DIAGNOSTIC COMPENDIUM

(2007-2017 publications)

Infectious & parasitic tests

Biomarkers tests

January 2018 © Virbac

virbac.com

Shaping the future of animal health

Virbac

TABLE OF CONTENTS:

January 2018, © Virbac

Do not distribute - Document for internal use and sale forces only

INFECTIOUS DISEASES

Comparative performances of different rapid tests including Speed Duo™ FeLV/FIV diagnostic screening test

Published in "Journal of Feline Medicine and Surgery"

Objectives

Performance assessment of in-house rapid tests for FeLV and FIV infections.

Materials & methods

// Samples

536 cat sera samples where chosen at random from the Department of Small Animal Medicine of the University of Georgia, USA.

Results

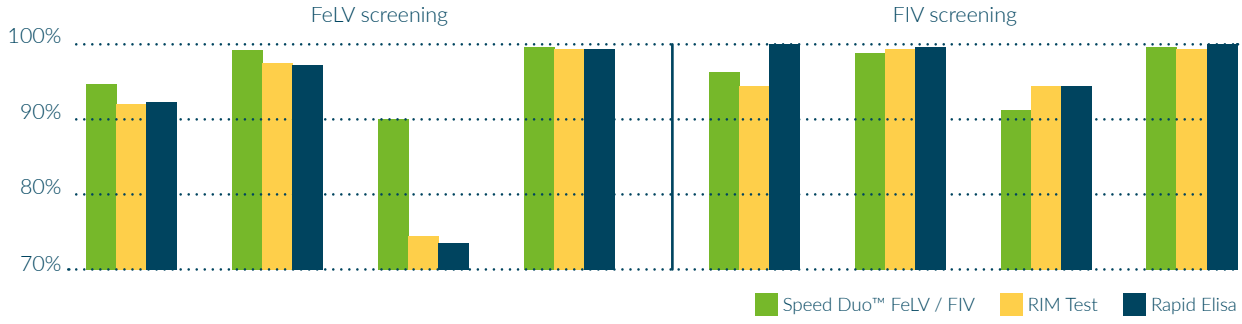
The prevalence of FIV infection in the study population was 10.3% and that of FeLV infection was 7.4%.

%	FeLV test versus virus isolation			FIV test versus Western Blot		
	Speed Duo™ FeLV/FIV	RIM Test	Rapid Elisa	Speed Duo™ FeLV/FIV	RIM Test	Rapid Elisa
Sensitivity	94.7	92.1	92.3	**96.3**	94.5	100
Specificity	99.2	97.5	97.3	**98.9**	99.4	99.6
Positive Predictive Value (PPV)	90.0	74.5	73.5	**91.2**	94.5	94.5
Negative Predictive Value (NPV)	99.6	99.4	99.4	**99.6**	99.4	100

Medical interest

Speed Duo™ FeIV/FIV presented optimal results among rapid tests. The high performances for FeLV and FIV testing make the test **suitable for daily in-clinic retroviral infection screening.**

Comparative evaluation of 3 Rapid Tests with the reference methods



"Among rapid tests Speed Duo™ FeLV/FIV showed the overall best performance and thus has to be considered as the best in house test for FeLV testing". Hartmann et al., 2007

Hartmann et al. Quality of different in-clinic test systems for feline immunodeficiency virus and feline leukemia virus infection. Journal of Feline Medicine and Surgery, 2007, 9 (6); 439 - 445

January 2018. © Virbac

INFECTIOUS DISEASES

Evaluation of an immunochromatographic rapid test for the detection of anti-coronavirus antibodies in blood and effusion

World Small Animal Veterinary Association Congress

Objectives

Assessment of the performance of Speed™ F-Corona for the detection of anti-coronavirus antibodies in comparison with immunofluorescent antibody test (IFAT).

Materials & methods

// Samples

70 blood samples (anticoagulated whole blood, serum, plasma) and 31 effusion samples were tested:

- Coronavirus seronegative cats: n= 49 (41 blood samples and 8 effusion samples)
- Coronavirus seropositive cats: n= 52 (29 blood samples and 23 effusion samples)

// Reference Method

All samples were tested with both Speed™ F-Corona and IFAT.

Results

// Specificity

Speed™ F-Corona was 100% specific in all samples (49/49).

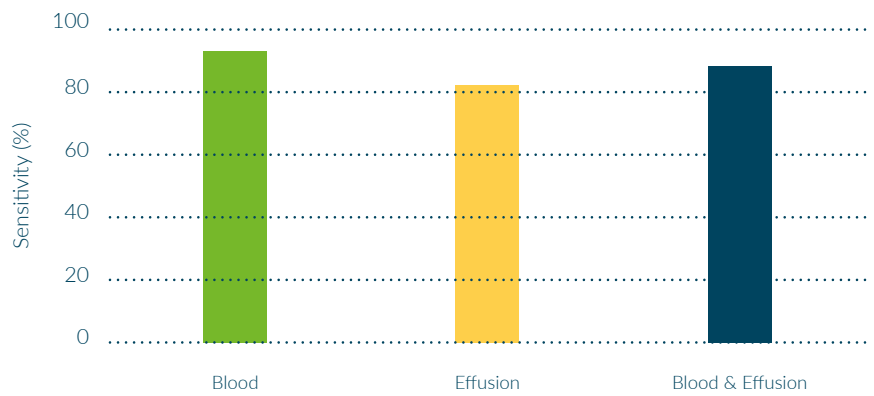
// Sensitivity

Sensitivity of Speed™ F-Corona in blood samples: 96.5% (28/29).
Sensitivity of Speed™ F-Corona in effusion samples: 87% (20/ 23).
Overall sensitivity of Speed™ F-Corona : 92.3% (48/52).

Medical interest

Speed™ F- Corona provides flexibility and ease of use in daily practice **presenting accurate results in both blood and effusion samples.**

Sensitivity of Speed™ F-Corona in blood and effusion samples



E. Sagols, S. Audhuy, J. Morlet, E.Claret. Evaluation of an immunochromatographic rapid test for the detection of anti-coronavirus antibodies in blood and effusions. WSAVA/FECAVA/BSAVA Congress, 11th-15th April 2012, Birmingham, UK

January 2018. © Virbac

Comparative performances of Speed™ F-Corona and other rapid immunochromatographic tests

Published in "Journal of Feline Medicine and Surgery"

Objectives

Evaluation of the performances of 3 Rapid Immunochromatographic (RIM) tests for the feline coronavirus antibody detection and their use in veterinary practice.

Materials & methods

// Samples
101 positive serum, plasma or effusion samples.
126 negative serum, plasma or effusion samples.

// Reference methods
The serological reference of each sample was based on concerted results of 4 different IFAT and 1 ELISA method and the assessment of the RIM tests was blinded.

Results

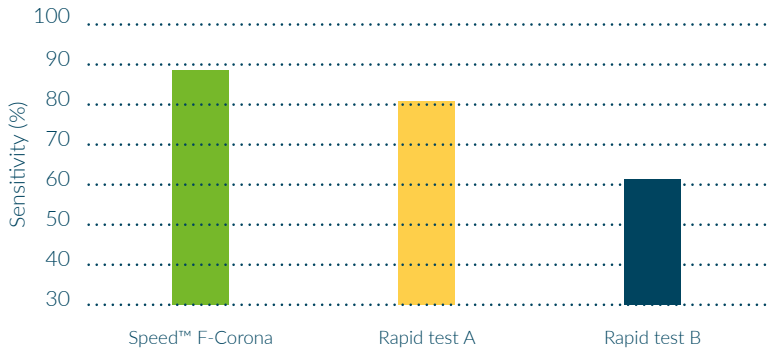
// Samples
Speed™ F-Corona = 92.4%
Rapid test A = 84.6%
Rapid test B = 64.1%

// Specificity
In this study all RIM tests showed 100% specificity.

