เอกสารอ้างอิง

Anderson, I., "Fetal calf serum drought hits cell culture laboratories," Nature., 285, 63, 1980.

Austin, C.R., "Observations on the penetration of sperm into the mammalian egg," J.Sci.Res.(b)., 4,581-592, 1951.

_____, "The capacitation of mammalian sperm," Nature (London)., 170, 320-330, 1952.

_____, "Ouvlation, fertilization and early cleavage in the hamster (Mesocricetus auratus)," J.R. Microscope.Soc., 75, 141, 1955.

_____, "Ovulation, fertilization and early cleavage in the hamster (Mesocricetus auratus)," J.Exp. Biol., 33, 358-365, 1956.

Austin, C.R., and M.W.H. Bishop, "Role of the rodent acrosome and perforatorium in fertilization," Proc.R.Soc.London.Ser., 149, 241-248, 1958.

Bae, I.H., and R.H. Foote, "Carbohydrate and amino acid requirements and ammonia production of rabbit follicular oocytes matured in vitro," Exp.cell. Res., 91, 113-118, 1975.

Bavister, B.D., "Environmental factors important for in vitro fertilization in the hamster," J.Reprod. Fert., 18, 544-545(abstract), 1969.

Bavister, B.D., "Capacitation of golden hamster spermatozoa during incubation in culture medium," J.Reprod.Fert., 35, 161, 1973.

_____., "Capacitation of hamster spermatozoa with sperm extracts. 8th Ann.Meeting, Society for the study of Reproductive, Ft.Collins, Colo. Abstr. pp. 63-64, 1975a.

_____, "Properties of the sperm motility stimulating component derived from human serum," J. Reprod.Fert., 43, 363-366, 1975b.

_____, "Substitution of a synthetic polymer for protein in a mammalian gamete culture system, " J.Exp.Zool., 217, 45-51, 1981.

Bavister, B.D., D.E. Boatman, L. Leibfried, M. Loose, and M.W. Vernon, "Fertilization and cleavage of rhesus monkey oocytes in vitro," Biol. Reprod., 28, 983-999-1983b.

Bavister, B.D., A.F. Chen, and P.C. Fu, "Catecholamine requirement for hamster sperm motility and in vitro," J.Reprod.Fert., 56, 507-513, 1979.

Bavister, B.D., M.L. Leibfried, and G. Lieberman," "Development of preimplantation embryos of the golden hamster in a defined culture medium," Biol.Reprod., 28, 235-247, 1983a.

Bavister, B.D., B.J. Rogers, and R.Yanagimachi, "The effect of cauda epididymal plasma on the motility and acrosome reaction of hamster and quinea pig spermatozoa in vitro," Biol.

Reprod., 19, 358-363, 1978.

Bavister, B.D., R. Yanagimachi, and R.J. Teichman, "Capacitation of hamster spermatozoa with adrenal gland extracts," Biol.Reprod., 14, 219-221, 1976.

Bavister, B.D.,and R. Yanagimachi, "The effects of sperm extracts and energy sources on the motility and acrosome reaction of hamster spermatozoa in vitro," Biol.Reprod., 16, 228-237, 1977.

Bedford, J.M., "Maturation, transport, and fate of spermatozoa in the epididymis," Handbook of Physiology (R.O. Greep, ed.), Vol 5, Section 7, pp.303-317, American Physiological Society, Washington, D.C., 1975.

_____, "Evolution of the sperm maturation and sperm storage function of the epididymis," The Spermatozoa (D.W.Fawcett and J.M.Bedford, eds.), pp. 7-21, Urban & Schwarzenberg, Munich, 1979.

Bender, D.A., "Amino acid metabolism," Chichester, John Wiley and Sons. 1985.

Biggers, J.D., "Fertilization and Blastocyst formation," Animal Models for Research on Contraception and Fertilization (N.J. Alexander, eds.), pp. 223-252, Harper and Row, New York, 1979.

Biggers, J.D., B.D. Moore, and D.G. Whittingham, "Development of mouse embryos in vivo after cultivation from 2-cell ova to blastocyst in vitro", Nature., 206, 734-735, 1965.

Biggers, J.D., D.G. Whittingham, and R.P. Donahue, "The pattern of energy metabolism in mouse oocyte and zygote," Proc.Natl.Acad.Sci. U.S.A., 58, 560-567, 1967.

Binkerd, P.E., and G.B. Anderson, "Transfer of cultured rabbit embryos," Gamete.Res., 2, 65-73, 1979.

Blaha, G.C. "Effect of age of the donor and recipient on the development of transferred golden hamster ova," Anat.Rec., 150, 413, 1964.

Blandau, R.J., W.C. Young, and G.W. Corner, "Sex and internal secretions (3rd ed.), Vol.2, pp.797-882, Williams & Wikins, Baltimore, 1961.

Blank, M., L. Soo, and J.S. Britten, "Absorption of albumin in rabbit sperm membranes," J.Membr. Biol., 29, 401-409, 1976.

Boatman, D.E., "In vitro growth of non-human primate pre-and peri-implantation embryos," The mammalian preimplantation embryo : Regulation of growth and differentiation in vitro (B.D. Bavister, eds.), pp. 273-308, Plenum Press, New York, 1987.

Brackett, B.G., "In vitro culture of the zygote and embryo," Fertilization and embryonic development in vitro. (L.Mastroianni, and J.D. Biggers, eds.), pp. 61-79, Plenum Press, New York, 1981.

Brinster, R.L., "A method for in vitro cultivation of mouse ova from two-cell to blastocysts," Exp.Cell.Res., 32, 205-208, 1963.

Brinster, R.L., "Studies on the development of mouse embryos in vitro.I. The effect of osmolarity and hydrogen ion concentration, " J.Exp.Zool., 158, 49-58, 1965a.

_____, "Studies on the development of mouse embryos in vitro.III. The effect of fixed nitrogen source," J.Exp.Zool., 158,78-96, 1965c.

_____, "Carbon dioxide production from glucose by the preimplantation mouse embryo," Exp.Cell.Res., 47, 271-277, 1967a.

_____, "Carbon dioxide production from lactate and pyruvate by the preimplantation mouse embryo," Exp.Cell.Res., 47, 634-637, 1967b.

_____, "Carbon dioxide production from glucose by the preimplantation rabbit embryo," Exp.Cell.Res., 51, 330-334, 1968.

_____, "Uptake and incorporation of amino acids by the preimplantation mouse embryo," J.Reprod. Fert., 27, 329-338, 1970.

