

New glasses help surgeons see cancer cells (MedicalDaily.com) 2/11

A Washington University biomedical engineering professor is in the process of developing “cancer goggles” that would help a surgeon see malignant tumor cells during an operation. CT scans and MRIs provide terrific maps to show where a tumor is located but during an operation, even with these images, it is hard to distinguish normal cells from cancer cells, hence the need for wide surgical borders. With the help of an injectable contrast agent, Biomarker LS 301, and an infrared light on the “cancer goggles” the fluorescent cancer cells can be seen and surgically removed taking only the tissue needed. Testing on dogs is slated to be started shortly at the Missouri University veterinary school.

Comment: While not quite Superman’s x-ray vision, this comes pretty darn close!! What a boon it would be to be able to tell at surgery how much tissue to take to get the entire tumor and not to just hope that it was all removed. SEM

Researchers explore genetic basis of OCD in dogs (NBC News) 2/17

Researchers at the Broad Institute and Uppsala University in Sweden have identified four genes with variants that were present in dogs with obsessive compulsive disorder, OCD, but not in a group of greyhounds or Leonbergers, which are breeds with low incidences of OCD. The four genes are involved in forming and regulating synapses, the connections between brain cells that allow them to transmit information. The belief is that in OCD the circuit that tells when a task is complete does not function properly. The hope is that this finding will help both dogs and people with OCD.

Comment: It will be interesting to see if a gene therapy might be able to be developed from the beginning findings of this study. SEM

Study explores how puppies bond with dams in effort to understand connection with humans (PhysOrg.com) 2/17

Researchers at the University of Adelaide are studying the interactions between puppies and their dams as a first step in being able to analyze dog owner relationships. Typically such studies of the human-dog attachment has used observational procedures developed for human mothers and babies since attachment behaviors specific to puppies have not been described. This study hopes to change that. The researchers hope to define the importance of the dam-puppy relationship. One perceived outcome of this would be assisting breeders to choose breeding stock and it may also prove helpful in matching dogs to owners.

Comment: While this is an interesting study, I think many experienced and dedicated dog breeders intuitively, possibly even subconsciously, already watch their dam and puppy interactions and use this information in breeding and placement decisions. It will be interesting to see if what the researchers find is any different than what serious breeders already know and do.. SEM

Many mammals, including cats and dogs, may perceive UV light (LiveScience.com) 2/18

Unlike humans, many animals, such as insects, birds, fish, and others, see ultraviolet light and a new study suggests cats and dogs and other mammals also can. The lens of the human eye blocks UV light but in animals that can see UV light their lenses allow the UV light to pass through onto the retina allowing UV vision to occur. Knowing that these animals can see things invisible to humans may help explain why they behave the way they do.

Comment: A possible physical reason for why some animals may behave as they do. More work needs to be done on what purpose UV vision serve – maybe animals really can see ghosts!! SEM

New photoreceptor-dense area in canine retina discovered (Science Blog) 3/6

In primates, humans included, the center of the retina, called the fovea, is densely packed with cone photoreceptor cells that are critically important to seeing fine detail. Until now this area was thought to be unique to primates, but a recent discovery by University of Pennsylvania scientists have identified an area in canine retinas that strongly resemble the human fovea and is susceptible to the same genetic blinding diseases found in humans. Cone densities in this area of the canine retina were on par with that of the primate fovea indicating that dogs are seeing more acutely than once thought. In the future researchers may use these findings to study therapies for X-linked retinal degeneration and other sight-related diseases affecting the human macula and fovea.

Comment: It is always interesting how much we are still learning about our canine friends. Could this area of the canine eye be more developed in some breeds than in others? This could put a different spin on the meaning of sighthound! SEM

FDA approves insulin injection pen for dogs and cats (Diabetes.co.uk (U.K.)) 3/20 (Examiner.com) 3/19

The FDA has approved an insulin pen specifically designed for dogs and cats with diabetes. A refillable cartridge of insulin fits within the pen and the dose is selected by a dial on the pen. Disposable needles are screwed on the end of the pen. There are two styles of pens – one that allows for only full unit doses to be selected and another that allows half unit doses to be selected. Since there is no need to draw the insulin from a vial, the needles used with the pen are even thinner than the traditional insulin needle.

