

JOURNAL OF REPRODUCTION AND DEVELOPMENT

Official Journal of the Japanese Society of Animal Reproduction

Special Advisory Board

Colin R AUSTIN
Samuel S KOIDE
Hideo MOHRI
Ryuzo YANAGIMACHI

Robert H FOOTE
Takahide MORI
Roger V SHORT

Seiichiro KAWASHIMA
Sheldon J SEGAL
Jerome F STRAUSS III

Chief Director:

Eimei SATO (Tohoku University)

Editor-in-Chief:

Masugi NISHIHARA (The University of Tokyo)

Associate Editor-in-Chief:

Noboru MANABE (Kyoto University)

Managing Editors:

Hiroshi NAGASHIMA (Meiji University)

Satoshi OHKURA (National Institute of Agrobiological Sciences)

Keitaro YAMANOUCI (The University of Tokyo)

Editorial Board:

Ramli ABDULLAH (University of Malaya, Malaysia)
Abraham AMSTERDAM (The Weizmann Institute of Science, Israel)
Klaus-Peter BRÜSSOW (Research Institute for the Biology of Farm Animals, Germany)
Nguyen CUONG (National Center for Natural Science and Technology, Vietnam)
Joanne FORTUNE (Cornell University, USA)
Douglas L. FOSTER (University of Michigan, USA)
Masato FUJISAWA (Kawasaki Medical School)
Josef FULKA (Institute of Animal Reproduction, Czech Republic)
Masa-aki HATTORI (Kyushu University)
Kazuhiko IMAKAWA (The University of Tokyo)
Eui-Bae JEUNG (Chungbuk National University, Korea)
Magosaburo KASAI (Kochi University)
Yoko KATO (Kinki University)
Mitsumori KAWAMINAMI (Kitasato University)
Tomohiro KONO (Tokyo University of Agriculture)
Kaoru KUBOKAWA (The University of Tokyo)
Masamichi KUROHMARU (The University of Tokyo)
Hoon Taek LEE (Kon-Kuk University, Korea)
Peter C.K. LEUNG (University of British Columbia, Canada)
Guido MACCHIARELLI (University of Rome, Italy)
Kei-ichiro MAEDA (Nagoya University)
Noboru MANABE (Kyoto University)
Kazuya MATSUMOTO (Kinki University)
Horacio MERCHANT-LARIOS (National Autonomous University of Mexico, Mexico)
Yoichi MIYAKE (Iwate University)
Akio MIYAMOTO (Obihiro University of Agriculture and Veterinary Medicine)
Takashi MIYANO (Kobe University)
Tsuneatsu MORI (The University of Tokyo)
Mikhail P. MOSHKIN (Siberian Branch of Russian Academy of Science, Russia)
Noboru MURAKAMI (Miyazaki University)

Takashi NAGAI (National Institute of Agrobiological Sciences)
Hiroshi NAGASHIMA (Meiji University)
Kunihiko NAITO (The University of Tokyo)
Toshihiko NAKAO (Hiroshima University)
Mark NOTTLE (The University of Adelaide, Australia)
Atsuo OGURA (National Institute of Infectious Diseases)
Satoshi OHKURA (National Institute of Agrobiological Sciences)
Yoshitaka OKA (The University of Tokyo)
Kiyoshi OKUDA (Okayama University)
Tanu PINYOPUMMINTR (Kasetsart University, Thailand)
Radek PROCHAZKA (Institute of Animal Physiology and Genetics, Czech Republic)
Jozsef RATKY (Research Institute for Animal Breeding and Nutrition, Hungary)
Heriberto RODRIGUEZ-MARTINEZ (Swedish University of Agricultural Sciences, Sweden)
Hiroshi SASADA (Tohoku University)
Kunio SHIOTA (The University of Tokyo)
Mariko SHIROTA (Food and Drug Safety Center, Hatano Research Institute)
Dariusz J. SKARZYNSKI (Polish Academy of Sciences, Poland)
Qing-Yuan SUN (Chinese Academy of Sciences, P.R. China)
Yoshiyuki TAKAHASHI (Hokkaido University)
Teruko TAKETO (McGill University, Canada)
Nongnuj TANPHAICHITR (University of Ottawa, Canada)
Toshio TSUBOTA (Gifu University)
Hiroko TSUKAMURA (Nagoya University)
Gen WATANABE (Tokyo University of Agriculture and Technology)
David WHITTINGHAM (University of London, UK)
Masayasu YAMADA (Kyoto University)
Keitaro YAMANOUCI (The University of Tokyo)
Yuan-Chang YAN (Shanghai Institute of Biochemistry and Cell Biology, The Chinese Academy of Sciences, China)
Yasunori YOSHIMURA (Keio University)
Yukinori YOSHIMURA (Hiroshima University)