Medical interest

Among **RIM tests Speed™ F-Corona had optimal performances presenting the most accurate results** when compared with a panel of reference methods.

Sensitivity of Speed™ F-Corona and other rapid tests in comparison with different reference methods



D.D.ADDIE, et. al. The utility of feline coronavirus antibody tests. Journal of Feline Medicine and Surgery, 2015 Feb;17(2):152-62.

January 2018. © Virbac

Evaluation of the ability of Speed™ Parvo to detect current canine parvovirus strains

British Small Animal Veterinary Association Congress

Objectives

The aim of the study was to assess the ability of Speed™ Parvo to detect the strains 2a, 2b and 2c of canine parvovirus.

Materials & methods

// Samples

39 faecal samples from dogs with acute parvovirus.

// Reference Method

Specific quantitative real time PCR (qPCR) for the determination of the:

- Viral load
- Parvovirus strains

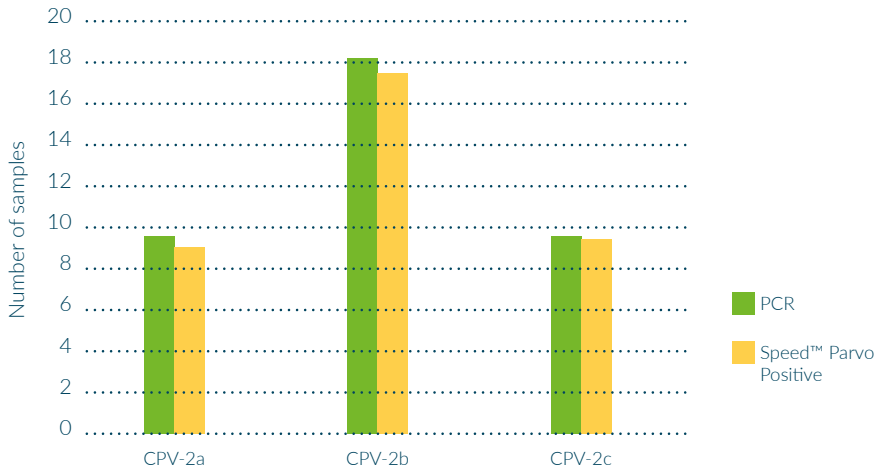
Results

Among the samples qPCR identified the strains CPV-2a, CPV-2b and CPV-2c. The viral load varied between $2x10^7$ and $3.09x10^9$ viral particles per mg of faeces and the rapid test Speed™ Parvo detected all three CPV strains from at least $2x10^7$ viral particles per mg of faeces.

Medical interest

Speed™ Parvo is able to detect canine parvovirus strains 2a, 2b and 2c and is therefore reliable, despite the evolution of this virus.

Concordance between Speed™ Parvo and qPCR in samples of different parvovirus strains



E. Sagols, S. Audhuy, J.Morlet, E. Claret. Evaluation of the ability of an immunochromatographic rapid test to detect all current canine parvovirus strains. BSAVA Congress, 4th – 7th April 2013, Birmingham, United Kingdom

January 2018, © Virbac

VECTOR-BORNE AND PARASITIC DISEASES

Evaluation of Speed Leish K™ performances in comparison with two different reference methods

Published in "Clinical and Vaccine Immunology"

Objectives

Assessment of the performances of Speed Leish K™ for the detection of anti-*Leishmania* antibodies.

Materials & methods

// Samples

250 blood samples were collected from dogs not vaccinated against canine leishmaniosis living in an endemic area.

// Reference Method

The results of Speed Leish K™ where evaluated in comparison with **Immunofluorescence Antibody Test (IFAT)** and **Western Blot (WB).**

- Each sample was tested with IFAT
- Doubtful samples with IFAT (titres between 1/40 - 1/80) were tested with WB to determine their definitive status

Results

// Sensitivity, Specificity and Concordance Index of Speed Leish K™ in comparison with IFAT

		IFAT		Concordance Index (CI)
		Positive ≥1/160	Negative <1/40	
Speed Leish K™	Positive	78	0	98.54%
	Negative	3	125	
Sensitivity		96.3%		
Specificity		100%		

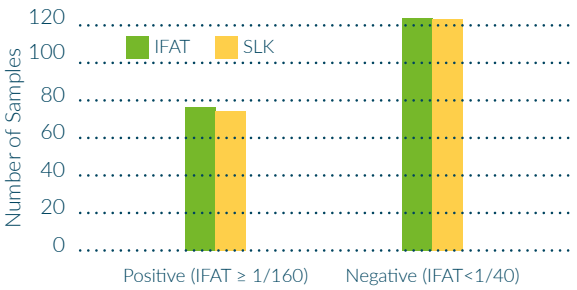
// Concordance Index of Speed Leish K™ on IFAT doubtful sera when tested with WB

In 44 IFAT doubtful samples (1/80 <titre> 1/40), assessed with WB, the Concordance Index of Speed Leish K™ was 81.8%. All positive samples with Speed Leish K™ were also positive with WB.

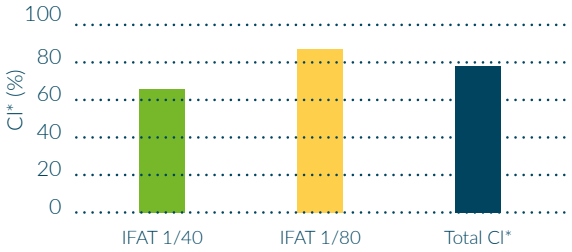
Medical interest

The efficiency of **Speed Leish K™** to detect antibodies even in low positive IFAT samples **makes it a reliable tool adapted to the in-clinic detection of *Leishmania* infected dogs.**

Accuracy of Speed Leish K™ in comparison with IFAT



Speed Leish K™ results on IFAT doubtful sera Concordance of the test in comparison with WB



*CI: Concordance Index

Ferroglio E. et al. Evaluation of a Rapid Device for Serological Diagnosis of *Leishmania* infantum Infection in Dogs as an Alternative to Immunofluorescence Assay and Western Blotting. Clinical and Vaccine Immunology, 2013 ; 20(5):657 – 659

January 2018, © Virbac

VECTOR-BORNE AND PARASITIC DISEASES

Evaluation of the humoral immune response after the primo LIESP/QA-21 vaccination and the first annual booster

WSAVA & SCIVAC International Congress

Objectives

Two different studies evaluated the humoral immune response following primo LiESP/QA-21 vaccination and first annual booster vaccination for Leishmaniosis.

Materials & methods

1ST STUDY FOLLOWING THE PRIMO VACCINATION

// Samples

Sera from 12 dogs (2 controls and 10 vaccinated according to the primo protocol).

// Serological monitoring for 4 months after the vaccination

- ELISA: to quantify anti-ESP antibodies
- 2 different IFAT from different labs: to detect the evolution of the total anti-*Leishmania* antibody titre
- Speed Leish K™: detects only *Leishmania* specific anti-kinesin antibodies

2ND STUDY FOLLOWING THE FIRST ANNUAL BOOSTER

// Samples

Sera from 31 dogs that had a complete primo vaccination with LiESP/QA-21, 1 year before.

// Serological monitoring was performed just before the annual booster and 3 to 4 weeks later

- Speed Leish K™: detects only *Leishmania* specific anti-kinesin antibodies
- IFAT: to evaluate the total anti-*Leishmania* antibody titre

Results

1ST STUDY FOLLOWING THE PRIMO VACCINATION

// Control group*:

Negative throughout the study.

