CADET® *BRAF* and CADET *BRAF*-PLUS

Accurate canine bladder and prostate cancer test

The power of molecular diagnostics

CADET *BRAF* evaluates urine samples from dogs for the presence of cells containing a mutation for canine bladder/prostate cancer (TCC/UC). This test's cutting-edge technology is accurate, affordable, and convenient for both veterinarian and pet owner.

Achieve accurate and early diagnosis of TCC/UC

CADET *BRAF* is a highly sensitive test designed to monitor the *b-raf* mutation in TCC/UC cases during the course of their treatment, for therapeutic response and relapse. CADET *BRAF* testing can be used for both the rapid, non-invasive assessment of dogs displaying clinical signs consistent with TCC/UC and for confirmed cases undergoing treatment.

CADET *BRAF*-PLUS

CADET *BRAF*-PLUS provides further evaluation of those dogs that present with clinical signs consistent with TCC/UC, but for which no *b-raf* mutation is detected. Scientific analysis of thousands of clinical specimens has shown that CADET *BRAF*-PLUS detects more than 2/3 of the TCC/UC cases that are not identified by CADET *BRAF*.

CONVENIENT

The free-catch urine system is non-invasive, allowing specimens to be collected while the patient is at the clinic, or by the owner at home; allows pooling of multiple urine collections. Collected urine in the *BRAF* urine container with preservative is stable at room temperature for weeks.

AFFORDABLE

Timely detection of TCC/UC allows pet owners to direct their resources towards effective treatment of the cancer itself, rather than non-specific clinical signs.

SENSITIVE

The assay permits highly sensitive and earliest detection of emerging TCC/UC often before ultrasonographical changes are observable.

ROBUST

CADET *BRAF* testing is unaffected by the presence of blood, protein, sugars, bacteria, urine stones and crystals, or other interfering substances in the urine.

SPECIFIC

CADET *BRAF* and *BRAF*-PLUS, compared to other TCC/UC diagnostic tests, has the highest specificity, eliminating the risk of false-positive cancer diagnoses.

RAPID

Results are available in just 3-6 days from receipt of the sample.

How CADET *BRAF* and *BRAF*-PLUS are used in the clinical setting

CADET *BRAF* evaluates urine samples from dogs for the presence of cells harboring the *b-raf* mutation or specific copy number variations associated with TCC/UC. The assays identify 95% of TCC/UC cases. The extremely low limit of detection of 10 mutation-bearing cells in a urine sample allows early diagnosis of a developing TCC/UC, often several months before any advanced clinical signs associated with the cancer become evident. This enables veterinarians to initiate appropriate treatment very early in the course of the disease, potentially before the mass has become invasive. Dogs presenting with abnormal urinary signs, such as hematuria, can be tested for the presence of a TCC/UC by submitting a free-catch urine sample. Urine must be submitted to Antech Diagnostics in a dedicated CADET *BRAF* urine specimen container that contains a stabilizing reagent.

Research offers a new DNA-based strategy for detection of TCC/UC from free-catch urine

Research has shown that a single mutation in the canine *b-raf* gene is present in 85% of confirmed cases of canine transitional cell carcinoma/urothelial carcinoma (TCC/UC).[1,2] Detection of the mutation is performed by the CADET *BRAF* DNA test. A second DNA test called CADET *BRAF*-PLUS detects chromosomal copy number variation linked to the presence of TCC/UC in 2 out of 3 *b-raf* mutation negative patients. This additional testing increases the diagnostic sensitivity of the combined CADET *BRAF* and *BRAF*-PLUS to 95%.[3] Both tests can be run on a single free-catch urine sample containing malignant cells shed naturally into the urine of a tumor-bearing dog.

Rigorous validation through university and industry research indicates that the *b-raf* mutation has not been found in the urine of healthy dogs, or from dogs that have benign bladder polyps, inflammation, or chronic cystitis. In cases that have undergone biopsy of a visible mass, there was concordance between the presence of the *b-raf* mutation in free catch urine and pathology-based confirmation of a TCC/UC. Presence of the mutation in canine urine therefore is a highly specific indicator of the presence of TCC/UC.[1,2]

References:

1. Mochizuki H, Kennedy K, Shapiro SG, Breen M. *BRAF* Mutations in Canine Cancers. PLoS One. 2015 Jun 8;10(6):e0129534
2. Mochizuki H, Shapiro SG, Breen M. Detection of *BRAF* Mutation in Urine DNA as a Molecular Diagnostic for Canine Urothelial and Prostatic Carcinoma. PLoS One. 2015 Dec 9;10(12):e0144170
3. Mochizuki H, Shapiro SG, Breen M. Detection of Copy Number Imbalance in Canine Urothelial Carcinoma With Droplet Digital Polymerase Chain Reaction. Vet Pathol. 2016 Jul;53(4):764-72

Clinical indications for when to use the CADET *BRAF* and *BRAF*-PLUS

CLINICAL CASES

Clinical cases presenting with hematuria, stranguria, and/or urinary incontinence with diagnostic imaging evidence of a mass in the bladder.

CHEMOTHERAPY

During chemotherapy to monitor treatment success by decreased levels of *b-raf* mutation detection, or to monitor cancer relapse by reoccurrence of *b-raf* mutation tumor-bearing cells.

EARLY DIAGNOSIS

Early diagnosis in clinical cases with recurrent, complicated, or antibiotic-resistant urinary tract infections presenting with hematuria without ultrasonographic evidence of a bladder mass.

TCC/UC DIAGNOSIS

Confirmation of the TCC/UC diagnosis of a bladder mass from a stained cytology slide following ultrasonography and cytological examination of a fine-needle aspirate from tumor-bearing cells.

EARLY DETECTION

Early detection in high-risk dog breeds such as terriers, Shetland and Australian sheep dogs, cattle dogs, beagles and border collies that are six years of age and older.

Product Information

US CODE **T1025**

CANADA CODE **CT1025**

VOLUME **40 ml free catch urine**

SPECIMEN **CADET *BRAF* Urine Container**

SCHEDULE **3-6 Days**

Learn more about the CADET-*BRAF*/*BRAF*-PLUS or other diagnostic solutions

VISIT **www.antechdiagnostics.com/cadet-braf**

UNITED STATES **1-800-872-1001**

CANADA **1-800-341-3440**

Diagnostics