Comment: This is a tremendous development for owners of diabetic cats and dogs as there will be less guesswork of dosing and better control of a pet's diabetes. Now if it is affordable too, all the better! SEM

Lyme prevention approach uses vaccine-laced bait (American City Business Journals/Memphis, Tenn.) 3/20

A Memphis, Tenn. based business is looking to launch a Lyme prevention product. Taking inspiration from the bait delivery system that is used to deliver rabies vaccine to wildlife, the company has developed an oral bait to deliver Lyme vaccine to white footed mice (the main reservoir for Lyme disease in the Northeast). Cutting the chain of transmission by vaccinating the mice has the potential to prevent the spread of Lyme disease and could go a long way towards decreasing disease incidence, in both humans and dogs, and cutting healthcare costs.

Comment: What a boon this could be towards protecting our dogs, and ourselves, from this widespread disease. SEM

Study: Owners' scents associated with pleasure in dogs' brains (National Geographic News (Free subscription)/Weird & Wild Blog) 3/24

Using dogs that have been trained to sit still during an MRI, researchers at the Emory University in Atlanta, have been able to measure the activity of the dogs' brain when different odors are smelled. The dogs were allowed to sniff gauze pads that each had a different scent on it: a familiar human, an unfamiliar human, a dog from the same household, an unfamiliar dog, and their own scent. Activity in the part of the brain that is associated with positive expectations was highest, and persisted longer, when the dog smelled the familiar human's scent. Information from this study may be helpful in scanning potential service dogs for enhanced brain responses to identify more suitable candidates to train.

Comment: As only a small percentage of potential service dogs, only 30 to 40 percent, end up becoming service dogs this could be very helpful in helping to improve the success rate of training these dogs. SEM

Fla. Veterinarians see surge in canine leptospirosis infections (American City Business Journal/Tampa, Fla.) 3/28

Fla. Lepto spike highlights importance of vaccination, veterinarians say (Orlando Sentinel (Fla.) (tiered subscription model) 4/2

University of Florida's College of Veterinary Medicine has seen a significant increase in the amount of leptospirosis cases within the past six months. A dangerous bacterial disease that can cause deadly kidney and liver failure, it also has the potential to spread from animals to humans. Dogs can get the disease by sniffing urine from an infected animal or drinking water contaminated with an infected animal's urine. Wildlife, including buffalo, opossums, raccoons, and rats – the most common carrier - as well as domesticated animals can spread the disease. Since leptospirosis is not a reportable disease the actual incidence may be under estimated. Vaccinations are an important step to preventing this disease.

Comment: Due to the change to three or two year vaccination protocols for the distemper vaccines – which often contain leptospirosis vaccines – many dogs may no longer be being vaccinated annually for leptospirosis now. Annual vaccination for leptospirosis is necessary in order to keep protective antibody levels high. A newer combination Lyme/lepto vaccine may help improve annual vaccination against leptospirosis since Lyme vaccines are also needed yearly. Is your dog protected??SEM

Alabama rot that killed dozens of U.K. dogs linked to raw food (Telegraph (London) (tiered subscription model), The) 3/29

A mystery illness that has killed more than 40 dogs in Britain could be due to feeding raw meat. All the affected dogs suffered kidney failure after developing skin lesions on their legs and chest and tests have now confirmed that the disease is caused by a strain of Alabama Rot, a disease that killed hundreds of U.S. greyhounds in the eighties. While the exact cause of the disease is unknown, research found that it may have been caused by a toxin from bacteria found in raw meat. The disease was eliminated in American greyhound industry by improving the way raw meat was handled - keeping it refrigerated and making sure it was of high quality - and no cases have been reported in the last ten years. While in the U.S. the disease almost exclusively affected greyhounds – due to the fact that at the time the feeding of raw meat to pet dogs was illegal – in the U.K. healthy dogs of all ages, breeds and sizes have been affected. In the U.K. some of the dogs that have succumbed were not fed raw meat adding more mystery to the disease. The grim survival rate is lower than 10 percent.

