



AVHTM Newsletter

Special Events of Interest:

- 2021 ACEVCC Virtual Postgraduate Review 29-30 January
Advances in Coagulation and Biomarkers
- 2021 VECCS Spring Symposium 15-18 April
Hawaii
Fluid therapy, Ultrasound, Communication and Well-being in the ER

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AVHTM Virtual Special Interest Group (SIG) October 8, 2020

Welcome to the Autumn 2020 AVHTM Newsletter! We are pleased to report we had a very successful AVHTM stream at IVECCS. Over 200 people attended the live lectures on canine and feline blood typing by Marie-Claude Blais and fibrinolysis by Erin Tasker, and doubtless many, many more watched later, taking advantage of the ability to listen and learn when it was convenient to them. Other exciting news for the society includes the recent special interest group (SIG) meeting (further information below) and an October meeting of AVHTM members interested in research collaboration which produced a wide array of great project ideas.



AVHTM Virtual Special Interest Group (SIG) - October 8, 2020

The AVHTM Virtual Special Interest Group (SIG) was held on October 8, 2020. The AVHTM SIG is held annual at the ACVIM Forum, but due to the ongoing COVID-19 pandemic, this year's SIG was held virtually and hosted by the Veterinary Information Network (VIN). All AVHTM and VIN members were invited to attend, and over 400 people registered for this event. Although we missed sipping wine together in person, the event was a great success.

Marie Binvel from Université de Montréal presented her original research titled: *Identification of five new feline*

erythrocyte antigens based on the presence of naturally occurring alloantibodies. Marie was the recipient of the AVHTM award for the highest scoring, peer-reviewed trainee abstract in the field of Hematology at the 2020 ACVIM Forum on Demand.

In 2018, AVHTM convened a working group to create evidence-based definitions for transfusion reaction. This group contains 13 individuals from the United States, Europe, and Australia, and includes specialists in small animal critical care, internal medicine, and clinical pathology. During the Virtual

SIG, Drs. Beth Davidow, Sarah Musulin, and John Thomason presented an interim report titled *Transfusion reactions: new definitions and evidence based recommendations.* A great discussion of the recommendations followed along with discussion of potential future research studies where the evidence is for recommendations is lacking.

It is anticipated that these final recommendations will be published in Early 2021. For those that missed this presentation, a recording of the SIG can still be accessed at <https://beta.vin.com/doc/?id=9806250>

The winner of the AVHTM ACVIM abstract award Marie Binval



After earning my veterinary degree at the École Nationale Vétérinaire d'Alfort (France), I completed a general internship and then an internal medicine internship in France. From 2017 to 2020, I undertook a residency in small animal medicine at the Faculty of Veterinary Medicine of the Université de Montréal. While waiting to take my specialty board exam in June 2021, I am currently working as a clinician for the small animal emergency and critical care service at the Faculty of Veterinary Medicine, Université de Montréal.

From 2018 to 2020, in parallel with my residency, I completed a Master's degree that allowed me to carry out the research project entitled: "Identification of five new feline erythrocyte antigens based on the presence of naturally occurring alloantibodies", under the mentorship of Marie-Claude Blais. The idea for this project stemmed from the realization that research on blood groups and erythrocyte antigens in cats compared to other species is limited. Notably, in 2007, the discovery of the Mik antigen in domestic cats raised the question of the existence and clinical relevance of non-AB feline erythrocyte antigens (FEA) and their associated naturally occurring alloantibodies (NOAb). Since 2007, several crossmatch studies have documented the presence of non-AB NOAb in 0 to 29% of transfusion-naïve cats. Most of these studies focused on the possible clinical impact of the presence of NOAb during transfusion and did not describe the red blood cell antigens reacting to those NOAb.

Our prospective study focused on the identification of these FEA independent of the AB system and was divided into two parts. In the first part of the study, type A cats were evaluated for the presence of non-AB NOAb through the use of extensive crossmatching, in groups of 4-6 cats. This step supports the presence of non-AB NOAb in type A cats, with 3.9% chance of detecting incompatibilities by randomly crossmatching two cats, which resulted in at least 7% of type A cats having NOAb. In the second part of the study, we used newly detected NOAb as typing reagent to prospectively blood type cats for novel FEA. This extensive blood typing was performed with seven newly detected NOAb. Agreement analyses between reactions obtained with two different NOAb allowed us to identify five presumably distinct FEA, that we chose to name from FEA 1 to FEA 5. FEA 1 and 5 were the most frequent antigens in our study with a prevalence of 84% and 96%, respectively. We also demonstrated that all cats negative for one FEA could potentially have NOAb, but only FEA 1-negative cats were shown to be more at risk of presenting NOAb. Given its frequency and its association with NOAb, FEA 1 could correspond to the lost Mik antigen.

