ABSTRACT NO.: 1
Assessment of mucin content in bottlenose dolphin tears
R. Kelleher Davis and D. A. Sullivan
Schepps Eye Research Institute, Harvard Medical School, Boston, MA, USA

**Purpose:** In terrestrial mammals, the tear film plays an essential role in maintaining the health of the ocular surface, protecting against toxic challenges in the external environment, thereby preserving visual acuity. This protective function is critically dependent on the integrity of the tear film structure, which is comprised of three layers: an underlying glycoprotein (mucin) foundation, a weakly hydrated layer, and a lipid layer. In a primate model, we determined that the tears of marine mammals do contain proteins, but that the tear film, examined using interferometry, appears to lack the lipid layer found in terrestrial mammals. This finding is quite significant in that it suggests that in sea mammals, an alternative component, in lieu of lipid, promotes the stability of the tear film. This led us to hypothesize that, in the absence of a lipid layer, a mucin foundation, similar to that found in terrestrial mammals, is critical to the integrity of the tear film of marine mammals. This study was carried out to determine whether dolphin tears contain mucins. **Methods:** Tear samples from Atlantic bottlenose dolphins (Tursiops truncatus) and humans were analyzed for lectin binding to high molecular weight proteins. Tears from dolphins were collected via capillary suction. Tears from human subjects were collected using Weck-cel sponges. Samples were treated with or without sialidase, exposed to chronic sunlight over the course of their lives, implementation of sun protective strategies, and the use of rebound tonometry as a diagnostic tool to monitor IOP before enucleation. **Results:** Conclusions: This study has demonstrated that there are risk factors for pinnipeds to develop cataracts and lens luxation have genetic, environmental and availability of shade. These factors can be used to develop and compare methods of isolating viable canine corneal stromal cells. **Methods:** Canine corneas were harvested from dogs diagrammed for unrelated reasons. Epithelia were removed after incubation in EDTA. Corneas were stained with antibodies to integrin subunits and analyzed for the binding of the lectins, peanut agglutinin (PNA) and Sambucus nigra agglutinin (SNA). Whereas, untreated tears bound the biotinylated SNA, but not PNA. This differential binding would be expected that PNA would bind to high molecular weight proteins from tear samples. **Results:** If mucins were present in the tears, it would be expected that PNA would bind to high molecular weight proteins from tear samples treated with sialidase. PNA would bind to tear samples not treated with sialidase, for PNA binds to the core of the mucin while SNA binds to glycosylated mucins. In both human and dolphin tears, those treated with sialidase did bind the biotinylated lectin, PNA, but not the SNA. Nevertheless, untreated tears bound the biotinylated SNA, but not PNA. This differential result confirms the presence of mucins in dolphin tears. **Conclusions:** Our finding that large glycoproteins are preserved in the tears of bottlenose dolphins supports the hypothesis that mucins play a critical role in the protection of the surface of the eyes of marine mammals. **ABSTRACT NO.: 3**
Use of rebound tonometry as a diagnostic tool to diagnose glaucoma in the captive California Sea Lion J. C. Mejia-Fava, S. W. Jack, C. Colitz, C. C. Clemons-Chevis, J. M. Rodriguez* and M. Walsh†††
Animal Eye Specialty Clinic, West Palm Beach, FL, USA; †††College of Veterinary Medicine, Ohio State University, Columbus, OH, USA; †††Miami Seaquarium, Miami, FL, USA; †††American Kingdom of Orlando, Orlando, FL, USA; †††Dolphin Research Center, Grassy Key, FL, USA; †††SeaWorld California, San Diego, CA, USA; †††SeaWorld Texas, San Antonio, TX, USA; †††SeaWorld Florida, Orlando, FL, USA; †††Eye Specialties for Animals, Denver, CO, USA; †††Dover Zoo, Dover, CO, USA; †††Mississippi State University College of Veterinary Medicine, Mississippi State, MS, USA; †††Theater of the Sea, Islamorada, FL, USA; †††4-H Alpha Aquatics, Atlantic Beach, NC, USA

**Introduction:** Pinnaeops have a high incidence of lesions diseases including lens luxation and cataract. A questionnaire was created in order to evaluate the risk factors associated with lens diseases in pinnaeops. Materials and Methods: Descriptive and narrative analysis were performed on data collected. **Results:** Twenty-one pinnaeops from nine facilities were included in the questionnaire. Results: This study has demonstrated that there are risk factors for pinnaeops to develop cataracts or lens luxations including: age, history of fights, history of ocular disease, and availability of shade. Conclusions: Lens diseases including cataracts and lens luxations occur in both captive and wild pinnaeops. Cataracts and lens luxation have genetic, environmental and age causing. In all species evaluated to date, sunlight (ultraviolet radiation) is a major cause of cataracts. Since cataracts were primarily seen in animals over 15 years of age and they were exposed to chronic sunlight over the course of their lives, implementation of sun protective measure (tarp) is important to help diminish the development of cataracts in these animals. Supported by the Columbus Zoo and Aquarium and the Ohio State University’s Matching Research funds.

ABSTRACT NO.: 4
Gene expression of membrane-associated mucins in the canine ocular surface Y. Umeda,† S. Nakamura,††† K. Fujiji,† H. Toshida,† A. Saito* and A. Murakami†††
†Triangle Animal Eye Clinic, Tokyo, Japan; †Division of Biomedical Imaging Research, Biomedical Research Center, School of Medicine, Juntendo University, Tokyo, Japan

**Purpose:** Mucins are one of the non-coding molecules that are important to maintain ocular surface to keep intact. Although goblet cell was thought to be the only one cell type which produced and secreted mucin at first, it was recently revealed that corneal and conjunctival epithelium also produced the mucins. The aim of this study was to analyze gene expression of mucins in canine ocular surface. **Methods:** Total RNAs was isolated from tissues using TRIzol reagent (Invitrogen, Rockville, MD, USA) following the protocol. Reverse transcription-polymerase chain reaction (RT-PCR) was performed to identify the mucin genes in the canine ocular tissues. **Results:** RT-PCR analysis detected that MUC1 and 16 have been expressed in the canine corneal tissues, and MUC1, 4, and 16 in the conjunctival and nictitating membrane tissues. **Conclusions:** We recognized that membrane-associated mucins: MUCs 1, 4, and 16 have been expressed in canine ocular surface as same as in the human tissues.

ABSTRACT NO.: 5
Canine corneal stromal cell isolation N. S. Trumble, D. E. Brooks* and M. Clare-Salzar†
*College of Veterinary Medicine and †College of Medicine, University of Florida, Gainesville, FL, USA

**Purpose:** This study aims to develop and compare methods of isolating viable canine corneal stromal cells. **Methods:** Canine corneas were harvested from dogs diagrammed for unrelated reasons. Epithelia were removed after incubation in EDTA. All cells were routinely washed and collected. Cellular yields were determined by microscopic analysis, and counted using a Student’s-t-test. **Results:** Cumulative cellular yield (cells/cornea, mean ± SD) for the tissue culture method ranged from 1.8 ± 1.6 K to 41.0 K ± 2.9 K at 14 days. The maximal yield was achieved with a tissue concentration of 1 stroma per 800 μL. This maximum was not significantly greater than the yield using the 24 h tissue digestion method, which was 6.9 K ± 4.4 K cell/cornea. **Conclusions:** Corneal tissue digestion is a less time and labor intensive method, providing a yield of 6.9 K ± 4.4 K cell/cornea.

ABSTRACT NO.: 6
Localization of integrin subunits α1, α6, β1, and β3 in the normal canine cornea D. M. Dorbandt, J. K. Waite, T. W. Morgan† and R. T. Carter†
Departments of *Veterinary Clinical Sciences and †Pathobiological Sciences, School of Veterinary Medicine, Louisiana State University, Baton Rouge, LA, USA

**Purpose:** This study aims to evaluate the presence and to determine the pattern of distribution of integrin subunits α1, α6, β3, and β3 in the normal canine cornea. **Methods:** Ten whole globes were collected from clinically normal, non-related dogs estimated to be between 1 and 5 years of age. Eyes were fixed in 10% neutral buffered formalin and embedded in paraffin. A EDTA solution was used to evaluate the presence of integrin subunits. Sections were incubated with primary antibodies to integrin subunits α1, α6, β1, and β3. Sections were incubated without either primary or secondary antibody as a negative control. Cytoplasmic staining was used to identify positive cells. **Results:** All evaluated corneas were positive for integrin subunits α1, α6, β1, and β3. Subunit α1 stained evenly diffuse throughout all epithelial layers while subunits α6, β1, and β3 demonstrated concentrated staining of basa and wing cells. Various nonstaining regions were observed superficially throughout the basal cell layer. Western blot analysis of normal corneal homogenates confirmed the presence of integrin subunits α1, α6, β1, and β3.

**Conclusions:** The normal canine epithelium contains integrin subunits α1, α6, β1, and β3 with a distribution similar to that reported in other species. The nonstaining...
cells are believed to be differentiating corneal epithelial cells. Supported by the Merck-Merial Summer Scholars Program.

ABSTRACT NO.: 7

Does retinal disease lead to refractive error? R. C. O'Connor,* G. S. Ying† and A. M. Komazsky* Departments of *Clinical Studies and †Opthalmology, University of Pennsylvania, Philadelphia, PA, USA

Purpose: Visual deprivation can affect eye growth and lead to refractive error. The goal of this study was to determine if impaired photoreceptor function in dogs with inherited retinopathies affects retinal development and results in refractive error. Methods: Striate retinopathy was performed in adult, mongrel dogs. These animals included normal controls (n = 11), as well as dogs with a primary inherited retinopathy with onset before (early) or after (late) retinal development was completed at 6 weeks of age. Refractive errors of each group were compared to the normal controls by uni- and multivariate analyses, adjusted for age and gender. Correlations in refractive error from paired eyes of the same dog were adjusted by generalized estimating equation.

Results: Control dogs were close to emmetropic with a mean refractive error (± standard deviation) of −0.20 ± 0.25 D. The largest degree of myopia was found in RCD dogs with early photoreceptor degeneration (−2.98 ± 0.33 D). In contrast, dogs with the congenital retinal pigment epithelium (RPE) disease RPE65-Leber congenital amaurosis (RPE65-LCA) did not show significant refractive errors (−0.35 ± 0.36 D). Loss of cone function in the ACHM dogs after 6–8 weeks of age also did not result in significant refractive error (−0.02 ± 0.27 D). Similar results were observed in the early-onset recessive dystrophy dogs (−0.71 ± 0.35 D) and PRCD (−0.24 ± 0.34 D) did not result in significant refractive errors.

Conclusions: Primary photoreceptor degeneration occurring during ocular development leads to significant myopia. Primary cone and RPE diseases as well as late-onset retinal degenerations do not seem to result in refractive error. Supported by NIH and FFB.

ABSTRACT NO.: 10

Corneal sequestrum in a dog S. Pizzirani,* C. G. Pirie* and N. M. Parry† Departments of *Clinical Sciences and †Biomedical Sciences, Cummings School of Veterinary Medicine, Tufts University, North Grafton, MA, USA

Purpose: This study describes a case of corneal sequestrum in a dog. A 14-year-old, castrated male Cairn Terrier, with a remote history of KCS in the left eye (LE) was presented for severe blepharospasm and a black plaque involving the OS of 3 weeks’ duration. On clinical examination, right-sided microcornea was present in the right eye (OD) and absent in the OS. Papillary light and dazzle reflexes were normal in both eyes. The left cornea showed an 8 × 5 mm black plaque involving central cornea, keratic precipitates formation in and surrounding the plaque. The plaque was surgically removed with a superficial keratectomy and a hood conjunctival graft was applied. Results: Streptococcus beta-hemolyticus was isolated by the cultured specimen. Histopathological examination revealed a granulomatous infiltrate and fibrovascular reaction. Gram stain was negative. Von Kossa and PAS staining were unremarkable. PCR revealed that the blood, conjunctival biopsy, and horse test were negative. Light and electron microscopy showed collagen disruption with interspersed macrophages. No viral particles or evidence of other infectious agents were seen. The graft was trimmed 2 weeks after surgery. At rechecks, STT was consistently low. Four months after surgery pigmentary keratitis was present surrounding the graft. The patient was lost then to follow-up. Conclusions: Chronic KCS and the old age of the patient may have been contributing factors for development of an acquired corneal sequestrum in this case, although von Kossa staining was unable to detect any calcific degeneration of the cornea.

ABSTRACT NO.: 11

Comparative quantitative analysis of protein values of aqueous humor and total blood protein in healthy dogs M. S. A. Falcão,* P. D. Galera,* R. Vetelli,* R. R. Ramos,* T. C. Ferreira† and E. G. Campos†

*College of Veterinary Medicine and †Cellular Biology Laboratory, University of Brasilia, Brasilia, Brazil

Purpose: It has been shown that the increase of protein in the aqueous humor is an indicator for an accurate diagnosis of glaucoma. The aim of this study was to compare two methods of protein detection (Bradford and Sensiprot® test) to quantify protein values in aqueous humor and corresponding values of the total blood protein in 100 healthy dogs. Methods: Seven healthy female and four healthy male dogs were included in this study, age between 2–5 years. Aqueous humor samples were collected by a 25G needle from the marginal suture. Blood was drawn for total protein blood quantification. One-way analysis of variance was followed by Tukey’s multiple comparison test, which showed P-values less than 0.05 (P < 0.05) significance and presented as mean ± SEM values. Results: Bradford method detected 3.7 ± 0.4 mg/dL for the RE and 3.6 ± 0.2 mg/dL for the LE. Sensiprot® method detected 9.04 mg/dL for the RE and 7.56 mg/dL for the LE. Conclusions: Bradford test has higher sensitivity for measurement of aqueous humor proteins and presented a positive correlation between increase of protein in plasma and aqueous humor. Supported by FINEP, FAPDF.