Brinster, R.L., and G.L. Thomson, "Development of eight-cell mouse embryos in vitro," Exp.Cell.Res., 42, 308-315, 1966.

Brinster, R.L., and D.E. Troike, "Requirements for blastocyst development in vitro," J.Anim.Sci., 49, 26-34, 1979.

Carney, E.W., and B.D. Bavister, "Stimulatory and inhibitory effects of amino acids on the development of hamster eight-cell embryos in

vitro," J.of In.Vitro.Fert. and Embryo Transfer., 4, 162-167, 1987.

Chang, M.C., "The effect of seminal plasma on fertilized rabbit ova," Proc.Natl.Acad.Sci.U.S.A., 36, 188, 1950.

Chang, M.C., "/Fertilizing capacity of spermatozoa deposited into follopian tubes," Nature (London)., 168, 697-698, 1951.

_____, "Fertilization of rabbit ova in vitro," Nature., 193, 466-467, 1959.

_____, "Reciprocal insemination and egg transfer between ferrets and mink," J.Exp.Zool., 169, 49-60, 1968.

Chang, M.C., and L. Fernandez-Cano, "Effects of delayed fertilization on the development of pronucleus and segmentation of hamster ova," Anat.Rec., 142, 307-320, 1958.

Cholewa, J.A., and W.K. Whitten, "Development of 2-cell mouse embryos in the absence of a fix nitrogen source," J.Reprod.Fert., 22, 553-555, 1970.

Cohen, J.R., F.A. Webber, J.C.M. Vander Vijver, and G.H. Zeilmaker, "In vitro fertilizing capacity of human spermatozoa with the use of zona-free hamster ova interassay variation and prognostic value," Fertil.Steril., 37, 565-572, 1982.

Cornett, L.E., and S.Meizel, "Stimulating of in vitro activation and the acrosome reaction of hamster spermatozoa by catecholamines," Proc.

Natl.Acad.Sci.U.S.A., 75, 4954-4958, 1978.

Cornett, L.E., B.D. Bavister, and S. Meizel, "Adrenergic stimulation of fertilizing ability in hamster spermatozoa," Biol.Reprod., 20, 925-929, 1979.

Crabtree, H.G., "Observations on the carbohydrate metabolism of tumours," Biochem.J., 23, 536-545, 1929.

Cross, P.C. and R.L. Brinster, "The sensitivity of one-cell mouse embryos to pyruvate and lactate," Exp.Cell.Res., 77, 57-62, 1973.

Davis, B.K., "Inhibition of fertilizing capacity in mammalian spermatozoa by natural and synthetic vesicles," Symposium on the Pharmacological effects of lipids, AOCS Monogr. No.5, pp.145-158, 1978.

Donnelly, M., and I.E. Scheffler, "Energy metabolism in respiration deficient and wild type chinese hamster fibroblasts in culture," J. Cell.Physiol., 89, 39-52, 1976.

Eagle, H., "Nutrition needs of mammalian cells in tissue culture," Nature (London)., 122, 501-504, 1955.

Eagle, H., S. Barban, M. Levy, and H.O. Schulze, "The utilization of carbohydrates by human cell cultures," J.Biol.Chem., 233, 551-558, 1958.

Eagle, H., V.I.Oyama, M. Levy, C.L. Horton, and R. Fleischman, "The growth response of mammalian cells in tissue culture to L-glutamine and L-glutamic acid," J.Biol.Chem., 218, 607-

616, 1956.

Edwards, R.G., B.D. Bavister, and P.C. Steptoe, "Early stages of fertilization in vitro of human oocytes matured in vitro," Nature (London)., 221, 632-635, 1969.

Edwards, R.G., and P.C. Steptoe, "Physiological aspects of human embryo transter," Progress Infertility (S.J.Behrman and R.W. Kistner, eds.), pp. 377-409, Little Brown & Co, Boston, 1975.

Ehrensvard, G., A. Fisher and R. Stjernholn, "Protein metabolism of tissue cells in vitro," Acta. Physiol.Scand., 18, 218-230, 1949.

Fekete, E., and C.C. Little, "Observation on the mammary tumor incidence of mice born transfered ova," Cancer.Research., 2, 525-530, 1942.

Flemming, A.D., and R. Yanagimachi, "Superovulation and superpregnancy in the golden hamster," Dev. Growth. Diff., 22, 103-112, 1980.

Fraser, L.R., "Both taurine and albumin support sperm motility and fertilizing ability in vitro but there is no obligatory requirement for taurine," J.Reprod.Fert., 77, 271-280, 1986.

Fraser, L.R., and L.M. Drury, "The relationship between sperm concentration and fertilization in vitro of mouse egg," Biol.Reprod., 13, 513-518, 1975.

Fraser, L.E., and P.J. Quinn, "A glycolytic product is

obligatory for initiation of the sperm acrosome reaction and whiplash motility required for the fertilization in the mouse," J.Reprod.Fert., 61, 25-35, 1980.

Fridhandler, L., "Glucose metabolism in rabbit ova, morulae and blastocysts," Fed.Proc.,Fed.Amer. Soc.Exp.Biol., (abstract), 18, 48, 1959 .

Fridhandler, L., "Pathways of glucose metabolism in fertilized rabbit ova at various preimplantation stages," Exp.Cell.Res., 22, 303-316, 1961.

Gordon, M., P.V. Dandekar, and W. Bartoszwicz, "The surface coat of epididymal, ejaculated and capacitated sperm," J.Ultrastruct.Res., 50, 199-207, 1975

Gould, K.G., Fertilization in vitro of nonhuman primate ova : present status and rationale for further development of the technique In: Report of the Ethics Advisory Board, Appendix. HEW Support of Research Involving Human In Vitro Fertilization and Embryo Transter. Washingston, D.C. U.S. Government Printing Office, No.14, p.1, 1977.

_____, "Ovum recovery and in vitro fertilization in the chimpanzee," Fertil. Steril., 40, 378-383, 1983.

Gould, K.G., E.M. Cline, and W.L. Williams, "Observations on the induction of ovulation

and fertilization in vitro in the squirrel monkey (Saimiri sciurens)," Fertil Stertil., 24, 260-268, 1973.

Greenwald, G.S., "Analysis of superovualtion in the adult hamster," Endrocrinol., 71, 378-389, 1962.

Gwatkin, R.B.L., "Effect of viruses on early mammalian development.I.Action of meningoencephalitis virus on mouse ova cultured in vitro," Proc.Nat.Acad.Sci., 50, 576-581, 1963.