This study represents a first step of FEA identification outside the AB system. Additional testing of cats is now necessary to document mode of inheritance, geographical and breed distribution, frequency and immunogenicity of these newly discovered FEA, and also to determine the clinical relevance of their associated NOAb.

Interview with Urs Giger: Part II

AVHTM: On behalf of the AVHTM - congratulations on the 2020 International Canine Health Lifetime Achievement Award.

UG: Thank you for recognizing my award and inviting me to respond to your questions. I just wanted to mention that when I agreed to give the interview to you, I thought you would ask me clinical and scientific questions and not about me and the award.

AVHTM: When and why did you decide you wanted to be a veterinarian?

UG: As a mid-teenager when I was receiving exquisite training to ride top race and dressage horses by trainers, jockeys, and Olympic dressage riders. However, I realized early as a veterinary student that there is much more to learn about veterinary science which made me work in human and then in small animal medicine.

AVHTM: How long after graduation did you move to the USA?

UG: After graduating from the University of Zürich, I completed a doctoral thesis on surgical repair of hip dysplasia, a year in small animal practice, and then an amazing 3-year program in experimental medicine and biology working with top scientists (including half a dozen Nobel prize winners) before coming to the USA via University of Florida to pursue my internal medicine residency and clinical pathology training.

AVHTM: I feel like that was much more unusual in the 80's, what was your stimulus to do that and did it feel daunting?

UG: Actually, in those times clinical small animal medicine in Europe and the rest of the world was far behind the USA. I was allowed to spend an amazing couple of weeks at the Animal Medical Center in Manhattan in 1977 as a graduation present from a practitioner I worked for. This turned out to be an eye opener regarding the standard of clinical veterinary care standards for small animals (beside getting a feel for life in Manhattan). Moreover, the USA was ahead in various clinical research areas, I was keenly interested in.

AVHTM: When did you first start to get interested in transfusion medicine?

UG: While my scientific research was related to hematology (heme and hemoprotein synthesis), I became interested in transfusion medicine as a resident in internal medicine at the University of Florida. Around 1990 I received the Transfusion Medicine Academic Award from the National Health Institutes to advance veterinary and comparative transfusion medicine which allowed me to focus on transfusion related diagnostics and therapies. And I kept doing this for the past three decades beside my work on clinical hematology and hereditary diseases.

Interview with Urs Giger: Part II - continued



AVHTM: What do you feel like your greatest achievements have been in veterinary medicine?

UG: I am likely one of the last clinician-scientists trained in internal medicine as well as clinical pathology researching a broad range of diseases from the clinical signs to the molecular genetic basis and developing diagnostics to novel therapies. I was guided by the uniqueness of my patients' illnesses and was thrilled to practice precision medicine and have contributed to many clinical hematological and molecular diagnostics and some novel specific therapies.

AVHTM: How did you feel to be awarded the 2020 Kennel Club Lifetime Achievement award?

UG: I am elated to be the 2020 International Canine Health Lifetime Achievement Awardee. This prestigious award should, however, recognize and honor my international veterinary collaborators and my many fellows and veterinary and undergraduate students who I had the pleasure to work with. This includes several AVHTM members. Without them I could never have made those investigations and discoveries.

AVHTM: What are the biggest questions you still want to know the answers to in canine and/or feline transfusion medicine?

UG: Blood will remain a precious biological product and new hematological diseases will be encountered. It appears during the COVID pandemic the recruitment of blood donors in human and small animal medicine has become even more challenging. Thus alternatives and specific rapidly effective and safe treatments for our pets are needed.