// Vaccinated group*:

- Speed Leish K™: negative throughout the study
- ELISA: detectable seroconversion (anti-ESP antibodies)
- IFAT: detectable seroconversion

*All dogs were negative with each method prior to vaccination

2ND STUDY FOLLOWING THE FIRST ANNUAL BOOSTER

// Before the booster:

All dogs were negative to Speed Leish K™ and IFAT.

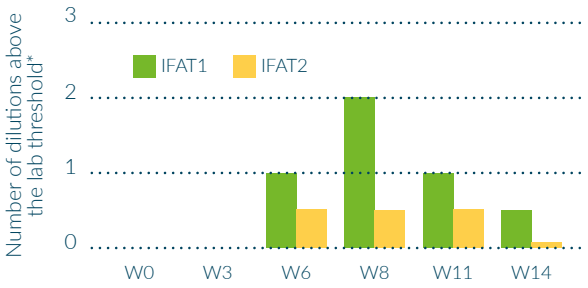
// 3-4 weeks after the booster:

Most dogs seroconverted with variable IFAT titres. All dogs were negative with Speed Leish K™ after the booster.

Medical interest

Speed Leish K™ detects only antibodies due to natural infection and not antibodies induced by *Leishmania* vaccination. Thus, making **Speed Leish K™** tailored for use in dogs despite their vaccination status against canine leishmaniosis.

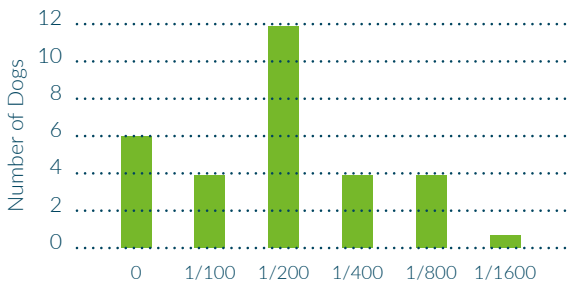
Evolution of the antibody titre average of the dogs after vaccination with LiESP/QA-21



Speed Leish K™ was negative at each visit

*For lab threshold 1/80. 2n dilution = 1/320 IFAT titre

IFAT titres 3 to 4 weeks after the booster vaccination



Speed Leish K™ remained negative after the booster vaccination

E. SAGOLS, V. MARTIN, E.CLARET, D. McGAHIE, A-M. CUISINIER, S. GUEGUEN. Evaluation of the humoral immune response after vaccination with LiESP/QA-21: interest of Leishmania specific anti-kinesin antibodies detection. WSAVA/FECAVA/ BSAVA Congress, 11th -15th April 2012, Birmingham, United Kingdom E. SAGOLS, F. FERRAZ, E.CLARET, D. McGAHIE. Evaluation of the humoral immune response after the first annual LiESP/QA-21 booster vaccination. SCIVAC Congress 8th – 10th March 2013, Pisa, Italy

January 2018. © Virbac

Seroprevalence among healthy dogs and risk factors of canine leishmaniosis in endemic European countries

Objectives

Evaluation of the seroprevalence of canine leishmaniosis (CanL) in healthy dogs in the main European endemic countries. The potential influence on seroprevalence of certain risk factors (age, repellent use) was also assessed.

Materials & methods

// Samples

981 blood samples from healthy dogs not vaccinated against CanL, older than 6 months. All dogs were living in endemic countries: Spain (255), Greece (197), Italy (164), Portugal (198) and France (167).

// Serological status determination

- All dogs were first tested in-clinic with **Speed Leish K™**
- Speed Leish K™ positive samples were also tested with indirect immunofluorescence assay (**IFAT**)

// Probable influence of certain Risk Factors on seroprevalence

- Age of the dogs
- Use of repellents

Results

// Seroprevalence

- An antibody titre ≥ 1/80 was detectable in 4.7% of the dogs (46/981)

Seroprevalence	Spain	Greece	Italy	Portugal	France
Overall	5.5% (14/255)	8.1% (16/197)	4.9% (8/164)	2% (4/198)	2.4% (4/167)
High endemic areas	8.1% (21/255)	14.6% (29/197)	5.8% (10/194)		

NB: The true seroprevalence per country will be higher, as this study includes only healthy dogs and excludes dogs diagnosed with CanL or with suggestive symptoms.

// Risk Factors

Age: Dogs older than 5 years old (y.o) presented the highest seropositive levels (6.6%).

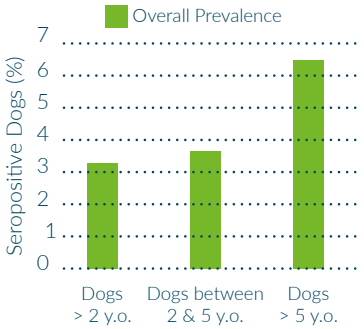
Use of repellents:

- 49.9% of the dogs (490/981) were correctly treated with repellents
- 23.9% of the seropositive dogs were correctly treated with repellents
- The correct use of repellent insecticides reduced the risk of seroconversion 1.47-fold

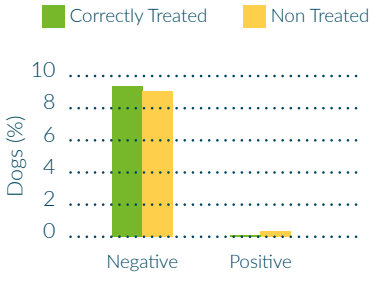
Medical interest

Seropositivity levels among healthy dogs **justify the need of regular in-clinic screening**, especially in high endemic areas.

Dogs > 5 years old were significantly more likely to be seropositive



There was no significant difference on seroprevalence between correctly treated and untreated dogs



E. SAGOLS, D. MARCIAT, J.MORLET, D. McGAHIE. Seroprevalence and risk factors of canine leishmaniosis in endemic European countries. UNISVET Congress, 13th-14th April, 2013, Naples, Italy

January 2018. © Virbac

Evaluation of the Speed™ Diro performances for the diagnosis of canine heartworm infection

Published in
"La Settimana
Veterinaria"

Objectives

The aim of the study was to verify the performance of Speed™ Diro for the diagnosis of canine heartworm infection.

Materials & methods

// Samples
24 negative serum samples.
149 *Dirofilaria immitis* positive serum samples.
12 *Dirofilaria repens* positive sera were used to examine the specificity of the test.

// Reference Method
For this study PetCheck HTWM PF was used as a reference.

Results

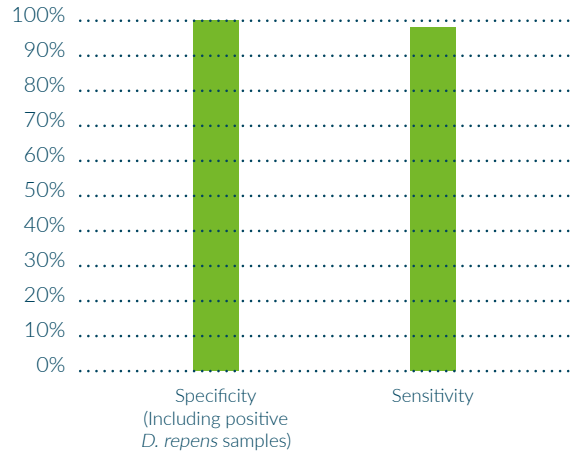
// Specificity
Speed™ Diro correctly indentified 24 negative *Dirofilaria immitis* samples showing a specificity of 100%.
Speed™ Diro correctly identified as negative 12 *Dirofilaria repens* samples.

// Sensitivity
Speed™ Diro was positive at 147 out of 149 positive *Dirofilaria immitis* samples showing a sensitivity of 98.7%.

