CADET℠
Canine CAncer DETection

DIAGNOSING BLADDER CANCER EARLIER:

CADET℠ BRAF MUTATION DETECTION ASSAY

SENTINEL BIOMEDICAL

AMERICAN KENNEL CLUB℠

BLADDER CANCER
OVERVIEW

- Canine transitional cell carcinoma (TCC), also known as urothelial carcinoma (UC), is a malignant tumor that can affect the bladder, urethra, and kidneys of male and female dogs and also the prostate of males
- Each year in the US, an estimated 50,000 dogs are diagnosed with TCC/UC

BLADDER CANCER
INCIDENCE RATES

- Most cases are diagnosed in the bladder and at an advanced stage of disease
- More than 90% of cases occur in dogs age 6 years and older
- TCC/UC shows higher incidence rates in following breeds:

- American Eskimo Dog
- Australian Cattle Dog,
- Australian Shepherd
- Beagle
- Bichon Frise
- Border Collie,
- Jack/Parson Russell Terrier
- Lhasa Apso
- Rat Terrier
- Scottish Terrier
- Shetland Sheepdog
- West Highland White Terrier
- Wire Fox Terrier

BLADDER CANCER
TRADITIONAL DIAGNOSIS

- Repeated visits to the veterinarian
  - Urine culture at the start of physical symptoms
  - Administration of antibiotics and/or anti-inflammatory medications over several months
  - Treatment of the symptoms not the disease
  - By the time mass is detected, danger of tumor spreading to other parts of body

Sample treatment of Canine TCC/UC over time*

Tumor grows over time, starting as small mass

The point at which the dog shows physical symptoms depends on location of tumor

Dog shows symptoms: Blood in urine/ straining during urination.

Antibiotics and/or anti-inflammatory administered

Symptoms ease but tumor continues to spread

Symptoms return and Rx re-prescribed

Symptoms ease but tumor continues to spread

Symptoms return and Ultrasound and/or Cystoscopy performed to detect mass

* Scenario example only. Not indicative of all cases.

BLADDER CANCER

A NEW OPPORTUNITY FOR EARLIER DETECTION

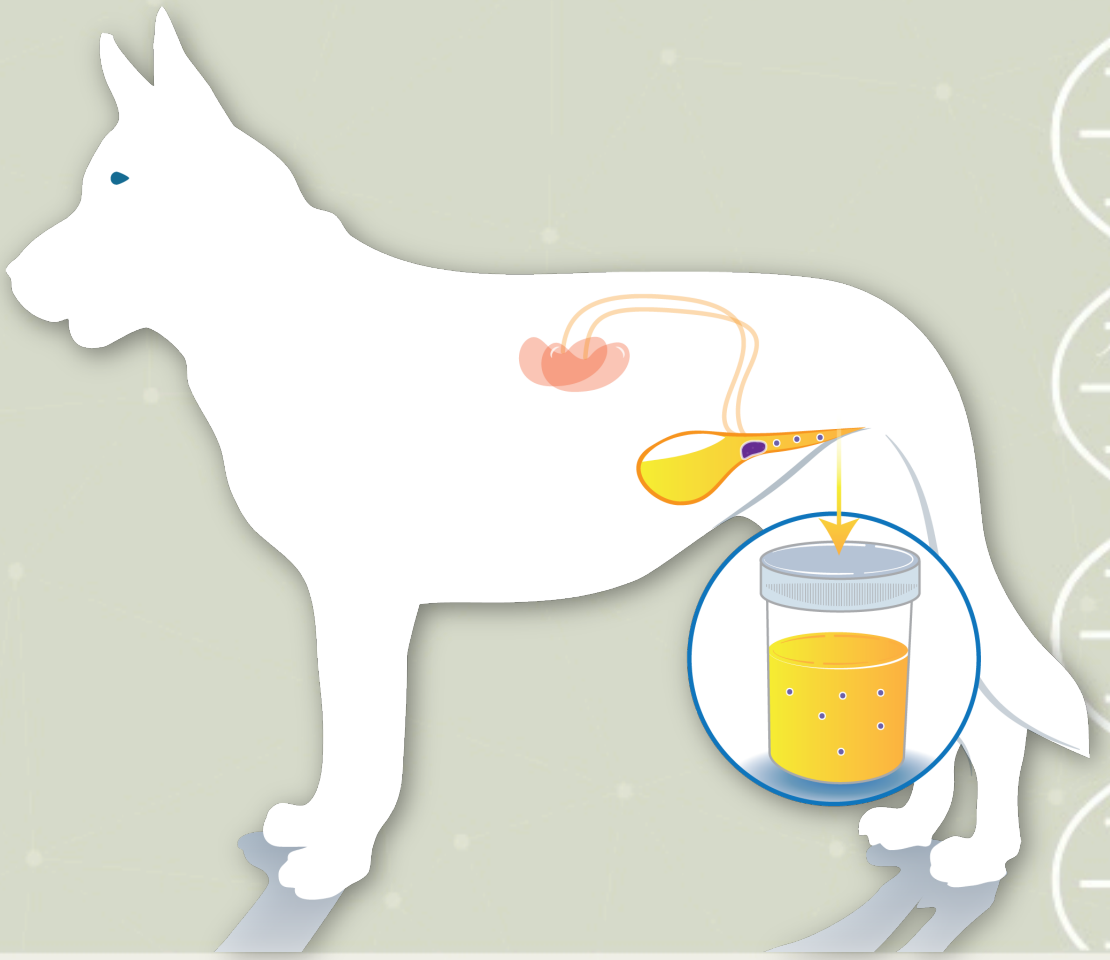
- A single mutation in a gene called *BRAF* is present in 85% of confirmed canine TCC/UC cases
  - Not found in the urine of healthy dogs or dogs that have nonmalignant bladder polyps, inflammation or cystitis
  - Can be detected in cells shed in the urine of a dog well before symptoms of the disease develop, allowing for early intervention with the most appropriate treatment