Gwatkin, R.B.L., "Amino acid reguirements for the attachment and outgrowth of the mouse blastocyst in vitro," J.Cell.Physiol., 68, 335-344, 1966.

_____, "Fertilization Mechanisms in Man and Mammals (New York : Plenum Press), 1977.

Gwatkin, R.B.L., and A.A. Haidri, "Requirements for the maturation of hamster oocytes in vitro," Exp. Cell.Res., 76, 1-7, 1973.

Hall, J.L., "Relationship Between semen quality and human sperm penetration of zona-free hamster ova," Fertil.Steril., 35, 457-463, 1981.

Hamilton, D.W. "The epididymis," Frontiers in Reproduction and Fertility Control (R.O.Greep, eds.), pp.411-426, Mit Press, Cambridge, Mass, 1977.

Harlow, G.M., and P. Quinn, "Foetal and placental growth in the mouse after preimplantation development in vitro under oxygen concentrations of 5 and

20%," Aust.J.Biol.Sci., 32, 363-369, 1979.

Heape, W., "Preliminary note on the transplantation and growth of mammalian ova within uterine foster mother, Proc.R.Soc., 48, 457-458, 1890.

Hirao, Y., and R. Yanagimachi, "Effects of various enzymes on the ability of hamster egg plasma membrane to fuse with spermatozoa," Gamete.Res., 1, 3-12, 1978.

Hoffee, P.A., "Method for the isolation of purine nucleotide phosphorylase deficient variants of mammalian cell lines," Somatic.Cell.Genel., 5, 319-328, 1979.

Hoppe, P.C., and S. Pitts, "Fertilization in vitro and development of mouse ova," Biol.Reprod., 8, 420-426, 1973.

Hoppe, P.C., and W.K. Whitten, "An albumin requirement for fertilization of mouse eggs in vitro," J. Reprod.Fert., 39, 433-436, 1974.

Hoshi, K., A. Saito, M.Suzoki, K. Hayashi, and R. Yanagimachi, "Effects of Agents used for removal of zona pellucida on human sperm penetration into zona-free hamster egg," Acta. Obstet.Gynecol., 34, 2229-2234, 1982a.

_____, "Effects of substrates on penetration of human spermatozoa into zona pellucida of human egg and the zona-free hamster eggs," Jpn. Fertil.Steril., 27, 439-444, 1982b.

_____, "Effects of calcium and magnesium on in vitro fertilization in human," Acta.Obstet. Gynecol.Jpn., 34, 1899-1905, 1982c.

Iwamatsu, T., and M.C. Chang, "In vitro fertilization of mouse eggs in the presence of bovine follicular fluid," Nature (London)., 224, 919-920, 1969.

Jacobsen, J.G., and L.H. Smith, "Biochemistry and physiology of taurine and taurine derivatives," Physiological Reviews., 48, 424-511, 1968.

Johnson, M.H., "The macromolecular organization of membranes and its bearing on events leading up to fertilization," J.Reprod.Fert., 44, 167-184, 1975.

Johnson, W.L., and A.G. Hunter, "Seminal antigen : their alternation in the genital tract of female rabbits and during partial in vitro capacitation with beta amylase and beta glucoronidase," Biol.Reprod., 7, 332-340, 1972.

Juetten, J., and B.D. Bavister, "The effects of amino acids, cumulus cells, and bovine serum albumin on in vitro fertilization and first cleavage of hamster eggs," J.Exp.Zool., 227, 487-490, 1983.

Juurlink, B.H.J., and S. Fedoroff, "Effects of culture milieu on the development of mouse blastocysts in vitro," In Vitro., 13, 790-798, 1977.

Kane, M.T., "Minimal nutrient requirements for cleavage of one-cell rabbit embryos in culture,"

Biol.Reprod., 37, 775-778, 1987.

Kane, M.T., and B.D. Bavister, "Protein free culture medium containing polyvinyl alcohol, vitamins and amino acids support development of eight cell hamster embryos to hatching blastocyst," J.Exp.Zool., 1989.(in press)

Kane, M.T., EW. Carney, and B.D. Bavister, "Vitamins and amino acids stimulate hamster blastocysts to hatch in vitro," J.Exp.Zool., 239, 429-432, 1986.

Kane, M.T., and R.H. Foote, "Fractionated serum dialysate and synthetic media for culturing 2-and 4-cell rabbit embryos," Biol.Reprod., 2, 356-362, 1970a.

_____., "Culture of two-and four-cell rabbit embryos to the blastocyst stage in serum and serum extracts," Biol.Reprod., 2, 245-250, 1970b.

_____., "Culture of two-and four-cell rabbit embryos to the expanding blastocyst stage in synthetic media," Proc.Soc., Exp.Biol.Med., 133, 921-925, 1970c.

Kane, M.T., and D.R. Headon, "The role of commercial bovine serum albumin preparation in the culture of one-cell rabbit embryos to blastocyts," J. Reprod.Fert., 60, 469-475, 1980.

Karp, L.E., R.A. Williamson, D.E. Moore, K.K. Shy, S.E. Plymete, and W.D. Smith, "Sperm penetration assay : a usefull test in evaluation

of male fertility," Obstet.Gynecol., 57, 620-623, 1981.

Kent, G.C., "Physiology of reproduction," The golden hamster : its biology and use in medical research, pp.125, The Iowa State University Press, Ames, Iowa, USA, 1968.

Kinney, G.M., J.W. Pennycook, M.D. Schriver, J.W. Templeton, and D.C. Kraemer, "Surgical collection and transfer of canine embryos," Biol.Reprod., 20, suppl 1, 96A, 1979.

Koobs, D.H., "Phosphate mediation of the crabtree and pasteur effects," Science., 178, 127-133, 1972.

Kraemer, D.C., G.T. Moore, and M.A. Kramen, "Baboon infant produced by embryo transfer," Science (New York)., 192, 1246-1246, 1976.

Kreitmann, O., A. Lynch, W.E. Nixon, and G.D. Hodgen, "Ovum collection, induced luteal dysfunction, in vitro fertilization, embryo development and low tubal ovum transfer in primates," In Vitro Fertilization and Embryo Transfer,(E.S.E. Hafez and K.Semm., eds.), pp.303-324, MTP Press, Ltd, 1982.

Kvasnickii, A.V., "Interbreed ova transplantations," Animal Beeding., 19, 224, 1951.

