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Preface to the Second Koala Retrovirus Workshop
Online 25–27 May 2021

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ABSTRACT. In 2013, the first Koala Retrovirus Workshop was held in San Diego, bringing together biology and veterinary specialists to assess and discuss the state of knowledge on koala retrovirus (KoRV) and to form professional bridges and networks. Tremendous progress has been made in the years following the San Diego meeting, in large part due to ongoing international collaborations that were fostered to study KoRV. This volume presents peer-reviewed papers from most of the oral presentations and discussions held during the Second Koala Retrovirus Workshop in 2021. Unfortunately, the COVID-19 pandemic forced the workshop into an online only format. Despite this limitation, three days of discussions based on workshop presentations highlighted current knowledge and important information gaps, culminating in suggested ways forward, all summarized in this volume.

Since characterization of the koala retrovirus (KoRV) in 2000 (Hanger et al., 2000) and the discovery that it represents the only accessible model of the process of genome colonization (Tarlinton et al., 2006), molecular techniques have advanced to a state where full genomes of koalas and huge numbers of individual koalas in both healthy and diseased states can be examined (Greenwood et al., 2018). At the same time, a growing body of research supports association of KoRV with disease manifestations in koalas (Legione et al., 2017; Waugh et al., 2017; Fabijan et al., 2019; Quigley et al., 2019; Butcher et al., 2020; Saker et al., 2020; McEwen et al., 2021; Blyton et al., 2022). In the 10 years since the first Koala Retrovirus Workshop (2013), enormous strides have been made in understanding KoRV. However, the workshop clearly demonstrated that several knowledge gaps remained which precluded implementation of effective management strategies to support koala conservation efforts. This has become an increasingly urgent need. Koala population decimation following the major fires across much of the koala’s Australian range in 2019–2020 highlighted the vulnerability of koala populations, brought about by decades of habitat reduction and fragmentation. As of February 2022, the Australian Government listed the combined koala populations across Queensland, New South Wales, and the Australian Capital Territory as endangered.

During this three-day workshop, invited speakers reviewed historical knowledge and presented recent discoveries in KoRV biology, with topics covering KoRV...
genetic diversity and distribution. KoRV-associated diseases, anti-retroviral processes, the origins of KoRV, and new models for retroviral germline invasion. Scientists in many fields including: veterinarians, ecologists, and population managers, all contributed to discussions on KoRV status and the impacts this has on koala health, the challenges faced with managing koala populations (wild and captive) as well as maintaining fit for purpose zoological collections that will enable ongoing foundational research. Over three days following the presentations, discussion sessions focused on KoRV foundational biology and applied management of zoo and wild koala populations to consolidate knowledge, achieve consensus, and identify contrasting perspectives. Discussion summaries for the three-day workshop are also published in this series (Greenwood et al., 2023), outlining what we know, what we still do not know, and what we need to know about KoRV. We hope this will serve as a useful guide for current and future KoRV researchers to continue advancing our understanding KoRV and its impacts on koalas.

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