The Journal of Reproduction and Development (JRD) is published bimonthly by the Japanese Society of Animal Reproduction. JRD welcomes original articles that report new findings or concepts in reproductive biology, reproductive endocrinology, reproductive immunology, developmental biology, and any other relevant fields of scientific research. Detailed instructions to contributors appear in every issue. The subscription price for non-members of the society is ¥9,000.

Membership in the Society is on a fiscal year basis from April through March. The annual membership fee is ¥8,000 that includes a yearly subscription to all the 6 issues of JRD. Requests for application for membership should be sent to the business office, Japanese Society of Animal Reproduction, c/o Laboratory of Animal Reproduction, Graduate School of Agricultural Science, Tohoku University, Sendai 981-8555, Japan. FAX +81-22-717-8879.

Manuscripts intended for publication should be addressed to:
Editorial Office, JOURNAL OF REPRODUCTION AND DEVELOPMENT, c/o IPEC, Inc., 1-24-11 Sugamo, Toshima-ku, Tokyo 170-0002, Japan. FAX +81-3-5978-4068.

Back issues are available from the editorial office (see above).

Publication of Journal of Reproduction and Development is partly supported by Research Grant for Scientific Publication from the Japan Society for the Promotion of Science.

JRD is printed by IPEC, Inc., 1-24-11 Sugamo, Toshima, Tokyo 170-0002, FAX +81-3-5978-4068. No part of this publication may be reproduced or transmitted in any form, or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the Society. All rights reserved.

INSTRUCTIONS TO AUTHORS

Journal of Reproduction and Development (JRD) is published bimonthly, and welcomes original articles (Full papers or Notes) that report new findings or concepts in reproductive biology, reproductive endocrinology, reproductive immunology, developmental biology, and any other relevant fields of scientific research. All manuscripts are reviewed critically by two or more reviewers. Acceptance is based on scientific content and presentation of material. The Editors select reviewers, correspond with authors, and make final decisions about manuscripts.

JRD also publishes Reviews which are usually invited by the Editorial Committee. Those who would like to contribute a review should consult with a member of the Editorial Board in advance.

All manuscripts submitted to JRD must be accompanied by the signed copyright transfer form in which each author attests that the manuscript represents original, unpublished material, and that the manuscript is not under editorial consideration elsewhere. Authors are also requested to provide telephone numbers, FAX numbers, and e-mail address (if available) at the time of submission.

General Information

Authors should prepare manuscripts in proper English, and the manuscripts that do not meet minimum standards in

English grammar and syntax will be returned to the authors. Manuscripts must be typed on one side of good quality paper of standard size and double-spaced (24–26 lines per page) throughout including References, Figure Legends, and Tables with enough margins on either side and at the top and bottom of every page. The lines of the text should be numbered in the margin (every fifth line may be numbered by hand). The length of papers, including Tables, Figures and any other appendices, should not exceed 6 printed pages. Send manuscripts in quadruplicate (original and three copies) including all tabular and illustrative materials, to:

Editorial Office

JOURNAL OF REPRODUCTION AND DEVELOPMENT

c/o Publication Center, IPEC, Inc.
1-24-11 Sugamo, Toshima-ku, Tokyo 170-0002, Japan
FAX 81-3-5978-4068

Submission Charge

The submission charge is ¥4,000 for each manuscript accepted for publication.

