

RANDOX

VETERINARY DIAGNOSTIC SOLUTIONS



COMPREHENSIVE CLINICAL PACKAGE FOR VETERINARY LABORATORIES



VETERINARY DIAGNOSTIC SOLUTIONS

Bile Acids | Canine CRP | D-3 Hydroxybutyrate | Glutathione Peroxidase
NEFA | Superoxide Dismutase | Total Antioxidant Status | Alanine
Aminotranferase | Copper | CK-NAC | Creatinine | Fructosamine |
Gamma-Glutamyltransferase | Total Protein | Uric Acid | Serum Amyloid A

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WHO ARE RANDOX?

Randox is an international diagnostics company with 40 years' of experience in the diagnostics industry. Internationally renowned for high quality products, our extensive product portfolio includes diagnostic reagents, quality controls, external quality assessment (EQA) and the RX series of clinical chemistry analysers.

Randox have been applying their diagnostic expertise in a variety of animal settings, including: companion animals; agriculture & livestock; university & research; and the sports industry.

RANDOX OFFERING TO THE VETERINARY MARKET

DIAGNOSTIC REAGENTS

- Over 100 clinical assays, many of which are unique to the veterinary industry, including Glutathione Peroxidase and D-3 Hydroxybutyrate
- Made from the same high quality material as our human assays, and as such provide accurate and precise results
- Scientifically proven for use with many different species
- Measuring ranges suitable for a wide range of animal species
- Suitable for use with a variety of sample types including: serum, plasma and whole blood
- Suitable for use with manual, semi-automated and automated chemistry analysers

QUALITY CONTROLS

- Randox supplies a leading range of QC material helping to ensure accurate and reliable results
- Third party controls delivering independent, unbiased performance assessment
- Our Acusera 24•7 interlaboratory data management program and RIQAS EQA scheme ensure a complete quality control solution

RX SERIES

- Our range of clinical chemistry analysers include semi-automated and automated analysers for increased choice
- Suitable for laboratories of all shapes and sizes with provision of smaller sized analysers & bench-top solutions
- Intuitive software for ease of use forvet professionals
- Ability to personalise parameter settings for a wide range of animal species increasing lab efficiency



A - Z PORTFOLIO OF VETERINARY REAGENTS

Alanine Aminotransferase (ALT)
Albumin
Aldolase
Alkaline Phosphatase
Ammonia
Amylase
Aspartate Aminotransferase (AST)
Bile Acids
Bilirubin Direct
Bilirubin Total
Cholesterol (Total)
Cholesterol (HDL)
Cholesterol (LDL)
Cholinesterase
CK-NAC
CO₂Total
Copper
Creatinine
CRP (Canine)
D-3-Hydroxybutyrate (Ranbut)
Equine Serum Amyloid A
Fructosamine
Gamma GT
GLDH

Glucose
Glutathione Peroxidase (Ransel)
Glutathione Reductase
Iron
Lactate
Lactate Dehydrogenase
Lipase
Magnesium
Microalbumin
NEFA
Phosphorus
Potassium
Serum Amyloid A
Sodium
Superoxide Dismutase (Ransod)
Total Antioxidant Status (TAS)
Total Iron Binding Capacity (TIBC)
Total Protein
Triglycerides
Urea
Uric Acid
Urinary Protein
Zinc





BILE ACIDS

WHAT IS BILE ACIDS?

Bile acids are compounds that are made in the liver and stored in the gall bladder. Bile acids help with digestion of foods, particularly fat. Bile acids are measured to determine liver function and performance; elevated levels of bile acids in the blood are a result of ineffective reabsorption by the liver after digestion and as such indicate that the liver cells are not functioning well. Bile acids provide a much more sensitive and specific indicator of liver function than commonly used tests such as bilirubin and albumin; this is because bilirubin and albumin levels return to normal long before liver function does.

WHY MEASURE BILE ACIDS?

The Randox Bile Acids test allows for liver function issues to be detected quickly, allowing early treatment and enabling the liver to regenerate before irreversible damage occurs. In addition, the test can be used to monitor drug-induced liver damage which can be a side-effect of some prescriptive medications, for example the anti-epileptic drug phenobarbital, commonly used to treat cats and dogs.

Randox 5th Generation Bile Acids

- Enzymatic colorimetric method improves sensitivity and precision, whilst reducing interference from haemolytic and lipaemic samples
- Increased sensitivity and stability for a vast range of species
- Suitable for use with serum and plasma samples
- Liquid ready-to-use reagents for convenience and ease-of-use
- Wide measuring range of 3.20-188 $\mu\text{mol/l}$
- Stable to expiry when stored at +2 to +8°C
- Controls and calibrators available

CANINE CRP (CCRP)



WHAT IS CANINE CRP?