ABSTRACT NO.: 12

Seasonal intraocular pressure variations in normal sapphire dogs J. M. Chac,* T. H. Kim,* M. B. Jeong,* N. Y. Yi,* S. A. Park,* W. T. Kim* and K. M. Seo*

*Department of Veterinary Ophthalmology and Surgery, College of Veterinary Medicine and BK21 Program for Veterinary Science, Seoul National University, Seoul, South Korea

Purpose: The purpose of this study was to investigate seasonal intraocular pressure (IOP) variations in Sapphire dogs. Methods: Both eyes of 482 clinically normal Sapphire dogs (210 male, 272 female) were evaluated. Tolune® XL was used to measure IOP between 10:00 am and 2:00 pm, and valid IOP readings with ± 5% variance were obtained from each eye. The values were divided into four seasonal groups: spring (March to May), summer (June to August), autumn (September to November) and winter (December to February). The IOP results were compared by one-way analysis of variance and analysis of covariance, followed by a Bonferroni post-hoc test. The level of significance in all comparisons was set at P < 0.05. Results: The mean IOP value of Sapphire dogs was 19.4 ± 1.6 mmHg (range, 16.6–21.1 mmHg). The IOP value in winter (20.4 ± 1.3 mmHg) was significantly higher than in other seasons, and the IOP value in summer (17.2 ± 1.8 mmHg) was also significantly lower than in other seasons. However, there were no significant differences in IOP values between the two other seasons (P > 0.05). Conclusions: We found that the season had a significant effect on the IOP value in Sapphire dogs, and we hypothesize that this variation may be related to seasonal hormone and blood pressure variation. Supported by Korea Research Foundation Grant, KRF-2006-1E01033.

ABSTRACT NO.: 13

The relationship of the iridocorneal angle, as measured using ultrasound biomicroscopy, with postoperative increases in intraocular pressure postphaemoeumulsification in dogs W. R. Crumley, J. R. Giornifreddo and S. V. Radecki

Department of Clinical Sciences, College of Veterinary Medicine and Biomedical Sciences, Colorado State University, Fort Collins, CO, USA

Purpose: This study aims to investigate the relationship of the iridocorneal angle as it appears on ultrasound biomicroscopy (UBM) to intraocular pressure postphaemoeumulsification
in the canine eye. Methods: Forty-seven eyes of 28 dogs of various age, sex, and breed were studied. The ciliary process and limbus were used as a reference points to measure the angle opening distance (AOD), which was set by multiplying 0.45 by the distance between the ciliary process and limbus. The measurements were taken from the anterior segment of the eye. AOD was determined using slit-lamp biomicroscopy. Results: The mean age of the dogs was 6.9 years (range: 1–15 years). There were 14 females and 14 males. The AOD was measured at 10–15 mm from the limbus. The mean AOD was 1.34 ± 0.34 mm. Conclusions: The AOD is a useful parameter for assessing the risk of intraocular pressure elevation in dogs. AOD should be measured in all patients at the initial examination to determine the risk of glaucoma.

ABSTRACT NO.: 17

Bacterial contamination rate of ophthalmic solution N. Takiyama, M. Sakai, H. Koie and M. Uechi Laboratory of Veterinary Internal Medicine, Department of Veterinary Medicine, College of Veterinary Medicine, Nihon University, Tokyo, Japan

Purpose: This study aims to investigate the bacterial contamination rate of topical ophthalmic solution in a veterinary ophthalmology practice.

Methods: Topical ophthalmic solutions were collected from 20 patients. Each solution was cultured on a trypticase soy agar plate and incubated at 37°C for 24 h.

Results: Positive cultures were obtained from 15 of the 20 solutions (75%). The most common bacteria isolated were Staphylococcus aureus (60%) and Enterococcus faecalis (40%).

Conclusions: The bacterial contamination rate of topical ophthalmic solution in a veterinary ophthalmology practice is high, and patients should be monitored for infections.

ABSTRACT NO.: 18

Histologic evaluation of commercially available antibiotic preparations in adult rabbit eyes E. M. Whiteley, *E. Landreth,* U. Wohlfert and R. D. Whiteley† Departments of *Pathobiology and †Clinical Sciences, College of Veterinary Medicine, Auburn University, Auburn, AL, USA

Purpose: The objective of this study was to determine the histologic effects of commercially available antibiotic preparations on the ocular tissues of adult rabbits.

Methods: Twelve adult New Zealand White rabbits were assigned to one of two groups: group A received commercially available antibiotic preparations, and group B received saline solution. Ocular tissues were harvested after 7 days of treatment and examined histologically.

Results: Group A rabbits showed significant histologic changes, including epithelial hyperplasia, stromal edema, and infiltration of inflammatory cells. Group B rabbits showed no histologic changes.

Conclusions: Commercially available antibiotic preparations can have significant histologic effects on the ocular tissues of adult rabbits.

ABSTRACT NO.: 19

Ocular examination and diagnostic ophthalmic testing in adult rabbits C. E. Plummer, S. E. Blackwood, K. P. Barrie and D. E. Brooks Departments of Small and Large Animal Clinical Sciences, College of Veterinary Medicine, The University of Georgia, Athens, GA, USA

Purpose: The objective of this study was to investigate the accuracy of diagnostic ophthalmic tests in adult rabbits.

Methods: Twenty adult rabbits were examined using various diagnostic tests, including slit-lamp biomicroscopy, fundus photography, and biomicroscopic Goniofa;ometry.

Results: The slit-lamp biomicroscopy results were 100% accurate, while the fundus photography results were 95% accurate. The biomicroscopic Goniofa;ometry results were 80% accurate.

Conclusions: Slit-lamp biomicroscopy is the most accurate diagnostic test for adult rabbits, followed by fundus photography and then biomicroscopic Goniofa;ometry.

ABSTRACT NO.: 20

Ophthalmic examination and findings in adult Red Drum Fish (Sciaenops ocellatus) P. J. Mohoric and M. E. Stengard Florida Veterinary Specialists and Cancer Treatment Center, Tampa, FL, USA

Purpose: The aim of this study was to evaluate the ophthalmic features and intraocular pressure in adult Red Drum Fish (Sciaenops ocellatus) using slit-lamp biomicroscopy. A total of 19 Red Drum Fish were examined, and all fish were anesthetized with tricaine methanesulfonate (MS-222, Western Chemicals, Ferndale, WA, USA) at 70 parts per million. The anterior segment of all fish eyes were examined with a Sirono transilluminator and slit-lamp biomicroscopy. Bitoric indirect ophthalmoscopy was performed in all eyes to
observe the posterior segment. IOP was measured and recorded in both eyes of 1/18 fish and in the right eye only in 1/18 fish using application tonometry (27/36 total eyes). Tonometry readings were discarded in 4 fish (8 eyes) due to poor anesthesia and inadequate restraint. The blood pressure in control fish was evaluated in 1/53 fish. Blood pressure readings were performed in 1/12 fish and in the right and left eye only in 1/10 fish using applanation tonometry. Tonometer readings were discarded in 4 fish (8 eyes) due to poor anesthesia and inadequate restraint. *Results: All eight owls recovered uneventfully. Average length of postoperative stay in the clinic was 4–5 weeks. Seven birds were released to the wild following resolution of all injuries and flight reconditioning. One died from complications unrelated to the surgery. Conclusions: This technique demonstrated effective tear fluid concentrations for at least 2 weeks postoperative complications. This technique avoids drawbacks associated with enucleation in owls, including potential damage to the ear, optic chiasm, and intraorbital septum, and disturbance of the fragile eye, which is crucial for sound triangulation and successful hunting.

ABSTRACT NO. 24
Presence of os opticus in the Azure Jay (Cyanocorax caeruleus) eye
F. Montani-Ferreira,* A. Salomão,* M. Machado,* E. M. S. Schmidt§ and L. G. Souza†
†Universidade Federal do Paraná, Curitiba, Brazil; ‡Pontifícia Universidade Católica do Paraná, Paraná, Brazil; ¶Univesidade de São Paulo, São Paulo, Brazil; §Universidade Estadual Paulista, São Paulo, Brazil

Purpose: This study aims to demonstrate the presence of the element os opticus in the Azure Jay (Cyanocorax caeruleus) eye. The Azure Jay is a very popular bird and it is the national symbol of the Brazilian state of Paraná. It helps sowing the typical pine tree (Araucaria angustifolia) by picking up the pine nut to eat and dropping the seeds to germin. The species is considered as near threatened (IUCN 2006).

Methods: Two specimens of Azure Jay (Cyanocorax caeruleus) from the Brazilian state of Paraná were selected. This study brings the first report of the presence of os opticus in an important Brazilian member of Corvulidae family, demonstrating some unique histologic characteristics. With this finding, the authors intend to reevaluate the traditional concept of the os opticus as a constant feature in bird species.

Results: This study aims to describe a modified technique for evisceration in free-ranging owls, including potential damage to the ear, optic chiasm, and intraorbital septum, and disturbance of the fragile eye, which is crucial for sound triangulation and successful hunting.

ABSTRACT NO. 25
Meningioma with orbital and optic nerve involvement in a dog: report of a case
F. Pineda,* R. Garcia,* M. Solano,* A. A. Rodríguez§ and T. J. Cummins†
§Veterinary Ophthalmology Referral Service, México City, Mexico; †Private Clinic, Toluca City, Mexico State, Mexico; ¶Tufts University, Cummings School of Veterinary Medicine, Grafton, MA, USA; ‡Pathology Laboratory, Association to Prevent Blindness in Mexico, Mexico City, Mexico; ¶Department of Pathology, Duke University Medical Center, Durham, NC, USA

Purpose: This study aims to describe a case and course of an optic nerve/orbital meningioma in a dog. Meningiomas have a remarkable ability to contain mesenchymal components, including collagenous tissue, muscle, and cartilaginous tissue. Material and methods: A 3-year-old, female-breed mule nose was presented for evaluation because of ocular X-ray changes, dilated pupil, lack of visual reflexes, and peripheral redness, opacity, and edema around the eye. The dog had a preoperative history of orbital meningioma signs over a 3-month period. Methods: Initially treated for an orbital abscess, few weeks later the patient had a dental prophylaxis with no improvement of the ocular signs. Blood samples were taken for CBC and chemistry as well as urine test with no evidence of illness. Different schemes of treatment包括 topical, oral antibiotics, and steroids were prescribed along the course of several weeks with very poor results. An MRI was then suggested in which the important mass in the orbit was identified as a meningioma involving the optic nerve moving the eye toward the dog’s face was found. Once the MRI was performed, the dog had the entire optical (C14H20NNaO11)n) is composed around the optic nerve was noted. This element was identified as os opticus. A bone structure pre- rons of the tumor surrounded by glial tissue. The tumor was not completely removed. According to pathology this case exhibited cartilaginous and osteous metaplasia (metaplastic subtype), also noted local nests of meningioma that invade the optic nerve, local perineural involvement of a peripheral twig in orbital fat (rarely seen), optic nerve completely demyelinated, and portions of the tumor surrounded by glial tissue. The tumor was not completely removed.

Conclusion: The ocular signs, course, and radiology and pathology findings suggested a rare case of a meningioma of the optic nerve with involvement of the orbital tissue. The time for the tumor recurrence may be shortened due to the fact that the portions of tumor were not completely removed.

ABSTRACT NO. 26
A comparison of the efficacy of CaraVis™ and Hylarina® as viscoelastic devices in small animal cataract surgery
M. Armour, D. Esson, and G. Lynch

Purpose: Occular viscoelastic devices (OVD) are routinely used in order to facilitate intracocular surgery and minimize surgical complications. Hylarina (18 mg/mL (C14; H2 N NaO11)n) is commonly selected from available OVDs by veterinary opthalmologists. The purpose of this study was to compare the efficacy of Hylarina and CaraVis (CaraVis; Eastern Scrub Owls (Megascops aur) oz., two Barred Owls (Strix varia), and one Great Horned Owl (Bubo virginianus) survived. The 11 surviving owls were assigned to two groups: 1) Hylarina viscoelastic (Hylarina) and 2) CaraVis viscoelastic. CaraVis was also noted focal nests of meningioma that invade the optic nerve, local perineural involvement of a peripheral twig in orbital fat (rarely seen), optic nerve completely demyelinated, and portions of the tumor surrounded by glial tissue. The tumor was not completely removed. According to pathology this case exhibited cartilaginous and osteous metaplasia (metaplastic subtype), also noted local nests of meningioma that invade the optic nerve, local perineural involvement of a peripheral twig in orbital fat (rarely seen), optic nerve completely demyelinated, and portions of the tumor surrounded by glial tissue. The tumor was not completely removed. According to pathology this case exhibited cartilaginous and osteous metaplasia (metaplastic subtype), also noted local nests of meningioma that invade the optic nerve, local perineural involvement of a peripheral twig in orbital fat (rarely seen), optic nerve completely demyelinated, and portions of the tumor surrounded by glial tissue. The tumor was not completely removed.

Conclusion: The ocular signs, course, and radiology and pathology findings suggested a rare case of a meningioma of the optic nerve with involvement of the orbital tissue. The time for the tumor recurrence may be shortened due to the fact that the portions of tumor were not completely removed.

ABSTRACT NO. 22
Florencen pharmacokinetics in tear fluid following intramuscular and subcutaneous administration in ewes A. Regnier,* V. Lacroix,* A. Gautier-Bouchardon†, V. Gayrard,* N. Hagen,* P. C. Cleott and E. P. Toutain
†UMR 181 Physiopathologie et Toxicologie Expérimentales, INRA, ENVT, Durhan, NC, USA; ‡Department of Pathology, School of Veterinary Medicine, University of Wisconsin–Madison, Madison, WI, USA

Purpose: Two cases of a previously unreported intraocular neoplasm are characterized in an 8- and 9-year-old male and female rabbit.

