**SELECTED PICKS FROM THE NAVDF 2017**

**DERMATOLOGY CONFERENCE**

**Hnilica Summary of Selected Abstracts provided below:**

1. **Apoquel: histiocytoma development may be higher in patients treated with Apoquel/oclacitinib compared to those treated with Atopica/cyclosporine.**
    a. **DO NOT USE LONG-TERM APOQUEL due to tumor risk.**
    b. **If you have Cytopoint injection – use it FIRST**
    c. **Then move to other safe options (Food trial, Atopica, Allergy Skin Testing)**
2. **NexGard and Bravecto did not reduce or clear demodex mites in normal dogs.**
3. **Yet again, food allergy testing is a waste of time and money.**
4. **Cytopoint worked well in 76% of dogs and 23% of dogs slowly lost efficacy with repeat injections. Still no adverse effects.**
5. **Cats do well with Allergy desensitizing vaccine therapy.**
6. **Skin biopsy tips.**
7. **Pyoderma causes mast cell degranulation and allergy symptoms.**

## 1. APOQUEL

### A retrospective study comparing the incidence of cutaneous histiocytoma development in atopic dogs treated with oclacitinib and ciclosporin

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**Abstract:** Oclacitinib (Apoquel, Zoetis, Inc, Florham Park, NJ, USA) is a Janus kinase inhibitor licensed for the treatment of allergic dermatitis in dogs. Clinical trials have demonstrated a high margin of safety with few adverse reactions. One of these reactions reported is development of benign skin tumors, especially cutaneous histiocytomas, although a causal relationship has not been established. The objective of this retrospective study was to report and compare the incidence of cutaneous histiocytoma

development in confirmed atopic dogs treated with oclacitinib versus ciclosporin(Atopica, Elanco USA Inc., Green eld, IN, USA). A review of Tufts University's medical records between 2013 and 2016 identified dogs with a diagnosis of atopic dermatitis treated with oclacitinib (n=533) or ciclosporin (n=654). The signalment, diagnosis, treatment, dose, duration of therapy, location of lesion, and remission information were recorded. There were 14/533 and 4/654 patients who developed histiocytomas while on oclacitinib and ciclosporin, respectively. There was a signi cantly higher percentage of dogs with histiocytomas on oclacitinib (2.6%) versus ciclosporin (0.6%) (P=0.0041). The mean age of dogs with histiocytomas on oclacitinib (mean=7.0 years) was signi cantly higher than the dogs on ciclosporin (mean=1.5 years) (P=0.0002). Also, there was a significant difference in duration of treatment between dogs with histiocytomas on oclacitinib (mean=14.8 weeks) versus on ciclosporin (mean=4.8 weeks) (P=0.018). **The results of this study demonstrate that histiocytoma development may be higher in patients treated with oclacitinib compared to those treated with ciclosporin.** Additional research is needed to determine a causal relationship and pathomechanisms between oclacitinib and cutaneous histiocytomas.

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## 2. BRAVECTO AND NEXGARD

### Afoxolaner and furalaner treatment do not impact normal *Demodex* populations in healthy dogs

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**Abstract:** Oral isoxazoline compounds have been used o -label for treatment of demodicosis, with reported clinical and parasitological success. However, nothing is known regarding the effect of isoxazolines on the commensal *Demodex* populations in healthy dogs. In humans, *Demodex* mites have been shown to disappear from the hair follicle by 8 weeks following standard treatment. In this study, we evaluated the response of normal *Demodex* populations to furalaner (Bravecto®, Merck Animal Health, Madison, NJ, USA) or afoxolaner (NexGard®, Merial, Duluth, GA, USA), given at the labeled dose, over 90-days. Our hypothesis was that treatment per label instructions would eliminate *Demodex* mites in the skin of healthy dogs at all time points, as measured by RT-PCR. Twenty dogs with no history of skin disease were divided into two groups of ten. Approximately 50 hairs were plucked from the face, left flank, and right hind paw on day 0 prior to administration of furalaner or afoxolaner, and then again on days 30 and 90. RT-PCR was performed on the hairs using primers speci c for a region of 18S rDNA of *Demodex*. Dogs in the afoxolaner group received dosing every 30 days; dogs in the furalaner group were dosed once. Positive PCR was found in 5/20, 3/18, and 6/20 dogs on days 0, 30, and 90, respectively. Two samples were unable to be processed

on day 30. The difference in *Demodex* DNA was not significantly different between timepoints (Chi square, P =0.08). **Afoxolaner and furalaner did not significantly decrease the normal *Demodex* populations in dogs.**

Source of funding: Self-funded. The products used in the study were donated by Merck Animal Health (Madison, NJ) and Merial (Duluth, GA).

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**3. Evaluation of clinical accuracy of serological and salivary testing for food allergens in asymptomatic dogs**

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**Abstract:** Numerous tests purport to measure saliva or serum immunoglobulin levels specific to various foods for evaluation of adverse food reactions (AFR) in companion animals. Despite their widespread use, no validation exists on their utility in diagnosing AFR. The objective of this study was to test dogs without historical or active clinical signs of either dermatologic or gastrointestinal manifestations of AFR with two commonly used commercial serological assays (A and B) and one saliva assay (C). We hypothesized that 1) assays would yield positive results despite lack of clinical disease, and 2) positive results would correlate with prior food exposure. Thorough medical and diet histories were obtained from 30 asymptomatic dogs from the hospital population. The dogs ranged from one to 10 years of age (median = 4 years) and weighed between 2.2 and 50.8kg (median = 20kg). Fourteen foods common to all three assays were evaluated. Results were classified into positive or negative responses to each food. All 30 asymptomatic dogs had at least one positive response to a food. One or more dogs tested positive to 14/14 (100%), 12/14 (86%), and 14/14(100%) foods in assay A, B, and C, respectively. There was no predictable concordance between positive responses and historical food exposure. **The results suggest that serologic and saliva test results do not correspond to clinical evidence of AFR** and over diagnosis of AFR is likely if these tests are used in lieu of a strict elimination diet trial.