Medical interest

Speed™ Diro presents high performances for the in clinic diagnosis of *Dirofilaria immitis* and **allows quick and reliable results.**

Specifications of Speed™ Diro for the diagnosis of *Dirofilaria immitis*



Genchi C. Diagnostic performances of the rapid mmunochromatographic test Speed™ Diro for the serological diagnosis of canine heartworm infection.
La Settimana Veterinaria, No 824, April 2013

January 2018. © Virbac

VECTOR-BORNE AND PARASITIC DISEASES

Evaluation of the ability of Speed™ Diro to detect low burdens of *Dirofilaria immitis*

British Small Animal Veterinary Association Congress

Objectives

The aim of the study was to assess the performance of Speed™ Diro to detect *Dirofilaria immitis* antigens even in low burdens.

Materials & methods

// Samples

27 negative serum samples.
49 positive serum samples:
- 25 samples from dogs with female only worm infection (>1 worm)
- 24 samples from dogs with mixed infection (male and female worms)

// Reference Method

Necropsy was performed at each dog in order to determine the number and the sex of the worms present.

Results

// Specificity

Speed™ Diro correctly identified 26 out of 27 negative samples showing a specificity of 96.3%.

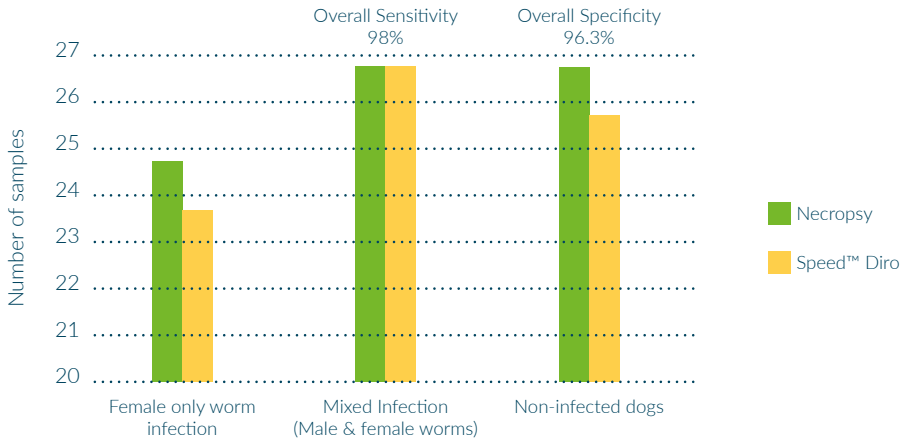
// Sensitivity

- Speed™ Diro was positive at 48 out of 49 positive samples showing a sensitivity of 98%
- The sensitivity of Speed™ Diro in cases of female only worm infection was 96%
- Speed™ Diro detected 7 out of 8 positive cases with one single female worm at necroscopic examination

Medical interest

Speed™ Diro allows early in-clinic diagnosis of *Dirofilaria immitis* and early management of the disease. **High sensitivity of the test enables correct identification,** even of samples with very low worm loads.

Identification of infected and non-infected dogs by *Dirofilaria immitis* with Speed™ Diro



E. SAGOLS, S. AUDHUY, J.MORLET, E. CLARET. Evaluation of a rapid immunochromatographic test for the detection of a low burden Dirofilaria immitis.
BSAVA Congress, 4th – 7th April 2013, Birmingham, United Kingdom

January 2018, © Virbac

Assessment of Speed™ Diro for the detection of low burden *Dirofilaria immitis* in dogs and cats

Parasitology Research Journal

Objectives

Evaluate the performance of the immunochromatographic rapid test Speed™ Diro to identify low burden *Dirofilaria immitis* in dogs and cats.

Materials & methods

// Samples

Speed™ Diro performances assessed in dogs and cats in two types of studies:

- 49 experimentally infected dogs with known numbers of adult *Dirofilaria* parasites
- Field trial with natural infected dogs (n=142) and cats (n=102)

// Reference Method

- Experimental trial: necropsy
- Field trial:
  - Antigen detection ELISA
  - Knott test: presence of microfilaria and differentiation between *D. repens* and *D. immitis*
  - Echocardiography: for cat sera

Results

// Field trial:

Speed™ Diro showed a **sensitivity of 100%** in comparison to ELISA. Specificity was evaluated with *D. repens* positive field samples which Speed™ Diro correctly identified as negative, presenting a **specificity of 100%. Speed™ Diro detected correctly 42 out of 66 knott negative sera.**

Speed™ Diro presented a **Sensitivity of 98.9% and a Specificity of 100%.**

// Experimental infection:

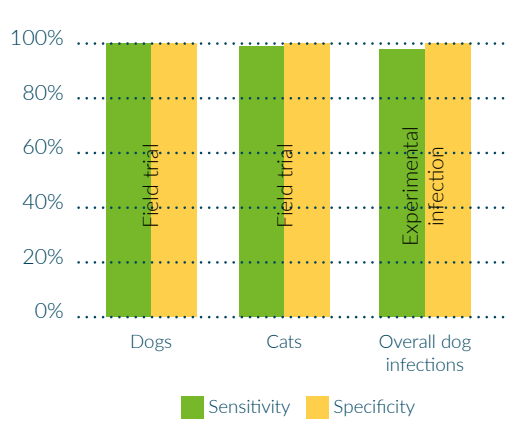
Speed™ Diro showed a very high sensitivity even in dogs with low burden *Dirofilariosis.*

Worm burden	Sensitivity	Specificity
Dogs infected with 1 adult female worm	90.9%	100% irrespectively of the number of worms
Dogs infected with more than 1 worms	100%	
Overall infected dogs	98%	

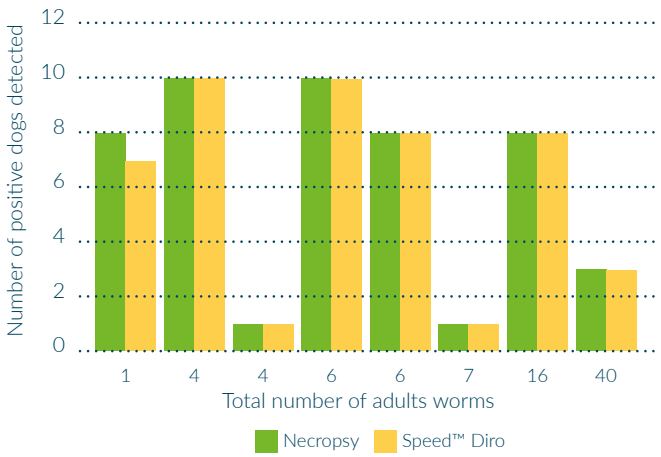
Medical interest

- **Speed™ Diro's excellent results**, in both naturally infected dogs and cats, justify its use for in-clinic screening
- Particularly for dogs infected with *D.immitis*, **Speed™ Diro detected successfully infected dogs in the absence of microfilareamia and low burden *Dirofilariosis*,** proving its capacity to detect early stages of infection.
- **Speed™ Diro detected all positive dogs,** apart from one dog infected with only one female worm, proving its valuable capacity to detect even low burden *Dirofilaria* infections.

Performance of Speed™ Diro in field and experimental trial



Number of adult worms detected by Speed™ Diro



M. GENCHI *et al.*, Evaluation of a rapid immunochromatographic test for the detection of low burden *Dirofilaria immitis* (heartworm) in dogs and cats. Parasitology Reasearch, January 2018, Volume 117, Issue 1, pp 31–34

January 2018, © Virbac

Field trial results of Speed™ Mam Color for pathogen differentiation and resistance testing

World Association of Veterinary Laboratory Symposium

Objectives

The purpose of this study was to compare the results of the Speed™ Mam Color with the results of a specialized microbiology lab for the main responsible agents of mastitis.

Materials & methods

// Samples

39 bovine milk samples from clinical mastitis cases.

// Reference Method

Laboratory Agar Culture according to the German Veterinary Medical Society (DVG) and the National Mastitis council (NMC) standards, University of Hannover.