Leibfried, M.L., and B.D. Bavister, "The effects of taurine and hypotaurine on in vitro fertilization in the golden hamster," Gamete.Res., 4, 57-63, 1981.

Leibfried, M.L., E.S. Critser, W.H. Eyestone, D.L. Northey, and N.L. First, "Development potential of bovine oocytes matured in vitro or in ivvo," Biol. Reprod., 36, 376-383, 1987.

Leung, P.C.S., M.J. Gronow, G.N. Kellow, A. Lopata, A.L. Speirs, J.C. Mcbain, Y.P. Plessis, and I. Johnston, "Serum supplement in human in vitro fertilization and embryo development," Fertil. Steril., 41(1), 36-39, 1984.

Lopata, A., I.W. Johnston, I.J. Hoult, and A.I. Speirs, "Pregnancy following intrauterine implantation of an embryo obtained by in vitro fertilization of a preovulatory egg," Fertil.Steril., 33(2), 117-120, 1980.

Lui, C.W., L.E. Cornett and S. Meizel, "Identification of the bovine follicular fluid protein involved in the in vitro induction of the hamster sperm acrosome reaction," Biol.Reprod., 17, 34-41, 1977.

Lui, C.W., and S. Meizel, "Biochemical studies of the in vitro acrosome reaction inducing activity of bovine serum albumin," Defferentiation., 9, 59-66, 1977.

Lui, C.W., and S. Meizel, "Further evidence in support of a role for hamster sperm hydrolytic enzymes in the acrosome reaction," J.Exp.Zool., 207, 173-186, 1979.

Mahi, C.A., and R. Yanagimachi, "Capacitation, acrosome reaction and egg penetration by canine and spermatozoa in a simple defined medium," Gametes.Res., 1, 101-109, 1978.

Maurer, R.R., R.H. Whitener, and R.H. Foote, "Relationship of in vivo gamete aging and exogenous hormones to early embryo development in rabbits," Proc.Soc.,Exp.Biol.Med., 131, 882-885, 1969.

Mcgaughey, R.W., "The maturation of porcine oocytes in minimal defined culture media with varied macromolecular supplements and varied osmolality," Exp.Cell.Res., 109, 25-30, 1977.

Mclaren, A., and D. Michie, "Studies on the transfer of fertilized mouse eggs to uterine foster-mothers," J.Exp.Zool., 33, 394-416, 1956.

Meizel, S., "The mammalian sperm acrosome reaction, a biochemical approach," Development in Mammals, (M.H. Johnson, eds.), Vol 3, pp. 1-64, North Holland, Amsterdam and New York, 1978.

Meizel, S., and C.W. Lui, "Evidence for the role of a trypsin like enzyme in the hamster sperm acrosome reaction," J.Exp.Zool., 195, 137-144, 1976.

Meizel, S., C.W. Lui, P.K. Working, and R.J. Mrsny, "Taurine and hypotaurine : their effects on motility, capacitation and acrosome reaction of hamster sperm in vitro and their presence in

sperm and reproductive tract fluids of several mammals," Dev.Growth.Diff., 22, 483, 1980.

Menge, A.C., and C.S. Black, "Effect of antisera on human sperm penetration of zona-free hamster ova," Fertil.Steril., 32, 214-218, 1979.

Mills, R., and R. Brinster, "Oxygen consumption of preimplantation mouse embryos," Exp.Cell.Res., 47, 337-344, 1967.

Miyamoto, H., and M.C. Chang, "The importance of serum albumin and metabolic intermediates for capacitation of spermatozoa and fertilization of mouse eggs in vitro," J.Reprod.Fert., 32, 193-205, 1973a.

Miyamoto, H., and M.C. Chang, "Effects of osmolality on fertilization of mouse and golden hamster eggs in vitro," J.Reprod.Fert., 33, 481-487, 1973b.

_____, "Fertilization of rat eggs in vitro," Biol. Reprod., 9, 384, 1973c.

Miyamoto, H., and T.S.K. Chang, "The effect of fluid from the cauda epididymis, serum components and caffeine upon the survival of diluted epididymal hamster spermatozoa," J.Reprod.Fertil., 33, 255-263, 1973d.

Mohri, H., and R. Yanagimachi, "Characteristics of motor apparatus in testicular, epididymal and ejaculated spermatozoa : A study using demenbranated sperm model," Exp.Cell.Res., 129, 191-196, 1980.

Morell, B., and E.R. Froesch, "Fibroblasts as an experimental tool in metabolic and hormone studies," Eur.J.Clin.Invest., 3, 112-118, 1973.

Morton, B.E., and T.S.K. Chang, "The effect of fluid from the cauda epididymis serum components and caffaeine upon the survival of diluted epididymal hamster spermatozoa," J.Reprod.Fert., 40, 491-493, 1973.

Mrsny, R.J., and S. Meizel, "K^+ influx is required for the hamster sperm acrosome reaction," J.Cell. Biol., 87, 103a (fe 1003), 1980.

Mrsny, R.J., L. Waxman, and S. Meizel, "Taurine maintains and stimulates motility of hamster sperm during capacitation in vitro," J.Exp.Zool., 210, 123-128, 1979.

Newcomb, R., W.B. Christie, and L.E.A. Rowson, "Birth of calves after in vivo fertilization of oocytes removed from follicles and matured in vitro," Vet.Rec., 102, 461-462, 1978.

Nicholas, J.S., "Development of transplanted rat eggs," Proc.Soc.,Exp.Biol.Med., 30, 1111-1113, 1933.

Niwa, K., and M.C. Chang, "Optimal sperm concentration and minimal number of spermatozoa for fertilization in vivo of rat eggs," J.Reprod. Fert., 40, 471-474, 1974.

Niwa, K., H. Imai, C. Kim, and A. Iritani, "Fertilization in vitro of hamster and mouse eggs in a chemically defined medium," J.Reprod.fert., 58,

109, 1980.

Noske, I.G., "In vitro fertilization of the mongolian gerbil egg," Experimentta, 28, 1348-1350, 1972.

Noyes, R.W., and Z. Dickmann, "Relationship of ovular age to endometrial development," J.Reprod. Fertil., 1, 371-374, 1960.

_____., "Survival of ova transferred into the oviduct of the rat," Fertil Steril., 12, 67-79, 1961.

Oguri, N., and Y. Tsutsumi, "Non-surgical egg transfer in mares," J Reprod Fert., 41, 313-320, 1974.