Methods: Case 1 presented for enucleation of the left eye only in 1/18 fish using applanation tonometry. Tonometer readings were discarded in 4 fish (8 eyes) due to poor anesthesia and inadequate restraint. *Results: There were 9 male and 9 female fish, all of which were 5 years old. Ophthalmic examination of the anterior segment revealed a horizontal oval-shaped irido-pupillary membrane. A characteristically large spherical lens and shallowness of the anterior chamber exhibiting an appplanation contact lens. The retina was anisocromatic and the fundus ranged in color from white-gray to dark yellow-gray. The optic disc was not visible during ophthalmoscopy, but a prominent vessel was present, projecting anteriorly into the vitreous. In 23/36 eyes, 2 mm white translucent cysts in the ante-
ABSTRACT NO.: 27
Bilateral congenital corneal staphyloma and choristomas in a foal
A. Regnier and I. Raymond-Leton
Département des Sciences Cliniques, École Nationale Vétérinaire, Toulouse, France
Purpose: Congenital corneal staphyloma is characterized by an opaque and ectatic cornea, the posterior surface of which is lined by iris tissue. The purpose of this study was to describe the clinical and histopathological features of this congenital malformation associated with corneal dermoids in a newborn foal.
Methods: Postmortem examination of a 1-day-old French Saddle filly was performed, and histological sections prepared. Sections were stain with hematoxylin and eosin.
Results: The keratoconus of the left eye was characterized by a pink central area appearing as a fluffy, smooth, conical mass bulging about 10 mm from the dorsal half of the cornea and surrounded at its base by a 2-mm peripheral rim of pigmented tissue. The bulbar conjunctiva and anterior uvea appeared normal. The ventral part of each cornea was normal, allowing visualization of posterior structures. The right eye, the lens and iris appeared normal. A cataractous lens was present on the left side, but B-scan ultrasonography indicated apparently normal retina and vitreous. The globes did not appear enlarged and were not firm on digital palpation. The filly was euthanatized based on a poor prognosis.
Results: Gross examination of the formaldehyde-fixed specimen confirmed the presence of a small, smooth, white, oval turbid mass on the anterior surface of the cornea. Microphakia and cataracts were also identified in the left eye. Histologically, the corneal lesions were similar in both eyes. The prominent part of each corneal lesion was a large area of corneal ectasia. The ectatic cornea was lined internally by atrophic iris epithelium and externally by a nonpigmented stratified squamous epithelium without keratinization. Descemet's membrane and the endothelium were completely absent in the ectatic cornea, but were present in the ventral part of the cornea. At the margin of the corneal staphyloma, a zone of disorganization of the anterior pigment epithelial tissue containing prominent lobular subepithelial and abortive hair-bulb structures was identified. The posterior segment was devoid of significant abnormalities.
Conclusions: The lesions were a large area of corneal ectasia. The ectatic cornea was lined internally by atrophic iris epithelium and externally by a nonpigmented stratified squamous epithelium without keratinization. Descemet's membrane and the endothelium were completely absent in the ectatic cornea, but were present in the ventral part of the cornea. The lesions were associated with corneal dermoids.

ABSTRACT NO.: 28
Ocular findings in a herd of Exmoor ponies
C. L. Pinard
Ontario Veterinary College, Department of Clinical Studies, University of Guelph, Guelph, ON, Canada
Purpose: This study aims to describe the normal ocular findings in Exmoor ponies. Methods: A herd of 25 ponies residing in Ontario, Canada, was examined by slit-lamp biomicroscopy, direct and indirect ophthalmoscopy pre- and postdilation with tropicamide 1%. Results: Three stallions, 6 geldings, 1 colt, 1 filly, and 14 mares were examined and the age ranged from 6 months to 11 years. Only two geldings were not purified; they were crossbred with the same Thoroughbred mare. Presumed inheritable conditions included macroblepharon, persistent pupillary membranes, iris hypoplasia, cataracts, and optic nerve head colobomas. Of these presumed inheritable traits, cataracts were the most common finding (12/25) with the anterior capsular, subcapsular and cortical location being the most prevalent (8/11). Upon pedigree analysis of affected horses, an autosomal recessive pattern is suggested for the anterior presentation of cataracts. Eleven horses were considered normal but did display heritable traits, such as eyelid sarcoid, iris nevus, Mittendorf's dot, hyaloid artery remnants, hyperpigmented vitreous, asteroid hyalosis, and buller-hole lesions in the nontapetum. Conclusions: The ocular findings in Exmoor ponies resemble findings in other breeds. Although the pedigree analysis may suggest a recessive mode of inheritance for the appearance of anterior cataracts in this breed, further investigations are needed due to the low numbers of horses examined in this study.

ABSTRACT NO.: 29
Normal pH of equine tears in 27 horses using a silicone chip pH meter
A. A. Woodworth,* D. E. Brooks,† C. K. Clark* and M. R. Nimmo*
*Peterson and Smith Equine Hospital, Ocala, FL, USA; †College of Veterinary Medicine, University of Florida, Gainesville, FL, USA
Purpose: The purpose of this study was to establish the normal pH range of tears in normal horses using a digital, electronic pH meter. Methods: Prospective study using IQ scientific instruments ISEFT, model IQ120 pH meter to measure tear pH in 27 horses (25 Thoroughbred [15 females, 12 males], 2 Warmblood [1 female, 1 male]) hospitalized for elective surgical procedures. Electronic pH readings were taken before and immediately after concurrent ocular procedures using slit-lamp biomicroscopy. The pH meter was calibrated as per manufacturer's instructions to a pH 7.00. Tear samples were then taken from the medial canthus of the left eye using 20 L L chip pH meter probe submerged in tears. Results: Tear pH ranged from 7.1 to 7.9 with a mean of 7.48 ± 0.25. Conocel sensory neuron pH E ranged from 7.0 to 8.1. Conclusion: The normal pH of equine tears in this study was lower than previously reported. There is only one unpublished report on the pH of equine tears. That report found a mean pH of 8.33, as measured with pH paper, in 50 normal horses, 25 were left and 25 were right eyes. A cursory look at diseased eye parameters followed a greater rise than anticipated. Normal equine ocular skin pH and the pH expected with various ocular diseases may be helpful in determining efficacy and proper use of common ocular medications.

ABSTRACT NO.: 30
PCR-mediated detection of bovine papillomavirus E5 and L1 DNA in equine esophagocytic conjunctivitis/keratitis
C. Kainzhauser,* R. Strinblad,* G. Mair-Scorpion,+ P. Benz,* S. Brandt* and B. Nell*
*Department of Small Animals and Horses, University of Veterinary Medicine, Vienna, Austria; †Department of Veterinary Ophthalmology, VCS Core Facility, University of Veterinary Medicine, Vienna, Austria
Purpose: A 17-year-old Icelandic mare was presented with a 4-week history of bilateral mucous to purulent discharge, blepharoconjunctivitis, erosions on the lids, and red and swollen conjunctiva. The left eye was being monitored for keratitis. The right eye was normal. A biopsy of conjunctiva and anterior uvea was performed.
Results: Formalin-fixed tissues were transported to the Department of Veterinary Pathology at the University of Veterinary Medicine, Vienna, Austria, where histological and immunohistochemical examination of the biopsy revealed the presence of a keratinizing squamous cell carcinoma. Positive reaction for BPV was observed in the most affected areas.
Conclusions: PCR-mediated detection of bovine papillomavirus E5 and L1 DNA in equine esophagocytic conjunctivitis/keratitis. Positive reaction for BPV was observed in the most affected areas.
ABSTRACT NO.: 33
Treatment of ocular, nasal, and dermatologic disease attributable to feline herpesvirus 1 with oral famciclovir: 23 cases
S. M. Thomasy* and D. J. Mags†
*Veterinary Medical Teaching Hospital and †Department of Surgical and Radiological Sciences, University of California, Davis, CA, USA

Purpose: This study was performed to assess the safety and efficacy of orally administered famciclovir in cats with spontaneously occurring disease attributable to naturally acquired feline herpesvirus 1 (FHV-1) infection.

Methods: Records of cats treated with famciclovir (Famvir, Novartis) for hyperplastic primary viterous/tunica vasculosa lentis (PHPV/PHTVL), all of which were reviewed. Concomitant ophthalmic or dermatologic examination was performed in all cats.

Results: A total of 23 cats met inclusion criteria. Median (range) age of affected cats was 10 (10–16) years with 22 females and 1 male. Median (range) dose of famciclovir was 4.9 (2–7) mg/kg, administered orally daily. Median (range) duration of therapy was 14.5 (7–63) days. Median (range) period of follow-up was 34.5 (5–422) days. The most commonly administered medications were topical antibacterials (83%), oral lysine (48%), systemic antibiotics (25%), and topical antivirals (15%). Clinical outcome was evaluated in 22 of 23 cases.

Conclusion: This drug combination is an effective antibacterial treatment against common feline pathological conditions of the equine eye.

ABSTRACT NO.: 34
Oxidative stress in glaucomatous retinas of dogs
D. S. Zirofsky, J. E. Madl and J. R. Gionfriddo
Colorado State University, Fort Collins, CO, USA

Purpose: This study aims to investigate the safety and efficacy of orally administered famciclovir in cats with spontaneously occurring disease attributable to naturally acquired feline herpesvirus 1 (FHV-1) infection.

Methods: Records of cats treated with famciclovir (Famvir, Novartis) between 2006 and 2008 were reviewed. Complete ophthalmic or dermatologic examination was performed in all cats. Results: A total of 23 cats met inclusion criteria. Median (range) age of affected cats was 10 (10–16) years with 22 females and 1 male. Median (range) dose of famciclovir was 4.9 (2–7) mg/kg, administered orally daily. Median (range) duration of therapy was 14.5 (7–63) days. Median (range) period of follow-up was 34.5 (5–422) days. The most commonly administered medications were topical antibacterials (83%), oral lysine (48%), systemic antibiotics (25%), and topical antivirals (15%). Clinical outcome was evaluated in 22 of 23 cases.

Conclusion: This drug combination is an effective antibacterial treatment against common feline pathological conditions of the equine eye.

ABSTRACT NO.: 35
Surgical treatment and outcome in a case of persistent hyperplastic primary vitreous/tenusica vasculosa lentis in a dog
C. G. Piric*, S. Pizzirani* and J. Keating†
*Departments of †Clinical Sciences and ‡Biomedical Sciences, Tufts Cummings School of Veterinary Medicine, North Grafton, MA, USA

Purpose: This study describes the surgical treatment of persistent hyperplastic primary vitreous/tenusica vasculosa lentis (PHPV/PHTVL) in a dog. Methods: A 3-year-old male Labrador presented for acute redness and blepharospasm in the left eye. On examination, periorcular and conjunctival swelling was present. Increased contrast using infrared photography and digital infrared photography of the anterior segment of the equine eye

ABSTRACT NO.: 36
In vitro efficacy of an ophthalmic drug combination against corneal pathological lesions of horses
G. Ben-Shlomo, C. Plummer, K. Barrie and D. Brooks
Department of Small and Large Animal Clinical Sciences, College of Veterinary Medicine, University of Florida, Gainesville, FL, USA

Purpose: This study aims to evaluate the in vitro efficacy of an ophthalmic drug combination (DC) against protease activity and common corneal pathological lesions of horses. Methods: Multiple representative isolates of three bacterial (β-hemolytic Staphylococcus spp., α-hemolytic Streptococcus spp., and Staphylococcus aureus) corneal pathogens of horses were submitted to minimum inhibitory concentration (MIC) testing of a DC that consisted of equal volumes of natamycin 3.33%, tobramycin 0.13%, and ceftazolin 5.5%. Protease inhibitory activity of the DC was assessed by use of gelatin microparticle assay with gelatin and collagen I as substrates. The MICs of the DC were compared with those for each of the component medications and anti-protease activity of the DC was compared with that of by use of paired t-tests and a one-way analysis of variance (ANOVA). Results: The DC did not inhibit the collagenase activity compared to ceftazolin alone. The combination of tobramycin in the DC was lower than when used alone, yet this difference was not statistically significant (P > 0.05). Conclusion: This drug combination is an effective antibacterial treatment against common corneal pathological conditions of horses. Nevertheless, the DC was not effective as an anti-protease treatment, hence, complimentary anti-protease treatment should be administered in combination with this drug combination, to make the most of the time, stress and fatigue associated with topical treatment regimens consisting of multiple drugs used separately for horses with keratitis. Supported by the American Quarter Horse Foundation Grant.

ABSTRACT NO.: 37
Digital infrared photography of the anterior segment of the equine eye
R. J. McMullen Jr and B. C. Gilger
Department of Clinical Sciences, North Carolina State University, Raleigh, NC, USA

Purpose: This study aims to demonstrate benefits of digital infrared of the anterior segment of the equine globe. Methods: Normal and diseased anterior segments were photographed with a digital infrared Nikon D70 camera (Nikon 18–55 mm AF or 105 mm macro lenses) converted by a darkened imaging device (wavelength > 760 nm). Color images were taken with a Nikon D200 digital SLR camera with a Tamron 90 mm macro lens and a Nikon SB-800 flash. Results: The normal, brown equine iris appeared gray-blue with variable amounts of dark blue to blue, or more often a unique gray color. The brighter the blue color, the deeper the blue color. Infected images of hemorrhagic eye appeared darker than color images. The blue images were rich with color and not limited to a specific area. The equine lens was black circumferentially surrounded by pupillary ruff. Pigmented masses within the anterior chamber were clearly visible even with corneal opacification. Corneal edema was visually eliminated and some opacification was seen to become transparent. Systemic and topical inflammation appeared as a hyperemic cornea and corneal vessels and other isolated opacifications appeared to be suspended above the iris as seen in visualization. Conclusions: Digital infrared photography of the anterior segment of the equine eye allows visualization of hyperemia and corneal vascularization in all cases. A valuable method to evaluate the pupil and assess effects of inflammation in eyes with uveitis and/or glaucoma.

ABSTRACT NO.: 38
Ulcereous eosinophilic keratoconjunctivitis in three horses: clinical course and characterization by electron microscopy
C. A. Sandberg, I. P. Herring, J. J. Schorling, J. P.ickett and T. LeRoith
Virginia-Maryland Regional College of Veterinary Medicine, Virginia Polytechnic Institute and State University

Purpose: This study aims to describe the clinical course, histopathology, scanning electron microscopy and histological findings of three horses with eosinophil keratoconjunctivitis. Methods: Prospective study of clinical cases presented to the ophthalmology service at the VMREHCS. Three horses presented between 2007 and 2008 for ulcerative keratoconjunctivitis and allergic disease in some horses. Association between eosinophilic keratoconjunctivitis and allergic disease in some horses. Results: The three bacterial pathogens were susceptible to both tobramycin and ceftazolin with minimal inhibitory concentration of tobramycin in the DC was lower than when used alone, yet this difference was not statistically significant (P > 0.05). Conclusion: This drug combination is an effective antibacterial treatment against common corneal pathological conditions of horses. Nevertheless, the DC was not effective as an anti-protease treatment, hence, complimentary anti-protease treatment should be administered in combination with this drug combination, to make the most of the time, stress and fatigue associated with topical treatment regimens consisting of multiple drugs used separately for horses with keratitis. Supported by the American Quarter Horse Foundation Grant.

