

Cellular and Molecular Biology: A new section for Canadian Journal of Animal Science

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Schaefer, A. L. and Dodson, M. V. 1998. **Cellular and Molecular Biology: A new section for *Canadian Journal of Animal Science***. *Can. J. Anim. Sci.* **78**: 461–462. As we approach the 21st century, it is appropriate to re-evaluate the sectional coverage of this scientific journal. Having done this over the course of the past 10 to 11 months, and having observed all proprieties of the Canadian Society of Animal Science, we hereby disclose that a new section is being added to the *Canadian Journal of Animal Science*. This new section is named: “Cellular and Molecular Biology.” Dr. Michael V. Dodson of Washington State University (USA) is the section’s first Associate Editor. Members of the Society and participants of the worldwide scientific community are welcome to submit scientific articles for inclusion in this section through the normal channels outlined in the journal’s instructions to authors. Because this is the inaugural issue for the new section, papers from six different laboratories are included, covering the topics: cellular and molecular aspects of leptin, cellular and molecular biology of muscle growth and development, oocyte development, genetic markers, and molecular biology of the calpain system. As time passes we will encourage other laboratories to write papers, especially if initial submittals are slow, but we expect that a majority of future papers will be non-solicited “data” papers. As always, authority for style, scope and content resides with the Journals Policy Subcommittee and ultimately with the membership of the Canadian Society of Animal Science. Consequently, should there be any constructive criticism by Society membership about the new section as it has been founded, we will consider fine-tuning the section.

Key words: Cellular and molecular biology

Schaefer, A. L. et Dodson, M. V. 1998. **Biologie cellulaire et biologie moléculaire: Venue d’une nouvelle rubrique dans la *Revue canadienne de science animale***. *Can. J. Anim. Sci.* **78**: 461–462. À la veille du 21^e siècle, il nous paraît opportun de revoir le contenu de cette revue scientifique. Et c’est ce que nous avons fait au cours des 10 ou 11 derniers mois à la lumière de tous les avis et opinions des membres de la Société. C’est donc avec plaisir que nous annonçons la venue d’une nouvelle section dans la *Revue canadienne de science animale*, intitulée *Biologie cellulaire et moléculaire*. C’est le Dr Michael V. Dodson, de l’Université d’État de Washington (USA) qui en sera le premier éditeur associé. D’ores et déjà nous invitons les membres de la Société et la communauté scientifique mondiale à présenter des articles scientifiques pour publication dans la nouvelle section, en utilisant, bien sûr, la filière normale décrite dans les Conseils aux auteurs. Comme cette livraison sera la première pour la nouvelle rubrique, nous avons retenu les communications de six laboratoires différents traitant des sujets suivants: aspects cellulaires et moléculaires de la leptine, biologie cellulaire et moléculaire de la croissance musculaire, développement oocytaire, marqueurs génétiques et biologie moléculaire du système des calpaïnes. En temps et lieu nous solliciterons la participation d’autres laboratoires, surtout si les présentations initiales sont lentes à venir, mais nous espérons que la majorité des présentations consisteront en articles expérimentaux spontanés. Comme pour les sections déjà en place, c’est au sous-comité d’orientation des revues et, en dernier ressort, aux membres de la Société, que revient l’établissement des règles concernant le style éditorial, la portée et le contenu des articles. Aussi accueillerons-nous avec plaisir toute critique constructive des membres de la Société au sujet de la nouvelle section.

Mots clés: Biologie cellulaire et moléculaire

Much biomedical research in the late 20th century has focused on cellular and molecular biology, but in animal science efforts in these areas are relatively new. In the early to mid-1980s, animal science research in the general area of cellular biology concentrated on determining the growth regulation of 1) stromal vascular cells and 2) muscle cell

lines as models of adipogenesis and myogenesis, respectively (Dodson et al. 1995, 1996). In the animal molecular biology arena, the emphasis was primarily on providing animals recombinantly produced somatotrophin and determining the effects of this agent on carcass variables. While these types of studies are continuing, the adoption and adaptation of cellular and molecular methods by the animal science research community has exploded. During the 1990s considerable efforts are being expended on molecular mechanisms regulating all aspects of animal growth, development and production.

Considering the plethora of research being conducted at the cellular and molecular levels in animal science depart-

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ments around the world, the Editorial Board of this journal initiated a re-evaluation of journal content and determined that a new section, Cellular and Molecular Biology, would help the journal in the distribution of information in these areas. Initiation of the section was not easy, however, and much time and effort were expended to make sure the section was wanted by the membership of the Canadian Society of Animal Science and to further insure that all propriety was observed in the acquisition of the section's Associate Editor. In brief, initial inquiries about the dynamics of the potential section were made at the Society's annual meeting in Montreal in 1997. Subsequently, all members of the Editorial Board were canvassed for their opinions and recommendations about the potential section Associate Editor. Following a period of a few months, in which comments and suggestions were assessed, an election by the Editorial Board was conducted. The decision was made to proceed with the section, and Dr. M. V. Dodson agreed to become the first Associate Editor of the new section.

