Immunother Open Acc 2016, 2:3 (Suppl)
http://dx.doi.org/10.4172/2471-9552.C1.003

Personalized medicine for dogs with cancer and the value of comparative oncology

Gerald Post[1,2]
[1]The Veterinary Cancer Center, USA
[2]Innogenics, USA

Gene expression and mutation analysis has become exceedingly important in human medicine, particularly in oncology. Unfortunately genomic testing in companion animals has been impeded by a number of challenges including availability of technology platforms, tissue acquisition requirements and potential costs. To meet these challenges, we developed an automated, robust, reproducible and cost-effective canine-specific RNA-based quantitative nuclease protection gene (qNPA) signature assay that uses small amounts of formalin-fixed paraffin embedded (FFPE) samples prepared on glass slides. Using the HTG Edge system, we identified relevant housekeeping genes, developed our proprietary gene signature assay and performed biological validation. Final implementation was performed using 30 FFPE samples spanning carcinoma, sarcoma, melanoma and lymphoma. Our assay reliably distinguished different types of lymphomas, carcinomas and sarcomas. In lymphomas, myc and bcl2 ratios were found to correlate with response to chemotherapy. Activated tyrosine kinase pathways were significantly expressed in a variety of tumors, potentially affecting clinical decision-making and success of targeted therapeutic interventions. Estrogen and progesterone receptors were identified among mammary carcinomas. COX-2 expression was identified in subsets of multiple samples including transitional cell and anal sac carcinomas. Both dogs and cats develop cancer at about the same rate that people do. Because of this tremendous rate of cancer in the pet population and because more and more people are choosing to provide advanced veterinary care to their pets with cancer, the study of cancer in dogs and cats has the great potential to help cancer research for all of us. The shortened lifespan of dogs and cats, as compared to human beings, allows comparative oncologists to obtain results from clinical trials in a much shorter time frame compared with similar trials in people. These early results can help refine oncologic research in people, making human trials more effective, more quickly. The genomic profiling of spontaneous cancers in dogs and cats has the great potential to not only help our pets but our friends and relatives as well.

gpost@VCCHope.com

Efficacy of Zhu Ling *Polyporus* polysaccharide with BCG to inhibit bladder carcinoma

Guo-wei Zhang
Hebei University, China

There is growing interest in reducing Bacillus Calmette-Guerin (BCG) side effects while keeping intact its therapeutic efficacy. In the present study, we evaluated the efficacy of Sclerotia of *Polyporus umbellatus* FRIES (Zhu Ling) and its main ingredient *Polyporus* Polysaccharide (PPS) to attenuate side effects of BCG therapy *in vivo*. The results show that bladder cancer development in model rats exhibited significantly reduced cancer invasiveness with Zhu Ling PPS combined with BCG. Flow cytometric (FCM) analysis showed expression of co stimulatory molecules CD86, CD40 and TLR4/CD14 significantly increased with Zhu Ling PPS in combination with BCG. Similarly, immune-histochemical analysis revealed stronger CD86 and CD40 staining. Our findings show Zhu Ling PPS strongly reduced side effects and displayed synergistic effects during BCG instillation in rat bladder cancer models. The findings also suggest that the attenuation effect may result from direct activation of dendritic cell (DC) TLR4.

xxzgw@126.com