ABSTRACT NO.: 39
A retrospective study of performance changes in horses that have undergone unilateral enucleation
K. L. Wotman, M. E. Utter and K. R. Covert
New Bolton Center, School of Veterinary Medicine, University of Pennsylvania, Philadelphia, PA, USA

Purpose: This study aims to compare the performance level of horses who have undergone unilateral enucleation for a variety of ocular diseases including: corneal ulceration, stromal abscess, uveitis, corneal rupture, and squamous cell carcinoma. Methods: Records of horses that have undergone unilateral enucleation at the New Bolton Center from 2000–2008 were reviewed. A survey was generated that included: breed and sex of horse, age at time of surgery, eye enucleated and reason for removal, vision remaining at the time of surgery, preoperative occupation, and return to previous performance level after surgery. Results: A total of 81 horses were performed surgery. Forty-seven cases were lost to follow-up due to a variety of reasons including: change of ownership, incorrect number or unreturned phone calls. Five horses were euthanized after surgery. Thirty-three horses were included in the study. Thirty-one horses returned to previous performance level immediately postoperatively including: flat racing, eventing, steeplechase, jumping, dressage, and showing over fences. Thirteen horses were from 2 to 4 years old at the time of surgery. Two horses did not return to previous performance after enucleation which was directly related to loss of vision in one eye. Conclusions: Horses are able to return to a variety of occupations after unilateral enucleation and their performance level should not be affected.
ABSTRACT NO.: 40
The mouse hardian gland
T. Forest, N. J. McKinnon and R. L. Peiffer
Merck & Co. Inc.

Purpose: This study aims to review the structure and function of the mouse hardian gland, and to characterize and evaluate the occurrence and type of incidental lesions present in the mouse hardian gland within a select population. Methods: A population of CRLCD1(ICR) mice ranging in body weight and age between January 1, 1998, and February 1, 2008, at the Merck West Point Research Laboratories were selected, for a total population of 4,190 animals. Histopathology samples with previously diagnosed incidental pathological findings were evaluated, for a total of 98 samples evaluated. Results: The hardian gland of mice is located in the conjunctiva of the eye and consists of a series of small glands. The hardian gland is responsible for lubricating the cornea and protecting the eye from desiccation. This study found that incidental lesions were not present in any of the mice examined. Conclusions: This study highlights the importance of proper ocular health and the need for continued research in this area.

ABSTRACT NO.: 41
Ocular ultrasound findings in the Asian elephant, Elephas maximus
C. M. Nunnery,* K. P. Barrie,* E. B. Wiedner,† A. L. G. Souza and J. L. Laus
University, Jaboticabal, Brazil

Purpose: To evaluate the feasibility of using ultrasound to examine the anterior and posterior segment of the eye in Asian elephants. Methods: Anterior segment (AS) and posterior segment (PS) ultrasonic images were obtained in standing, non-sedated Asian elephants in July 2008. The images were measured by two independent examiners to determine repeatability. Data were collected from 22 eyes and a two-way analysis of variance performed. Results: Anterior chamber, lens, vitreous chamber and axial globe length increase with age in the Saanen breed. The knowledge of normal ocular dimensions facilitates the use of prostheses. Conclusions: This study confirms the utility of ultrasound in the examination of the ocular structures of the Asian elephant.

ABSTRACT NO.: 42
Normal ophthalmic diagnostic test values in Angora goats
N. C. Whelan* and D. Thompson†
*Ontario Veterinary College, University of Guelph, Guelph, ON, Canada; †Institute of Veterinary, Animal and Biomedical Sciences, Massey University, Palmerston North, New Zealand

Purpose: To provide normal ophthalmic test values for visual screening, corneal thickness (CTT), tear fluid osmolarity (OSM) and intraocular pressure (IOP) in Angora goats. Methods: Tear test (STT) values and IOP measurements were obtained from 69 Angora goats ranging in age from 45 to 549 days. STT I values were significantly different between subjects of the same age. IOP measurements were not significantly different between subjects of the same age. Conclusions: These values should be used to establish normal limits for ophthalmic diagnostic tests in Angora goats for future reference.

ABSTRACT NO.: 43
Ocular biometry in a colon of Saanen goats with different ages
A. L. G. Souza and J. L. Laus
Faculty of Veterinary Medicine and Agricultural Sciences, Sao Paulo State University, Jaboticabal, Brazil

Purpose: To determine the lens thickness, anterior and vitreous chamber depths and axial globe length in goat eyes at different ages. Methods: B- and A-modes (Ultra Scan, Alcon, Irvine, CA, USA) ultrasonography was performed in 35 (110 eyes) healthy Saanen goats aging 45 (± 15), 180 (± 20), and 549 days (± 20). All subjects received ophthalmic examinations prior to ultrasonography to verify the absence of ocular lesions. Lubricating jelly as a stand-off pad was placed on the 20 MHz transducer tip after instillation of a topical anesthetic (10% propracaine) and measurement of tear fluid osmolarity, corneal thickness, tear volume, and intraocular pressure. Sensitivity, specificity, and positive and negative predictive values were calculated. Results: The posterior segment data were significantly different between ages. The axial globe was measured using an applanation tonometer (Tonopen®). The anterior segment data were significantly different between ages. Conclusions: Ocular biometry is a useful tool for evaluating the health of goat eyes and for diagnosing ocular diseases.

ABSTRACT NO.: 44
Placement of an intralaser hydroxyapatite sphere and cosmetic corneoscleral prosthesis in a growing dog
E. S. Storey and R. T. Carter
School of Veterinary Medicine, Louisiana State University, Baton Rouge, LA, USA

Purpose: To place a hydroxyapatite sphere intralaserically in preparation for progressively larger corneoscleral prostheses in a young dog. Methods: A 3-month-old male Weimaraner puppy presented with an ulcerative keratitis and a perforation in the right eye following a bite. Conventional keratectomy was performed and a tarsorrhaphy was performed to delay the formation of a scar. The corneal ulcus was excised and the wound was closed with 6-0 nylon (Ethicon). The penetrating keratoplasty was performed and a 7-0 nylon (Ethicon) suture was placed through the cornea to provide temporary corneal closure. The corneal defect was closed with 5-0 polyglactin 910 (Vicryl, Ethicon) in a simple continuous pattern of 8-0 vicryl. A temporary corneoscleral prosthesis provided with the conjunctival peritomy was sutured in place. The conjunctival peritomy was continued 160 degrees and closed over the derbedis cornea with a simple continuous pattern of 8-0 vicryl. A temporary corneoscleral prosthesis was placed over the conjunctival peritomy. The conjunctiva was closed with a simple continuous pattern of 8-0 vicryl. A temporary corneoscleral prosthesis was placed over the conjunctival peritomy. The conjunctiva was closed with a simple continuous pattern of 8-0 vicryl. A temporary corneoscleral prosthesis was placed over the conjunctival peritomy. The conjunctiva was closed with a simple continuous pattern of 8-0 vicryl. A temporary corneoscleral prosthesis was placed over the conjunctival peritomy. The conjunctiva was closed with a simple continuous pattern of 8-0 vicryl. A temporary corneoscleral prosthesis was placed over the conjunctival peritomy. The conjunctiva was closed with a simple continuous pattern of 8-0 vicryl.

Conclusions: The conjunctiva adhered to the corneal stroma providing a resilient, healthy, nonsutured corneal surface for the corneoscleral prosthesis. The prosthesis was replaced with a progressive series of corneoscleral prostheses corresponding with the palpebral fissures of the growing dog. The ocularist chose not to use a prostheses mounted to a post implanted into the hydroxyapatite implant because mobility was excellent without it. No complications were encountered in the postoperative follow-up for 1 year.

Conclusions: It is possible to use a hydroxyapatite sphere as an intralaser implant. This minimizes surgical time and trauma to the orbit and rectus muscles while providing a vascularized intrascleral implant that is compatible with a postmounted corneoscleral prosthesis. Covering the cornea with a conjunctival flap resulted in a resilient surface that tolerated the presence of the corneoscleral prosthesis well. Excellent cosmesis was achieved for this growing dog post surgery despite enucleation by progressively larger corneoscleral prostheses.

ABSTRACT NO.: 45
Effects of silver sulfadiazine and povidone-iodine on in vitro replication of feline herpesvirus-1
M. E. Coster,* J. Stiles,* S. G. Krohne* and R. M. Pogranichniy†
Departments of *Veterinary Clinical Sciences and †Comparative Pathobiology, School of Veterinary Medicine, Purdue University, West Lafayette, IN, USA

Purpose: This study aims to determine effects of silver sulfadiazine (SSD) and povidone-iodine (PVP-I) on in vitro replication of feline herpesvirus-1 (FHV-1). Methods: Virus titration was performed to assess FHV-1 titer with SSD (2.5 to 30 μg/ml) or PVP-I (0.5 to 5 mg/ml) present during and after adsorption. Plaque reduction assays were performed by adding SSD (5 to 30 μg/ml) or PVP-I (0.5 to 5 mg/ml) to Crandell-Reese feline kidney cells before, during, or after FHV-1 adsorption. The 90% and 99% inhibitory concentrations (IC90 and IC99) and plaque reduction percentage (PRP) compared to controls were calculated. The effect of PVP-I on extracellular virus was assessed, by incubating FHV-1 with high concentrations of PVP-I for 30 minutes before the addition of monolayers. Results: Virus titration demonstrated that limited shedding of virus occurred in PVP-I and PVP-I was added postadsorption. Conclusions: Dose-dependent inhibitory effects of SSD and PVP-I on FHV-1 inhibition were demonstrated. Silver sulfadiazine inhibited adsorption of FHV-1; PVP-I was virucidal extracellularly. Higher concentrations of both SSD and PVP-I exhibited cytototoxicity that limited in vitro evaluation of these two compounds.

ABSTRACT NO.: 46
Relative quantitation of leukocyte mitochondrial DNA and mitochondrial evaluation using transmission electron microscopy in normal English Springer Spaniel dogs and those affected with retinal dystrophy
B. S. Bauer,* G. W. Forsyth†, L. S. Sandmeyer* and B. H. Graham*

*American College of Veterinary Ophthalmologists, Veterinary Ophthalmology, 11, 413–429

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ABSTRACT NO.: 47

**Tonometry in the Florida manatee**

G. Ben-Shlomo, D. Brooks, K. Barrie, C. Plummer and D. Samuelson

Department of Small and Large Animal Clinical Sciences, College of Veterinary Medicine, University of Florida, Gainesville, FL, USA

**Purpose:** This study aims to evaluate the intraocular pressure (IOP) in the Florida manatees (Trichechus manatus latirostris). **Methods:** Rebound tonometry (IcareVet™) was performed in both eyes of 14 healthy adult manatees before euthanasia as a result of their inactivity. Serial IOP measurements were obtained from right and left eyes of the manatees at different time points, and the data collected were analyzed using statistical methods. **Results:** The mean IOP values for right and left eyes were significantly different at all time points, with no significant difference between the eyes of the same animal at any time point. **Conclusions:** This study provides new insights into the eye pressure measurement in manatees, which can help in the assessment and management of ocular health in this species.

ABSTRACT NO.: 48

**Tear production in normal juvenile dogs**

J. J. Broadwater,* S. M. Carastro,* C. M. H. Colitz† and F. Elvinger†

*Animal Eye Specialty Clinics of South Florida, Miami, FL, USA; †Department of Large Animal Clinical Sciences, Virginia-Maryland Regional College of Veterinary Medicine, Blacksburg, VA, USA

**Purpose:** This study aims to determine tear production in normal juvenile dogs. **Methods:** Fourteen healthy puppies of various breeds between 67 and 115 days of age underwent complete ophthalmic examinations to exclude ocular disease before they underwent Schirmer Tear Test 2 application to both eyes. One minute after application of proparacaine, the residual tear volume in the ventral conjunctival sac was absorbed with a cotton tip applicator. Schirmer tear test 2 was performed in both eyes of each puppy. **Results:** The mean ± SD tear production rate was 0.98 ± 0.91 µL per minute. **Conclusions:** Tear production in normal juvenile dogs was found to be within the normal range, which can help in the evaluation of tear production in dogs with ocular disease.

ABSTRACT NO.: 49

**Comparison of the effects of serum from nondiabetic dogs versus diabetic dogs on the growth of Pseudomonas aeruginosa in vitro**

C. Y. Chang, J. G. Songer†, J. H. Kim and D. Essom†

*Eye Care for Animals, Maricopa, AZ, USA; †Department of Veterinary Science and Microbiology, University of Arizona, Tucson, AZ, USA; ‡Eye Care for Animals, Tustin, CA, USA

**Purpose:** The purpose of this study was to evaluate potential differences in the effects of serum from diabetic versus nondiabetic dogs on the growth of *P. aeruginosa* in vitro. **Methods:** Blood was collected aseptically from 10 diabetic dogs and 10 nondiabetic dogs. To isolate the effect of glucose, a third group, nondiabetic, hyperglycemic serum (using additional dextrose in serum) was used as a control. **Results:** The mean number of CFU in the nondiabetic, hyperglycemic serum was 10^7.14 ± 0.98 in the left eye and 5 ± 0.63 CFU/mm in the right eye. **Conclusions:** These results did not differ greatly from previously published STT1 and STT2 results of normal and diabetic dogs. **Conclusion:** The results in this study did not appear to significantly decrease bacterial growth from the conjunctiva of normal dogs.

ABSTRACT NO.: 50

**Effect of topical bexonoxil-bxoxil combination on bacterial cultures from the conjunctiva of normal dogs**

S. A. Ivins,* P. A. Gerdinger† and J. G. Songer†

*Eye Care for Animals, Santa Fe, NM, USA; †Eye Care for Animals, Chicago, IL, USA; ‡Department of Microbiology and Veterinary Sciences, University of Arizona, Tucson, AZ, USA

**Purpose:** The purpose of this study was to evaluate the effect of the bexonoxil-bxoxil combination solution on bacterial culture growth taken from the conjunctival fornix of 30 normal dogs versus their contralateral eyes. **Methods:** Forty dogs were used in the study. Each dog underwent an in ovo examination. **Results:** Bacterial cultures were taken prior to instillation of a balanced salt solution (BSS) control or a topical bexonoxil-bxoxil combination solution in each dog. The bacteria were cultured in the left and right eyes of the same dogs. **Conclusions:** The results of this study did not significantly differ between the test substances. Over time, the means for the bexonoxil-bxoxil tended to decrease, whereas, the means of BSS tended to remain stable. **Conclusion:** The bexonoxil-bxoxil combination used in this study did not appear to significantly decrease bacterial growth from the conjunctiva of normal dogs.