Okamoto, M., and Y. Toyoda, "Effects of glucose and pyruvate on the sperm penetration and fertilization of mouse eggs in vitro," Jpn.J. Zootech.Sci., 51, 171-180, 1980.

Oliphant, G., and B.G. Brackett, "Immunological assessment of surface changes of rabbit sperm undergoing capacitation," Biol.Reprod., 9, 404-414, 1973.

Orgebin-Crist, M.C., "Studies on the function of the epididymis," Biol.Reprod. Suppl, 1, 155-175, 1969.

Orsini, M.W., and A. Psychoyos, "Implantation of blastocysts transferred into progesterone treated virgin hamster previously ovariectomized," J.Reprod.Fert., 10, 300, 1965.

Pavlok, A., "Fertilization of mouse ova in vitro.I. Effect of some factors on fertilization," J.

Reprod.Fert., 16, 401-408, 1968.

Pickworth, S., and M.C. Chang, "Fertilization of chinese Hamster eggs in vitro," J.Reprod.Fert., 19, 371-374, 1969.

Quinn, P., and J.D. Stanger, "Effect of purification of bovine serum albumin on the interaction of human semen with mouse ova in vitro," Biol. Reprod., 22, 134, 140, 1980.

Reitzer, L.J., B.M. Wice, and D. Kennell, "Evidence that glutamine, not sugar, is the major energy source for cultured Hela cells," J.Biol.Chem., 254, 2667-2676, 1979.

Rogers, B.J., "Mammalian sperm capacitation and fertilization in vitro : a crilique of methodology," Gamete.Res., 1, 165-223, 1978.

Rogers, B.J., H. Van Campen, M. Ueno, H. Lambert, R. Bronson, and R. Hale, "Analysis of human spermatozoal fertilizing ability using zona-free ova," Fertil.Steril., 32, 664-670, 1979.

Rogers, B.J., and R. Yanagimachi, "Retardation of guinea pig sperm acrosome reaction by glucose : The possible importance of pyruvate and lactate metabolism in capacitation and the acrosome reaction," Biol.Reprod., 13, 568-575, 1975.

Rogers, B.J., and R. Yanagimachi, "Competitive effect of magnesium on the calcium-dependent acrosome reaction in guinea pig spermatozoa," Biol. Reprod., 15, 614-619, 1976.

Sato, A., and R. Yanagimachi, "Transplantation of preimplantation hamster embryos," J.Reprod. Fertil., 30, 329-332, 1972.

Schenk, S.L., "Das Saugethierei kunstlich befruchtet ausserhalb des mutterthieres," Mitt.Embryol. Inst.K.K.Univ.Wien., 1, 107-118, 1978.

Schini, S.A., and B.D. Bavister, "Development of Golden Hamster embryos through the two-cell block in chemically defined medium," J.Exp.Zool., 245, 111-115, 1988.

Schill, W.B., N. Heimberger, H. Schiessler, R. Stolla, and H. Fritz, "Reversible attachment and localization of the acid-stable seminal plasma acrosin-trypsin inhibitors on boar spermatozoa as revealed by the indirect immunofluorescent staining technique," J.Physiol.Chem., 356, 1473-1476, 1975.

Schriver, M.D., and D.C. Kraemer, "Embryo transfer in the domestic feline," American Association of Laboratory Animal Science Publications, pp 12, 1978.

Seidel, G.E.Jr., R.A. Bowen, and M.T. Kane, "In vitro fertilization, cuture and transfer of rabbit ova," Fertil.Steril., 27, 862-870, 1976.

Seitz, H.M. Jr., G. Rocha, B.G. Brackett, and L.Jr. Mastroianni, "Cleavage of human ova in vitro," Fetil.Steril., 22, 255-262, 1971.

Seshagiri, P.B., and B.D. Bavister, "Phosphate is required for inhibition by glucose of development of hamster 8-cell embryos in vitro," Biol.Reprod., 1889 (in press).

Shea, B.F., J.P.A. Latour, K.N. Bedirian, and R.D. Baker, "Maturation in vitro and subsequent penetrability of bovine follicular oocytes," J.Anim.Sci., 43, 809-815, 1976.

Snow, M.H.L., "The functional competence of the inner cell mass," New appoaches to the evaluation of abnormal embryonic development (D.Newbent, and M.J. Merder, eds.), pp. 394-407, George Thuine Publishers, Stuttgart, 1975.

Spindle, A.I., "An improved culture medium for mouse blastocysts," In Vitro., 16(8), 669-674, 1980.

Spindle, A.I., and R.A. Pederson, "Hatching attachment, and out growth of mouse blastocysts in vitro : Fixed nitrogen requirements," J.Exp.Zool., 186, 305-318, 1973.

Steptoe, P.C., R.G. Edwards, and J.M. Purdy, "Human blastocyst grown in culture," Nature (London)., 229, 132, 1971.

Steptoe, P.C., and R.G. Edwards, "Birth after the reimplantation of human embryo," Lancet., 2, 366, 1978.

Stoner, G.D., and D.J. Merchant, "Amino acid utilization by L-M strain mouse cells in a chemically defined medium," In Vitro., 7, 330-

343, 1972.

Strauss, F., "The time and place of fertilization of golden hamster egg," J.Embryol.Exp.Morph., 4, 42-56, 1956.

Sumbilla, C.M., C.L. Zielke, W.D. Reed, P.T. Ozand, and H.R. Zielke, "Comparison of the oxidation of glutamine, glucose, ketone bodies and fatty acids by human diploid fibroblasts," Biochem. Biophys.Acta., 675, 301-304, 1981.

Talbot, P. L.E. Franklin, and E.M. Fussell, "The effect of the concentration of golden hamster spermatozoa on the acrosome reaction and egg penetration in vitro," J.Reprod.Fert., 36, 429-432, 1974.

Tarkowski, A.K., Acta Theriol., 2, 251-267, 1959.

Tervit, H.R., D.G. Whittingham, and L.E.A, Rowson, "Successful culture in vitro of sheep and cattle ova," J.Reprod.Fert., 30, 493-497, 1972.

Thibault, C., L. Dauzier, and S. Wintenberger, "Etude cytologique de la fecondation in vitro de l'oeuf de la lapine," C.R.Soc.Sci.Biol., 148, 789, 1954.

Thomson, J.L., "Effects of inhibitor of carbohydrate metabolism on the development of preimplantation mouse embryos," Exp.Cell.Res., 46, 252-262, 1966.

Toyoda, Y., and M.C. Chang, "Fertilization of rat eggs in vitro by epididymal spermatozoa and the development of eggs following," J.Reprod.Fert.,

36, 9, 1974.

