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### Preface

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## Preface

Beyond their now well-established nutritional and economic importance, birds have captured considerable human attention since ancient times. They have not only filled human needs in their role as pets, messengers, or the source of colourful ornamental feathers, but the human quest to fly was most certainly motivated by observations of birds. Birds have also had a more indirect hand in humanity's endeavours via agriculture, as predators on crop-damaging insects, as facilitators of seed dispersal, and even as pollinators of flowers.

Considering our current scientific perspective, the chicken embryo has been of great impact as a model in embryology and developmental biology. Several important discoveries in virology, oncology, and immunology were first described in studies using the chicken. For example, the discovery of Rous sarcoma virus, the *src* oncogene, and differences between T- and B-cells were all established using the chicken as the research model. Other species, such as Galapagos finches and the zebrafish, have been high-profile model organisms in studies of evolution and neurobiology. Even the study of Mendelian inheritance in chicken dates back to the work of Bateson (1902) and helped raise the awareness of Mendel's work in the scientific community. It is therefore unsurprising to see, by the contents of this Special Issue, that birds should still very much be a research focus today.

Recent advances in the field of avian genomics and their application have brought significant improvements for researchers in terms of available resources. In addition, the number of research arenas relying on knowledge emerging from avian genomes has greatly increased. Among bird genomes, the chicken has become the model species, with a wide array of tools now being used in comparative genomics – not just in research on other avian species, but with a

much broader application, including in humans. Resources include genetic, physical, radiation hybrid and comparative maps, large EST and SNP collections, cDNA and oligo microarrays and, of course, the chicken genome sequence itself.

Even though the chicken has long been a model organism in developmental research, it now also contributes widely to studies of genome evolution and to the mapping of genes, SNPs and QTL. Studies of other bird species are now also beginning to advance rapidly, particularly those of turkey, duck, and zebrafish. Comparisons of these bird genomes will also be very important in answering immunological questions, including some topics of particular importance for human health, such as avian influenza.

The excellent contributions presented in this themed issue give us an insight into some of the cutting-edge research happening right now in avian genomics, and they show how this impacts the fields of agriculture and health. We would like to thank all contributors and referees involved in this themed issue. We wish to thank Dave Burt (Roslin) and Thomas Brand (Würzburg) for their suggestions and support. We would also like to express our gratitude to Michael Schmid, Chief Editor of the Journal, for approaching us to bring together this themed issue. Much credit also goes to the members of the editorial office for their patience and invaluable help during the preparation of this themed issue.

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Bateson W: Experiments with poultry. Repts Evol Comm R Soc 1: 87–124 (1902).