BLADDER CANCER

CADET℠ *BRAF* MUTATION DETECTION ASSAY

HOW IT WORKS

- Detects the presence of fewer than 10 tumor cells (with the *BRAF* mutation) shed into the urine presence of a canine TCC/UC



BLADDER CANCER

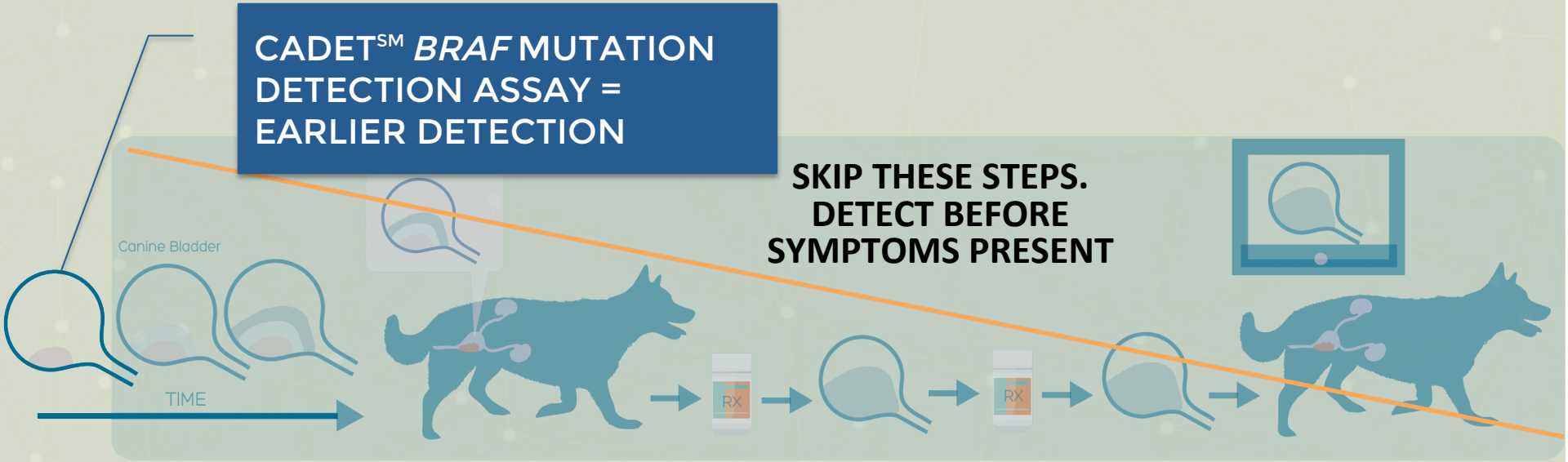
CADET℠ *BRAF* MUTATION DETECTION ASSAY

BENEFITS

- Most sensitive means to detect the presence of a canine TCC/UC
  - Detects the presence of TCC/UC up to 4 months before any signs of clinical disease become evident in a dog
    - Allows treatment for the cancer to begin sooner than waiting for repeated use of antibacterial/anti-inflammatory medications
    - Treat cancer sooner to provide improved quality and length of life
  - Provides convenient, fast, reliable, and non-invasive detection
    - Quick returns from the lab
    - No clinic fees
    - Saved time waiting for alternative treatment to symptoms

BLADDER CANCER
EARLIER DETECTION

- Starting at 6 years, submit urine samples from your dog at four month intervals for analysis
  - Non-invasive urine collection done at home
  - Regain precious time for your dog by screening his/her urine for the presence of a TCC/UC at the earliest states of development



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BLADDER CANCER

CADET℠ *BRAF* MUTATION DETECTION ASSAY

ANNUAL SUBSCRIPTION

1. All materials to collect and package 3 urine samples, sent direct to your door
2. FREE shipping to send all 3 samples back to the lab for testing
3. Fast results in under 2 weeks from receipt of urine
4. No clinic fees

BLADDER CANCER

CADET℠ PROGRAM MISSION

CADET℠
Canine CAncer DETection

- Sentinel Biomedical and the American Kennel Club are working together to offer a new line of genetic tests for early Canine CAncer DETection (CADET℠)
  - Investigate the genetic and environmental factors associated with transitional cell/urothelial carcinomas of the bladder and prostate
  - Each subscriber will have the option to be part of a large nationwide research study:
    - Access to updates of the research program to learn how their dog(s) have contributed
    - Provide valuable data to help your breed and other breeds diagnosed with these cancers
    - Study environmental implication for human cancer patients