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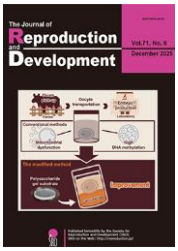

Original Article

Effect of bovine oocyte transportation system on embryonic quality

Shunsuke HARA, Minori SHIDA, Kanami ABE, Koumei SHIRASUNA, Hisataka IWATA

Volume 71, Issue 6, Pages 301-309

DOI https://doi.org/10.1262/jrd.2025-031

Cover Story:

Ovum pick-up (OPU) is widely used technique in livestock production. In general, OPU is performed to collect oocytes, which are then transported to the laboratory. During transportation, the oocytes are cultured in air atmosphere. Hara *et al.* examined the effects of oocyte transportation (conventional and modified methods) on embryonic quality (Hara S, *et al.* The effect of oocyte transportation on embryonic quality. p. 301–309). The conventional method induced mitochondrial dysfunction in oocytes and high DNA methylation in early embryos. However, the modified method, which uses a polysaccharide gel substrate, improved these effects. These results indicate that the modified method is a useful approach for oocyte transportation.

Technology Report

Evaluation of tubal patency with hysterosalpingo-contrast sonography using sodium alginate solution and the subsequent fertility outcomes in repeat breeder cattle

Kazuki ITO, Ryuji HASHIMOTO, Natsumi ENDO, Tomomi TANAKA

Volume 71, Issue 6, Pages 310-314

DOI https://doi.org/10.1262/jrd.2025-052

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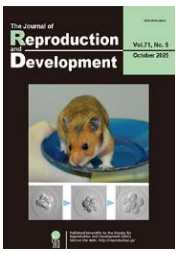
https://www.jstage.jst.go.jp/browse/jrd/71/5/_contents/-char/en



Invited review article

Early pregnancy detection in ruminants: challenges and innovations

Jakia SULTANA, Sanjita Rani PAUL, Md Sayaduzzaman ARAFATH, Md Hasanur ALAM, Md Sharoare HOSSAIN, Mohammad MONIRUZZAMAN

Volume 71, Issue 5, Pages 238-248

DOI https://doi.org/10.1262/jrd.2025-048

Original Article

Chilling injury mechanism in the immature oocytes of zebrafish (*Danio rerio*)

Yanuar ACHADRI, Shino SONODA, Saki OKUBO, Kazutsugu MATSUKAWA, Keisuke EDASHIGE

Volume 71, Issue 5, Pages 249-255

DOI https://doi.org/10.1262/jrd.2025-041

Tryptophan promotes sperm hyperactivation in hamsters via 5-hydroxytryptamine biosynthesis within sperm

Issei SUZUKI, Masakatsu FUJINOKI, Takao KAMAI

Volume 71, Issue 5, Pages 256-265

DOI https://doi.org/10.1262/jrd.2025-006

The mechanism of heat stress-induced injury in the immature oocytes of zebrafish (*Danio rerio*)

Yanuar ACHADRI, Nao KUWAHARA, Momoko KIMURA, Nami KANAMARU, Kazutsugu MATSUKAWA, Keisuke EDASHIGE

Volume 71, Issue 5, Pages 266-271

DOI https://doi.org/10.1262/jrd.2025-050

Effects of luteal blood flow on endometrial progesterone concentrations and gene expression in Japanese Black cows

Tomomi KANAZAWA, Motohide SEKI, Kosuke IGA, Keiichiro KIZAKI

Volume 71, Issue 5, Pages 272-281

DOI https://doi.org/10.1262/jrd.2025-032

Effects of light wavelength on oocyte maturation, parthenogenesis, and parthenogenetic embryo development in pigs

Su Bin JUNG, So Yeon NAM, Ha Rin NAMKUNG, Ji Won HAN, Seon Ah RYU, Eun Song LEE, Seung Tae LEE

Volume 71, Issue 5, Pages 282-289

DOI https://doi.org/10.1262/jrd.2025-028

Technology Report

A simplified protocol for vitrification of hamster embryos

Michiko HIROSE, Nami MORISHITA, Ayumi HASEGAWA, Keiji MOCHIDA, Toshiko TOMISHIMA, Kimiko