Tyler, J.P., J.R. Pryor, and W.P. Collins, "Heterologous ovum penetration by human spermatozoa," J. Reprod.Fertil., 63, 499-508, 1981.

Wales, R.G., and D.G. Whittingham, "Decomposition of sodium pyruvate in culture media at 5 °C and its effects on the development of the preimplantation mouse embryo," J.Reprod.Fert., 24, 126(abstr), 1971.

Warwick, B.L., R.O. Berry, and W.R. Horlacher, "Results of mating rams to angora female goats," Proceedings of the 25th annual meeting of American society of Animal Production, pp.225-227, 1934.

Warwick, B.L., and R.O. Berry, "Inter-Genetic and intraspecific embryo transfers," Journal of Heredity., 40, 297-303, 1949.

Whitten, W.K., and J.D. Biggers, "Complete development in vitro of the preimplantation stages of the mouse in a simple chemically defined medium," J.Reprod.Fert., 17, 399-401, 1968.

Whittingham, D.G., "Culture of mouse ova," J.Reprod.Fert., suppl., 14, 7-21, 1971.

_____., "In vitro fertilization, embryo transfer and storage," Br.Med.Bull., 35, 105-111, 1979.

Whittingham, D.G., and B.D.Bavister, "Development of Hamster egg fertilized in vitro or in vivo," J.Reprod.Fert., 38, 489-492, 1974.

Whittingham, D.G., and J.D. Biggers, "Fallopian tube and early cleavages in the mouse," Nature (London)., 213, 942-943, 1967.

Wice, B.M., L.J. Reitzer, and D. Kennell, "The continuous growth of vertebrate cells in the absence of sugar," J.Biol.Chem., 256, 7812-7819, 1981.

Willett, E.L., W.G. Black, L.E. Casida, W.H. Stone, and P.J. Buckner, "Successful transplantation of a fertilized bovine ovum," Science (New York)., 113, 247, 1951.

Wright, R.W. Jr., G.B. Anderson, P.T. Cupps, and M. Drost, Successful culture in vitro of bovine embryos to the blastocyst stage," Biol.Reprod., 14, 157-162, 1976a.

Wright, R.W. Jr., G.B. Anderson, P.T. Cupps, and M. Drost, "Blastocyst expansion and hatching of bovine ova cultured in vitro," J.Anim.Sci. 43, 170, 1976b.

Yanagimachi, R., "In vitro capacitation of hamster spermatozoa by follicular fluid," J.Reprod. Fert., 18, 275-286, 1969a.

Yanagimachi, R., "In vitro acrosome reaction and capacitation of golden hamster spermatozoa by bovine follicular fluid and its functions," J.Exp.Zool., 170, 269-280, 1969b.

Yanagimachi, R., "In vitro capacitation of golden hamster spermatozoa by homologous and

heterologous blood sera," Biol.Reprod., 3, 147-153, 1970.

_____., "In vitro fertilization of guinea pig ova," Anat.Rec., 172, 430a, 1972a.

_____., "Fertilization of guinea pig eggs in vitro," Anat.Rec., 174, 9-20, 1972b.

_____., Acceleration of the acrosome reaction and activation of guinea pig spermatozoa by detergents and other reagents," Biol.Reprod., 13, 519-526, 1975.

_____., "Specificity of sperm-egg interaction," Immunobiology of gametes (M. Edidin, and M. H. Johnson, eds.), pp. 255-295, Cambridge University Press, London, 1977.

_____, "Mechanisms of fertilization in Mammals," Fertilization and embryonic development in vitro, pp.81-182, Plenum Press, New York, 1981.

_____., "In vitro sperm capacitation and fertilization of golden hamster eggs in a chemically defined medium," In vitro fertilization and embryo transfer (E.S.E. Hafez and K. Semm, eds.), Section 6, pp.65-76, MTP Press, London, 1982.

Yanagimachi, R., "Zona-free hamster egg : their use in assessing fertilizing capacity and examining chromosomes of human spermatozoa," Gamete.Res., 10, 187-232, 1984.

Yanagimachi, R., and M.C. Chang, "Fertilization life of

heterologous blood sera," Biol.Reprod., 3, 147-153, 1970.

Yanagimachi, R., "In vitro fertilization of guinea pig ova," Anat.Rec., 172, 430a, 1972a.

_____., "Fertilization of guinea pig eggs in vitro," Anat.Rec., 174, 9-20, 1972b.

_____., Acceleration of the acrosome reaction and activation of guinea pig spermatozoa by detergents and other reagents," Biol.Reprod., 13, 519-526, 1975.

_____., "Specificity of sperm-egg interaction," Immunobiology of gametes (M. Edidin, and M. H. Johnson, eds.), pp. 255-295, Cambridge University Press, London, 1977.

_____, "Mechanisms of fertilization in Mammals," Fertilization and embryonic development in vitro, pp.81-182, Plenum Press, New York, 1981.

_____., "In vitro sperm capacitation and fertilization of golden hamster eggs in a chemically defined medium," In vitro fertilization and embryo transfer (E.S.E. Hafez and K. Semm, eds.), Section 6, pp.65-76, MTP Press, London, 1982.

Yanagimachi, R., "Zona-free hamster egg : their use in assessing fertilizing capacity and examining chromosomes of human spermatozoa," Gamete.Res., 10, 187-232, 1984.

Yanagimachi, R., and M.C. Chang, "Fertilization life of golden hamster ova and their morphological changes at the time of losing fertilizability," J.Exp.Zool., 148, 185-203, 1961.

_____., "Fertilization of hamster eggs in vitro," Nature., 200, 281-282, 1963.

_____., "In vitro fertilization of hamster ova," J.Exp.Zool., 156, 361-376, 1964.

Yanagimachi, R., and M.C. Chang, "In vitro fertilization of golden hamster ova," J.Exp.Zool., 156, 361-376, 1979.

Yanagimachi, R., and N. Usui, "Calcium dependence of the acrosome reaction and activation of guinea pig spermatozoa," Exp.Cell.Res., 89, 161-174, 1974.

Yanagimachi, R., H. Yanagimachi, and B.J. Rogers, "The use of zona-free animal ova as a test system for the assessment of the fertilizing capacity of human spermatozoa," Biol.Reprod., 15, 471-476, 1976.

Yodyingyuad, V., "Growth of the preimplantation hamster embryos in vivo and in vitro, Ph.D thesis, Cambridge University, 1982.