Veterinary clinicians still use dog blood for cats despite well knowing it causes massive intravascular hemolysis and destruction of all transfused RBCs in 4 days. Luckily, cats and dogs do not develop a hemoglobin-induced nephropathy like humans or all cats receiving dog blood would end up in acute renal shut down. Efforts are under way to reintroduce highly purified cross-linked bovine hemoglobin solution which was approved by FDA and EU in the 1990s based upon our multicenter clinical trial for dogs and then was also safely and effectively used in cats. When traveling last year I saw it was already available in China and I know other companies are working on this hemoglobin solution.

Another challenge seems to be the precise diagnosis of IMHA in dogs and prevention and effective management of the inflammatory, necrotic and thrombotic complications. As in human medicine a direct Coombs' test (direct antiglobulin test) is needed for a diagnosis of IMHA; we are also working toward better standardization and acceptance of the Coombs' test.

To answer the countless clinical and scientific questions, I just hope there will be future students and young veterinarians interested in learning laboratory skills to pursue these multifaceted studies. They require bench work and collaborations and the AVHTM, not only provides clinical knowledge and skills, but also a great network to tackle in collaborations between clinicians and laboratory diagnosticians many of these challenges.

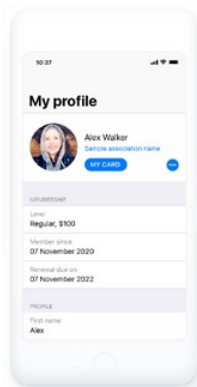
AVHTM: I think you have officially retired, is that correct? And if so what are your plans from a personal and work point of view?

UG: Yes, I retired officially from the University of Pennsylvania last year, and will move to Switzerland and travel the world. COVID pandemic caused certainly some unexpected delays in my plans but I have started to look at 2021 and beyond, when it is hopefully safe again even for a senior. I am enjoying reading non-scientific and non-veterinary books and also enjoy many outdoor activities.

However, I still like to work and thus I continuing for a little while to do collaborative research internationally, write original research papers (and rarely reviews), mentor students, doctoral fellows, and junior faculty, and teach internationally (albeit virtually), particularly in developing less fortunate regions of the world to advance veterinary and scientific standards.

An app to help you stay connected

Staying in touch has been difficult for all of us during this pandemic. Download the AVHTM's Members app and sign in with the same email address and password for your account.



This app helps you:

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Scan the QR code with your mobile device or click on the icon to download the app from the iTunes or Google Play app stores.