INOUE, Toshitaka HORIUCHI, Atsuo OGURA
Volume 71, Issue 5, Pages 290-294
DOI https://doi.org/10.1262/jrd.2025-036
Cover Story:
Golden hamsters (*Mesocricetus auratus*) have been extensively used in biomedical research. With the advent of genome-editing technology, it is now possible to generate gene-knockout hamsters, providing unique research models that cannot be achieved with mice or rats. Therefore, the development of cryopreservation techniques for hamster embryos is in high demand. In this study, we present a simplified vitrification protocol for hamster embryo preservation. In vivo-derived 8-cell or morula embryos (Day 3) were vitrified using Cryotop in modified HECM-3 medium containing ethylene glycol, DMSO, and sucrose. After warming, the embryos were transferred into the uteri of Day 3-pregnant females with a different coat color. The results showed that 21–26% of the transferred embryos developed to the term. The experiments were conducted in a conventional laboratory setting, avoiding direct light exposure. Given the reproducibility of our vitrification protocol, it has broad applicability in laboratories that use hamsters.

A novel method of correlative light and electron microscopy in cryosectioning of bovine anterior pituitary tissue using NanoSuit CLEM
Hiroya KADOKAWA, Hideya KAWASAKI
Volume 71, Issue 5, Pages 295-300
DOI https://doi.org/10.1262/jrd.2025-025

JRD Vol. 71 (4)
https://www.jstage.jst.go.jp/browse/jrd/71/4/_contents/-char/en
Original Article
Reduced HSP70 expression under mild hypothermia is involved in bovine embryo growth suppression
Toshimichi ISHII, Sho NAKAMURA, Satoshi OHKURA, Shuichi MATSUYAMA
Volume 71, Issue 4, Pages 195-200
DOI https://doi.org/10.1262/jrd.2024-087

Effects of chemosynthetic choline plasmalogens on gonadotropin secretion from bovine gonadotrophs
Hiroya KADOKAWA, Yvan Bienvenu NIYONZIMA, Takatsugu HIROKAWA, Ryunosuke YOSHINO
Volume 71, Issue 4, Pages 201-209
DOI https://doi.org/10.1262/jrd.2025-019
Cover Story:
Plasmalogens are special types of glycerophospholipids found in the brain and blood that may help control hormone secretion. In this study, Kadokawa et al. explored whether certain laboratory-made choline plasmalogens (CPls) influence the release of reproductive hormones from cow pituitary cells (Effects of chemosynthetic choline plasmalogens on gonadotropin secretion from bovine gonadotrophs. pp. 201–209). As shown in the cover image, the

researchers used computer simulations to predict how CPl molecules might attach to a specific protein on hormone-producing cells, called GPR61. One type of CPl could boost the release of a hormone called FSH, but only when another hormone (GnRH) was present. The other type of CPl had a weaker effect on its own. These results suggest that natural glycerophospholipids in the blood work together with brain signals to regulate fertility.

Ybx1 deficiency impairs spermatid development and male fertility without affecting meiosis in mice: insights into spermatogenesis
Yan HAN, Rui WU, Chaoqun DUAN, Jiemin CHEN, Xing DENG, Wei PENG, Buzhen TAN
Volume 71, Issue 4, Pages 210-216
DOI https://doi.org/10.1262/jrd.2024-108

MMP3 mediates E2-induced bovine endometrial cell proliferation by releasing HB-EGF
Al-Nur Md. Iftekhar RAHMAN, Chi Sun YUN, Amir SALAMA, Md. Rafikul ISLAM, M. A. M. Yahia KHANDOKER, Toru TAKAHASHI, Kei MIYAMOTO, Nobuhiko YAMAUCHI
Volume 71, Issue 4, Pages 217-225
DOI https://doi.org/10.1262/jrd.2025-021

Enhancing gene expression studies in bovine embryos fertilized *in vitro*: Identifying stable reference genes across blastocysts with different developmental speeds
Sung-Ho KIM, Sang-Yup LEE, Saet-Byul KIM, Tae-Gyun KIM, Min JANG, Sung-Ho YUN, Seong-Eun HEO, Do-Yoon KIM, Seung-Joon KIM, Won-Jae LEE
Volume 71, Issue 4, Pages 226-233
DOI https://doi.org/10.1262/jrd.2025-017