Comment: I have personally seen greyhounds that were affected and died from this disease – at the time the cause was unknown - and to hear that it has reoccurred and in pet dogs is sobering. A very important reminder to make sure that you properly handle raw diets if you choose to feed them to your pets. SEM

Research uncovers hybridization of Caucasus dogs, wolves (PhysOrg.com) 4/14

Using a range of genetic techniques to examine DNA taken from shepherd dogs and wolves, researchers from the Institute of Ecology at Ilia State University and the Tbilisi Zoo in Georgia (country not state) found recent hybrid ancestry, some as close as first generation hybrids, in about 10 percent of the dogs and wolves tested. Livestock guarding shepherd dogs are commonly left to free-range with their charges. The research was undertaken to try to understand the increased wolf predation on cattle in the country.

Comment: A wolf in sheep-guarding clothing! SEM

Ariz. Veterinarians see increase in canine marijuana toxicity (KPHO-TV (Phoenix) 4/13

With the legalization of medical marijuana, cases of marijuana poisoning have more than doubled at veterinary emergency hospitals. Typically the pets are more sedate and can become stuporous. More serious side effects, even death, and the need for longer treatment can occur with exposure to synthetic marijuana.

Comment: It was only a matter of time for this to happen once medical, and in some cases recreational, marijuana was legalized. If the marijuana is baked in brownies you can have a double whammy of marijuana AND chocolate poisoning – not a good mix. SEM

Texas’ “growing crisis” of Chagas disease (Houston Chronicle (tiered subscription model)) 5/8

Chagas disease, caused by *Trypanosoma cruzi* – a protozoan, often causes fatal, heart-related problems in dogs and also in people. It is a major human health issue in Mexico, and Central and South America. The disease is transmitted by insects, specifically those of the species *Triatoma*, through their feces. Commonly known as “kissing bugs” due to their tendency to bite near the victim’s mouth, the victim then scratches at the bite smearing the feces into the wound. The protozoa then circulate in the blood stream and sets up residence in smooth muscle, typically heart muscle, where it begins to damage the tissue. Sudden death is often the first sign of the disease. No vaccine is available for this disease and the best prevention is good insect control by screening kennels, clearing vegetation from around kennels and regularly applying insecticides around the kennel perimeter.

Comment: While I am not a big fan of the use of insecticides, this disease would make me a believer in their use if I lived in Texas. Advantix II flea and tick preventative has a label claim against biting insects – I wonder if this has been tested as a way to prevent the kissing bugs from biting???? SEM

Echinococcus surge highlights role of veterinary disease control (DiscoverMagazine.com/Body Horrors blog) 4/29

After the fall of the Soviet Union, medical services were severely cut back and this included the end of canine infection control programs and public health services, including programs for deworming dogs. *Echinococcus*, a parasitic tapeworm, infects canine predators which typically pick it up from eating carcasses of herbivores, both wild and domesticated. In human, *Echinococcus granulosus* causes a cystic less severe disease while *Echinococcus multilocularis* causes a severe cystic form that forms parasitic tumors in the body. Cases of *Echinococcus* infection, both animal and human, have risen in Central Asia due to the increasing dog population – both as strays and to fill the need for more farm dogs, and due to the decreased supervision of meat processing due to less public health services.

Comment: This is a significant human health issue of concern - did we import this problem along with importing of Sochi dogs?? Did the adopted Sochi dogs undergo a thorough "vetting" before

entering into our country?? Some of the diseases we are seeing now in areas of the country where they haven't been seen before can be attributed to our more mobile society but also on many of the "expedited" transporting of dogs for the sake of "rescue". If we are to rescue dogs and other animals as well, we need to make sure that by rescuing one we are not putting many more at risk by doing so. Dogs being transported should have a thorough veterinary exam and should be tested and treated for communicable diseases prior to them being adopted – whether by the general public or Olympians. SEM

RABIES UPDATE – There have been many news articles (six, that I know of, from March 22nd to May 24th alone) about rabid animals lately. The articles are from all parts of the country – from upstate NY, to Virginia, to Texas, etc. This is an important reminder to make sure your pets are current on their rabies vaccinations. It appears rabies is on the rise again so make sure your pets are protected.