Results

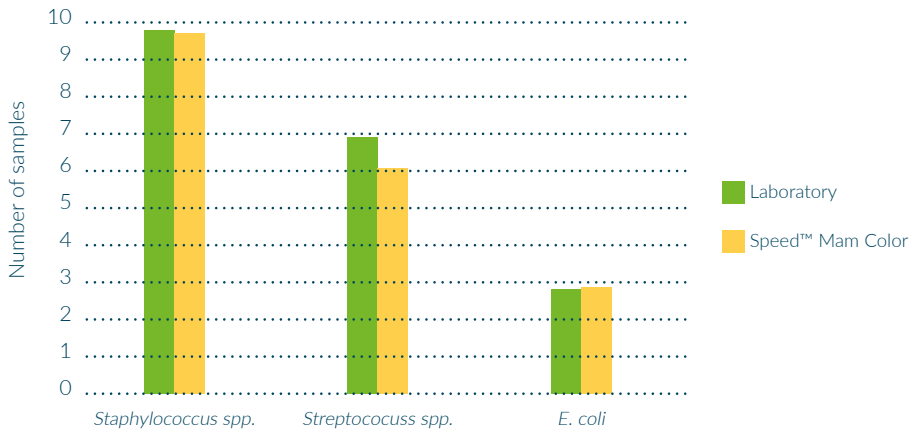
// Specificity

Speed™ Mam Color detected 80% of the lab culture negative samples (8/10) and 89.7% of the lab culture positive samples (26/29) correctly.
In detail, 100% of *Staphylococcus spp.* positive lab samples, 85,7% of the *Streptococcus spp.* positive samples and 100% of the *E. coli* positive samples were correctly detected by the Speed™ Test in mono- or mixed udder infections.

Medical interest

High performances of **Speed™ Mam Color** make it **a fast and reliable option for the practitioners to investigate clinical mastitis cases.**

Concordance between the Laboratory and the Speed™ Mam Color



K. Teich, J. Morlet & V. Krömker. Speed™ Mam Color - mastitis rapid test to pathogen-differentiation and resistance testing for bovine practice - field trial results. Poster presented at 16th International Symposium of the World Association of Veterinary Laboratory Diagnosticians, Berlin - 5th to 8th June 2013

January 2018. © Virbac

Evaluation of Speed™ Mam Color for combined germ identification and antibiotic sensitivity testing in bovine mastitis

European Buiatrics Forum

Objectives

The purpose of this study was to assess the performance of Speed™ Mam Color, for both identification of the main bacteria involved in bovine mastitis and evaluation of their susceptibility to a selection of veterinary antibiotics.

Materials & methods

// Samples
98 bovine fresh milk samples.

// Reference Method
Blood Agar Culture without previous enrichment. Identification, counting and a standard susceptibility profile (based on NF U47-107 norm) were performed on positive samples.

Results

// Detection
39 samples were sterile and 59 samples were positive on blood agar plate culture. Speed™ Mam Color presented a positivity threshold of 5x10^3 CFU/mL. The sensitivity of Speed™ Mam Color at this threshold was 92.5%.
The specificity of Speed™ Mam Color was 94.9%.

• Bacterial identification
Among the 40 positive samples with at least 5x10^3 CFU/mL on agar plate, Speed™ Mam Color correctly identified 25 out of 27 mono-infected samples and 10 out of 10 contaminated samples (Global concordance : 94.6%).

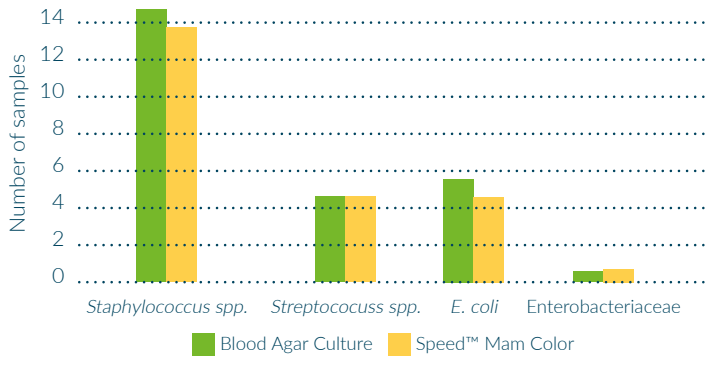
- 3 samples contained non identifiable germs with Speed™ Mam Color (e.g. *Aeromonas, Pasteurella*)

• Antibiotic susceptibility
Agreement between antibiotic susceptibility profile given by Speed™ Mam Color and standard antibiogram method for the 3 main species of bacteria responsible of clinical mastitis were:
- 98.2% for *Streptococcus*
- 98.3% for *Staphylococcus*
- 91.7% for *E.coli*

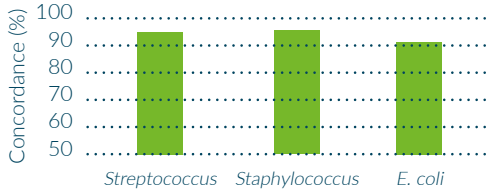
Medical interest

Speed™ Mam Color showed high accordance with classic agar culture. Therefore, **Speed™ Mam Color can be considered a reliable, quick and easy to use in-clinic test** for detection and identification of germs responsible of clinical mastitis in cows.

Concordance between Blood Agar Culture and Speed™ Mam Color for milk samples containing at least 5x10^3 CFU/mL



Antibiotic susceptibility agreement between the standard antibiogram and Speed™ Mam Color



F. BENOIT, M. TREILLES. Evaluation of a commercial in-clinic diagnostic test for combined germ identification and antibiotic sensitivity testing in bovine mastitis. Poster presented at the European Buiatrics Forum, 2013

January 2018, © Virbac

Assessment study of the ability of Speed™ Mam Color to detect *Mycoplasma bovis*

Published in "Dansk Veterinaertidsskrift"

Objectives

The purpose of this study was to assess the sensitivity of Speed™ Mam Color for the detection of *Mycoplasma bovis* in three different groups of milk samples.

Materials & methods

// Samples

- Milk samples reaching concentrations of *Mycoplasma bovis* from $5x10^4$ to 5 CFU/ml
- "Spiked" milk samples with *Mycoplasma bovis*. Final concentrations of the bacteria were from $2.5x10^3$ to $1.25x10^3$ CFU/ml
- Field samples previously proven to be positive

// Reference Method

Standard culture medium of the National Veterinary Institute of Denmark (DTU-Vet).

Results

Speed™ Mam Color correctly identified *Mycoplasma bovis* in milk sample concentrations ≥ $1.25x10^3$ CFU/ml.

Medical interest

Speed™ Mam Color has given reliable results for the detection of *Mycoplasma bovis* and can be safely used for the detection of *Mycoplasma* induced clinical mastitis.

Detection of Mycoplasma bovis at field and "spiked" milk samples at concentrations from 5 to $5x10^4$ CFU/ml

Milk samples (CFU/ml)		$5x10^4$	$2.5x10^4$	10^4	$5x10^3$	$2.5x10^3$	$1.25x10^3$	$5x10^2$	50	5
Spiked	Medium of DTU-VET	NP	+	+	+	+	+	NP	NP	NP
	Speed™ Mam Color	NP	+	+	+	+	+	NP	NP	NP
Field	Medium of DTU-VET	+	NP	NP	+	NP	NP	+	+	-
	Speed™ Mam Color	+	NP	NP	+	NP	NP	-	-	-

NP = Not Performed

Detection of *Mycoplasma bovis* at positive samples

Samples	Speed™ Mam Color	Standard Medium of DTU-VET
mp38	+	+
mp39	+	+
mp40	+	+
mp66	+	+
mp68	+/-	+

K.KASPAR, B.KOKOTOVIC, O.H.VOSS. Laboratory examination of Mycoplasma bovis in the veterinary clinic. Journal Article in Dansk Veterinaertidsskrift (ISSN: 0106-6854), vol: 2012, issue: 8, pages: 18-19, 2012

January 2018. © Virbac

Evaluate the performance of the on-field rapid test Speed V-Diar™ to identify main pathogens of neonatal diarrhoea

European Buiatric Congress

Objectives

Evaluate the performance of the on-field rapid test Speed V-Diar™ to identify main pathogens of neonatal diarrhoea.