Technology Report
A prospective randomized trial comparing dephereline and busereline for ovulation induction in heat-stressed lactating dairy cows
Fernando LÓPEZ-GATIUS
Volume 71, Issue 4, Pages 234-237
DOI https://doi.org/10.1262/jrd.2025-023

JRD Vol. 71 (3)
https://www.jstage.jst.go.jp/browse/jrd/71/3/_contents/-char/en
Original Article
Low pH induces amiloride-sensitive expression of leukemia inhibitory factor in endometrial cells
Miku OTSUGU, Ayumi MINE, Kurumi FUJIWARA, Ayako ICHIMURA, Keiji YAMAMOTO, Ryo TACHIHARA, Hideaki TOMURA
Volume 71, Issue 3, Pages 115-123

DOI https://doi.org/10.1262/jrd.2024-105

Enzymatic isolation of porcine preantral follicles impairs oocyte viability and long-term *in vitro* growth
Ba Anh My LE, Lien Boi Linh NGUYEN, Phuong Thanh NGUYEN, Ha Nhat Lam VO, Ngoc Song Thu TRAN, Bao Nghi TRAN, Ngoc Thao Vy NGUYEN, Chi Thien LAM, Nhat-Thinh NGUYEN, Van Thuan NGUYEN, Hong-Thuy BUI
Volume 71, Issue 3, Pages 124-136
DOI https://doi.org/10.1262/jrd.2025-004

Cortisol prevents the suppressive effect of LPS on bovine oocyte maturation *in vitro*
Sameera PREMARATNE, Mahiro TAMURA, Omowumi ADEMOLA, Yuki MURANISHI, Masafumi TETSUKA
Volume 71, Issue 3, Pages 137-144
DOI https://doi.org/10.1262/jrd.2024-086

CpG site methylation regulates mouse *Rec8* gene promoter activity
Mei RONG, Na FENG, Jinghuan LI, Wuyun DALAI
Volume 71, Issue 3, Pages 145-153
DOI https://doi.org/10.1262/jrd.2024-077

Mice lacking two testis-specific cytoplasmic poly(A)-binding proteins, PABPC2 and PABPC6, exhibit normal spermatogenesis and fertility
Yuka ISONO, Yuko KAKU, Yoshinori KANEMORI, Shin-ichi KASHIWABARA
Volume 71, Issue 3, Pages 154-160
DOI https://doi.org/10.1262/jrd.2025-012

Mechanism of action of IHH in ameliorating thin endometrium
Lan LUO, Man LUO, Donghong NING, Xi CHEN, Qiuman ZHENG, Qin CAO
Volume 71, Issue 3, Pages 161-167
DOI https://doi.org/10.1262/jrd.2024-096

Pwp1 inhibition impairs the development and early lineage commitment of mouse preimplantation embryos
Takuto YAMAMOTO, Atsushi TAKASU, Yasuhiro ISUMI, Satoshi MASHIKO, Daiki SHIKATA, Shinnosuke HONDA, Naojiro MINAMI, Shuntaro IKEDA
Volume 71, Issue 3, Pages 168-174
DOI https://doi.org/10.1262/jrd.2024-111

Cover Story:

After fertilization, dramatic changes in epigenetic regulations and zygotic genome activation (ZGA) occur, eventually leading to a transition from totipotency to pluripotency. However, the regulation of these processes during

preimplantation development remains unclear. Yamamoto *et al.* investigated the functional roles of periodic tryptophan protein 1 (PWP1) in mouse preimplantation embryos (Yamamoto et al. Pwp1 inhibition impairs the development and early lineage commitment of mouse preimplantation embryos, pp. 168–174). The expression of *Pwp1* increased during ZGA, and the PWP1 protein was predominantly localized in the nuclei of the inner cell mass at the blastocyst stage (cover photo). *Pwp1* knockdown reduced the developmental potential of mouse preimplantation embryos, accompanied by prolonged expression of the ZGA-related genes at the morula stage and altered expression of cell lineage-related genes at the blastocyst stage. These findings suggest that PWP1 is essential for the regulation of early embryonic development.

