

## **CRANIOMANDIBULAR OSTEOPATHY (CMO)**

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We have also recently received a progress report from Dr. Patrick Venta of MSU on his study of Craniomandibular Osteopathy (CMO). CMO is an inherited disorder in Westies in which there is proliferation of boney growth of the lower jaw or mandible. There are many misconceptions among Veterinarians that this disease is a death sentence to a young Westie. In fact, the disease is rarely fatal but can cause a great deal of pain and discomfort to the puppy. CMO most commonly appears around 4-5 months of age and the remodeling of the bone in the lower jaw continues until that puppy's growth phase stops. Many of these dogs may only be able to open their mouth an inch or so and are forced to eat gruels for 4-6 months. Treatment with corticosteroids or non-steroidal antiinflammatories are used to help control the pain of the inflammation. Once the rapid growth of the puppy is abated, many times they are again able to open their mouths fully and will act totally normal. There is usually some residual boney changes that is life-long but the dog is able to function normally.

Dr. Venta has developed a new genetic marker called SINEs (Short Interspersed Nuclear Elements; these constitute more than 20% of the genome of humans and other mammals) to try to determine the genome linkage analysis of CMO. He anticipates the need to identify several hundred SINEs to scan all of the canine chromosomes (these are threadlike strands of DNA and associated proteins in cells that carry the genes, and function in the transmission of hereditary information). To date there are 164 SINE primer sets covering the first 18 dog chromosomes (there are 78 chromosomes in the dog). The study has begun by scanning chromosomes in numerical order looking for linkage data. All studies to this point have been done by hand to get a feel for their results. Soon there will be an automated system in use that should speed the process.

The CMO study is currently on track of time deadlines with regard to developing the SINE markers, but is slightly behind schedule for testing the markers for linkage of the CMO gene. Use of the automated SINE genotyping system should catch up the schedule for coverage of the entire canine genome. Dr. Venta points out that timing of finding the linked marker is dependent upon random chance. There is therefore a 50- 50 chance of finding the gene after screening only the first half of the genome. Should this not occur, there may be the need of increased funding the first half of 2008 to complete the project.