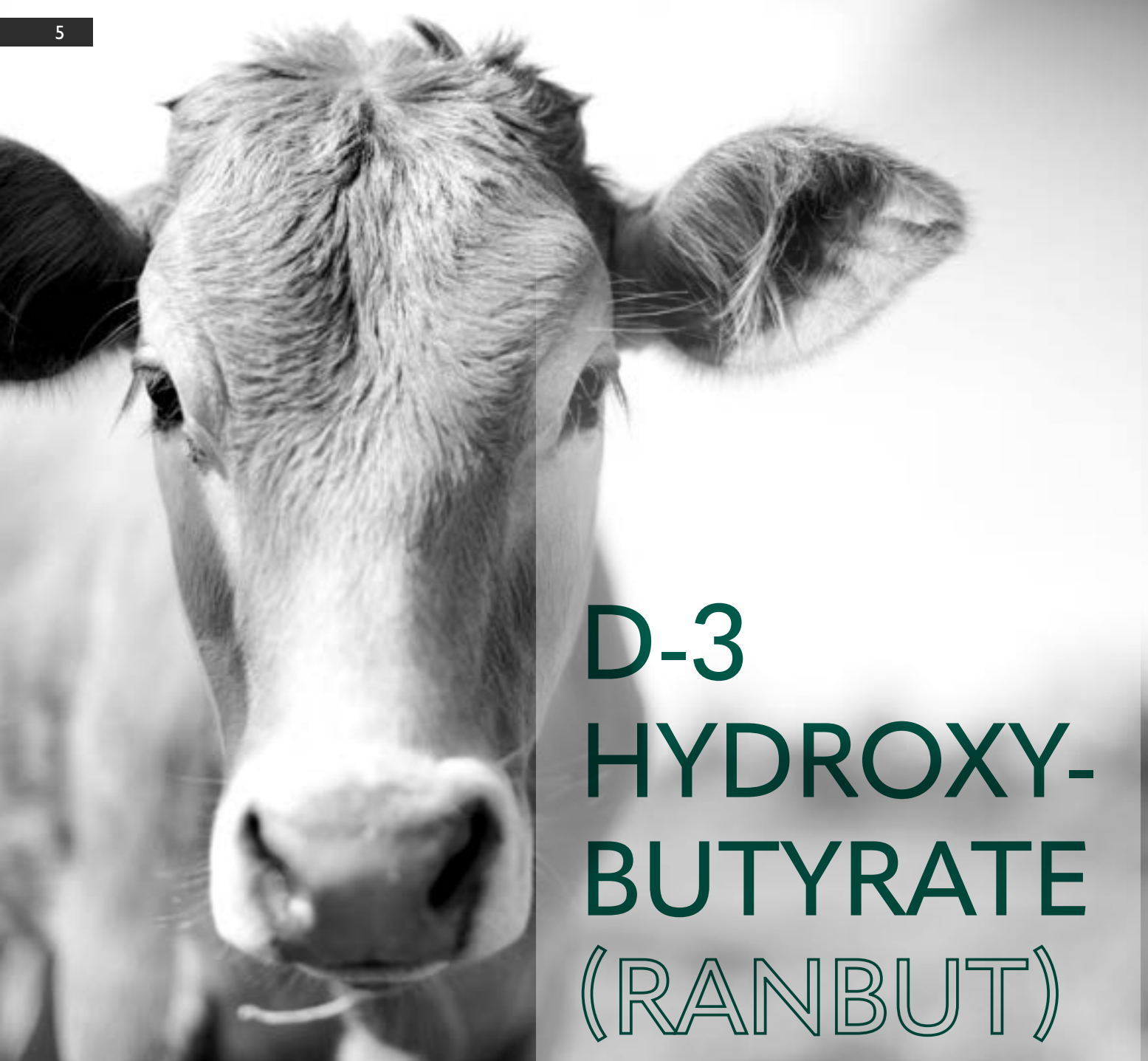
CRP (C-Reactive Protein) is an acute phase protein produced by the liver in response to tissue injury, infection, or other inflammation. In animals, serum levels increase within 4-6 hours of such events, making CRP a much earlier indicator than other acute phase reactants. Having been rigorously tested, Randox Canine CRP is validated for use with canines and has been scientifically proven as successful and reliable for routine clinical purposes.

WHY MEASURE CANINE CRP?

Canine CRP is used when inflammation is suspected and allows the extent of inflammation to be determined. In conjunction with physical examination of signs and symptoms, it can be used to determine acute inflammatory conditions and to detect a relapse of an immune-mediated disease or flare-up of a chronic inflammatory disease. Increased CRP levels are observed in various conditions. Canine CRP can also be used to monitor disease and the effectiveness of treatment.

Randox Canine CRP

- Immunospectrophotometric method
- Liquid ready-to-use reagents stable to expiry when stored at +2 to +8°C
- Wide measuring range of 8-200 mg/l;
- CRP in healthy dogs can be found at levels well below 35 mg/L, therefore Randox Canine CRP comfortably detects abnormal levels
- In addition a wide measuring range allows for slight variations of normal ranges across different canine species and ensures accurate results for all
- Calibrator included in kit
- No significant difference in performance when compared to the ELISA method



D-3 HYDROXY- BUTYRATE (RANBUT)

WHAT IS D-3 HYDROXYBUTYRATE?

D-3 Hydroxybutyrate is a major ketone body in the blood produced when fatty acids in the liver are metabolised for energy. Elevated levels of ketones are referred to as ketosis and occur when insufficient energy intake results in negative energy balance and a switch from carbohydrate to fat metabolism. Ketosis can be toxic and damaging to the kidneys and liver. During ketosis, the level of D-3 Hydroxybutyrate increases more than that of the other ketones (acetone and acetoacetate) and therefore it is the most sensitive marker of ketosis.

WHY MEASURE D-3 HYDROXYBUTYRATE (RANBUT)?

Many animals suffer an increased risk of ketosis as a result of high energy demands during lactation, pregnancy and birthing. Associated complications are also observed with pregnancy toxemia in ewes (twin lamb disease), a metabolic disease caused as a result of insufficient nutrients and severe energy shortage; it is most prevalent in ewes carrying 2 or more lambs, or in overweight ewes. Ketosis can also have a negative impact on milk production. Decreased milk yields are a result of metabolic stress during early lactation. This is commonly observed in dairy herds.

RANDOX D-3 HYDROXYBUTYRATE

- Enzymatic method
- Liquid and lyophilised options available
- For use with suitable sample types including serum and plasma
- Wide measuring range of 0.100 - 5.75 mmol/L
- Reconstituted stability of 7 days at +2 to +8°C
- Standard supplied with kit for manual use
- Serum and calibrators available for automated use
- Controls available

WHAT IS EQUINE SERUM AMYLOID A (SAA)?