Recently Published Articles

- **Lyophilized platelets versus cryopreserved platelets for management of bleeding in thrombocytopenic dogs: A multicenter randomized clinical trial.** Goggs R, Brainard BM, LeVine DN, Calabro J, Harrell K, Mills T, Stone R, Davidson B, Iacovetta C, Harris L, Gicking J, Aslanian M, Ziegler A, Fulcher B, Lightfoot T, Miller M, Loftus J, Walton R, Blong A, Kishbaugh J, Hale AS. *J Vet Intern Med.* 2020 Oct 5. doi: 10.1111/jvim.15922. Online ahead of print. PMID: 33016527
- **Red blood cell osmotic fragility in healthy loggerhead and green sea turtles.** Radisic R, Owens SD, Manire CA, Montgomery N, Mader D, Zirkelbach B, Stacy NI. *J Vet Diagn Invest.* 2020 Sep 30;1040638720957117. doi: 10.1177/1040638720957117. Online ahead of print. PMID: 32996405
- **Washed Equine Platelet Extract as an Anti-Inflammatory Biologic Pharmaceutical.** Pennati A, Apfelbeck T, Brounts S, Gali-peau J. *Tissue Eng Part A.* 2020 Sep 30. doi: 10.1089/ten.TEA.2020.0160. Online ahead of print. PMID: 32854583
- **Neutrophil extracellular traps in stored canine red blood cell units.** McQuinn ER, Smith SA, Viall AK, Wang C, LeVine DN. *J Vet Intern Med.* 2020 Sep 3;34(5):1894-902. doi: 10.1111/jvim.15876. Online ahead of print. PMID: 32881076 Free PMC article.
- **Platelet-Derived Products in Veterinary Medicine: A New Trend or an Effective Therapy?** Soares CS, Babo PS, Reis RL, Carvalho PP, Gomes ME. *Trends Biotechnol.* 2020 Aug 28;S0167-7799(20)30206-7. doi: 10.1016/j.tibtech.2020.07.011. Online ahead of print. PMID: 32868100 Review.
- **Update on Albumin Therapy in Critical Illness.** Mazzaferro EM, Edwards T. *Vet Clin North Am Small Anim Pract.* 2020 Nov;50(6):1289-1305. doi: 10.1016/j.cvsm.2020.07.005. Epub 2020 Aug 21. PMID: 32839002 Review.
- **Investigation of pathological haemorrhage in Maine Coon cats.** O'Halloran C, Cerna P, Breheny C, Reed N, Rolph K, Cade S, Jones J, Brown RAL, Slade S, Papasouliotis K, Gunn-Moore D. *Vet Rec.* 2020 Aug 21;vetrec-2019-105503. doi: 10.1136/vr.105503. Online ahead of print. PMID: 32826346
- **Small Animal Transfusion Medicine.** Kuo KW, McMichael M. *Vet Clin North Am Small Anim Pract.* 2020 Nov;50(6):1203-1214. doi: 10.1016/j.cvsm.2020.07.001. Epub 2020 Aug 14. PMID: 32807588 Review.
- **Validation and Characterization of Platelet-Rich Plasma in the Feline: A Prospective Analysis.** Chun N, Canapp S, Carr BJ, Wong V, Curry J. *Front Vet Sci.* 2020 Aug 11;7:512. doi: 10.3389/fvets.2020.00512. eCollection 2020. PMID: 32851053 Free PMC article.
- **Evaluation of cytokine concentrations in a trehalose-stabilised lyophilised canine platelet product: a preliminary study.** Goggs R, Cremer S, Brooks MB. *Vet Rec Open.* 2020 Aug 7;7(1):e000366. doi: 10.1136/vetreco-2019-000366. eCollection 2020. PMID: 32821395 Free PMC article.
- **Effects of Autologous Platelet-Rich Fibrin in Post-Extraction Alveolar Sockets: A Randomized, Controlled Split-Mouth Trial in Dogs with Spontaneous Periodontal Disease.** Tambella AM, Bartocetti F, Rossi G, Galosi L, Catone G, Falcone A, Vullo C. *Animals (Basel).* 2020 Aug 4;10(8):1343. doi: 10.3390/ani10081343. PMID: 32759693 Free PMC article.
- **Efficacy of a Semi Automated Commercial Closed System for Autologous Leukocyte- and Platelet-Rich Plasma (l-prp) Production in Dogs: A Preliminary Study.** Perego R, Spada E, Baggiani L, Martino PA, Proverbio D. *Animals (Basel).* 2020 Aug 4;10(8):1342. doi: 10.3390/ani10081342. PMID: 32759643 Free PMC article.
- **Maternal-fetal Blood Major Crossmatching in Merino Sheep.** Musk GC, Usuda H, Kershaw H, Kemp MW, Sharp CR. *Comp Med.* 2020 Aug 1;70(4):355-358. doi: 10.30802/AALAS-CM-19-000115. Epub 2020 Jul 29. PMID: 32727639 Free PMC article.
- **Prevalence of Ca Blood Type and Alloantibodies in a Population of Horses from Italy.** Proverbio D, Perego R, Baggiani L, Ferrucci F, Zucca E, Nobile F, Spada E. *Animals (Basel).* 2020 Jul 13;10(7):1179. doi: 10.3390/ani10071179. PMID: 32668596 Free PMC article.
- **Retrospective evaluation of the indications, safety and effects of fresh frozen plasma transfusions in 36 cats (2014-2018).** Mansi ET, Waldrop JE, Davidow EB. *J Feline Med Surg.* 2020 Aug;22(8):696-704. doi: 10.1177/1098612X19876728. Epub 2019 Oct 2. PMID: 31576775



AVHTM

PO Box 1234
Sahuarita AZ 85629-1004

Phone: (844) 430-4300

Email: info@avhtm.org

AVHTM is an IRS approved 501(c)(3) nonprofit professional association composed of veterinarians, hematologists, academics, veterinary technicians, blood bankers, and interested public who desire to further scientific advances in transfusion medicine and veterinary hematology.

We engage in veterinary research, promote industry standards, develop guidelines for canine and feline blood collection and processing, and publish scientific research in peer-reviewed publications.

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 - o AVHTM Members App
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