Dr. M. V. Dodson possesses experience in the conduct of cellular and molecular biology. For example, his laboratory was one of the first to isolate and characterize myogenic satellite cells from meat animals (Dodson et al. 1995, 1996). In addition to his research program being aligned with the principles of the section, it was noticed that one focus of his research efforts is to draw attention to the specific way(s) in which cellular and/or molecular research results could be applied to enhance animal production. This non-reductionary approach to the conduct and application of research at this level is refreshing. In addition to research expertise, Dr. Dodson possesses editorial experience. Presently, Dr. Dodson serves as Associate Editor of two journals: *Basic and Applied Myology and Animal Science*, and is on the Editorial/Advisory Boards of four other journals: *Journal of Animal Science*, *Tissue and Cell*, *Methods in Cell Science* and *Domestic Animal Endocrinology*.

After agreeing to become the Associate Editor of this new section, Dr. Dodson recommended that an effort be made to include timely papers covering topics in both cellular and molecular biology in the first issue in which the section appeared. It is noteworthy that this same recommendation to procure high-quality manuscripts and reviews in these areas of research was also recommended independently by the consulting group KPMG as part of a business plan initiated by the Journals Policy Subcommittee of the Agricultural Institute of Canada. To this end-point, the papers of this issue were solicited.

The inaugural issue contains four review papers, one data paper and one short communication, covering a wide variety of important topics. Dr. Kim Hossner of Colorado State University (USA) describes the basic biology of leptin, its receptors, signaling system and direct actions on peripheral tissues outside the hypothalamus. He also details the potential uses of leptin in farm animals, primarily dealing with effects on reproduction and energy metabolism. Along this same line is a data paper from Dr. Marie-France Palin (Dairy and Swine Research/Development Center, Lennoxville, Quebec) detailing mechanistic information about the expression of leptin mRNA in swine. In light of

the tremendous exposure of the biological world to leptin in recent months, these papers provide firm descriptions of the basic biology, biochemistry and molecular biology of leptin. In another paper by Dr. Darrel Goll of the University of Arizona (USA), the calpain system is reviewed, including evidence that this system has an important role in initiating turnover of the myofibrillar proteins in skeletal muscle. As the rate of skeletal muscle growth is ultimately governed by three things — rate of skeletal muscle protein synthesis, rate of skeletal muscle protein degradation and the number and size of skeletal muscle cells — this paper is significant to a number of cellular and molecular research areas. Dr. John Meadus of Agriculture and Agri-Food Canada provides a summation of research attempting to define genetic markers that might be utilized to improve meat and carcass quality in swine. As the success of both the pork and beef industries is dependent upon consumer satisfaction with price, safety and quality, identifying genes that influence the growth rate of specific muscles, muscle distribution patterns, muscle type, and fat content might provide avenues to improve economically important carcass and meat quality traits. Dr. Alan Grant and Dr. David Gerrard of Purdue University (USA) have provided a paper on cellular and molecular mechanisms of muscle development, since definition of cellular and molecular processes that regulate muscle growth and development is essential for development of strategies to improve production efficiency of meat animals. Finally, in this first issue we provide a short communication by Dr. Marc-Andre Sirard of Laval University detailing information on oocyte quality and embryo production in cattle. This paper, as well as the others, helps form the foundation for such research to be published in the new section.

Subsequent papers to appear in the Cellular and Molecular Biology section may also be solicited. However, once the new section takes off, it is thought that most papers to appear will be "data" papers. With this in mind, it is important to note that all submittals will go through the proper channels. Initial submission will be to the Agricultural Institute of Canada Journals Head, Tim Fenton, at the Ottawa office, where papers will be logged-in and distributed to both the Editor and the Associate Editor. The Associate Editor will solicit scientific reviews of all papers and will make final determinations as to the acceptability of each paper. While the section appears for the first time in this issue, we know that some fine-tuning may well be required for submitted papers to be absolutely effective in servicing Society needs. As such, feedback from Society members as to paper style, scope and content is important for the section to become firmly established and successful. Consequently, we welcome any and all constructive comments for the section where appropriate.

Dodson, M. V., McFarland, D., Bandman, E., Dayton, W., Yablonka-Reuveni, Z., Greene, E., Doumit, M., Bergen, W., Merkel, R., Vierck, J., Velleman, S. and Koumans, J. 1995. Status of satellite cell research in agriculture. *Basic Appl. Myol.* **5**: 5–11.

Dodson, M. V., McFarland, D., Grant, A., Doumit, M. and Velleman, S. 1996. Extrinsic regulation of domestic animal-derived satellite cells. *Domest. Anim. Endocrinol.* **13**: 107–126.