Serum Amyloid A (SAA) is the major Acute Phase Protein (APP) produced in the liver. SAA proteins are a family of apolipoproteins associated with high-density lipoprotein (HDL) in plasma and are produced during the Acute Phase Response (APR), a systemic reaction to any type of tissue injury or infection. The concentration levels of SAA in the blood increases in as little as 6 hours after the onset of infection or an inflammatory state and may increase by up to 1000-fold of the base concentration level.

WHY MEASURE SAA?

A healthy horse's levels of Serum Amyloid A are typically low or even undetectable, however SAA levels will elevate rapidly in response to systemic or local inflammation. As SAA is the fastest inflammatory marker to rise in response to injury or infection together with the most distinct change between normal and abnormal levels, SAA is a valuable bio-marker for detecting infection early, monitoring health status and observing response to treatment in horses.

Our SAA test is to be used in conjunction with the Randox VeraSTAT-V, a small footprint stable-side device, designed for routine health screening in instances where elevated risk of acute infections are present. For more information please contact your local sales representative.

RANDOX SAA

- Cathodic Electrochemiluminescence (C-ECL)
- Working reagent stable until expiry at +2 to +8°C
- Measuring range 10-1500 mg/L
- Sample Volume: 5ul
- Sample Type: Whole Blood
- Assay time: 6 minutes
- Lot controlled onboard calibrator on assay cassette

EQUINE SERUM AMYLOID A



GLUTATHIONE PEROXIDASE (RANSEL)



WHAT IS GLUTATHIONE PEROXIDASE (RANSEL)?

Glutathione Peroxidase is an antioxidant enzyme that helps protect the body from free radicals. It contains selenium, an important trace element that is essential for enabling selenium containing proteins, such as glutathione peroxidase to function correctly. The Randox Ransel test is used to measure glutathione peroxidase activity to determine functional selenium deficiency.

It is considered more accurate than measuring selenium levels directly as low selenium concentration does not necessarily mean an animal is selenium deficient.

WHY MEASURE GLUTATHIONE PEROXIDASE (RANSEL)?

Selenium is essential in the optimum functioning of the antioxidant, immune and musculoskeletal systems. Selenium deficiency can have detrimental effects to the health of an animal; it can weaken the immune system, reduce fertility, cause miscarriage, stillbirth, foetal resorption, dystocia, reduced milk production and cause post-birth complications such as retained placenta or selenium deficiency in the young. Selenium deficiency can also cause white muscle disease, most commonly found in goats, sheep and cattle.

RANDEX GLUTATHIONE PEROXIDASE

- Enzymatic method
- Lyophilised reagents for enhanced stability
- Enzymatic method enabling sensitive and accurate glutathione peroxidase assessment
- Wide measuring range of 75-925 U/l
- Controls and calibrators available

ORDERING INFORMATION:
SEE PAGE 19

WHAT IS NEFA?

Non-Esterified Fatty Acids (NEFA) is a major component of triglycerides (fats) in the body and is released when triglycerides are broken down for energy. Triglycerides are used by the body for energy when dietary intake is not sufficient enough to meet energy demands; this imbalance between body expenditure and nutritional intake is referred to as negative energy balance. Elevated NEFA levels indicate negative energy balance.

WHY MEASURE NEFA?

Negative energy balance can have a damaging effect on the body over time causing conditions such as 'Hepatic Lipidosis' which refers to a fatty and low functioning liver. Many animals including cows, goats, sheep and horses can be affected by this but most susceptible are cats. A cat's body is not designed to convert large stores of fat into energy and so the fat that is released by the liver when a cat is undernourished is not processed efficiently. This leads to fat accumulation which hinders the liver from performing its vital functions. Llamas and alpacas are also susceptible to fatty liver disease as a result of negative energy balance and in most cases result in death if not recognised and treated early.

Dairy cows are prone to negative energy balance due to the high energy demand on their bodies during milk production. During pregnancy, particularly in the periods before and after calving when the cow is preparing for lactation; energy demands are increased. Side effects can include: infertility, fatty liver disease and ketosis. Ketosis can be toxic for the kidneys and liver and has been associated with pregnancy complications, decreased milk production and hypoglycaemia. The NEFA test can be used to establish negative energy balance and enable treatment to begin early.

RANDOX NEFA

- Colorimetric method
- Lyophilised reagents for enhanced stability
- Working reagent stable for 5 days at +2 to +8°C
- Wide measuring range of 0.072-2.24 mmol/l
- Standard supplied with the kit
- Controls available



NEFA



SUPEROXIDE DISMUTASE (RANSOD)

WHAT IS SUPEROXIDE DISMUTASE (RANSOD)?

Superoxide dismutase (SOD) is an enzyme that catalyses the breakdown of superoxide into oxygen and hydrogen peroxide. Superoxide is a highly reactive compound produced as a by-product of metabolic processes and is one of the most toxic and harmful free radicals in the body. It is implicated in oxidative stress, cell damage and DNA mutation and as such is linked to numerous conditions including cancer, CVD, lung, liver and renal disease, inflammatory conditions (such as arthritis), infectious conditions, ageing and neurological disorders. SOD also reduces cellular damage caused by superoxide by helping to repair damaged cells and is therefore also recognised for its anti-inflammatory effects.

WHY MEASURE SUPEROXIDE DISMUTASE (RANSOD)?

Measuring levels of SOD can help to determine the body's ability to defend against attack and repair the damage caused. This is especially relevant for endurance horses who are at increased risk of oxidative stress as a result of intense physical exercise. If levels of SOD are insufficient they may experience muscle pain, stiffness, degradation of various joint components, loss of muscle strength, stamina, flexibility and in severe cases muscle disease. Healing ability may also be affected, and therefore measuring SOD levels can provide indication as to whether their level of training is encumbering them. In addition, exposure to a variety of environments during travel to and from competitions may leave them vulnerable to disease if SOD levels are insufficient.

