Hyperplasia, Vol. II pp. 39-50. *NIH Publication* No. 87-2881.
- Carter VC, Howlett AR, Martin GS and **Bissell MJ**. (1986) The tyrosine phosphorylation substrate p36 is developmentally regulated in embryonic avian limb and is induced in cell culture. *J Cell Biol* 103(5):2017-2024.
- Green AR, Searle S, Gillespie DAF, **Bissell MJ** and Wyke JA. (1986) Expression of integrated Rous sarcoma viruses: DNA rearrangements 5' to the provirus are common in transformed rat cells but not seen in infected but untransformed cells. *EMBO J* 5:4,707-711.
- Hall HG and **Bissell MJ**. (1986) Characterization of the intermediate filament proteins of murine mammary gland epithelial cells. Response to collagen substratum.*Exp Cell Res* 162(2):379-389.
- Levantis P, Gillespie DAF, Hart K, **Bissell MJ** and Wyke JA. (1986) Control of expression of an integrated Rous sarcoma provirus in rat cells: role of 5' genomic duplications reveals unexpected patterns of gene transcription and its regulation. *J Virol* 57:3,907-916.
- **Bissell MJ** and Aggeler J. (1987) Dynamic reciprocity: how do extracellular matrix and hormones direct gene expression? In: *Cabot MC & McKeehan WL, eds*. Mechanisms of Signal Transduction by Hormones and Growth Factors. New York: Alan Liss pp. 251-262.
- **Bissell MJ** and Barcellos-Hoff MH. (1987) The influence of extracellular matrix on gene expression: is structure the message? *J Cell Sci Suppl* 8:327-43.
- Chan LM, Hatier C, Parry G, Werb Z and **Bissell MJ**. (1987) Collagen-fibronectin interactions in normal and Rous sarcoma virus transformed avian tendon cells: possible mechanism for increased extracellular matrix turnover after transformation. *In Vitro* 23(4):308-314.
- Chen LH and **Bissell MJ**. (1987) Transferrin mRNA level in the mouse mammary gland is regulated by pregnancy and extracellular matrix. *J Biol Chem* 262(36):17247-17250.
- Howlett AR, Cullen B, Hertle M and **Bissell MJ**. (1987) Tissue tropism and temporal expression of Rous sarcoma virus in embryonic avian limb in ovo.*Oncogene Res* 1:255-263.

- Lee EY, Barcellos-Hoff MH, Chen LH, Parry G and **Bissell MJ**. (1987) Transferrin is a major mouse milk protein and is synthesized by mammary epithelial cells. *In Vitro* 23(3):255-263.
- *****Li ML, Aggeler J, Farson DA, Hatier C, Hassell J and **Bissell MJ**. (1987) Influence of a reconstituted basement membrane and its components on casein gene expression and secretion in mouse mammary epithelial cells. *Proc Natl Acad Sci*USA 84(1):136-140.
- Medina D, Li ML, Oborn CJ and **Bissell MJ**. (1987) Casein gene expression in mouse mammary epithelial cell lines: dependence upon extracellular matrix and cell type. *Exp Cell Res* 172(1):192-203.
- Smith HS and **Bissell MJ**. (1987) Cancer at the cellular level. *Cancer Res* 47:3337-3338.
- Stoker AW and **Bissell MJ**. (1987) Quantitative immunocytochemical assay for infectious avian retroviruses. *J Gen Virol* 68:2481-2485.
- **Bissell MJ**, Li M-L, Chen L-H and Lee EY-H. (1987) Regulation of milk proteins in the mouse mammary epithelial Cells by extracellular matrix and hormones. In: *Enami J & Ham R, eds.* Growth and Differentiation of Mammary Epithelial Cells in Culture. Tokyo, Japan: Japan Scientific Societies Press, pp. 155-186.
- **Bissell MJ** and Hall HG. (1987) Form and function in the mammary gland: The role of extracellular matrix. In: *Nevell MC & Neville CWD, ed.* The Mammary Gland: Development, Regulation and Function. New York: Plenum Publishing Corp. pp. 97-146.
- Aggeler, J, Park CS and **Bissell MJ**. (1988) Regulation of milk protein and basement membrane gene expression: the influence of the extracellular matrix. *J Dairy Science* 71(10):2830-2842.
- *****Howlett AR, Carter VC, Martin GS and **Bissell MJ**. (1988) pp60v-src tyrosine kinase is expressed and active in sarcoma-free avian embryos microinjected with Rous sarcoma virus. *Proc Natl Acad Sci* USA 85(20):7587-7591.
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- *****Stoker AW and **Bissell MJ**. (1988) Development of avian sarcoma and leukosis virus-based vector-packaging cell lines. *J Virology* 62(3):1008-1015.
- **Bissell MJ** and Aggeler J. (1988) Regulation of tissue specific gene expression in the mammary gland: The role of extracellular matrix. In: *Rich MA, Hager JC & Lopez DM, eds.* Breast Cancer: Scientific & Clinical Progress. Boston, MA: Kluwer Academic Publishers, pp. 127-141.
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- **Bissell MJ** and Ram TG. (1989) Regulation of functional differentiation and histogenesis in mammary epithelial cells: role of the extracellular matrix. In: Jetten AM, ed. Environmental Health Perspectives. Bethesda, MD: *NIH Publication*, Vol. 80 pp. 61-70.
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- Sieweke MH, Stoker AW and **Bissell MJ**. (1989) Evaluation of the cocarcinogenic effect of wounding in Rous sarcoma virus tumorigenesis. *Cancer Res*. 49(22):6419-6424.
- Auersperg N, MacLaren IA and **Bissell MJ**. (1990) V-K-ras transformation induces reversion to an earlier developmental form in adult rat adrenal cells.*Differentiation* 43(1):29-36.
- *****Martins-Green M and **Bissell MJ**. (1990) Localization of 9E3/CEF-4 in avian tissues: expression is absent in Rous sarcoma virus-induced tumors but is stimulated by injury. *J Cell Biol* 110(3):581-595.
- *****Schmidhauser C, **Bissell MJ**, Myers CA and Casperson GF. (1990) Extracellular matrix and hormones transcriptionally regulate bovine ß-casein 5' sequences in stably transfected mouse mammary cells. *Proc Natl Acad Sci* USA 87:9118-9122.
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- *****Streuli CH and **Bissell MJ**. (1990) Expression of extracellular matrix components is regulated by substratum. J *Cell Biol* 110(4):1405-1415.
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- *****Talhouk RS, Chin JS, Unemori EN, Werb Z and **Bissell MJ**. (1991) Proteinases of the mammary gland: developmental regulation in vivo and vectorial secretion in culture. *Development* 112(2):439-449.
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