



ARBS Annual Review of Biomedical Sciences

Theme Topic on “Unraveling Animal Welfare”

pdf freely available at <http://arbs.biblioteca.unesp.br>

2008;10:Ti-Tiii

Editorial

The Commemorative Issue “Unraveling Animal Welfare” on the Tenth Anniversary of the Annual Review of Biomedical Sciences

Rene O Beleboni^{1*}, Gilson L Volpato²

¹ Guest Editor, ARBS - Department of Biotechnology, UNAERP, BRAZIL

² Editor-in-Chief, ARBS - Research Center on Animal Welfare, Department of Physiology, Institute of Bioscience, UNESP, BRAZIL

Animal welfare has been a topic of discussion for a long time and the debate has intensified in the last 50 years, particularly since the beginning of the twenty-first century. Interaction with non-human species is a universal human experience and, therefore, scientists and non-scientists alike are entitled to participate in the discussion on the animal welfare issue. This debate is influenced by philosophic as well as scientific and/or religious backgrounds and beliefs, so controversy is to be expected. This Theme Topic was conceived in the interest of contributing to the dialogue on animal welfare by providing state-of-the-art information and current opinion on this important issue. The authors constitute a distinguished panel of international scientists, and they have focused their efforts on behalf of the *Annual Review of Biomedical Sciences (ARBS)* by providing insightful and interesting review papers. The Theme Topic “*Unraveling Animal Welfare*” (<http://arbs.biblioteca.unesp.br/viewissue.php>) includes nine contributions; the main points of these are highlighted below.

Mark Bekoff of the USA provides a critical ethical and philosophical view, emphasizing that unraveling animal welfare means unscrambling our interrelationships with other animals by asking difficult questions about who we think we are, who we think they are, what we think we know, and what we actually know (Bekoff, 2008). He challenges many by stating that “... ‘good welfare’ isn’t ‘good enough’ because existing laws and regulations still allow animals to be subjected to enduring pain and suffering and death ‘in the name of science’, which really means ‘in the name of humans’.” He concludes by listing “ten reasons why animals are asking us to treat them better or leave them alone...”

Isabelle Veissier of France and Björn Forkman of Denmark review the nature of animal welfare (Veissier & Forkman, 2008). They recognize several definitions and proposals on animal welfare not as

* Correspondence

Rene O Beleboni. Department of Biotechnology, UNAERP, Brazil. E-mail: reneusp@yahoo.com

Gilson L Volpato: volpgil@gmail.com

opposing views, but rather as different aspects of the same concept. The authors propose four main areas to be addressed by research on animal welfare - *i.e.*, animal emotions, animals' perception of the environment, assessment of animal welfare in a given situation, and the impact of human treatments on animal welfare - and argue that the goal of animal welfare research is to gain an understanding of how animals experience their world. They also contend that animal welfare constitutes a new behavioral science with specific questions and methodologies.

Annamaria Passantino of Italy introduces the application of the principles of the "3Rs" for animals used for experiments in the beginning of this century (Passantino, 2008). This is an effort to update the Directive 86/609/EEC established by the Council of Europe in 1986, which refers to protection of animals used for scientific purposes. She states the need for more stringent criteria for experiments using animals. Based on ethical concerns, she advocates the use of the 3Rs which seek "*to ensure that animals are only used when no Replacements are available; that the number of animals used is Reduced to the minimum needed to achieve the scientific objective; and that the experiments are Refined so that only the minimum degree of animal suffering is caused.*"

Jim Hogan and Clive Phillips of Australia treat the welfare of ruminants in terms of animal nutrition and focus primarily on the physiological aspects of this issue (Hogan & Phillips, 2008). These authors state that good nutrition is one the most important areas to be addressed when discussing animal welfare. They point out that signs of malnutrition in ruminant livestock, which are indicative of suboptimal functioning of the animal and include behavioral, physiological, and reproduction alterations, should be continuously monitored so that corrective actions can be introduced when necessary: "*... a better understanding of malnutrition in ruminant livestock is essential to maintain high welfare standards.*"

Luis Gómez-Laplaza and Pura Gil-Carnicero of Spain discuss the possible influence of the intriguing biological phenomenon known as "imprinting" on fish welfare (Gómez-Laplaza & Gil-Carnicero, 2008). Imprinting is an early-learning process that can affect preferences of the individual later in life in several animal species; briefly, cues are learned by the young animal and drive its behavior much later. This process can be disrupted by changes in some environmental conditions, and the authors show that conditions that usually prevail in husbandry and other systems are not conducive to the natural occurrence of imprinting. They consider imprinting in fish an emerging topic area that should be given greater consideration when addressing welfare concerns.

In the next review Japanese scientists Hiromi Takahashi-Omoe and Katsuhiko Omoe provide an informative description of the Japanese Policy on Animal Welfare, which can be considered an instructive model for scientific experimentation (Takahashi-Omoe & Omoe, 2008). "*In Japan, each institution where animal experimentation is conducted independently regulates its use of animals under the Ministry's fundamental guidelines, without legal binding force.*" However, several tasks have emerged for the systems that manage animal experimentation as a result of progress in science, technology, and animal welfare issues. These authors give an update of this situation in Japan as part of the effort toward building an international consensus regarding animal welfare in scientific research.