High levels of free radical formation have also been implicated in chronic allergies and skin diseases such as canine allergic dermatitis and canine lick granuloma, in addition to inflammatory and infectious diseases including hepatic failure in cattle, enteritis and pneumonia in farm animals, mastitis in dairy cows and feline upper respiratory infection of which SOD has been found to treat.

RANDOX RANSOD

- Measuring range of 0.00 – 5.50 U/ml for the comfortable detection of clinically important results.
- Colorimetric method
- Lyophilised reagents for enhanced stability
- Working reagent stable for 10 days when stored at +2 to +8°C
- Standard included in the kit
- Controls available

TOTAL ANTIOXIDANT STATUS (TAS)

WHAT IS TOTAL ANTIOXIDANT STATUS?

Total Antioxidant Status (TAS) is the assessment of the overall antioxidant function in the body. This is determined with the measurement of the total amount of antioxidants circulating the body. Different forms of antioxidants include those which inhibit the formation of free radicals, those which destroy free radicals, and those which repair the cells damaged as a result of free radical attack; a reduction in either of these components can compromise the body's total antioxidant capacity.

WHY MEASURE TAS?

Reduction in total antioxidant status inhibits the body's defence, and therefore has been implicated in several disease states including: cancer, heart disease, rheumatoid arthritis, diabetes and retinopathy. Measurement of TAS can identify animals at risk of such diseases. Particularly relevant is the monitoring of racehorses; as a result of intense exercise, endurance horses may suffer oxidative stress, and injury to muscle cells as a result of free radical damage. This may result in muscle cell leakage and microtrauma; measuring TAS levels helps to establish the levels of training required in addition to establishing appropriate recovery times. In addition, dairy cows are at increased risk of oxidative stress during late pregnancy, birthing and early lactation.

This is referred to as the 'transition period' as quick metabolic adaption is required due to high energy demands causing increased nutrient requirements. Dairy cows are at increased risk of metabolic disease due to the increased production of reactive oxygen species and risk of oxidative stress. Animal wellbeing can be affected, in addition to economic impact for dairy farmers as milk yields are affected by oxidative stress. The TAS test can help to assess nutrient requirements to ensure improved health during the transition period. Similarly, the TAS test can be used to monitor pregnant mares as they are more susceptible to oxidative stress during the perinatal period.

RANDOX TAS

- Colorimetric method
- Standard included with the kit
- Wide measuring range of 0.21-2.94 mmol/l
- Lyophilised reagents for enhanced stability
- Working reagent stable for 2 days at +2 to +8°C or 8 hours at +15 to +25°C
- Controls available
- Has been used to establish reference ranges in beagles and with a wide measuring range it can measure both very high and very low TAS levels in dogs

OTHER REAGENTS

ALANINE AMINOTRANFERASE (ALT)

Alanine aminotransferase (ALT) is an enzyme found mainly in the hepatocyte cells of the liver with smaller concentrations found in the kidneys, heart and muscles. When hepatocytes are damaged, ALT leaks into the bloodstream, causing elevated levels of serum ALT. In small animals such as dogs, cats and rabbits, ALT is a specific indicator of hepatic injury due to high enzyme activity in the liver and can indicate the need for further tests to determine the presence of liver disease.

RANDOX ALT

- UV and Colorimetric methods available
- Liquid and lyophilised reagents available
- Stable to expiry when stored at +2 to +8°C
- Controls and calibrator available

"RELEVANT
FOR SMALLER
ANIMALS"



COPPER

Copper is an essential trace element and is a component of many metalloenzymes. In animals, copper is needed for body, bone and wool growth. Copper deficiency may be primary where the pasture being grazed does not carry sufficient copper or secondary where the dietary levels of copper are sufficient but other factors interfere with its utilisation.

Copper deficiency may occur in animals due to:

- Grazing for extended periods on green feed, as copper is more readily available in dry feed
- Pasture type, as grasses have a lower copper level than clovers
- Seasonality
- High dietary intake of other elements

Clinical signs of copper deficiency may include:

- Rough coat in cattle or steely wool in sheep
- Fading of the coat, usually starting around the eyes
- Poor growth and body condition in cattle
- Diarrhoea in cattle
- Swayback in lambs
- Sudden death ("falling disease") in cattle
- Excess copper can also be toxic

Randox Copper

- 2 week stability at +2°C to +8°C, minimising reagent waste
- Lyophilised reagents for enhanced stability
- Standard supplied with kit, simplifying the ordering process
- Extensive measuring range of 6.6-86 µmol/l suitable for a range of species
- Colorimetric method
- Serum calibrator for automated use
- Controls available

"ISSUES CAN
BE DETECTED
QUICKLY"

CK-NAC

Creatine Kinase (CK) is found mostly in the heart, skeletal muscle and brain tissues. Upon damage to these muscles it leaks from the tissue into the blood. The CK-NAC test is used in the veterinary industry to identify tissue damage in the brain, muscles and heart of animals.

CK is regarded a 'leakage enzyme' which spikes rapidly upon muscle damage resulting from trauma such as surgery, injections and seizures. Serum CK levels usually decline within 2-3 days following trauma, and in cases where mild to moderate increase in CK activity is identified over time, may indicate on-going injury or disease.