Source of funding: This study was funded by a grant from Hill's Pet Nutrition, Inc., Topeka, KS, USA.

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## 4. CYTOPOINT

### A retrospective study to assess anti-pruritic efficacy of lokivetmab in dogs with canine atopic dermatitis

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**Abstract:** Lokivetmab (CYTOPOINTTM; Zoetis, Inc., Kalamazoo, MI, USA) is a caninized monoclonal antibody designed to target and neutralize cytokine IL-31, a T-cell derived cytokine known to induce severe pruritus in dogs, mice, and humans. The purpose of this retrospective study was to evaluate the efficacy of lokivetmab in controlling pruritus in atopic dogs and compare various clinical parameters of dogs that responded to treatment with lokivetmab to those that did not. A review of Tufts University's medical records between October 2015 and October 2016 identified 138 cases of dogs diagnosed with atopic dermatitis treated with lokivetmab at a dose range of 1.14-4.68mg/kg [median dose 2.56 mg/kg]. Dogs were excluded if other anti-inflammatory or anti-pruritic medications were used during treatment with lokivetmab. Dogs on consistent therapy prior to initiating treatment with lokivetmab were permitted. Pruritus was evaluated by owners using a subjective pruritus score from 0-10. A reduction in pruritus higher than 50% along the 7 days after treatment was considered a positive response. One hundred and one dogs (73%) responded to treatment and 37 (27%) were considered non-responders. No side effects attributed to treatment were recorded. Both groups were statistically identical with regards to mean age (6.45 versus 6.51 years) and sex and breed distribution. Responders received a mean of 4.6 injections and non-responders 1.24. Mean time between injections in the group of responders was 34 days. A decrease in efficacy of treatment was not observed in a group of 32 dogs that received six or more injections.

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## 5. FELINE ALLERGEN SPECIFIC IMMUNOTHERAPY

**Burrows AK**

An on-line survey of veterinary dermatologists reported that 86% (25/29) participants used SCIT for the management of feline allergic dermatitis using either aqueous allergens (72%), alum precipitated (20%) or calcium phosphate bound (8%) allergens. Allergens for ASIT were equally selected either based on intradermal testing, serology or a combination of the two. Depending on the allergen type, injection protocols ranged from once a week to once a month with dose adjustments in volume and interval based on individual patient response. For cats treated with SCIT, 76% of owners injected the

allergy vaccines at home whereas 24% were injected by the veterinarian. Side effects were rare and included localized or generalized pruritus or anaphylaxis; local reactions (pain at injection site, swelling, erythema) and vomiting.

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## 6. TAKING SKIN BIOPSIES - A PATHOLOGIST'S PERSPECTIVE

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### TEN BASIC PRINCIPLES OF SKIN BIOPSY

The ten basic principles of skin biopsy below help to insure quality skin biopsy results. Case speci c information guides application and modi cation of these principles. For example, one should not wait three weeks after treatment withdrawal to biopsy severe disease that is deteriorating rapidly. Safety is always a top consideration.

1. Biopsy early in disease investigation
2. Biopsy before treatment or 3-wks after treatment withdrawal, if stable
3. Treat bacterial skin infections, if any, prior to biopsy
4. Do no scrub or prep the skin prior to biopsy
5. Use appropriate pain management, lidocaine etc.
6. Collect six punch biopsies (eight millimeter in diameter) for histology or wedge biopsies
7. Biopsy primary lesions that are active, newer and nearly fully developed; avoid secondary lesions and inactive

   lesions

8. Provide history, lesion description, pruritus status, treatment response and differentials
9. Provide digital pictures
10. Work with a dermatopathologist

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**7. Canine mast cell degranulation induced by a newly identified toxin from Staphylococcus pseudintermedius**

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**Abstract:** No mechanisms have been described in dogs supporting causation and perpetuation of atopic dermatitis by Staphylococcal infection although clinical observations would support such associations. A recent study of delta toxin from *Staphylococcus aureus* in mice demonstrated a range of effects with the potential to exacerbate and cause atopic dermatitis in humans. Our study identified a homologue of delta toxin from *Staphylococcus pseudintermedius*. Degranulation of both murine mast cells in vitro and canine mast cells in vivo was demonstrated. Isolates of *Staphylococcus pseudintermedius* were obtained from four atopic dogs in New Zealand. A purified supernatant of Staphylococcus pseudintermedius cultures was found to degranulate foetal skin-derived murine mast cells in a β-hexosaminidase assay. This compared histamine release induced by supernatant from the test isolates with that

of saline and culture medium controls, supernatants from *Staphylococcusaureus* and a non-delta toxin producing species of *Staphylococcus*. Further re ning of the supernatant allowed the identification of the delta toxin peptide. Intradermal injection of a diluted supernatant from the four isolates into the skin of ve mixed age non-atopic dogs was followed by biopsy of each site 15-20 minutes later. Controls were phenol bu ered saline and compound 48/80. Histopathological assessment showed significantly greater mast cell degranulation ($p < 0.01$-05) at the test supernatant sites. This finding may be relevant to the pathogenesis, diagnosis and treatment of canine atopic dermatitis, otitis and bacterial hypersensitivity.

Source of funding: NZ Companion Animal Health Foundation.