ABSTRACT NO.: 51

**Effects of topically applied serum on healing rate of spontaneous chronic corneal epithelial defects in dogs**

J. S. Eaton,* S. R. Hollingsworth,* B. J. Holmberg†, M. H. Brown,‡ P. J. Smith‡ and D. J. Maggs‡

*Veterinary Medical Teaching Hospital, University of California, Davis, CA, USA; †Veterinary Ophthalmology Services Inc., Little Falls, NJ, USA; ‡Animal Eye Care, Fremont, CA, USA

**Purpose:** This study aims to determine the effects of topical administration of canine serum on healing of spontaneous chronic corneal epithelial defects. **Methods:** Dogs with unilateral SCCED were randomly assigned to receive topical saline or serum from healthy dogs free of blood-borne infectious disease and with normal hematologic and biochemical profiles. **Results:** The mean healing rate of SCCED in dogs treated with serum was 0.98 ± 0.71 cm/min in the left eye and 0.98 ± 0.71 cm/min in the right eye. **Conclusions:** These results suggest that topical application of serum to dogs with SCCED has no advantage over the standard treatment of blunt debridement and grid keratotomy.

ABSTRACT NO.: 52

**An evaluation of one method for management of refractory corneal epithelial erosions: a 3-year retrospective study**

M. L. Landis and R. L. Peiffer

Buck County Animal Ophthalmology, Langhorne, PA, USA

**Purpose:** The objective of this study is to analyze the success rate of one method of management for refractory corneal epithelial erosions as an initial therapy by one clinician (a resident) over a 3-year time period. **Methods:** Canine patients diagnosed with a refractory corneal epithelial erosion with no concurrent ocular pathology noted were included in the retrospective study. **Results:** Patients were treated with an initial procedure that included dry debridement, multiple punctuate keratotomy, and placement of a soft contact lens bandage. Successful treatment of the ulceration was measured by the presence of adherent epithelium with no defects present within 7 days of initial treatment and required no further follow-up. **Conclusions:** The results in this study suggest that dry debridement with multiple punctuate keratotomies and placement of a soft contact lens bandage is a satisfactory initial management tool for canines with refractory corneal epithelial erosions.

ABSTRACT NO.: 53

**Refractive state of pseudophakic canine eyes and the correlation between ametropia and preoperative ultrasonic biometry**

K. L. Combs,* A. Hoffman* and T. Lehenbauer†

*Eye Care for Animals, Pasadena, CA, USA; †Oklahoma State University, Stillwater, OK, USA

**Purpose:** This study aims to determine the refractive state of dogs following phacoemulsification and IOL implantation. **Methods:** A total of 22 dogs (44 eyes) were used in this study. Thirty-one eyes underwent phacoemulsification with placement of a viscoelastic material (Hylan G-F 20) on the corneal surface, which was removed by a bacular lamellar surgery and 13/11 eyes underwent unilaterall surgery. Preoperative ocular biometry was also performed on 20 pseudophakic eyes. **Conclusions:** The results of this study suggest that there may be no deleterious effects of using serum from diabetic dogs to treat macular corneal ulcers.
post-operative refractive state of each eye. Results: Mean ± SD refractive state of all pseudo-
phakic eyes was −0.40 ± 3.62D with a range of −17 to +5.5D. Mean ± SD anterior chamber
depth was 3.04 ± 0.69 mm with a range of 2.03 to 4.16 mm. Correlation between refractive state and
anterior chamber depth was not found to be significant. Among the dogs, 51.6% were myopic, 38.7% were hyperopic, and 9.7% were emmetropic. A significant negative linear relationship was present between the depth of the anterior chamber and the degree of postoperative ametropia.

ABSTRACT NO.: 54
Selenium functionalized intraocular lenses inhibit posterior capsule opacification in an ex vivo canine lens capsular bag assay
*Departments of *Surgical Sciences and †Pathobiological Sciences, ‡School of Veterinary Medicine, University of Wisconsin–Madison, Madison, WI, USA; §Department of Veterinary Clinical Sciences, College of Veterinary Medicine, Ohio State University, Columbus, OH, USA; ¶Department of Ophthalmology and Visual Sciences, Texas Tech University Health Science Center, Lubbock, TX, USA; ¶Selenium Ltd., Lubbock, TX, USA
Purpose: Selenium (Se) compounds induce apoptosis by generating superoxide radicals. The purpose of this study was to demonstrate the use of selenium-coated intraocular lenses (IOLs) as a safe and effective means to reduce the formation of posterior capsule opacification (PCO) in an ex vivo canine lens capsular bag assay. Methods: Primary canine lens epithelial cells (LECs) were isolated and cultured as explants. Selenium-enriched sodium selenite was constantly bound to the surface of poly (HEMA) discs. Cell viability assays were performed on LECs cultured in tissue culture medium pre-incubated with either a coated (SeOL) or non-coated IOL (NonSeOL). In the capsaicin phase, LECs were either empty (SeOL, and empty) and monitored for 10 days. During the culture period the stage of PCO development was scored based on visual inspection of the capsules. On day 10 all the capsules were fixed and paraffin embedded. Sections were stained with hematoxylin-eosin, Alcian blue, and Masson’s trichrome stains as well as immunohistochemical markers for proliferation (PCNA), myofibroblast formation (α-SMA), and postoperative (Capsaico-3). LECs adherent to the posterior lens capsule were quantified. Results: The viability assays showed no toxicity attributable to the Se functionalization. The central posterior capsule was free of cells underneath all of the SeOLs, although large numbers of LECs were observed on the capsular peripheral surfaces. No signs of PCO were observed around the periphery of some of the SeOLs. Both the PCO scores and the LEC counts of SeOL con-
tacting the capsule were markedly lower than those of the control group capsules (P ≤ 0.01 and P ≤ 0.0001, respectively). Conclusions: A drastic reduction of PCO formation was observed in this ex vivo model. Covalent binding of Se to a conventional foldable IOL could be a simple test that can be incorporated into an ophthalmic examination protocol with little addi-
tional preparation time. This study was supported by Se and ACVO Vision for animals foundation resident research grant. © 2008 American College of Veterinary Ophthalmologists, Veterinary Ophthalmology, 11, 413–429

ABSTRACT NO.: 55
Evaluation of variables that affect outcome of phacoemulsification in eyes of dogs: a preliminary study
N. M. Park,* P. A. Gerding,* R. E. Merideth† and D. J. Schaeffer‡
*Eye Care For Animals, Chicago, IL, USA; †Eye Care For Animals, Tucson, AZ, USA; ‡University of Illinois, Department of Veterinary Biosciences, Urbana, IL, USA
Purpose: Monitoring incidence of risk factors for both short- (≤ 0.40 D) and long-term (> 0.40 D) complications in patients undergoing phacoemulsification in dogs may lead to better patient outcomes. Methods: Thirty-five eyes (22 dogs) were included in this prospective study. Follow-up time varied between 7 and 19 months. Variables evaluated included presenting medical conditions, duration of anesthesia, concurrent medical and surgical, stage of cataract, postoperative complications, capsular bag opacification time, and surgery time. Statistical analysis was performed using the Fisher’s exact and Kruskal–Wallis tests. Results: Intraoperative complications included unintentional posterior capsular rupture in 1%, conjunctival retrodissection in 3%, and postoperative corneal ulcers in 1%. Conclusions: A significant number of foals were also identified with anterior uveitis. A complete ophthalmic examination is indicated in every equine neonate presenting to a referral hospital to identify the presence of ophthalmic disease.

ABSTRACT NO.: 57
Ophthalmic lesions in equine neonates presenting to a referral hospital for evaluation of nonophthalmic disease
A. L. Labelle, R. E. Hamor, M. K. Zarfoss and C. B. Berens
College of Veterinary Medicine, University of Illinois Urbana-Champaign, IL, USA
Purpose: This study aims to investigate prevalence of ophthalmic lesions in equine neonates (< 2 weeks of age) presenting to a referral hospital for nonophthalmic disease. Methods: All equine ophthalmology consults to the Equine Ophthalmology Service were reviewed from Hospital Admitting Hospital > 2 weeks of age were eligible for inclusion in the study. A complete ophthalmic examination including slit lamp biomicroscopy, indirect ophthalmoscopy, Schirmer tear test, fluorescein staining and intraocular pressure measurement with a rebound tonometer was performed on each patient. A total of 29 foals were examined for the study. Results: Entropion was identified in 6/29 foals (21%), CI [6–46%]; corneal ulcer in 7/29 foals (24%, CI [14–44%]), anterior uveitis in 7/29 foals (24%, CI [1–44%]); cataract in 3/29 foals (1%, CI [2–23%]); and retinal hemorrhages in 3/29 foals (1%, CI [2–23%]). Conclusions: Consistent with previous reports, entropion and corneal ulcers were prevalent in this population of equine neonates, however, a significant number of foals were also identified with anterior uveitis. A complete ophthalmic examination is indicated in every equine neonate presenting to a referral hospital to identify the presence of ophthalmic disease.

ABSTRACT NO.: 58
In vitro and in vivo evaluation of an equine intraocular lens
K. B. McMullen Jr, J. H. Salmon, M. G. Davidson and B. C. Gilger
North Carolina State University, Raleigh, NC, USA
Purpose: This study aims to determine refractive state and postoperative anterior chamber depth (PADC) of cadaver and live equine eyes implanted with IOLs to determine appropriate IOL for a horse to achieve emmetropia. Extracapsular lens extraction and placement of a +3D IOL was performed on six enucleated equine eyes. Four live horses received a +21D IOL implant after lens extraction. Streak retinoscopy and ultrasound (pre- and postoperative) were used to determine the ACD, CL T , and axial length (AxL) of each eye before and after IOL implantation. Results: Preoperative mean refractive error of −0.6D (SD ± 1.03) was obtained from cadaver eyes. Preoperative globe dimensions were: ACD: 7.12 mm (SD ± 0.82), CL T : 11.32 mm (SD ± 0.81), and AxL: 29.51 mm (SD ± 1.20). Postoperative anterior chamber depth (PADC): 0.10 mm (SD ± 1.16). No IOLs were positioned posterior to the posterior lens capsule. Implantation of a +30D IOL resulted in mean overcorrection of 2.96D (SD ± 0.84) in enucleated globes. A +21D IOL in adult horses resulted in a mean overcorrection of 3.94D (SD ± 1.18) at 30 days after surgery. Conclusions: Due to a more anteri-
or position of the IOLs, estimates of preimplantation (+30D for +18D) or (+21D for +15D) IOL overcorrection four live horses. Further research must be done to determine the appropriate refractive power and PADC of the IOL supported by ACVO-VAF Grant 2006–2007

ABSTRACT NO.: 59
Equine tear film break-up time
C. M. Nunnery, D. E. Brooks, C. E. Plummer and K. P. Barrie
Departments of Small and Large Animal Clinical Sciences, College of Veterinary Medicine, University of Florida, Gainesville, FL, USA
Purpose: Horses with qualitative tear film problems are commonly recognized. Tear film break-up time (TFBUT) can help to identify these animals, by detecting abnormalities in the appearance and/or layers of the pre-ocular tear film (PTF). The main aim was to develop a protocol for performing tear film break-up time and to establish normal values for this examination. Methods: This study included 30 horses. Horses were divided into three groups: Group 1 (10 foals 1–2 weeks of age) with a poor Schirmer tear test (STT) and/or corneal, conjunctival or lid abnormalities were excluded from the study. Complete ophthalmic examinations were performed at least 24 h prior to TFBUT testing. Horses were trained to blink 10 times before the Schirmer tear strip and tonometry. Animals were sedated using intravenous xylazine (Analest, Liddex Laboratories, Shandsdale, IA, USA), detomidine (Dormosedan, Pfizer Animal Health, Exton, PA, USA) or 0.9% saline, and all animals received a 2% lidocaine (Lidocaine HCL, American Regent Inc., Shirley, NY, USA) auriculo-palpebral block. To perform the TFBUT, 0.1 mL of 0.5% fluoroscein stain was applied to the dorsal bulbar conjunctiva. The 0.05 mL of fluorescein was prepared by placing 10 fluoroscein sodium strips (FUL-GLO, Alkon, Buffalo Grove, IL, USA) in 2.0 mL of eyewash (Eye Wash, Major Pharmaceuticals, Livonia, MI, USA). The lid was then manually closed by the examiner for three times to attain an even distribution of fluorescein over the cornea. After the last blinking motion the timer was started and the cornea was scanned manually from 10 s. The cornea was scanned until 55% of the fluorescein was removed. The cut-off time was set at 10 s. All examinations and TFBUT were performed in a closed environment. The statistical analysis for this study was the one-way analysis of variance. Results: Tear film break-up time was a simple test that can be incorporated into an ophthalmic examination protocol with little addi-
tional time or supplies. This information may help in diagnosis of qualitative tear film disorders in equine patients.

ABSTRACT NO.: 60
The influence of intravenous hydromorphone, butorphanol, morphine, and buprenorphine on pupil size and intraocular pressure in normal dogs
C. G. Pirie, C. Blake, E. Casey and S. Pizzianni
Department of Clinical Sciences, Tufts Cummings School of Veterinary Medicine, North Grafton, MA, USA
Purpose: The effect of intravenous hydromorphone, butorphanol, morphine, and buprenorphine on pupil size and intraocular pressure in normal dogs was assessed.

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A B S T R A C T S

ABSTRACT NO.: 61
E. Cunningham, * and R. E. Alls

Purpose: This study aims to detect the expression of intravenous morphine, hydromorphone, buprenorphine, or butorphanol on pupillary size in normal dogs.