RANDOX CK-NAC

- UV method
- Liquid and lyophilised reagents available
- Stable to expiry when stored at +2 to +8°C
- Wide measuring range 27.7 - 2804 U/L
- Controls and calibrators available

"IDENTIFY
TISSUE
DAMAGE"



OTHER REAGENTS

CREATININE

Creatinine is a by-product produced during normal muscle metabolism. It is removed from the body by the kidneys and as such elevated creatinine levels indicate impaired kidney function or kidney disease. Creatinine is commonly tested due to the varied symptoms of kidney dysfunction. Signs of serious illness only appear after 75% of kidney function has already been lost and therefore it is important that any issues with the kidneys are caught early.

RANDOX CREATININE

- Jaffe & Enzymatic UV methods available
- Liquid ready-to-use reagents (enzymatic lyophilised available)
- Wide measuring range of 2.46 -754 mg/dl (218 - 66750 $\mu\text{mol/l}$) (JAFJE) and 13.5 -2505 $\mu\text{mol/l}$ (0.15 -28.31 mg/dl (Enzymatic)Standard included in some kits
- Controls and calibrators available

"EARLY
DETECTION
IS KEY"

FRUCTOSAMINE

Serum fructosamine is formed when glucose attaches to a protein molecule and as such when glucose levels are elevated, fructosamine levels also increase; fructosamine levels reflect the average glucose concentration over a 21 day period. Fructosamine tests provide a marker for confirmatory assessment of diabetes in addition to assessing the effectiveness of insulin therapy, owner compliance and long-term diabetes control.

Diabetes commonly affects dogs and cats; in such cases, using a blood glucose test to diagnosis diabetes can be misleading. This is a result of factors such as stress being a causal factor of elevated blood glucose levels, particularly in cats who often suffer stress induced hyperglycaemia. Fructosamine levels are not affected by stress and therefore fructosamine measurements can be used for confirmatory testing, to differentiate between temporary hyperglycaemia and prolonged hyperglycaemia caused by diabetes.

RANDOX FRUCTOSAMINE

- Enzymatic method for improved specificity and reliability than conventional NBT-based methods
- Liquid ready-to-use reagents
- Stable to expiry when stored at +2 to +8°C
- Wide measuring range 8.12-1803 $\mu\text{mol/l}$
- Controls and calibrators available

"MARKER FOR
CONFIRMATORY
ASSESSMENT"



GAMMA-GLUTAMYLTRANSFERASE

Gamma-GT is an enzyme found in body tissue of many organs, mainly the liver, kidneys and pancreas. The main source of serum GGT is the liver, and as such GGT is a significant marker of hepatobiliary diseases in cows, horses, sheep and goats, and cholestasis and bile duct hyperplasia in dogs and cats.

RANDOX GAMMA-GT

- Colorimetric method
- Liquid and lyophilised reagents available
- Stable to expiry when stored at +2 to +8°C
- Wide measuring range 7.60 -1285 U/L
- Controls and calibrators available

"A
SIGNIFICANT
MARKER"



TOTAL PROTEIN

Total protein measures the overall protein levels in the blood and indicates hydration status in addition to information regarding the liver, kidneys and infectious diseases. Elevated levels indicate dehydration, infection, cancer, chronic inflammation, neoplasia, paraproteinemia and auto-immune disease. Decreased levels indicate malnutrition, gastrointestinal diseases, inflammatory bowel disease, protein-losing enteropathy, haemorrhage, liver disease, decreased kidney function and congestive heart failure. The test is useful in the case of most animals, particularly dogs, cats and horses of which dehydration and viral infections are commonly associated.

RANDOX TOTAL PROTEIN

- Biuret method
- Liquid ready-to-use reagents
- Stable to expiry when stored at +2 to +8°C
- Wide measuring range 5.05 - 124 g/L
- Standard included in some kits
- Controls and calibrators available

"USEFUL IN
THE CASE OF
MOST ANIMALS"



URIC ACID

Uric acid is a metabolic by-product produced when the body breaks down purines (organic compounds found in food). Usually filtered by the kidney, elevated levels can occur if kidney function is reduced or if too much uric acid is being produced. Elevated levels can cause urolithiasis (urate stones in the urinary tract), kidney stones and gout (joint inflammation caused by the formation of solid crystals in the joints). The uric acid test is used when either of these conditions is suspected.

This test is particularly relevant for Dalmatians due to a genetic anomaly which causes them to be susceptible to urate stones; this anomaly is also associated, to a lesser extent, with English Bulldogs. Other breeds commonly affected by urate stones include Yorkshire Terriers and Black Russian Terriers.

RANDOX URIC ACID

- Enzymatic Colorimetric method
- Liquid and lyophilised reagents available
- Stable to expiry date when stored unopened protected from the light
- Wide measuring range
- 20.8-1375 mmol/l
- Standard included in some kits
- Controls and calibrators available

"PARTICULARLY
RELEVANT FOR
CERTAIN DOG
BREEDS"



QUALITY CONTROL

ACUSERA

Randox is one of the largest manufacturers of true third party quality control solutions in the market. Our reliable, high quality controls will accurately assess the performance of your instruments assuring you that the results being released are accurate. The Randox Acusera range of quality controls is ideally suited for use in your veterinary practice. By employing Acusera in your laboratory you could benefit from:

- Multi-analyte controls enabling effective consolidation and cost savings
- Bovine and human based controls to suit your needs
- An option of assayed or unassayed controls
- Controls that cover the full clinical range
- Suitable for use on a wide range of veterinary analysers
- Calibrators are also available