From the UK, Donald Broom, the world's first Professor of Animal Welfare, presents key concepts for welfare assessment and relevant ethical decision-making (Broom, 2008). Defining the welfare of an individual as "*...its state as regards its attempts to cope with its environment*", including "*... the state of all coping systems, and also health and the extent of positive and negative feeling*", he discusses welfare in terms of the concepts of adaptation, needs and freedoms, health, stress, and feelings. He argues that there is a need for a range of measures to evaluate behavior, physiology, brain function, immune system function, damage, strengths of preferences, etc. in the assessment of animal welfare. Not all of welfare is about feelings; in some circumstances, feelings can be misleading or even absent during welfare assessment.

Nichola Brydges of the UK and Victoria Braithwaite, now based in the USA, discuss measures of animal welfare (Brydges & Braithwaite, 2008). After reviewing some traditional parameters for assessing animal welfare (biological function, physiology, and inference), they provide convincing arguments for the importance of studies on cognition when assessing the welfare of non-human animals. Cognition assays are considered for approaches based on learning ability, preference tests, workload, and affective states. The authors conclude by stating that "*Methods that reveal an animal's capacity for*

emotion and awareness could also, importantly, provide us with a useful tool to determine which animals should be included in welfare guidelines and legislation, and which we can legitimately exclude”.

The Theme Topic concludes with the contribution of Leticia Medina of the USA, who gives us an overview of the past, present, and future of the animal welfare culture that has evolved in society over time: *“Public concerns about animals are partly responsible for increases in regulatory oversight and the drive to find alternatives to animal research. A careful look at the past, present, and future of animal welfare within the biomedical sciences will show that there has been tremendous progress in developing a widespread culture of animal welfare but that more progress is required”* (Medina, 2008).

This collection of reviews celebrates 10 years of publication of *ARBS* and offers us an opportunity to discuss, at greater length and depth, the social and scientific culture and the knowledge base that exist with respect to the animal welfare issue. It also presents a challenge to scientists, non-scientists, and institutions to redouble their efforts to achieve the changes in scientific and cultural concepts that are necessary to advance this complex and controversial field.

The Editorial team of *ARBS* is grateful to those who contributed to “Unraveling Animal Welfare”, including the authors, reviewers, and colleagues from the different areas covered by the journal in the 10 years that it has served the scientific community.

References

- Bekoff M. Why “Good Welfare” Isn’t “Good Enough”: Minding Animals and Increasing Our Compassionate Footprint. *Annu Rev Biomed Sci* 2008;10:T1-T14. World Wide Web (URL: <http://arbs.biblioteca.unesp.br/include/getdoc.php?id=481&article=150&mode=pdf>)
- Broom DM. Welfare Assessment and Relevant Ethical Decisions: Key Concepts. *Annu Rev Biomed Sci* 2008;10:T79-T90. World Wide Web (URL: <http://arbs.biblioteca.unesp.br/include/getdoc.php?id=550&article=165&mode=pdf>)
- Brydges NM, Braithwaite VA. Measuring Animal Welfare: What Can Cognition Contribute? *Annu Rev Biomed Sci* 2008;10:T91-T103. World Wide Web (URL: <http://arbs.biblioteca.unesp.br/include/getdoc.php?id=560&article=173&mode=pdf>)
- Gómez-Laplaza LM, Gil Carnicero P. Imprinting in Fish: a little explored phenomenon with possible implications for fish welfare. *Annu Rev Biomed Sci* 2008;10:T51-T62. World Wide Web (URL: <http://arbs.biblioteca.unesp.br/include/getdoc.php?id=548&article=164&mode=pdf>)
- Hogan JP, Phillips CJC. Nutrition and the Welfare of Ruminants. *Annu Rev Biomed Sci* 2008;10:T33-T50. World Wide Web (URL: <http://arbs.biblioteca.unesp.br/include/getdoc.php?id=507&article=168&mode=pdf>)
- Medina L. Building a Culture of Animal Welfare: Past, Present and Future. *Annu Rev Biomed Sci* 2008;10:T104-T111. World Wide Web (URL: <http://arbs.biblioteca.unesp.br/include/getdoc.php?id=569&article=175&mode=pdf>)
- Passantino A. Application of the 3Rs Principles for Animals Used for Experiments at the Beginning of the 21st Century. *Annu Rev Biomed Sci* 2008;10:T27-T32. World Wide Web (URL: <http://arbs.biblioteca.unesp.br/include/getdoc.php?id=503&article=167&mode=pdf>)
- Takahashi-Omoe H, Omoe K. Japanese Policy on Animal Welfare: An Instructive Example for Scientific Animal Experimentation. *Annu Rev Biomed Sci* 2008;10:T63-T78. World Wide Web (URL: <http://arbs.biblioteca.unesp.br/include/getdoc.php?id=549&article=166&mode=pdf>)
- Veissier I, Forkman B. The Nature of Animal Welfare Science. *Annu Rev Biomed Sci* 2008;10:T15-T26. World Wide Web (URL: <http://arbs.biblioteca.unesp.br/include/getdoc.php?id=487&article=158&mode=pdf>)