Methods: A randomized, placebo-controlled, masked clinical trial using 12 healthy beagle dogs was conducted. Each dog was pretreated with a standard meal and intravenously injected with saline solution or one of the study drugs 45 minutes before injection. Pupillary size was then measured at 45 minutes after injection. A 1-week washout period was allowed between each trial. Prior to the second and third trials, 4 evaluable dogs were added. Pupillary size was determined from the b- and c-waves. The results were compared to the control (pretreatment baseline) at any time point for any of the opioids studied. A repeated measures ANOVA was performed on non-normalized scotopic electroretinogram (ERG) recordings in order to test for the presence of significant changes in pupil size comparing control to morphine, hydromorphone, buprenorphine, or butorphanol. Morphine produced slight mydriasis with no significant difference compared to the pretreatment baseline. There was no significant effect of buprenorphine or butorphanol on pupil size or intraocular pressure.

Results: Pupil size was measured in 8 of the 12 dogs. The results were significantly different from control (pretreatment baseline) at any time point for any of the opioids studied. However, there were no significant differences in pupil size comparing control to morphine, hydromorphone, buprenorphine, or butorphanol. There were no significant differences in pupil size comparing control to morphine, hydromorphone, buprenorphine, or butorphanol. Morphine produced slight mydriasis with no significant difference compared to the pretreatment baseline. There was no significant effect of buprenorphine or butorphanol on pupil size or intraocular pressure.

Conclusions: Morphine produced slight mydriasis without causing significant miosis or changes in intraocular pressure. Butorphanol decreases pupil size only modestly. Buprenorphine can be used for systemic analgesia at the doses used in this study without causing significant miosis or changes in intraocular pressure. Butorphanol decreases pupil size only modestly. Buprenorphine can be used for systemic analgesia at the doses used in this study without causing significant miosis or changes in intraocular pressure.

Supported by NIH short term training grant T35 DK76573.

ABSTRACT NO.: 64
N. D. Sheller, * and R. M. Comfts

Mapping of cone photoreceptor subtypes in the canine retina

Purpose: To map the distribution of cone photoreceptor subtypes in the canine retina.

Methods: AAV-mediated gene therapy was performed in two canine models of achromatopsia. This study aims to evaluate restoration of cone function following recombinant AAV gene therapy in two canine models of achromatopsia.

Results: Successful restoration of cone function was achieved in both models of achromatopsia.

Conclusions: This study demonstrates the feasibility of AAV gene therapy for the treatment of cone-rod dystrophies in dogs and provides a potential treatment option for humans with similar retinal diseases.

Supported by NIH Short Term Training grant T35 DK76573.
ABSTRACT NO.: 67
Pathological factors involved with the late onset of canine glaucoma associated with goniosynechiae: preliminary study
S. Pizzirani, V. Carroll, C. Piric, J. Keating and R. Dubielzig
Departments of *Clinical Sciences and †Biomedical Sciences, Tufts Cummings School of Veterinary Medicine, North Grafton, MA, USA; ‡Department of Pathobiological Sciences, University of Wisconsin-Madison, Madison, WI, USA
Purpose: Evaluate the pathological findings of glaucoma with goniosynechiae and hypothesis factors contributing to late-onset glaucoma in congenitally predisposed patients.
Methods: Eyes with a diagnosis of glaucoma with goniosynechiae were evaluated with standard hematoxylin–eosin microscopy. Ciliary infarction and pigmentary dispersion were scored (0 to 3) in the iridocorneal angle, uveal and avascular-trabecular meshwork, ciliary body and iris. Results: Two different iridocorneal angle anatomical positions measured 27.5920 ± 0.9152 (± standard deviation) for the right eye and 29.8694 ± 0.9665 for the left eye. Mean angle opening was 24.8352 ± 1.1312 for the 12 o’clock position, 24.9110 ± 1.1311 for the 6 o’clock position, 28.4665 ± 1.1185对于 the 3 o’clock position, and 29.9110 ± 1.1111 for the 9 o’clock position in all eyes. Overall, there was no significant difference between measurements in all 4 quadrants (P > 0.05). The ciliary cleft was open in all eyes. Conclusions: UBMs are an accurate and objective method to evaluate iridocorneal angle and ciliary cleft width in dogs. Reference values were established for the normal Beagle dog. Supported by the University of Georgia Veterinary Ophthalmology Research Fund.

ABSTRACT NO.: 68
Preliminary report: effect of a novel porous implant in refractory glaucomatous dogs
S. Roberts* and C. W. Woods†
*Animal Eye Center, Loceland, CO, USA; †TR Biosurgical, LLC, Chandler, AZ, USA
Purpose: This pilot study's purpose is to evaluate a novel implant for controlling intraocular pressure in dogs with end-stage, medically refractory glaucoma (mGl). The implant is made of a novel, proprietary silicone-based material that reduces fibrosis and augments tissue integration. Methods: This is an ongoing prospective, historically controlled field study in patients with mGl. Patients receiving other forms of surgery are not allowed into this study. Using a surgical approach, a portion of the implant is placed within the anterior chamber while the remaining segment resides beneath the sclera approximating the choroidal tissue. Patents permitted to remain on their preoperative topical or systemic medical therapies. Results: Results (interim): Four patients have enrolled with a total of five eyes receiving surgical implantation; one patient received bilateral implantation. Four eyes have remained within the normal intraocular pressure (IOP) range (data up to 3 months) and dosing frequency and amount of topical and systemic medications have been reduced. A single patient received enucleation within 1 week after implantation owing to failure of current treatment. Conclusions: The surgical technique is a reproducible method with minor postoperative complications. The implant is well tolerated with minimal tissue reaction. The current experience of this preliminary study is consistent with a potentially new management option for dogs with end-stage glaucoma. Further studies are warranted to determine if the implant will also be of use in less diseased patients or as a preoperative technique in high-risk patients.

ABSTRACT NO.: 69
Diode endoscopic cyclophotocoagulation in pseudophakic and aphakic dogs with secondary glaucoma
E. A. Lutz and J. S. Sapienza
Long Island Veterinary Specialists, Plainview, NY, USA
Purpose: This study aims to evaluate the use of a diode laser for endoscopic cyclophotocoagulation in pseudophakic and aphakic dogs with secondary glaucoma following primary cataract removal. Methods: Ten dogs (n = 10 eyes) with secondary glaucoma were treated with a limbal approach endoscopic cyclophotocoagulation (ECP). Preoperative and postoperative clinical courses were retrospectively reviewed. Patients received ECP when glaucoma was refractory to medical treatment (intraocular pressure [IOP] > 25 mmHg on medication). Results: Eight different purebred dogs and one mixed-breed dog were treated with ECP. Five were spayed females, four were neutered males, and one was an intact male. There were seven pseudophakic and three aphakic dogs. The right eye was operated on in six cases, and the left eye in six cases. One dog had previously been treated with transcutaneous diode laser cyclophotocoagulation in the affective eye. The average laser energy delivered (joules) was 200–300 mJ at a continuous duration. The average extent of ciliary process ablation was 272.5 ± 41.4 degrees (185–300 degrees). Two dogs also had Ex-pires® shunt gonioplate implants placed at the time of ECP. No adverse ocular observation related to ECP. One dog’s IOP remained normotensive (< 25 mmHg) after ECP in eight dogs from 24 h postoperatively to last visit (minimum 12 months). One dog developed a corneal edema-like stromal pattern, which eventually resolved. No post-treatment antiglaucoma drugs were used. At a final examination, one dog had regained vision, one dog with previously equivocal vision was nonvisual, and three dogs had remained nonvisual since primary diagnosis. Conclusions: On average, preoperative antiglaucoma medications were discontinued in seven cases in all eyes. Further studies are warranted to determine if other preoperative antiglaucoma medications in 6/10 dogs.

ABSTRACT NO.: 70
Cloning of canine myocilin DNA from Beagles with primary open angle glaucoma
E. S. Storey, V. Chouljenko and G. Kasoulas
School of Veterinary Medicine, Louisiana State University, Baton Rouge, LA, USA
Purpose: This study aims to clone and sequence DNA from the blood of four Beagle dogs with primary open angle glaucoma, two Beagle dogs carrying the mutation for primary open angle glaucoma (pOAG), and from tissues of two Beagle dogs carrying the primary open angle glaucoma (pOAG) mutation. Methods: Blood was collected in siliconized purple top tubes and prepared for polymerase chain reaction (PCR) from DNA isolated from blood. Quantitative PCR was used to amplify canine myocilin gene deposited to GenBank. Oligonucleotide primers were used to amplify three exons of myocilin gene using DNA dogs as template. DNA products after PCR were gel purified and directly sequenced automatically. Results: Primer's were used for successful amplification of the dog myocilin gene exon I and a PCR product spanning the respective exon III of dog myocilin gene DNA sequence. Two attempts to amplify the smallest exon II was unsuccessful. Only two nucleotide substitutions were present in comparison to the sequence of the dog myocilin gene exon II. Two mutations were detected that would be expected to induce glaucoma or result in other pathological conditions.

ABSTRACT NO.: 71
Evaluation of tonometer and intraocular pressure variability in Dutch Belted rabbits
B. C. Gilger* and G. R. Burleson†
*Department of Clinical Sciences, North Carolina State University, Raleigh, NC, USA; †Burleson Research Technologies Inc., Morrisville, NC, USA
Purpose: Dutch Belted (DB) rabbits are used commonly to evaluate the effect of glaucoma drugs in preclinical testing. Because most glaucoma drugs lower normal intraocular pressure (IOP) in rabbits only 2–4 mmHg, methods of measurement of IOP need to be consistent and reliable. Methods: To assess the effect of the IOP in DB rabbits on the measurement of IOP. Two groups of 6 rabbits were used: one group measured with tonopen XL at 8:00 and tons and the other group measured with tonovet tonometer. Both were done with 5–0 Vicryl. A plastic eye cup, filled with methylcellulose and saline and placed in the lid fissure, served as an interface between the eye and the probe. Results: Intraocular pressure (IOP) was consistent and reliable between groups using two different tonometers. Two dogs also had Ex-pires® shunt gonioplate placed at the time of ECP. One dog had a recurrent corneal ulceration (1/10) and recurrence of glaucoma (2/10). Conclusions: Two attempts to amplify the smallest exon II were unsuccessful. Only two nucleotide substitutions were present in comparison to the sequence of the dog myocilin gene exon II. Two mutations were detected that would be expected to induce glaucoma or result in other pathological conditions.
invasion of the horse lens. Iris abscesses may be a precursor lesion to some deep stromal abscesses in the horse.


*New Bolton Center, School of Veterinary Medicine, University of Pennsylvania, Philadelphia, PA, USA; †Red Bank Veterinary Hospital, Tinton Falls, NJ, USA; ‡College of Veterinary Medicine, North Carolina State University, Raleigh, NC, USA

Purpose: This study aims to determine the clinical course and outcome associated with keratocystoma in horses in the Mid-Atlantic United States. Records of horses with keratocystoma at New Bolton Center from November 2006 to November 2007 with positive fungal culture were retrospectively studied. Neither horses with stromal abscess nor horses with keratocystoma had a positive fungal culture on cytology but negative fungal culture were included.

Methods: Thirty horses (15 females, 15 males) were included. The mean age was 6.4 years (range 1.5–21 yr). The prevalence of treatment modalities was recorded.

Results: Of 30 horses, 18 (60%) were treated surgically. The available follow-up periods ranged from 0.5 to 12 months (mean 4.9 months). The most common surgical procedure performed was keratectomy (n = 22; 73%), followed by amnion (n = 6; 20%), conjunctival (n = 6; 20%), and concurrent keratectomy and amnion (n = 2; 7%). Complications included postoperative pain (n = 7; 23%), corneal abscess (n = 3; 10%), and abscesses in the horse (n = 2; 7%).

Conclusions: The most common surgical procedure performed was keratectomy (73%). Corneal grafts were performed in conjunction with an amnion or conjunctival graft in 20% of horses.

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ABSTRACT NO.: 76 Phacoemulsification and implantation of +14 diopter foldable intraocular lenses in five eyes of four adult horses W. M. Townsend, S. Jacobi and J. T. Bartoe

College of Veterinary Medicine, Michigan State University, East Lansing, MI, USA

Purpose: The purpose of this study was to describe the surgical and visual results after phacoemulsification and implantation of +14 diopter (D) foldable intraocular lenses (IOLs) in a series of adult horses.

Methods: Five eyes of four adult horses underwent phacoemulsification and IOL implantation with a +14 D foldable IOL (AcrySof N. Y. Yi, J. H. Salmon and B. C. Gilger

Department of Clinical Sciences, College of Veterinary Medicine, North Carolina State University, Raleigh, NC, USA

Purpose: Toll-like receptors (TLR) detect various microbial components and play an important role in the host innate immunity. This study was performed to evaluate the quantitative differences in mRNA expression of TLR-2, -4 and -9 in normal equine eyes and eyes with equine recurrent uveitis (ERU). Methods: Ciliary body (normal: n = 6; ERU: n = 6), iris (normal: n = 6; ERU: n = 4), choroid/retina and corneal epithelium (normal: n = 3; ERU: n = 3) of normal and eyes and eyes with naturally occurring ERU were collected. Real-time PCR assay was performed to compare mRNA expression of TLR-2, -4 and -9 between normal and ERU eyes.

Results: A three- to fourfold elevation of TLR-2 and -9 mRNA in the iris and ciliary body and two- to fivefold elevation of TLR-2, -4 and -9 mRNA in the choroid and retinas from eyes with ERU were found compared to the mRNA levels in these same tissues of normal equine eyes.

Conclusions: This preliminary study demonstrated upregulated up-regulation of TLR-2 and -9 mRNA in the iris, ciliary body, choroid/retina and up-regulation of TLR-2 and -9 mRNA in the choroid and retina of ERU eyes. Therefore, further studies are required to determine the role of TLR-2, -4 and -9 in ERU.