Zausner-Guelman, B., L. Blasco, and D.P. Wolf, "Zona-free hamster egg and human sperm penetration capacity : A comparative study of proven fertile donors and infertile patients," Fertil. Steril., 36, 771-777, 1981.

Zielke, H.R., P.T. Ozand, J.T. Tildon, D.A. Sevdalian, and M. Cornblath, "Growth of human fibroblasts in the absence of glucose utilization," Proc.Natl.Acad.Sci.U.S.A., 73, 4110-4114, 1976.

Zielke, H.R., P.T. Ozand, J.T. Tildon, D.A. Sevdalian, and M. Cornblath, "Reciprocal regulation of glucose and glutamine utilization by cultured human diploid fibroblasts," J.Cell.Physiol., 95, 41-48, 1978.

Zielke, H.R., C.M. Sumbilla, D.A. Sevdalian, R.L. Hawkins, and P.T. Ozand, "Lactate : a major product of glutamine metabolism by human diploid fibroblasts," J.Cell.Physiol., 104, 433-411, 1980.

Zielke, H.R., C.L., Zielke, and P.T. Ozand, "Glutamine : a major energy source for cultured mammalian cells," Fed.Proc., 43, 121-125, 1984.

ภาคผนวก

ตารางเปรียบเทียบค่าเฉลี่ยของเปอร์เซนต์การปฏิสนธิในน้ำยาปฏิสนธิ m-TALP ที่เติมกรดอะมิโนทั้ง 4 ชนิด และในน้ำยาปฏิสนธิที่ไม่เติมกรดอะมิโน

(unpaired t-test)

no.of exps	m-TALP (%)	m-TALP+4AÂ (%)
1	93.33	94.64
2	89.13	91.07
3	93.10	93.10
4	92.59	95
5	93.75	
6	89.74	
7	90	
8	91.67	
total	733.31	373.81
mean	91.81(x_1)	93.48(x_2)
ค่าเบี่ยงเบนมาตรฐาน	1.81(S_1)	1.79(S_2)

คำนวณหาค่า pool variance Sp^2 = 3.26

Sx_1-x_2 = 1.51

$t = \frac{x_1-x_2}{Sp^2}$ = 1.11

ขั้นแห่งความอิสระ = $(n_1-1) + (n_2-2)$ = 10

จากตารางค่า t0.05 df10 = 2.228

ค่า t-test = -1.11 ซึ่งน้อยกว่า critical value ของ t0.05 df10

ค่า mean ทั้งสองกลุ่มไม่แตกต่างกัน ($p > 0.05$)

ตารางการวิเคราะห์การแปรปรวนแบบทางเดียวของเปอร์เซนต์การแบ่งตัวของเอมบริโอจากระยะ 1-เซลล์ ที่ได้จาก in vitro เป็นเอมบริโอระยะ 2 เซลล์ ในน้ำยาเพาะเลี้ยง TL-PVA กรดอะมิโนทั้ง 4 ชนิด และในน้ำยาเพาะเลี้ยงที่ไม่เติมกรดอะมิโน

no of exps	TL-PVA (%)	TL-PVA+4AA (%)	TL-PVA+4AÂ (%)	
1	35.71	62.22	75.47	
2	43.90	60	72.55	
3	35.19	60	72.22	
4	40	56.82	73.68	
Total	154.8	239.04	293.92	687.76(T)
Mean	38.7	53.76	73.48	57.31(x)

ANOVA TABLE

Source	df	ss	Mean Square (ms=ss/df)	F-ratio
Among groups	k-1=2	2455.21	1227.61	155.00
Within groups	N-K=9	71.25	7.92	
Total	11	2526.46		

ค่า F-ratio = 257.10 ซึ่งมากกว่า critical ratio ของ $F_{0.05}$ $df_{2,9}$ (4.26)

ค่า mean ของทั้งสองกลุ่มแตกต่างกัน ($p < 0.05$)

ทดสอบโดย Least Significant Difference (LSD) ที่ระดับ 5% หรือ 1%

LSD(0.01) = t0.01 Sd = 7.48

LSD(0.05) = t0.05 Sd = 5.20

ตารางการวิเคราะห์การแปรปรวนแบบทางเดียวของเปอร์เซนต์การปฏิสนธิที่เติมกรดอะมิโน เพียง 3 ชนิด

no of exps	m-TALP (%)	m-TALP+4AA̲ (%)	m-TALP+3AA̲(-Gln) (%)	m-TALP+3AA̲(-Phe) (%)	m-TALP+3AA̲(-Ile) (%)	m-TALP+3AA̲(-Met) (%)	
1	90.20	94	90.38	93.02	93.55	89.19	
2	92	98	90.74	91.53	90.91	90.57	
3	100	91.67	98.18	96	92.45	94	
4	89.66	91.53	92.86	89.83	89.74	88	
Total	371.86	379.2	372.16	370.38	366.65	361.76	2218.01 -(T)
Mean	92.97	93.8	93.04	92.60	91.66	90.44	92.42 (x)

ANOVA TABLE

Source	.df	ss	Mean Square	F-ratio
Among groups	k-1=5	28.45	5.69	0.56
Within groups	N-K=18	184.37	10.24	
Total	23	212.82		

ค่า F-ratio = 0.56 ซึ่งน้อยกว่า critical value ของ F 0.05 df 5,20 (2.71)
ค่า mean ของทั้ง 6 กลุ่มไม่แตกต่างกัน (p>0.05)
ทดสอบโดย Least Significant Difference (LSD) ที่ระดับ 5% หรือ 1%
LSD (0.01) = t 0.01 Sd = 5.48
LSD (0.05) = t 0.05 Sd = 7.51

ตารางการวิเคราะห์การแปรปรวนแบบทางเดียวของเปอร์เซนต์การแบ่งตัวของเอมบริโอจากระยะ 1-เซลล์ที่ได้จาก IN Vitro เป็นเอมบริโอระยะ 2 เซลล์ ในน้ำยาเพาะเลี้ยง TL-PVA ที่เติมกรดอะมิโนเพียง 3 ชนิด

no of exps	TL-PVA (%)	TL-PVA+4AA (%)	TL-PVA+3AA(-Gln) (%)	TL-PVA+3AA(-Phe) (%)	TL-PVA+3AA(-Ile) (%)	TL-PVA+3AA(-Met) (%)	
1	32.61	68.09	63.83	70	48.28	27.27	
2	36.96	65.31	63.27	62.96	48.57	12.5	
3	28	70.45	59.26	60.42	65	17.02	
4	28.85	68.52	65.38	49.06	57.14	31.82	
Total	126.42	272.37	251.74	242.44	218.99	88.61	1200.57 (T)
Mean	31.61	68.09	62.94	60.61	54.75	22.15	50.03 (x)