Manuscript Preparations

Manuscripts are to be arranged in the following order: Title

page, Abstract, Introduction, Materials and Methods, Results, Discussion, Acknowledgements, References, Figure Legends, Tables, and Illustrations (line drawings, graphs, and continuous-tone prints).

1. Titles and subtitles: Titles should be concise, specific, informative and clear and should emphasize the main point of the article. They should include key words or phrases that are useful for indexing. Subtitles may be used to amplify the title; however, they should be able to stand alone.

2. Authorship: Authorship should be indicated immediately below the title or subtitle. It includes each author's full name and address with postal code of the institution where the study was done. Persons who made subsidiary contribution may be listed in the "Acknowledgements". A complete mailing address with one name of person to whom all the correspondence regarding the manuscript is to be directed, must be provided at the bottom of the title page. The mailing address will appear in the first page of the published article for readers who may want to request reprints or additional information.

3. Running head: Running head not exceeding 40 characters and spaces should be provided on the first page.

4. Abstract: Abstract is limited to 200 words. It summarizes the main points of an article: (1) the purpose of the study, (2) the basic procedures followed, (3) the main findings, and (4) the principal conclusions. The abstract should be clearly understandable in itself. Avoid abbreviations, terms, symbols, etc. not easily understood by general scientific readers.

5. Key words: Five or less key words which represent key concepts of the paper should be given at the end of the abstract.

6. Abstract in Japanese: 400-600 letters of abstract in Japanese should be attached, if the authors include Japanese. It should also include the title, authors, and the institution in which the work was done.

7. Materials and Methods: This section should provide readers with sufficient information to replicate the work. Although it is not necessary to give details of published methodology if appropriately cited, any modifications must be described. Information regarding statistical analysis of the data should be included.

8. References: References should be cited in the text by Arabic numeral in square brackets, e.g. [1, 2-5, 7]. They should be arranged and listed in the numerical order of appearance in the text at the end of manuscript. Articles included in the reference list must appear in peer-reviewed publications that are accessible to most scientists. Reference material that has been accepted for publication must be listed as "in press"; the listing must include journal title and anticipated year of publication, or, for books, the publisher and year of publication. The journal names should be abbreviated according to *Serial Sources for the BIOSIS Database or Index Medicus*. The source of reference which is "in preparation", "submitted for publication", "personal communication", or "unpublished data" may not be included in the reference list; they should appear in the text parenthetically immediately following the names of the authors or the source of information.

The following are examples:

Journal article:

1. **Lee VH, Fields PA.** Rabbit relaxin: The influence of pregnancy and ovariectomy during pregnancy on the plasma profile. *Biol Reprod* 1991; 45: 209-214.

Chapter in a book:

2. **Desjardins C, Lopez MJ.** Sensory and nonsensory modulations of testis function. In: Steinberger A, Steinberger E (eds.), *Testicular Development, Structure and Function*. New York: Raven Press; 1980: 381-388.

Abstracts in published proceedings:

3. **Yanagawa T, Shirasu K, Uemura T, Minaguchi H.** Effects of chronic administration of GnRH analog to the pituitary and the ovary. In: Program of 8th International Congress of Endocrinology; 1988; Kyoto, Japan. Abstract 189.

Supplements:

4. **Bravo PW, Stabenfeldt GH, Fowler ME.** Ovarian follicular activity in llamas. *Biol Reprod* 1989; 40 (suppl 1): 51 (abstract 11).

The title and the journal name of references published in Japanese or in any other non-European languages should be translated into English, with the author's consent if necessary, followed by a description of the original language in parenthesis, e.g., (In Japanese), at the end:

5. **Ushijima H, Tsunoda Y, Eto T, Imai H.** In vitro development of bovine reconstituted eggs after fusion with a blastomere from 8-cell to blastocyst stage embryos. *Jpn J Anim Reprod* 1991; 37: 15-19 (In Japanese).