Materials & methods

// Samples

165 faecal samples from untreated calves between 0 and 21 days of age, presenting diarrhoea with systemic clinical signs.

// Reference method

- *E.coli* F5 (K99) : culture & agglutination
- *Cryptosporidium parvum*: Ziehl stain
- *Coronavirus* and *Rotavirus*: commercial ELISA.

Results

// Correlation with the Reference method

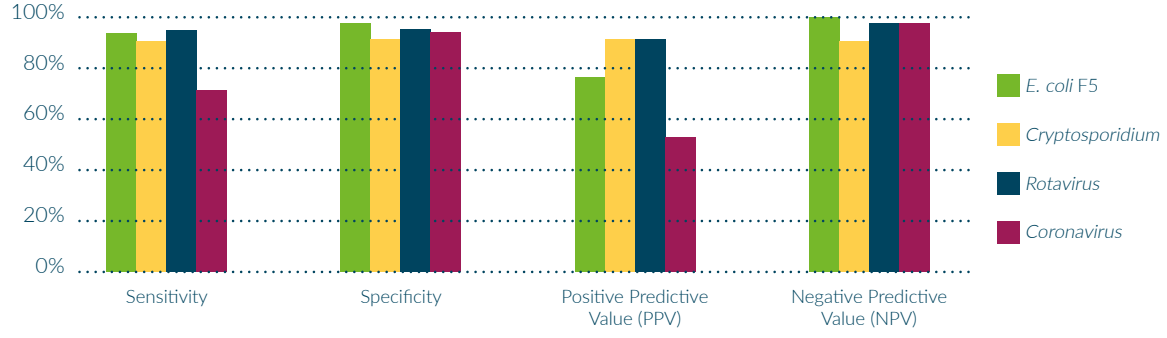
The prevalence for each pathogen was: *E.coli* F5: 8.54%, *Rotavirus*: 36.25%, *Coronavirus*: 8.75%, *Cryptosporidium parvum*: 50.61%.

	E. coli F5	*Cryptosporidium*	*Rotavirus*	*Coronavirus*
Sensitivity	93%	90%	95%	71%
Specificity	97%	91%	95%	94%
Positive Predictive Value (PPV)	76%	91%	91%	53%
Negative Predictive Value (NPV)	99%	90%	97%	97%
Concordance (Cohen Kappa coefficient)	0,84	0,81	0,89	0,56

Medical interest

Speed V-Diar™ demonstrates high perfomances and high positive and negative predictive values, thus helping the practitionner in case of diarrhoea outbreak to rapidly identify the cause of diarrhoea, exclude the involvment of germs with potentially high impact on the farm and rapidly put in place the most adapted corrective measures.

Speed V-Diar™ – rapid and accurate diagnostic solution for identifing the cause of calf diarrhoea



L. MAURIN et al. Evaluation of the informative value of a commercial in-clinic rapid diagnostic test (Speed V-Diar™) for calf neonatal diarrhoea in field conditions. European Buiatrics Forum, Bilbao, Spain, 2017

January 2018. © Virbac

Performance evaluation of the in-clinic immunoassay Speed™ T4

Objectives

Evaluation of the in-clinic immunoassay Speed™ T4, for the measurement of total T4 in dogs and cats.

Materials & methods

// Samples

82 canine and 60 feline clinical samples, from animals presented to veterinary clinics either for senior profile screening, diagnosis or treatment monitoring.

// Reference method

Chemiluminescent-enzyme immunoassay (IMMULITE® 2000, Siemens).

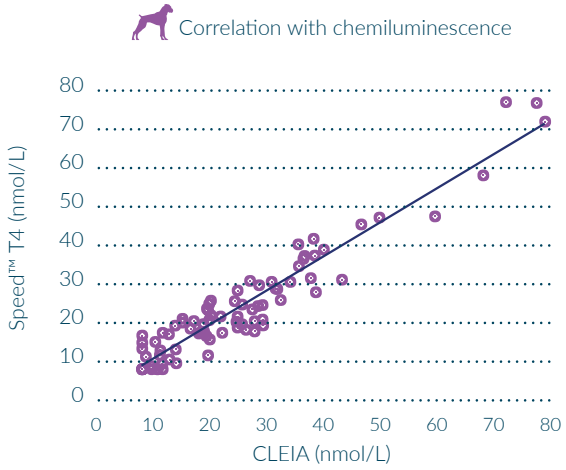
Results

// Correlation with the Reference method

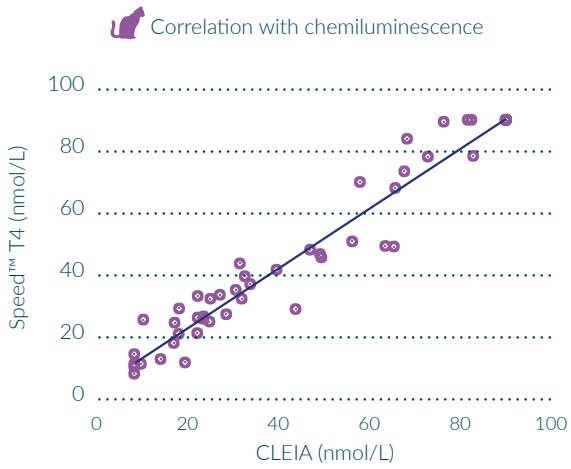
The correlation with the reference method was very good for both canine and feline samples (R^2 = 0.91 and R^2 = 0.95, respectively) and demonstrated a high association between both assay systems.

Medical interest

Speed™ T4 had an excellent correlation in a wide number of samples (n=142), when compared to the validated canine and feline chemiluminescent-enzyme immunoassay (IMMULITE® 2000) from the clinical pathology laboratory of Lyon Veterinary School, France (VetAgro Sup).



n=82
y = 0,8816x + 1.7888
R^2 = 0,9109



n=60
y = 0,9591x + 4,0923
R^2 = 0,9595

Speed™ T4 - reliable in-clinic diagnostic test for the measurement of total T4 in dogs and cats

B. Rannou, Evaluation of a point-of-care immunoassay (Speed™ T4) in the measurement of feline and canine total thyroxine, ESVCP-ESVONC Congress, 20-22 October, 2016, Nantes, France

January 2018, © Virbac

Performance evaluation of the in-clinic immunoassay Speed™ Cortisol

ESVCP Congress

Objectives

Validation of the in-clinic immunoassay Speed™ Cortisol, for the measurement of the blood circulating cortisol levels in dogs, employed for the support of diagnosis and treatment follow-up, in pituitary-adrenal related diseases.

Materials & methods

// Samples

340 canine clinical blood samples before and after an ACTH stimulation test or a Low Dose Dexamethasone Suppression Test (LDDST).

// Reference method

Chemiluminescent-enzyme immunoassay (IMMULITE® 2000, Siemens) at the clinical pathology laboratory of Lyon Veterinary School, France (VetAgro Sup) .