ANOVA TABLE

Source	df	ss	Mean Square	F-ratio
Among groups	k-1=5	6974.48	1394.90	33.87
Within groups	N-K=18	741.26	41.18	
Total	23	7715.74		

ค่า F-ratio = 33.87 ซึ่งมากกว่า critical value ของ F 0.05 df 5,20 (2.71)

ค่า mean ของทั้ง 6 กลุ่ม แตกต่างกัน ($p<0.05$)

ทดสอบโดย Least Significant Difference (LSD) ที่ระดับ 5% หรือ 1%

LSD (0.01) = t 0.01 Sd = 15.08

LSD (0.05) = t 0.05 Sd = 11.01

ตารางการวิเคราะห์การแปรปรวนแบบทางเดียวของเปอร์เซนต์การปฏิสนธิในหลายปฏิสนธิ m-TALP ที่เติมกรดอะมิโนแต่ละชนิดเพียงชนิดเดียว

no of exps	m-TALP (%)	m-TALP+4AÂ (%)	m-TALP+3AÂ+Gln (%)	m-TALP+3AÂ+Phe (%)	m-TALP+3AÂ+Ile (%)	m-TALP+3AÂ+Met (%)	
1	91.23	96.43	100	97.26	84.48	95.56	
2	100	96	92.31	92.86	92.68	91.23	
3	94.23	88	96.30	95.92	94.34	90	
4	92.59	92.86	93.88	92.5	96.23	96.30	
Total	378.05	373.29	382.49	378.54	367.73	373.09	2253.19 (T)
Mean	94.51	93.32	95.62	94.64	91.93	93.27	93.88 (x)

ANOVA TABLE

Source	.df	ss	Mean Square	F-ratio
Among groups	k-1=5	33.92	6.78	0.49
Within groups	N-K=18	249.54	13.86	
Total	23	283.46		

ค่า F-ratio = 0.19 ซึ่งน้อยกว่า critical value ของ F 0.05 df 5,20 (2.71)

ค่า mean ของทั้ง 6 กลุ่มไม่แตกต่างกัน (p>0.05)

ทดสอบโดย Least Significant Difference (LSD) ที่ระดับ 5% หรือ 1%

LSD (0.01) = t 0.01 Sd = 8.75

LSD (0.05) = t 0.05 Sd = 6.39

ตารางการวิเคราะห์การแปรปรวนแบบทางเดียวของเปอร์เซนต์การแบ่งตัวของเอมบริโอจากระยะ 1-เซลล์ที่ได้จาก IN Vitro เป็นเอมบริโอระยะ 2 เซลล์ ในน้ำยาเพาะเลี้ยง TL-PVA ที่เติมกรดอะมิโนแต่ละชนิดเพียงชนิดเดียว

no of exps	TL-PVA (%)	TL-PVA+4AA (%)	TL-PVA+3AA+Gln (%)	TL-PVA+3AA+Phe (%)	TL-PVA+3AA+Ile (%)	TL-PVA+3AA+Met (%)	
1	25	70.37	30	69.23	63.16	69.77	
2	34	68.15	18.75	56.34	40.82	67.31	
3	30.61	68.18	17.31	64.86	40	61.11	
4	30	73.08	10.87	59.57	33.33	67.31	
Total	119.61	280.38	76.93	250	177.31	265.5	1169.73 (T)
Mean	29.90	70.10	19.23	62.5	44.33	66.38	48.74 (x)

ANOVA TABLE

Source	.df	ss	Mean Square	F-ratio
Among groups	k-1=5	8805.53	1716.11	35.59
Within groups	N-K=18	890.62	49.48	
Total	23	9696.15		

ค่า F-ratio = 35.59 ซึ่งมากกว่า critical value ของ F 0.05 df 5,20 (2.71)

ค่า mean ของทั้ง 6 กลุ่ม แตกต่างกัน ($p<0.05$)

ทดสอบโดย Least Significant Difference (LSD) ที่ระดับ 5% หรือ 1%

LSD (0.01) = t 0.01 Sd = 16.52

LSD (0.05) = t 0.05 Sd = 12.06

ตารางการเปรียบเทียบค่าเฉลี่ยของจำนวนฟีตัสที่ได้จากการถ่ายฝากเอมบริโอระยะ 2 เซลล์ ที่ได้จากการเพาะเลี้ยงในน้ำยาเพาะเลี้ยงที่เติมกรดอะมิโน(กลุ่มทดลอง) และเอมบริโอระยะ 2 เซลล์ ที่ได้จาก in vivo (กลุ่มควบคุม) unpaired t-test

	กลุ่มทดลอง	กลุ่มควบคุม
จำนวนหนู (n)	10	10
จำนวนฟีตัสเฉลี่ย (X)	1.3	2.2
ค่าเบี่ยงเบนมาตรฐาน (S)	0.48	0.79

คำนวณหาค่า $Sx_1 = 0.25$, $Sx_2 = 0.15$

$Sx_1-x_2 = 0.28$

$$t = \frac{(x_1 - x_2) - (u_1 - u_2)}{Sx_1-x_2}$$

$$= 3.21$$

ขั้นแห่งความอิสระ $= (n_1-1) + (n_2-2) = 17$

จากตารางค่า $t0.05\ df17 = 2.110$ (ทดสอบสองด้าน)

จำนวนฟีตัสทั้งสองกลุ่มมีความแตกต่างกันอย่างมีนัยสำคัญทางสถิติ ($p < 0.05$)

ประวัติผู้เขียน

นางสาว วันธณี ฟองแก้ว เกิดเมื่อวันที่ 7 กันยายน 2504 เป็นชาวปักษ์ใต้ จังหวัดพัทลุง ได้รับการศึกษาระดับปริญญาตรี จากคณะพยาบาลศาสตร์ มหาวิทยาลัยมหิดล เมื่อปีการศึกษา 2528 เริ่มเข้ารับราชการในตำแหน่งพยาบาลประจำการ ระดับ 3 ภาควิชากุมารเวชศาสตร์ คณะแพทยศาสตร์ศิริราชพยาบาล มหาวิทยาลัยมหิดล ตั้งแต่ปี 2528 จนกระทั่งปัจจุบัน