Percentage of follicle number by size over the antral follicle count and its association with subsequent reproductive performance in beef cattle
Shiori Saito KOHIGASHI, Mizuho UEMATSU, Go KITAHARA, Takeshi OSAWA
Volume 71, Issue 3, Pages 175-184
DOI https://doi.org/10.1262/jrd.2024-075

Technology Report

Inexpensive thermal containers and insulation materials prevent deterioration of semen parameters for less than 90 minutes
Erina TAKAYAMA, Hiroki TAKEUCHI, Hideaki YAJIMA, Sayako ENOMOTO, Mito SAKAMOTO, Mikiko NISHIOKA, Ryota TACHIBANA, Tomoaki IKEDA, Eiji KONDO
Volume 71, Issue 3, Pages 185-190
DOI https://doi.org/10.1262/jrd.2025-001

In vitro embryo production via ovum pick-up (OPU) and intracytoplasmic sperm injection (ICSI) in pure and crossbred Japanese Hokkaido native ponies
M A HANNAN, Hiroyuki WATANABE, Akiko TAKEYAMA, Sakura YOSHIDA, Dorb WUDAMU, Narangerel LKHAGVASUREN, Anthony CLAES, Tom A E STOUT, Soon Hon CHEONG, Shingo HANEDA, Yasuo NAMBO
Volume 71, Issue 3, Pages 191-194
DOI https://doi.org/10.1262/jrd.2025-011

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Opinions and Hypotheses

Can thermoregulatory response to heat stress be improved in lactating dairy cows? Insights from counter-current heat transfer systems impacting reproduction
Fernando LÓPEZ-GATIUS
Volume 71, Issue 2, Pages 68-70

DOI https://doi.org/10.1262/jrd.2024-101

Original Article

Involvement of nuclear receptor corepressor 2 (NCOR2) in estrogen-induced repression of arcuate *Kiss1* expression in female rats

Marina TAKIZAWA, Sae MIYAZAKI, Hitomi TSUCHIDA, Mayuko NAGAE, Shunsuke SEKI, Masumi HIRABAYASHI, Fumitaka OSAKADA, Naoko INOUE, Hiroko TSUKAMURA, Yoshihisa UENOYAMA

Volume 71, Issue 2, Pages 71-84

DOI https://doi.org/10.1262/jrd.2024-100

Cover Story:

The kisspeptin neurons in the arcuate nucleus (ARC) are the site of estrogen-negative feedback of kisspeptin gene (*Kiss1*) expression in female mammals. Takizawa *et al.* investigated whether nuclear receptor corepressor 2 (NCOR2), an estrogen receptor α corepressor, is involved in estrogen-induced *Kiss1* repression using two rat models: proestrous virgin and late-lactating model rats (Takizawa *et al.*; Involvement of nuclear receptor corepressor 2 (NCOR2) in estrogen-induced repression of arcuate *Kiss1* expression in female rats. pp. 71–84). *Ncor2* (magenta) was expressed in more than 80% of ARC *Kiss1*-expressing cells (green) in female rats, as shown in the cover photograph. Kisspeptin-neuron-specific *Ncor2* knockdown increased the number of *Kiss1*-expressing cells and the intensity of the *Kiss1* signals in the ARC in the proestrous model *Kiss1*-Cre rats but not in the late-lactating Kiss1-Cre rats. These findings suggest that NCOR2 in ARC kisspeptin neurons mediates the proestrous levels of estrogen-induced repression of ARC *Kiss1* expression in virgin rats.

Influences of 5-hydroxytriptamine on sperm hyperactivation and *in vitro* fertility in rats

Yuki KOYANO, Masakatsu FUJINOKI

Volume 71, Issue 2, Pages 85-92

DOI https://doi.org/10.1262/jrd.2024-078

Factors influencing *in vivo* embryo production in Japanese Black donors: The role of anti-Müllerian hormone and inflammation parameters

Hiroaki OKAWA, Norihiro YUKIYAMA, Osamu YAMATO, Akira GOTO, Oky Setyo WIDODO, Yasuo FUSHIMI, Mitsuhiro TAKAGI

Volume 71, Issue 2, Pages 93-98

DOI https://doi.org/10.1262/jrd.2024-092

Improving porcine *in vitro* blastocyst development using fetal bovine serum, amino acids, and insulin-transferrin-selenium