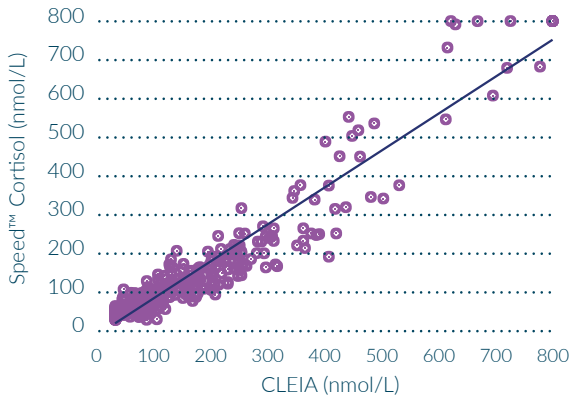
Results

// Correlation with the Reference method

The correlation with the reference method was very good (R^2 = 0,92) indicating a close association across a wide range of values, between Speed™ Cortisol and IMMULITE® 2000.

Medical interest

Speed™ Cortisol demonstrated an very good correlation (R^2= 0.9272) with a broadly used laboratory assay, in a significant number of samples.



n=340

y = 0,9497x - 7,6485

R^2 = 0,9272

Speed™ Cortisol - validated in-clinic diagnostic test for the measurement of the blood circulating cortisol levels in dogs

S. Loukeri, E. Claret, J. Morlet. Performance evaluation of the in-Clinic Immunoassay Speed™ Cortisol for the measurement of circulating Cortisol in dogs, ESVCP-ESVONC Congress, 20-22 October, 2016, Nantes, France

January 2018, © Virbac

Progesterone in the reproduction of the bitch: Speed™ Progesterone validation of reference ranges

EVSSAR Congress

Objectives

Assessment of Speed™ Progesterone ovulation intervals and correlation with the chemiluminescence immunoassay Elecsys®, of the Veterinary University of Paris (Maison-Alfort).

Materials & methods

// Samples
28 bitches were followed during the oestrous cycle, with at least 3 visits.

// Reference methods
Immunochemistry - Elecsys® (Roche diagnostics, Germany).

CONFIRMATORY METHODS: Ultrasonography and vaginal cytology

// Correlation with the Reference method

- The values of Speed™ Progesterone were highly correlated with the validated method (electrochemiluminescence immunoassay, Elecsys®) of CERCA (Centre of Reproduction Studies of Carnivores), from the Veterinary University of Paris (Maison-Alfort).
- The progesterone results of both methods were cross-verified with ultrasonography for an even more rigorous identification of the ovulation time.

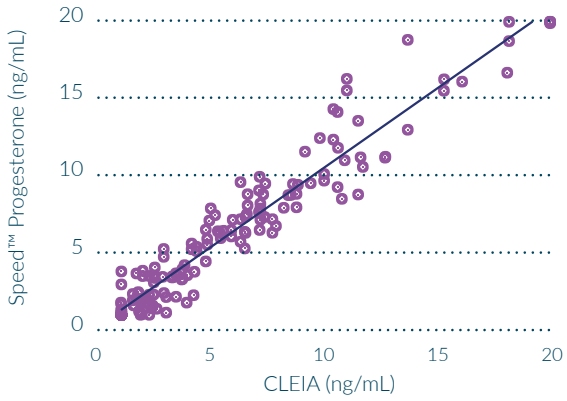
Results

Absolute progesterone values may vary between different methods which underlines the necessity of different interpretation based on the validated intervals of each method.

Ovulation Reference Intervals		
	Speed™ Progesterone	Elecsys®
Mean values (ng/mL)	6.45 ± 1.48	7.58 ± 1.97
Confidence interval 99% (99% CI)	5.53 to 7.37	6.36 to 8.80
Correlation	R^2 = 0.9015	

Medical interest

The study demonstrated that **Speed™ Progesterone is a reliable method to identify ovulation and to predict breeding time in bitches.**



n=165
y = 1,0229x + 0,3252
R^2 = 0,9338

Speed™ Progesterone - in - clinic "real time" ovulation identification & predict breeding time in bitches

Cindy Maenhoudt, Emmanuel Claret, Sofia Loukeri, Natalia Ribeiro Santos, Progesterone in the reproduction of the bitch: comparative results and interpretation of Speed™ Progesterone and electrochemiluminescence immunoassay, EVSSAR Congress, 29 June -1st July 2017, Vienna, Austria

January 2018, © Virbac

Comparative evaluation of the biomarker CPSE for the diagnosis of Benign Prostatic Hyperplasia

Objectives

CPSE values on Benign Prostatic Hyperplasia (BPH) positive and negative dogs, in comparison with clinical, cytological and ultrasonographic findings.

Materials & methods

// Samples
60 dogs, separated to two groups according to prostate cytological results CPSE concentration was determined with Odelis™ CPSE (BVT-Virbac, France).

// Reference method
Cytology.

Results

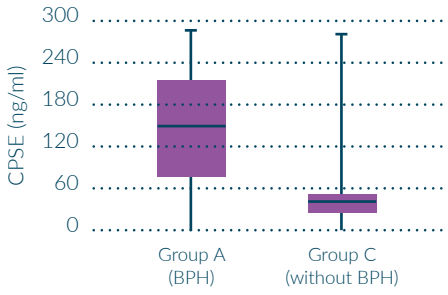
// Correlation with the Reference method
CPSE successfully differentiated the majority of BPH positive dogs including subclinical cases.

- CPSE values were significantly higher on dogs that were BPH positive according to cytology and/or ultrasonography
- The agreement between CPSE and cytology was very good and demonstrated a high sensitivity and specificity, 96.6% and 90.3%, respectively

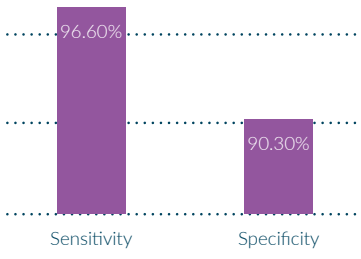
Medical interest

- CPSE has correctly differentiated dogs with BPH even in early subclinical stages and can be an accurate, practical and non-invasive diagnostic method for the detection of subclinical cases.
- **Integration of CPSE testing in a systematic prostate prevention management** for middle-aged, intact dogs, permits **identification of subclinical cases so that early intervention can be recommended.**

CPSE levels in dogs with and without BPH



Performances of CPSE vs Cytology



CPSE - a trustworthy diagnostic marker for dogs with BPH

D. Pinheiro, J. Machado, C. Viegas, E. Bastos, J. Magalhaes, M. A. Pires, L. Cardoso, A. Martins Bessa, Comparative evaluation of biomarker CPSE for the diagnosis of benign prostatic hyperplasia, BMC Veterinary Research (2017) 13:76.

January 2018. © Virbac

Speed™ CPSE an in-clinic diagnostic marker for Benign Prostatic Hyperplasia

EVSSAR Congress

Objectives

Assess the performance of a convenient in-clinic quantitative immunoassay, Speed™ CPSE, for diagnosing Benign Prostatic Hyperplasia (BPH) in dogs.

Materials & methods

// Samples
56 intact male dogs.

// Reference method
Ultrasonography of the prostate.