RIQAS

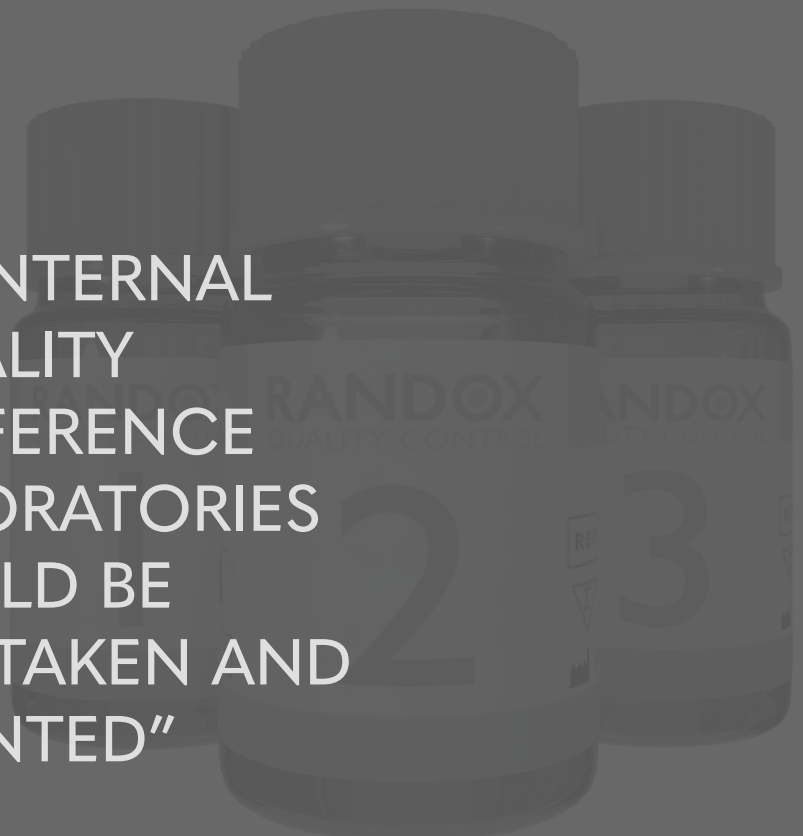
With more than 55,000 participants in 136 countries, RIQAS is the world's largest international EQA scheme, with many veterinary laboratories employing the scheme to ensure the quality and reliability of their results. Each programme benefits from a wide range of concentrations, frequent reporting and comprehensive yet user-friendly reports.

"In addition to internal procedures, quality assurance by reference to external laboratories or samples should be routinely undertaken and results documented." -
From the current RCVS Practice Standards Scheme

ACUSERA 24•7

Acusera 24•7 has been designed to be compatible for use with the Acusera range of true third party controls. The software has been created to help monitor and interpret QC data, providing access to; QC multi-rules, interactive charts, real-time peer group data and our unique dashboard interface instantly highlighting any poor performing tests at-a-glance. Employing Acusera 24•7 in your veterinary laboratory will allow you to increase the efficiency of laboratory operations, meet regulatory requirements and ultimately improve analytical quality.

"IN ADDITION TO INTERNAL PROCEDURES, QUALITY ASSURANCE BY REFERENCE TO EXTERNAL LABORATORIES OR SAMPLES SHOULD BE ROUTINELY UNDERTAKEN AND RESULTS DOCUMENTED"



RX SERIES



RX MISANO

A semi-automated clinical chemistry analyser with the ability to run flow cell or cuvette mode. The RX misano offers 9 wavelengths spanning 340-700nm as standard. A large 7" touch screen monitor, responsive even when wearing lab gloves, allows the user to easily navigate through the testing screens of the analyser. USB port allows user to import Randox-defined test menus and export patient, QC and calibration results.



RX MONACO

A fully automated, random access clinical chemistry analyser with 12 wavelengths between 340-800nm and a throughput of 170 tests per hour. Available as a benchtop or floor standing model with Windows® based software and STAT sampling as standard. The low throughput of the RX monaco provides small to mid-volume laboratories with cost effective analysis and high quality testing.



RX DAYTONA+

A fully automated, random access, benchtop clinical chemistry analyser with a throughput of 270 photometric tests per hour, increasing to 450 with the optional ISE unit. There are 12 wavelengths spanning 340-800nm and the RX daytona+ provides liquid level, clot and crash detection. Software is windows based and STAT sampling is available via an emergency loading port. The RX daytona+ offers superior performance for mid volume laboratories.



RX IMOLA

A fully automated, random access, benchtop clinical chemistry analyser with a photometric throughput of 400 tests per hour increasing to 560 including ISE. There are 12 wavelengths spanning 340-800nm and the RX imola provides liquid level, clot, crash and bubble detection. Software is windows based and STAT sampling is available via an emergency loading port. The RX imola offers efficiency for medium sized laboratories.



RX MODENA

A fully automated, random access, floor standing clinical chemistry analyser with a photometric throughput of 800 test per hour, increasing to 1200 including ISE. There are 13 wavelengths spanning 340-800nm. Accurate results are supported by liquid level, clot, and crash detection. The operating system utilises a modern touch-screen interface and Windows® icon based software.

VERASTAT-V - HORSE HEALTH IN STABLE HANDS

A new addition to the Randox veterinary product portfolio is the VeraSTAT-V, stable-side device to detect the earliest signs of inflammation in just 6 minutes.

The VeraSTAT-V device measures quantitative levels of Serum Amyloid A in horse blood, to distinguish systemic infection from injury prone inflammation from the convenience of the stable-yard.

Serum Amyloid A: A valuable inflammatory marker

Serum Amyloid A (SAA) is the fastest biomarker to rise in response to injury or infection, vital for detecting infection early and monitoring response to treatment.



STABLE-SIDE DEVICE

- ▶ Lightweight, portable and convenient, for results when and where they are required



QUANTITATIVE RESULTS

- ▶ Accurate results to help distinguish between systemic infection and injury prone inflammation.



RESULTS IN 6 MINUTES

- ▶ Facilitates immediate decision making, removing the delay in sending samples to the lab.



WHOLE BLOOD SAMPLE

- ▶ Requires just a few drops of whole blood, ideal for use at the point-of-care.