Ba Anh My LE, Lien Boi Linh NGUYEN, Chi Thien LAM, Nhat-Thinh NGUYEN, Ngoc Thao Vy NGUYEN, Van Thuan NGUYEN, Hong-Thuy BUI

Volume 71, Issue 2, Pages 99-109

DOI https://doi.org/10.1262/jrd.2024-095

Technology Report

Suppression of porcine polyspermy using mechanical vibrations during *in vitro* fertilization

Takehiro HIMAKI, Kohei SHINADA, Asumi YAEGASHI

Volume 71, Issue 2, Pages 110-114

DOI https://doi.org/10.1262/jrd.2024-042

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SRD Young Investigator Award 2024; Invited review article

Optimization of ovum pick-up-*in vitro* fertilization and *in vitro* growth of immature oocytes in ruminants

Kenichiro SAKAGUCHI

Volume 71, Issue 1, Pages 1-9

DOI https://doi.org/10.1262/jrd.2024-091

Invited review article

Can Humanity Thrive Beyond the Galaxy?

Sayaka WAKAYAMA, Teruhiko WAKAYAMA

Volume 71, Issue 1, Pages 10-16

DOI https://doi.org/10.1262/jrd.2024-099

Cover Story:

The expansion of humanity into space is inevitable. However, human reproduction within space habitats or on extraterrestrial planets poses profound challenges including harmful mutations caused by cosmic radiation and abnormal development of embryos and fetuses in non-terrestrial gravitational environments. Moreover, colonizing other star systems necessitates the transportation of thousands of individuals from each animal species to the target planet to prevent inbreeding-related degeneration. Looking further ahead, as humans disperse throughout the galaxy, the imperative to preserve all genetic resources from Earth permanently and securely becomes paramount. This review examines the issues that must be addressed to ensure human prosperity in space, as well as the challenges that need to be resolved for the transport and long-term preservation of vast genetic resources.

Original Article

Comparison of vaginal examination methods to evaluate urovagina and purulent vaginal discharge in periestrous dairy cows

Dai ISHIYAMA, Fumie MAGATA, Fuko MATSUDA

Volume 71, Issue 1, Pages 17-23

DOI https://doi.org/10.1262/jrd.2924-071

Semen extender triggers a mild physiological inflammatory response in the uterus without disrupting sperm-uterine immune crosstalk *in vitro* in cattle

Malinda HULUGALLA, Alireza MANSOURI, Elham WAEHAMA, Ihshan AKTHAR, Akio MIYAMOTO

Volume 71, Issue 1, Pages 24-34

DOI https://doi.org/10.1262/jrd.2024-093

Spermatic RXFP2 expression levels and seminal INSL3 concentrations among beef bull ejaculates with different levels of sperm morphological normality

Hewage Dilhan Anuradha WIMALARATHNE, Kenta ARASHI, Fumiyuki IWAKI, Mitsuhiro SAKASE, DURITAHALA, Hiroshi HARAYAMA, Noritoshi KAWATE

Volume 71, Issue 1, Pages 35-40

DOI https://doi.org/10.1262/jrd.2024-072

Chloroquine inhibits artificial oocyte activation induced by ethanol or Sr^{2+} but not by sperm in mice

Tadashi YAMAZAKI, Md Wasim BARI, Satoshi KISHIGAMI

Volume 71, Issue 1, Pages 49-54

DOI https://doi.org/10.1262/jrd.2024-089

Supplementation with serine-enriched non-essential amino acids from minimum essential medium promotes blastocyst development of *in vitro*-fertilized bovine embryos

Nobuhiko ITAMI, Yuji HIRAO

Volume 71, Issue 1, Pages 55-61

DOI https://doi.org/10.1262/jrd.2024-090

Technology Report

Artificial insemination of bottlenose dolphins (*Tursiops truncatus*): A trial with simple instruments based on criteria for estrous behaviors linked to changes in estradiol levels and follicle development

Shusaku SAWA, Narumi KAWAHIRO, Minami W. OKUYAMA

Volume 71, Issue 1, Pages 62-67

DOI https://doi.org/10.1262/jrd.2024-065