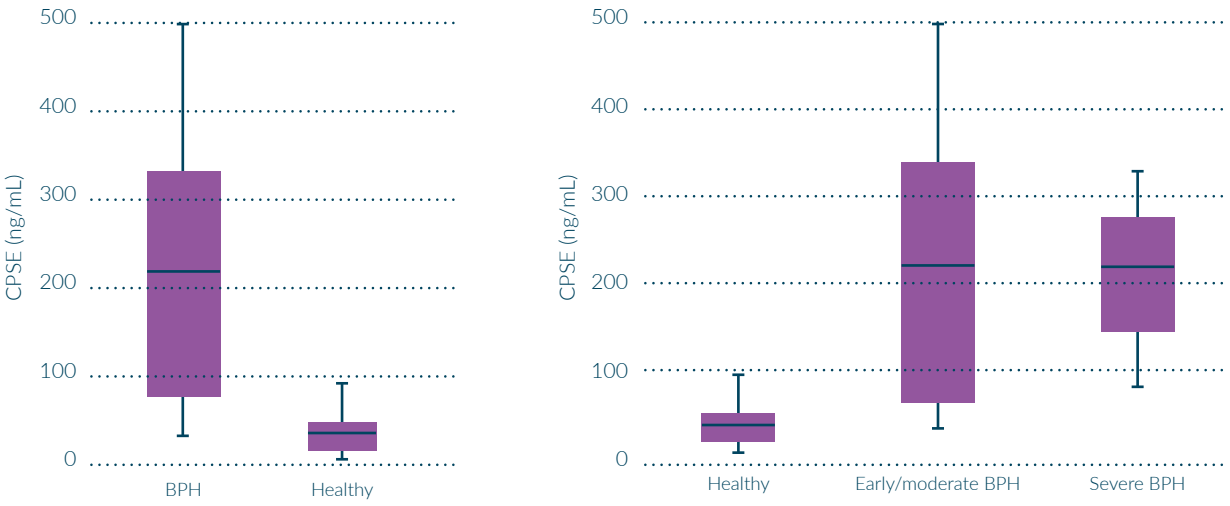
Results

// Correlation with the Reference method

- CPSE concentrations were significantly correlated to ultrasonography results, transrectal digital examination findings and prostate size ($p<0.0001$).
- Speed™ CPSE presented a Sensitivity of 91.6% and a Specificity of 90%, with a threshold at 70 ng/mL.

Medical interest

Strong discrimination between dogs with significant BPH and healthy ones



Speed™ CPSE - diagnostic tool for early detection of dogs with BPH

X. Lévy, P. Mimouni, S.Loukeri, E. Claret. Canine Prostate Specific Esterase as a diagnostic marker for BPH: validation study of the in-clinic test, Speed™ CPSE, EVSSAR Congress, 29 June -1st July 2017, Vienna, Austria

January 2018. © Virbac

Assessment of the in-clinic test Speed™ CPSE to early detect dogs with ultrasonographic prostatic abnormalities

EVSSAR Congress

Objectives

Determination of the Speed™ CPSE threshold for early identification of Benign Prostatic Hyperplasia (BPH) asymptomatic dogs.

Materials & methods

// Samples
19 different breeds of dogs (6 to 40kg; 1 to 5 years old).

// Reference method
Ultrasonography: prostate volume and echogenicity of the prostate parenchyma and borders.

Results

// Correlation with the Reference method
CPSE levels successfully distinguished healthy dogs from dogs positive to BPH.

	Mean Speed™ CPSE values (ng/mL)	Prostate volume ratio (Calculated volume/ estimated normal volume)
Group A (BPH)	184.9±126	r<1.5
Group B (healthy)	38.9±22.1	r>1.5

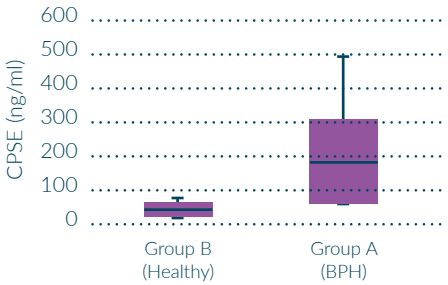
CPSE values higher than 50ng/mL were associated with:
- ultrasonographic alterations compatible with BPH
- prostatic volume was 1.5 times larger than normal

At this threshold, the sensitivity and the specificity of the Speed™ CPSE was 95.6% and 89.2%, respectively.

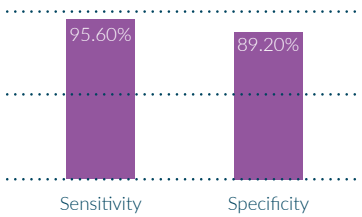
Medical interest

Prostatic disorders often remain asymptomatic and are underdiagnosed. **CPSE correctly differentiated dogs with BPH** in early stages and can be an accurate, practical and non-invasive diagnostic method for the detection of subclinical cases and advanced management of prostatic abnormalities.

Mean Speed™ CPSE values



Performances of CPSE vs Echography



Speed™ CPSE - a useful tool for early detection of dogs with BPH which may require further investigation and treatment

S. Alonge, M. Melandri, R. Leoci, G. Aiudi , Assessment of the threshold value of CPSE to early detect dogs with ultrasonographic prostatic abnormalities, EVSSAR Congress, 29 June – 1 July 2017, Vienna, Austria

January 2018, © Virbac

Performance evaluation of the blood test Odelis™ CPSE in the diagnosis of Benign Prostatic Hyperplasia in dogs

EVSSAR Congress

Objectives

The aim of the study was to assess the value of an ELISA assay of the Canine Prostate Specific Arginine Esterase (CPSE) in the diagnosis of Benign Prostatic Hypertrophy (BPH) in dogs.

Materials & methods

// Samples

Blood samples from two groups of dogs:

- 89 dogs free of BPH (Group I): Non-neutered dogs under two years old
- 34 dogs with BPH (Group II): Non-neutered dogs over 2 years old
- All sizes of dogs were represented belonging to various breeds

// Reference Method

- Prostate ultrasound
- Histopathological analysis – ultrasound guided biopsy or puncture

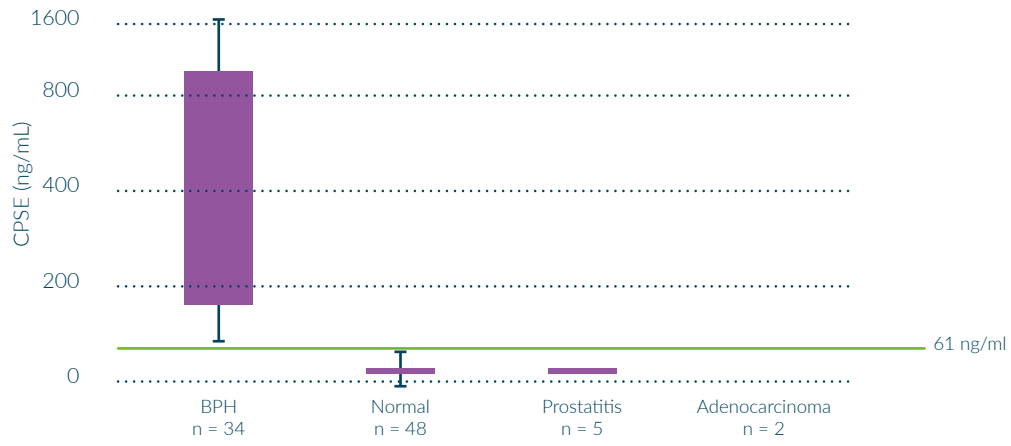
Results

// Global Concordance Index (CI)

- The serum concentration of CPSE was significantly higher in the group of dogs with BPH compared to dogs without BPH (p-value < 0.0001)
- The rate of CPSE is not increased in the presence of other diseases of prostate (adenocarcinoma or prostatitis)
- At a threshold value of 61 ng/mL the Sensitivity and the Specificity of Odelis™ test was 97.1% and 92.7% respectively

Medical interest

Levels of CPSE in dogs with BPH in comparison with healthy dogs and dogs with prostatic disorders other than BPH.



Based on the results, CPSE is a reliable biomarker for the diagnosis and screening of canine BPH and the performances of the test Odelis™ CPSE highlight its excellent diagnostic value

X. Lévy, P. Mimouni, A. Fontbonne, G. Derre, E. Claret, S. Audhuy, J. Morlet. Performance evaluation of the blood test Odelis™ CPSE in the diagnosis of Benign Prostatic Hyperplasia (BPH) in dogs. EVSSAR Congress, June 2009, Nantes, France

January 2018. © Virbac

virbac.com

January 2018 © Virbac

Virbac

Shaping the future of animal health