EASY TO USE

- ▶ Intuitive user interface guides the operator through the entire testing process.



EXPORT RESULTS

- ▶ Results can be exported via Bluetooth connectivity, ideal for monitoring health status over time.



REFERENCES



- Smuts, C.M., Bennett, M.D., Sharman, M., Mills, J. and Gaál, T. Laboratory methods for evaluating canine portosystemic shunts. *Australian Veterinary Practitioner*. 2012, 42 (1). pp. 168-171. (ALT)
- Kjelgaard-Hansen. Comments on measurement of C-reactive protein in dogs. *Veterinary Clinical Pathology*. 2010; 39(4): 402-404 (Canine CRP)
- Zelst M. et al. Biomarkers of selenium status in dogs. *BMC Veterinary Research*. 2016. (CK-NAC)
- Nemec Svete, A., et al. Antioxidant status parameters in dogs: before and after oncologic treatment. *Clin. Chem Lab. Med.* 2008, 46: S643-S644. (Glutathione Peroxidase, Superoxide Dismutase)
- Nemec et al. Total antioxidant capacity values and their correlation with individual antioxidants in serum of healthy beagles. *Acta Vet. Brno*. 2000, 69:297-303. (TAS)
- Nemec Svete, A., et al. Antioxidant status parameters in dogs: before and after oncologic treatment. *Clin. Chem Lab. Med.* 2008, 46: S643-S644. (TAS)
- Mustonen A. et al. Lipid Metabolism in the Adipose Tissues of a Carnivore, the Raccoon Dog, During Prolonged Fasting. *Experimental Biology & Medicine*. 2007, 232(1): 58-69 (Uric Acid)



- Tahira, A., et al. Evaluation of protective and cyrative role of α -lipoic acid and selenium in gentamicin-induced nephrotoxicity in rabbits. *Pak. J. Pharm. Sci.* 2012, 25(1): 103-110. (Creatinine)
- Omonkhua A.A and Onoagbe L.O. Evaluation of the long-term effects of Urena lobata root extracts on blood glucose and hepatic function of normal rabbits. *Journal of Toxicology and Environmental Health Services*. 2011, 3(8): 204-213 (Gamma GT)
- Abdelhalim, M.A.K. The potential influence of high cholesterol diet-induced oxidative stress on composition and properties of red blood cells in rabbits. *African Journal of Microbiology Research*. 2010, 4(9): 836-843. (Glutathione Peroxidase)
- Abdelhalim, M.A.K. The potential influence of high cholesterol diet-induced oxidative stress on composition and properties of red blood cells in rabbits. *African Journal of Microbiology Research*. 2010, 4(9): 836-843. (Superoxide Dismutase)



- Sepúlveda-Varas, P., et al. Transition diseases in grazing dairy cows are related to serum cholesterol and other analytes. *PLoS ONE*. 2015, 10(3): e0122317. (D-3-Hydroxybutyrate)
- Slavík, P., et al. Selenium status in heifers, late pregnancy cows and their calves in the Šumava region, Czech Republic. *Acta Vet. Brno*. 2007, 76: 519-524. (Glutathione Peroxidase)
- Fathi, E., et al. Application of acute phase proteins as indicators of ketosis and their relation to energy metabolites in post-calving dairy cows. *IJRSR*. 2013, 4(6): 842-845. (NEFA)
- Tanha, T., et al. Effects of glutamine on oxidative stress and immune response and acute phase proteins in prepartum in Holstein dry cows. *Res. J. Biol. Sci.* 2011, 6(4): 158-163. (TAS)



- D'Ambrosio, F.D., et al. Effects of rumen-protected choline supplementation in periparturient dairy goats. *Veterinary Research Communications*. 2007, 31(Suppl. 1): 393-396. (D-3-Hydroxybutyrate)
- Celi, P., et al. Effects of plane of nutrition on oxidative stress in goats during the peripartum period. *The Veterinary Journal*. 2010, 184(1): 95-99. (Glutathione Peroxidase)
- D'Ambrosio, F.D., et al. Effects of rumen-protected choline supplementation in periparturient dairy goats. *Veterinary Research Communications*. 2007, 31(Suppl. 1): 393-396. (NEFA)
- Celi, P. et al. Metabolic profile and oxidative status in goats during the peripartum period. *Australian Journal of Experimental Agriculture*. 2008, 48(7): 1004-1008. (Superoxide Dismutase)



- Graaf-Roelfsema, E. et al. Effects of short - and long-term recombinant equine growth hormone and short-term hydrocortisone administration on tissue sensitivity to insulin in horses. *American Journal of Veterinary Research*. 2005, 66(11): 1907- 1913. (D-3-Hydroxybutyrate)
- Ludvíková, E., et al. Selenium status of horses in the Czech Republic. *Acta Vet. Brno*. 2005, 74: 369-375. (Glutathione Peroxidase)
- Wagner, E.L., et al. Copper, zinc-superoxide dismutase activity in exercising horses fed two forms of trace mineral supplements. *J. Equine. Vet. Sci.* 2010, 30(1): 31-37 (Superoxide Dismutase)
- Górecka, R. et al. Changes in antioxidant components in blood of mares during pregnancy and after foaling. *Bull. Vet. Inst. Pulawy*. 2002, 46: 301-305. (TAS)

KEY

ALT

BILE ACIDS

CANINE CRP

CK-NAC

CREATININE

D-3 HYDROXYBUTYRATE

GAMMA GT

GLUTATHIONE PEROXIDASE

NEFA

SUPEROXIDE DISMUTASE

TAS

TOTAL PROTEIN

URIC ACID

REFERENCES ALSO AVAILABLE FOR:

- Lamb
- Ewe
- Sheep
- Arctic Blue Fox
- Macaw
- Feline
- Reptile
- Hamster
- Guinea
- Sow
- Camel
- Chicken

ORDERING INFORMATION

DESCRIPTION 	METHOD 	SIZE 	CAT. CODE 
Alanine Aminotransferase	UV (IFCC)	R1 6 x 56ml, R2 6 x 20ml	AL8006
Alanine Aminotransferase	UV (IFCC)	10 x 10ml	AL1205
Alanine Aminotransferase	UV (IFCC)	R1 6 x 51ml, R2 6 x 14ml (S)	AL3801
Alanine Aminotransferase	UV (Modified IFCC)	R1 4 x 20ml, R2 4 x 7ml (S)	AL8304
Bile Acids	Colorimetric	R1 6 x 50ml, R2 6 x 18ml (S)	BI7982
Bile Acids	Colorimetric	R1 2 x 18ml, R2 2 x 8ml (S)	BI3863
Bile Acids	Enzymatic Colorimetric	R1 2 x 17.7ml, R2 2 x 8.9ml	BI8150
Canine CRP	Immunoturbidimetric	R1 2 x 18.1ml, R2 2 x 5ml (C) (S)	CP10389
CK-NAC	UV (DGKC)	20 x 2.5ml	CK110
CK-NAC	UV (DGKC)	R1 4 x 20ml, R2 4 x 7ml (S)	CK8313
CK-NAC	UV (IFCC)	R1 4 x 16.5ml, R2 4 x 6.2ml (S)	CK3892
CK-NAC	UV (DGKC)	R1 4 x 20ml, R2 4 x 6ml	CK3812
Copper	Colorimetric	R1 5 x 20ml, R2 1 x 30ml (S)	CU2340

KEY

◆ Indicates liquid option,

(C) Indicates calibrator included in kit,

(S) Indicates standard included in kit, and is for manual and semi-automated use only

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DESCRIPTION 	METHOD 	SIZE 	CAT. CODE 
Creatinine	Enzymatic	R1 4 x 50ml (S) , R2 4 x 20ml	CR2337
Creatinine	Enzymatic	R1 4 x 50ml, R2 4 x 10ml (S)	CR2336
Creatinine	Enzymatic	R1 4 x 65ml, R2 4 x 32.3ml (S)	CR8122
Creatinine	Enzymatic	R1 4 x 20ml, R2 4 x 9.5ml (S)	CR8317
Creatinine	Enzymatic	R1 4 X 50ml, R2 4 X 19.5ml (S)	CR4037
Creatinine	Enzymatic	R1 4 x 65ml, R2 4 x 32.3ml	CR8122
Creatinine	Jaffe	R1 6 x 68ml, R2 6 x 20ml	CR8022
Creatinine	Jaffe	1 X 200ml (S)	CR510
Creatinine	Jaffe	R1 4 x 20ml, R2 4 x 7ml	CR8316
Creatinine	Jaffe	R1 6 x 51ml, R2 3 x 28ml	CR3814
D-3-Hydroxybutyrate	Enzymatic	10 x 10ml (S)	RB1007
D-3-Hydroxybutyrate	Enzymatic	10 x 50ml (S)	RB1008
D-3-Hydroxybutyrate	UV	R1 2 x 20ml, R2 2 x 5.8ml (S)	RB4067

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DESCRIPTION 	METHOD 	SIZE 	CAT. CODE 
D-3-Hydroxybutyrate	UV	R1 2 x 20ml, R2 2 x 6.1ml (S)	RB8378
Equine Serum Amyloid A	Cathodic Electrochemiluminescence (C-ECL)	40 cassettes, 40 dilution buffer, 80 capillary tubes, 1 IFU, 1 NFC card	VS1002
Fructosamine	Enzymatic	R1 5 x 25ml, R2 5 x 6.3ml (S)	FR3133
Fructosamine	Enzymatic	R1 4 x 19.8ml, R2 4 x 6.9ml (S)	FR4030
Gamma GT	Colorimetric	6 x 21ml (S)	GT3874
Gamma GT	Colorimetric	R1 7 x 20ml, R2 7 x 8ml	GT8146
Gamma GT	Colorimetric	R1 4 x 20ml, R2 4 x 7ml (S)	GT8320
Gamma GT	Colorimetric	R1 6 x 51ml, R2 6 x 14ml (S)	GT3817
Glutathione Peroxidase	Enzymatic	8 x 6.5ml	RS504
Glutathione Peroxidase	Enzymatic	8 x 10ml	RS505
NEFA	Colorimetric	R1 3 x 10ml, R2 3 x 20ml (C)	FA115
Superoxide Dismutase	Colorimetric	5 x 20ml (S)	SD125
Total Protein	Biuret	9 x 51ml (S)	TP3869

KEY

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DESCRIPTION 	METHOD 	SIZE 	CAT. CODE 
TAS	Colorimetric	5 x 10ml (S)	NX2332
Total Protein	Biuret	R1 4 x 20ml, R2 4 x 17ml (S)	TP8336
Total Protein	Biuret	R1 4 x 51ml, R2 4 x 44ml (S)	TP4001
Total Protein	Biuret	R1 4 x 68ml, R2 4 x 68ml	TP8066
Uric Acid	Enzymatic Colorimetric	6 x 15ml (S)	UA230
Uric Acid	Enzymatic Colorimetric	9 x 51ml (S)	UA3870
Uric Acid	Enzymatic	R1 4 x 20ml, R2 4 x 7ml (S)	UA8333
Uric Acid	Enzymatic Colorimetric	R1 6 x 51ml, R2 4 x 20ml (S)	UA3824
VeraSTAT-V Analyser	Cathodic Electrochemiluminescence (C-ECL)	Point-of-care machine	Point-of-care machine

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