9. Illustrations, Photographs and Tables: Illustrations and photographs should be submitted as mounted, high-contrast, glossy prints. They are preferred to be printed in the original size and should be 7.7 cm (one column) or 17 cm (double column) in horizontal width by less than 19 cm vertical length. Any signs (scales, arrows, etc.) in the photographs should be directly marked using press-on art type. The numbers of the illustrations and photographs (Fig. 1, Fig. 3 etc.) should be marked with a soft pencil on the backside and on the pasteboard near by them. They should be cited, in consecutive numerical order, in the text. Titles and legends of illustrations and photographs should be typewritten on separate sheets. Tables without vertical lines are preferred. Any explanation essential to the understanding of the table should be given as a footnote designated by symbols in the order a), b), c) ... The site of insertion of figures and tables in the text should be indicated in the righthand margin of the text.

10. Abbreviations: Abbreviations in the body of the paper should be used after having been initially explained. Common recognizable abbreviations can be used without definition such as M, Mm, μ M, N, m, cm, mm, μ m, nm, pm, cm², l, ml, μ l, kg, g, mg, μ g, ng, pg, h, min, sec, msec, rpm, Hz, GBq, MBq, KBq, cpm, dpm, ppm, C, cal, Kcal, lux, etc. The metric system of weights and measures, and the 24 hour clock to express time (e.g. 0500 h or 1900 h) should be used.

Make sure that the nomenclature and/or abbreviations of genes or proteins for the particular organisms you are dealing with in your manuscript are correct. For genes or DNA use italicized letters (e.g., *Sry*, *SRY*, or *lacZ*), although numbers indicating mutant or allelic symbols should not be italicized (*Hox-1*, *HOX1*, *MDH2*, or *Mor-1*). For proteins, use Roman letters with at least the first letter capitalized (e.g., Hprt, HPRT, Gpi, GPI, or Gal). Note that in names of restriction enzymes, only first 3 letters are italicized (*EcoRI*, *EcoR124/3*, *HindIII*, or *StySBI*). Use lowercase k for 'kilo' like kDa or kb.

11. Statistical analysis: Statistical analysis of the data must be done by appropriate methods. Simultaneous comparisons among multiple estimates should be based on the multiple *t* test, multiple range test or similar techniques to permit these comparisons. Authors should use appropriate nonparametric test of significance when the data depart substantially from a normal distribution. For bioassays and competitive protein assays, measures of the precision of the estimates should be given such as: the standard deviation, standard error of the mean, coefficient of variation, or 95% confidence limits.

12. English proofreading of all papers takes place before forwarding to print.

13. Care and use of research animals: Investigators should follow the highest standards for the humane care and use of animals in research. The minimum number of animals that meets rigorous scientific and statistical standards should be used. Research animals shall be properly housed and fed, and their surroundings shall be kept in sanitary condition. The animals shall receive appropriate anesthetics, analgesics, tranquilizers and care to minimize pain and discomfort during preoperative, operative and postoperative procedures, and this should be mentioned in the text.

14. Proofs and Reprints: The first proofreading is the authors' responsibility. The order form and the price list of reprints will be sent to the authors with the first proof.

15. Page Charge: The author will be charged for the typesetting and printing of the text portion exceeding 6 pages (at present ¥20,000 per printed page), English revision and figure tracing if the Editorial Board regards necessary. Color printing will also be charged.

16. Copyrights: The copyright for articles which appeared in **JRD** is held by the Japanese Society of Animal Reproduction.

Notice about photocopying

In order to photocopy any work from this publication, you or your organization must obtain permission from the following organization which has been delegated for copyright for clearance by the copyright owner of this publication.

Except in the USA
Japan Academic Association for Copyright
Clearance (JAACC)
41-6 Akasaka 9-chome, Minato-ku,
Tokyo 107-0052, Japan
TEL: 81-3-3475-5618 FAX: 81-3-3475-5619
E-mail: kammori@msh.biglobe.ne.jp

In the USA
Copyright Clearance Center, Inc.
222 Rosewood Drive, Danvers, MA 01923,
USA
Phone: (978) 750-8400 FAX: (978) 750-4744
www.copyright.com