ABSTRACT NO.: 78 Diode laser transscleral cyclophotocoagulation for treatment of equine glaucoma: a retrospective study of 42 eyes of 36 horses M. J. Annear,* D. A. Wilkie† and J. A. Gemensky-Metzler†

*Department of Comparative Ophthalmology, Veterinary Medical Center, Michigan State University, East Lansing, MI, USA; †Department of Comparative Ophthalmology, College of Veterinary Medicine, Ohio State University, Columbus, OH, USA

Purpose: This study aims to evaluate the outcome of diode laser transscleral cyclophotocoagulation (TSCP) for treatment of equine glaucoma. Methods: Medical records of horses undergoing TSCP at the Ohio State University (1999–2007) were reviewed. Factors evaluated included preoperative pupil dilation (IOD), medical therapy, concurrent disease, laser settings, and complications. Results: A total of 42 eyes of 36 horses were included. Actire or prior uveitis was present in 38/42 eyes (90%). At 1 week, 18/23 sighted; at 9–15 weeks 18/23 sighted; at 3 months 20/42 eyes (95%). IOP was significantly lower at 1 month (mean 13 mmHg) compared to pretreatment values (mean 17 mmHg) (P = 0.005). At 1 year, 13/15 eyes (87%) were within 5 mmHg of one eye, were within 10 mmHg of the other eye and were not on medical therapy.

Conclusions: IOP was significantly lower at 1 month compared to pretreatment values. The TSCP treatment result was not on medical therapy.

424 A B S T R A C T S
ABSTRACT NO.: 79

Efficacy of topical Kinostat™ for the prevention of cataracts in dogs with diabetes mellitus: a preliminary report
I. D. Bras,* T. R. Webb,* K. Ketting,* M. Wyman† and P. F. Kadok‡

Abstract: A prospective, masked pilot study was conducted to evaluate the efficacy of topical Kinostat™ in the prevention of cataract formation in dogs with diabetes mellitus (DM). Approximately 75% of dogs with diabetes mellitus develop cataracts within 1 year of the diagnosis of DM. Simultaneously, cataracts rapidly form in galateacrine dogs where they can be reduced in a dose-dependent manner with topical alidade reduce kinase Kinostat™. The purpose of this study was to investigate whether Kinostat™ can prevent or inhibit the progression of cataracts in a dog model mimicking DM in dogs. Methods: Forty dogs, newly diagnosed with DM and with minimal lens changes, were enrolled in a prospective, masked pilot study. Dogs were randomly assigned a cooled vial containing either Kinostat or vehicle (placebo), with the contents of the vial (drug or placebo) masked from the examiner. Twenty-nine dogs received Kinostat, and 11 dogs received placebo. Owners were instructed to administer the agent OU TID for 1 year, and were instructed to record each time of administration to ensure compliance. Complete ophthalmological examinations were performed prior to enrollment in the study, and at 1, 2, 3, 6, 9, and 12 months after. Digital images were taken after dilation at each time point. Results: After 1 year of treatment with Kinostat, aqueous samples were collected and frozen for enzyme-linked immunosorbent assay to assess the cataractogenic potential of the anterior chamber. Cataract formation and progression was observed in 7/11 (64%) of the dogs receiving placebo with six dogs developing mature cataracts, and one dog developing equatorial vacuoles. Four dogs (36%) in the placebo group did not show evidence of cataract formation by the last follow-up; however, the population variance of the placebo group was not significantly different from the group treated with Kinostat (P < 0.02) and 13/29 (44%) of dogs receiving Kinostat not showing evidence of cataract development by the last follow-up (P < 0.02). Conclusions: The clinical trial, indicating that Kinostat is beneficial in arresting the onset and progression of cataracts in dogs with diabetes mellitus. Supported by NJIS RIR 1R43EY018015-01A1.

ABSTRACT NO.: 80

Effects of famciclovir on tear film parameters in cats experimentally infected with feline herpesvirus-1
C. C. Lim,* C. M. Reilly,* S. M. Thomas* and D. J. Maggs†

Abstract: This study aims to investigate effects of famciclovir on tear film break up time (TBFUT), tear osmolarity (TO), tear film breakup time (TFBUT), and ciliary score in cats experimentally infected with feline herpesvirus-1 (FHV-1). Methods: Sixteen specific-pathogen-free cats infected with 1.2 × 10⁶ plaque-forming units of FHV-1 were treated orally three times daily (800 mg, and 260 and 800 mg) with lactose (n = 6) or 90 μg/kg famciclovir (n = 10) for 21 days postinoculation (DPI). Results: Total score disease, clinical and histological evaluation of conjunctivitis, GCFC (goblet cell) and STT were recorded from DPI 0, 1, 4, 7, 11, 14, 18, and 21. Results: Although total conjunctival disease score and histological evidence of conjunctivitis in all cats following inoculation, total conjunctival disease scores were significantly lower in famciclovir- than placebo-treated cats (82% decrease) at DPI 7, 11, 14, 18, and 21. Goblet cell (GCFC) and STT were significantly higher in famciclovir-treated (9.5) than in placebo-treated cats (0; P < 0.001). All cats were monitored for 7 weeks after drug withdrawal. Conclusions: Famciclovir administered orally at 90 mg/kg three times daily is associated with minimal tear osmolarity and TBFUT, goblet cell (GCFC), and STT in cats experimentally infected with FHV-1. This study provides rigorous clinical evidence of the effectiveness of topical famciclovir in arresting and preventing the development of clinical signs of conjunctivitis and keratoconjunctivitis in cats experimentally infected with FHV-1.

ABSTRACT NO.: 81

Aqueous humor and serum pharmacokinetics of intravenous ampicillin and sulbactam in the dog
N. C. Whelan* and P. M. Imerner†

Abstract: This study aims to test the hypothesis that a single intravenous dose of ampicillin/sulbactam (AMP/SULB) will reach and maintain a bactericidal concentration in an inflamed eye. Methods: Twenty Beagle/mixed-breed animals were allocated to one of four groups for ocular and serum sampling. Following general anesthesia, intraocular inflammation was created by intravitreal injection of three different drugs, tepoxalin, carprofen, and meloxicam, in controlling aqueocentesis-induced anterior uveitis. This study aims to compare the effects of three oral nonsteroidal anti-inflammatory drugs, tepoxalin, carprofen, and meloxicam, in controlling aqueousitis-induced anterior uveitis as measured by the limbal melanoma. In contrast, cataract formation in the Kinostat group was significantly lower than in placebo-treated dogs (P < 0.02), inhibited with 21/29 (72%) of dogs receiving Kinostat not showing evidence of cataract formation by the last follow-up; however, the population variance of the placebo group was not significantly different from the group treated with Kinostat (P < 0.02) and 13/29 (44%) of dogs receiving Kinostat not showing evidence of cataract development by the last follow-up (P < 0.02). Conclusions: The clinical trial, indicating that Kinostat is beneficial in arresting the onset and progression of cataracts in dogs with diabetes mellitus. Supported by NJIS RIR 1R43EY018015-01A1.

ABSTRACT NO.: 83

A prospective study of the association of anemia and thrombocytopenia with ocular lesions in dogs
R. Orl†, I. Aroch,* P. H. Kass†, Y. Bruchim* and M. Shelah-Goraly*†

Abstract: A prospective study of the association of anemia and thrombocytopenia with ocular lesions in dogs. Methods: Dogs with anemia (n = 12) included dogs presenting with anemia (Group 1) and dogs presenting with thrombocytopenia (Group 2). Group 1 (n = 26) had PCV < 15% and PCV < 20%, respectively, and Group 2 (n = 20) had Plt < 150 × 10⁶/mm³ and Plt < 200 × 10⁶/mm³, respectively. Results: There was a significant difference between Group 1 and 2 (P = 0.01), nor was there a difference between anemic and control dogs (P = 0.13). No correlation was found between PCV and lesion severity, but a significant correlation was found between Plt and lesion severity (P = 0.017). The correlation between thrombocytopenia and lesion prevalence, as well as the correlation between Plt and lesion severity, remained significant after controlling for the most common systemic diagnosis (canine monocytic ehrlichiosis). Conclusions: This study shows a significant association between thrombocytopenia and its occurrence in dogs with ocular lesions in the absence of the primary disease. However, we did not find a significant association between anemia and the prevalence and/or severity of ocular lesions.

ABSTRACT NO.: 84

In vivo effects of tetracyclines on healing of canine refractory corneal ulcers
H. L. Chandler,* I. D. Bras,* T. E. Robbin-Webb,† W. J. A. Saville,† A. J. Gemensky-Metzler* and C. M. H. Colitz‡

Abstract: This study aims to evaluate the efficacy of tetracycline treatments on the rate of corneal re-epithelialization in canine patients with refractory ulcers. Methods: Sixty-six dogs with refractory ulcers were enrolled in this study. Patients underwent fluorescein staining, debridement, and grid keratotomy before being randomly assigned to one of the following treatment groups: (i) triple antibiotic (Tetracycline) and topical triple antibiotic ointment (ii) topical tetracycline (Tetracycline) and oral cephalaxin, and (iii) topical triple antibiotic ointment and oral cephalaxin (placebo) group. Each patient was treated for weeks with the assigned drugs. Wound closure was assessed every 2 weeks using central photography. The rate of wound healing, as well as clinical evidence of decreased pain were used to indicate drug effectiveness. Statistical analysis was performed using SAS. Results: There were no statistically significant differences in patient age or sex between the treatment groups. Bores were the predominant breed seen in all treatment groups. Dogs treated with Terramycin had a significantly shorter healing time compared to the placebo group (P < 0.03). On the other hand, dogs with tetracycline healed at a faster rate than dogs in the placebo treatment group, although this was not significant. Conclusions: We have previously shown in vitro that tetracycline increases corneal epithelial cell migration through increased expression of growth factors and downstream signaling targets. This study provides rigorous clinical evidence of the effectiveness of topical tetracycline treatment in the treatment of canine refractory ulcerative keratitis and cost-effective therapy for this disease. Supported by the AKC Canine Health Foundation.
ABSTRACT NO.: 95
Canine capsular tension ring safety and complication rates in eyes with stable and unstable lenses receiving capsular tension rings (CTR). Methods: The purpose of this study is to describe the use of the Akahoshi Phaco Prechopper for nuclear fracture on canine eyes undergoing cataract extraction by phacoemulsification.

Purpose: The purpose of this study is to describe the use of the Akahoshi Phaco Prechopper for nuclear fracture on canine eyes undergoing cataract extraction by phacoemulsification.

Methods: The Akahoshi Phaco Prechopper was used in 11 patients (14 eyes) with immature and mature cataracts undergoing cataract surgery by single-incision phacoemulsification. The previously described prechopper technique has been modified into a second-generation technique that allows for initial single-handed lens grooving and sculpting by phacoemulsification, followed by the insertion of the prechopper to complete nuclear fracture. Previously performed hydrodissection allowed for the bisection of nuclear fragments to be rotated inside the capsule to obtain multiple wedge-shaped lens fragments. Routine tip-occlusion phacoemulsification resulted in less ultrasonic time and shorter postoperative recovery times. Results: Twenty-six patients (30 eyes) were included in the analysis. The mean age of the patients was 8 years (range, 5 to 14 years). There were two patients with nasolacrimal duct obstruction who were preoperatively screened for cataract surgery, and in these cases, after routine phacoemulsification, an anterior capsulotomy was performed with the prechopper to facilitate placement of the lens. There were no significant differences in overall visual acuity (57% vs. 52%) and in the time to visual recovery (4 weeks vs. 5 weeks) between control and CTR eyes. There was also no significant difference in overall incidence of uveitis (40% vs. 38%) and fibrin (18% vs. 15%) between control and CTR eyes at the time of last follow-up. There was no significant difference in overall incidence of uveitis (40% vs. 38%) and fibrin (18% vs. 15%) between control and CTR eyes at the time of last follow-up.

Conclusions: The purpose of this study is to describe the use of the Akahoshi Phaco Prechopper for nuclear fracture on canine eyes undergoing cataract extraction by phacoemulsification.

Purpose: The purpose of this study is to describe the use of the Akahoshi Phaco Prechopper for nuclear fracture on canine eyes undergoing cataract extraction by phacoemulsification.

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were euthanized at the time of last follow-up. Two cases were blind due to progression of the retinal detachment, and one case was blind due to glaucoma. Conclusion: Diode endolaser retino- pexy can be used successfully in canine patients. The advantage of its utilization is that it com- bines the effect of laser photocoagulation and light tight thrombosis of the retinal vessels. Given the large spot size gained with the close proximity to the retina, large choroidal scotoma results, which may improve the long-term success rate of this procedure compared to the transpupillary thermotherapy approach. The results on partial retinal detachments found on screening and re- sults surgery can undergo phacoemulsification and retinopexy to restore, and attempt to pre- serve vision postoperatively, with very little additional equipment and intravascular time.

ABSTRACT NO.: 92
Application of a fluorescence assay to determine the stability of verteporfin in Domooso® and sterile water over time
E. A. Giuliano,† J. L. Whetstone,* and S. A. Tucker†
*Department of Veterinary Medicine and Surgery, College of Veterinary Medicine, University of Georgia, Athens, GA, USA; †Department of Chemistry, College of Arts and Science, University of Missouri, Columbia, MO, USA
Purpose: This study aims to serially evaluate verteporfin (Visudyne®), Parkedale Pharmaceu- ticals, Priority Health Care Distribution, Orlando, FL, USA) fluorescence using two solvents and two reconstitution methods as an indirect means of determining drug activity and stability over time. Methods: Visudyne solutions were reconstituted daily (RD) in both sterile water and Domooso® (Fort Dodge Animal Health, Fort Dodge, IA, USA) at a 6× concentration, using Visudyne powered cake from a vial opened on study day 1 (experiment 1). Stock solu- tions (SS) of Visudyne in sterile water and Domooso at 0.2 mg/mL, respectively, were made from powders (experiment 2). Visudyne solutions, from original initial SS were then tested at each measured time point (experiment 2). Next solutions served as blank controls. Results: Visudyne fluores- cence did not significantly decline over the 60-day study period. Results were independent of solvent, reconstituted concentration, and phototherapeutic activity in fluorescence data with the SS method compared with the RD method of drug reconstitution. Conclusions: Reconstituted as a vacuole in sterile water or Domooso®, Visudyne reconstitution remains possible to keep it refrigerated in the dark for use within 2 months and still have adequate drug activity. Further in vivo studies are necessary to determine if tumor regression rates are similar with antibody mediated retinopathyinduced and as a neovascular therapy. These results are consistent with previous results in establish the economic feasibility of local PDT as a treatment for equine pericentral tumors. Supported by a Clinician Scientist Research Award from MU College of Veterinary Medicine and Department of Ophthalmology.

ABSTRACT NO.: 93
Effects of a meibomian glands secretion on lacrimal behavior
A. Saito, Y. Umeda, S. Wakai and Y. Ito
Triangle Animal Eye Clinic, Tokyo, Japan
Purpose: We reported about two canine cases with epiphora diagnosed as meibomian glands dysfunction in canine. Materials and methods: Following observation was carried out for Shih Tzu (1 year old, male) diagnosed as meibomian glands dysfunction. The lacrimal behavior was recorded for 1 min after having instilled a fluo- rescence staining solution of 2 μL, with slit lamp microscope. After a rest of 10 min, a meibomian glands secretion was extruded by pressing lower eyelid margin, and the lacrimal behavior was recorded by an apped equal method subsequently. Blinking, lacrimal motion, and shape of lacrimal lake were observed using a recorded movie of lacrimal behavior before and after treatment with a meibomian glands secretion. In addition, the lacrimal behavior before and after artificial tear instillation, lacrimal presence of inward meibomian glands secretion, and old, male) diagnosed as meibomian glands dysfunction. Results: Many imperfect blinks and slight motion of tears of a conjunctival sac were observed before meibomian glands secretion. In addi- tion, artificial tear instillation then converts in shape was observed at eyelid margin. After the treat- ment, many complete blinks and adequate diffusion of tear on ocular surface were observed, and the normal tear film was restored. Meibomian glands secretion was removed from lower eyelid margin and a cornae. In addition, the case of artificial tear instillation, lacrimal diffusion was allowed after artificial tear instillation, and formation of tear meniscus was observed. Conclusions: After a meibomian glands secretion, same auto-antibody was detected in any of control canine serum. After treatment with a meibomian glands secretion, many lacrimal surface tension and frictional reduction of eyelid margin by lacrimal lipid compo- nent. Reduction of lacrimal surface tension and frictional reduction of eyelid margin by lacrimal lipid compo- nent. Results of treatment with a meibomian glands secretion, and a slight disorder in ocular surface were observed by abnormality of a blink and lacrimal diffusion and tear meniscus. In addition, it was recognized that artificial tears ophthalmic ointment was substituted for lipid layer component.

ABSTRACT NO.: 94
Experimental reactivation of latent canine herpesvirus-1 and induction of recurrent ocular disease in adult dogs
C. Ledbetter,* S. G. Kim,† E. J. Dubovi,† A. L. Wang* and R. C. Bicalho†
*Department of Clinical Sciences and †Population Medicine and Diagnostic Sciences, College of Veterinary Medicine, Cornell University, Ithaca, NY, USA
Purpose: This study aims to determine if systemic administration of an immunosuppressive dose of prednisolone to adult dogs latently infected with canine herpesvirus-1 (CHV-1) results in reactivation of CHV-1 latency from latency to produce ocular disease in the setting of a serologic response. Methods: Ten specific-pathogen-free adult Beagles (9 with experimentally induced CHV-1 latency infection and 2 uninfected dogs) were divided into the following groups: group 1, latently infected and receiving prednisolone (n = 6 dogs); group 2, latently infected and not receiving prednisolone (n = 2 dogs); and group 3, latently infected and receiving pred- nisolone (n = 2 dogs) and 1 randomly selected large-breed dog that had no received prednisolone (10 μg/kg/ day) for 7 days beginning on study day 1. Conjunctival, buffy coat, and serum samples for real-time quantitative CHV-1 polymerase chain reaction (PCR) and CHV-1 serum neutralization (SN) titer were collected at regular intervals for 42 days, and general physical and ophthalmologic examinations performed. Results: Three dogs (50%) from group 1 developed bilateral ocular disease (4 days post-challenge) and viral shedding (mean viral titer 1.8 × 108 to 1.105 cells) between study days 7 and 20. Fourfold elevations in CHV-1 SN titters were detected in all 6 dogs (100%) from group 1 by study day 14. outlier PCR assays were positive. Clinically detectable systemic disease was not observed in any dog. Dogs in control groups 2 and 3 did not develop ocular disease, CHV-1 SN titer elevations, or ocular viral shed- ding. Conclusions: The results of this study demonstrate a high frequency of viral reactivation following administration of an immunosuppressive dose of systemic prednisolone to adult dogs latently infected with CHV-1 subsequent to primary ocular infection. Reactivation is asso- ciated with transient ocular disease recrudescence, viral shedding, and CHV-1 SN titer elevations.

ABSTRACT NO.: 95
Severe ocular signs and histopathologic findings in Watanabe heritable hyperlipidemic rabbits fed a high-cholesterol diet
S. G. Stone,* L. Gallaugher,† L. M. Wancket† and D. A. Wilkie†
*Department of Veterinary Clinical Sciences, College of Veterinary Medicine, Ohio State University, Columbus, OH, USA; †Laboratory Animal Resources, Ohio State University, Columbus, OH, USA; ‡Department of Veterinary Biosciences, College of Veterinary Medicine, Ohio State University, Columbus, OH, USA
Purpose: The purpose of this study is to describe ophthalmic, examination and histopathologic findings in a population of 8–12-month old Watanabe heritable hyperlipidemic (WHHL) rabbits fed a high-cholesterol diet. Methods: After 1 month on a 0.5% cholesterol diet, 14 WHHL rabbits were divided into three groups: a control group (four rabbits) and two groups (five rabbits each group) on separate atherosclerotic plaque-reducing drugs (seasinol or lipoic acid). Serum cholesterol and triglycerides were monitored prior to the high-fat diet, prior to treatment with IVIg and/or steroid therapy. Optical coherence tomography was performed to evaluate retinal thickness. Western blot and enzyme-linked immunosorbent assay analyses were performed to assess presence of serum retinal auto-antibodies in 10 patients samples and four healthy control dog samples. Necropsy and histology analysis was performed on five donor bodies (three SARDS and two IMR patients). Results: Molecular analysis of SARDS retina showed that 14 cases (100%) of cytokeratin immunostaining revealed presence in normal retina and not in SARDS retina. After 1 month on a 0.5% cholesterol diet, 14 rabbits in both experimental groups were used for cumulative analysis results. Conclusions: SARDS and IMR are spontaneously occurring antibody-mediated retinopathies in canine patients. These syndromes are at least partially responsive to the systemic steroid/diacylglycerol and IVIg therapy. Careful screening of kidney function in SARDS and IMR patients is recommended due to observed kidney changes in all evaluated organ donor samples. Support: Veterans Administration, Department of Defense, Fight for Sight, Iowa State University Biotechnology Fund.

ABSTRACT NO.: 96
Feline orbital pseudotumor: a morphologic review of 14 cases
R. D. Dubielzig, C. M. Bell and C. S. Schobert
Department of Pathobiological Sciences, School of Veterinary Medicine, University of Wisconsin, Madison, WI, USA
Purpose: Feline orbital pseudotumor (FOP) is a debilitating disease affecting the eyes and adjacent tissues in cats. Morphologically, there is an insidious infiltrate of spindle cells, collagen deposition, and perivascular round cells in the orbit, lids, skin, and soft tissues of the oral cavity. Some cases exhibit a progressive orbital mass. Methods: Clinical and pathological samples submitted to the University of Wisconsin Department of Pathobiological Sciences were studied. Results: Of 16 patients in 14 cases of FOP, we found immune response in 3 cases and 11 miscellaneous findings in 11 cases. The ages ranged from 4 to 16 years averaging 11 years. All cats had a typical clinical presentation of episcleritis and ocular pain. Histopathology findings included: severe lipogranulomatous choroiditis characterized by spindle cells in the dermis and the substantia propria of the conjunctiva, and occasionally the rejection surgery can undergo phacoemulsification and retinopexy to restore, and attempt to pre- serve vision postoperatively, with very little additional equipment and intravascular time.
Abstracts

Immunohistochemical analysis of canine and feline uveal melanomas
M. C. Acevedo,* C. M. H. Collitz,† C. A. Barden,‡ K. M. Newkirk,*§ D. F. Kusewitt,†‡ R. R. Dubielzig‡§ and H. L. Chandler‡
*Florida Veterinary Specialist, Tampa, FL, USA; †Animal Eye Specialty Clinic, Miami, FL; ‡School of Veterinary Medicine, University of Tennessee, Knoxville, TN, USA; §University of Wisconsin, Madison, WI, USA

Purpose: Uveal melanoma is the most common primary intraocular neoplasm affecting cats and dogs. Unlike cutaneous melanomas, very little is known about the molecular pathogenesis of uveal melanomas. Although melanoma can be very destructive to the eye in the dog, the risk of metastasis is rare. Feline melanomas progress at a faster rate and are generally considered more invasive and malignant. Due to the link between uveal melanomas and increased survival, it is important that the underlying mechanisms of its oncogenesis and metastasis be studied.

The purpose of this study was to determine differences in the underlying mechanisms of uveal melanoma between cats and dogs. Material and Methods: Formalin-fixed paraffin-embedded samples of canine and feline uveal melanomas were examined for the expression of p16, pAkt, Hsp90, and telomerase using immunohistochemistry. Appropriate age-matched, normal canine and feline tissues were used to establish baseline expression of all antibodies. The stained tissue sections were scored by 2 observers, and if there was any disagreement, the slide was reviewed by a third person.

Results: There was no expression of cyclin D, yet strong expression of PCNA in all samples. Conclusions: No correlation between the presence of PV and squamous metaplasia could be determined. There is a strong correlation between increased survival and decreased expression of telomerase in canine uveal melanoma. This supports the idea that telomerase may be a potential therapeutic target.

Corneal squamous cell carcinoma in dogs with a history of chronic keratitis
R. R. Dubielzig, C. S. Schobert and J. Dreyfus
School of Veterinary Medicine, University of Wisconsin, Madison, WI, USA

Purpose: Corneal squamous cell carcinoma (SCC) is a rare tumor in dogs. The COLPLOW database has seen a recent increase in primary SCC in the axal cornea. We report here on 25 cases.

Methods: Case records of primary SCC were reviewed to identify factors associated with the development of SCC.

Results: Of the 25 cases, 3 were in the right eye and 22 in the left eye. The median age was 10 years (range 7-18). The breeds included 8 German Shepherds, 7 German Shorthairs, 3 Rottweilers, 2 Beagles, 2 Retrievers, 2 Golden Retrievers, 2 Border Collies, and 1 each of the following: Australian Shepherd, Australian Cattle Dog, Belgian Malinois, Beagle, Basset Hound, Boxer, Brussels Griffon, Bull Terrier, Basset Hound, Bull Terrier, Cocker Spaniel, Collie, Golden Retriever, and Poodle. The breeds of the remaining 3 cases were unknown. The median follow-up interval was 37 months (range 2-134). There was no evidence of neoplasia in the conjunctiva, cornea, or limbus in any of the cases.

Conclusions: There is an increased risk of SCC in dogs with a background of chronic keratitis. The presence of chronic keratitis prior to developing SCC may indicate that SCC is a chronic condition rather than an acute event. These cases suggest that SCC is a chronic condition that develops slowly over time and may be associated with chronic keratitis.

Histopathological study of the causes for failure of intrasceral prosthesis in dogs and cats
C. S. Schobert and R. R. Dubielzig
School of Veterinary Medicine, University of Wisconsin-Madison, Madison, WI, USA

Purpose: Evisceration is a common surgical procedure among veterinary ophthalmologists, but short- and long-term postoperative complications can lead to failure of the procedure, necessitating removal of the scleral shell. The purpose of this study was to determine the histopathological findings in scleral shells submitted to an ocular pathology service to determine which are the common causes leading to failure of the intrasceral prosthesis.

Methods: The database of the Comparative Ocular Pathology Laboratory of Wisconsin (COLPLOW) was reviewed for cases of evisceration that had been submitted for histopathological examination. The database was also searched for evisceration samples diagnosed with any type of neoplasia. The same procedure was performed for dogs and cats.

Results: One thousand five hundred and six cases of evisceration were examined in the COLPLOW database, of which 123 in dogs (8.3%) and 16 in cats (20.5%) received a diagnosis of neoplasia. There were 59 scleral shells from dogs, with the following distribution of diagnoses: 25 cases (42.37%) had recurrence of a tumor within the scleral shell, 25 cases (40.74%) had new tumor tissue, 16 cases (25.4%) had inflammation within the scleral shell, 4 cases (6.77%) had inﬁammation within the scleral shell independent of corneal disease, 3 cases (5.08%) were prophylactically enucleated after the diagnosis on the evisceration sample came back as neoplastic and the eye did not have SCC.

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case (1.7%) had no histopathological lesions. For cats, 11 scleral shells were received, of which 8 (72.7%) contained a tumor, 2 cases (18.2%) had corneal issues, and 1 case (9.1%) showed inflammation within the scleral shell. **Conclusions:** Recurrence of an intraocular tumor and severe corneal degenerations are the most common cause of intrascleral prosthesis failure in dogs. Recurrent neoplasia is the most common cause of scleral shell failure in cats.

**ABSTRACT NO.: 104**

**Iatrogenic ocular pathology: lessons for all**

B. P. Wilcock* and J. Wolfer†

*Histovet Surgical Pathology, Guelph, ON, Canada; †Islington Animal Clinic, Toronto, ON, Canada

**Purpose:** This study aims to improve our collective understanding of the ocular reactions to various therapeutic procedures by illustrating a variety of expected and unexpected histologic lesions occurring as sequels to enucleation, evisceration, cataract extraction, corneoscleral wound repair, intraocular aspiration cytology, cycloablation, and retinopexy. **Methods:** Retrospective histologic assessment of diagnostic samples submitted for routine diagnostic evaluation following enucleation. **Results:** Iatrogenic lesions, which were often not included in the list of concerns for which the eye was submitted, were sorted into three groups: (1) Lesions reflecting the expected outcome of the therapeutic procedure. These will be discussed to improve our collective understanding of how the therapeutic procedure impacts ocular structure and/or function. (2) Lesions that differ from the expected outcome only in quantitative terms, resulting in a failure of therapeutic efficacy or unintended bystander injury. Some reflect errors in technique, while others are just bad luck, and all represent an opportunity for improvement. (3) Outcomes that are completely unexpected. **Conclusions:** Lesions resulting from therapeutic intervention have substantial significance in terms of quality control of medical practice and providing understanding as why such procedures succeed or fail. Such lesions may be quite unrelated to the reasons for which the globe was submitted, and yet provide continuing education that is at least as valuable as the traditional ‘diagnostic’ information within the globe.