KRUUSE IgG Foal Quick Test

Detection of Immunoglobulin G (IgG) in equine (foal) serum, plasma or whole blood.

Instruction Manual

KRUUSE IgG Foal Quick Test is used for determining the foal blood IgG level.

Immunoglobulin G - IgG

Foal losses between 2% and 12% have been reported, depending on age, management and breeding area. Identification of foals at risk and assessment of postnatal disease symptoms can be difficult, but waiting for the onset of clinically manifest symptoms costs valuable time. An adequate supply of immunoglobulins (IgG) from the colostrum of the mother is important for healthy development of a newborn foal. Failure of transfer of colostral IgG is one of the most important predisposing factors for infectious diseases in foals. Studies have shown that under increased risk of infection of foals, an IgG concentration of > 800 mg / dl in the blood is required for adequate protection against infections. (1)

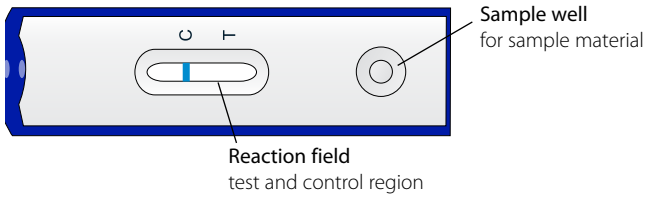
In the equine no immunoglobulins are transferred through placenta, like in many other mammals, which makes it even more important that the foal have enough colostrum both regarding amount and quality.

Horses (and pigs) have epitheliochorial placentae, which prevent intra-uterine passage of antibodies from mother to fetus The trophoblast cells are juxtaposed with but do not invade the epithelial cells; fusion of the trophoblast cells with the uterine epithelial cells may also occur. This type of placenta has six cell layers and inhibits the passage of immunoglobulins and other immunological factors to the fetus during pregnancy. Therefore, the only immunity a newborn receives from its mother derives from the colostrum. (2)

As part of the veterinary examination of a newborn foal, the importance of routine determination of IgG levels as a way to identify susceptible animals cannot be overestimated. It ensures the early diagnosis of immune deficit to initiate further actions. (3)

The Test Cassette

The test strips are located behind the plastic cover. The sample well is on the right side. The reaction field is located in the middle of the test cassette. The "C" and "T" next to the reaction field show the test region and the control region.



CAUTION

- Only for veterinary and professional use
- For single use only
- Use the test cassette within 10 minutes of opening the pouch
- Do not place sample solution in the reaction field
- Use a new sample tube for each sample to avoid cross reactions
- Do not touch the reaction field
- Use only the original buffer provided in the kit
- Sample material could be infectious. Be careful with waste disposal
- Do not use the test after the expiry date printed on the test pouch
- Do not use the test if the packaging is damaged

Reagents, Materials, Instruments

I. Contents

- 5 test cassettes with drying pad
- 1 plastic bag with 5 pipettes
- 1 bottle with 2,5ml reagent buffer
- 1 instruction manual

II. Additional necessary equipment

- Timer

Sample Preparation

The best test results are obtained using a freshly collected blood sample. Separate the serum or plasma from whole blood as quickly as possible in order to avoid haemolysis.
Heparin blood or EDTA blood may be used.
Whole blood should be tested within 6 hours after collection. Serum may be stored max. 3 days at 2 to 8°C.
When performing the test, the sample must be at room temperature (18 -25°C) and should be shaken well prior to testing.
Use only clear, non-haemolyzed specimens.

General remarks for blood samples

- If possible, separate serum or plasma from whole blood as soon as possible to avoid haemolysis
- Heparin or EDTA blood can be used for the plasma extraction
- Use only clear, non-haemolyzed specimens
- Use of whole blood may decrease the sensitivity of the test

Testing should ideally be performed immediately after specimen collection. Do not keep the specimens at room temperature for a prolonged period. Serum and plasma specimens can be stored at 2-8°C for up to 3 days.

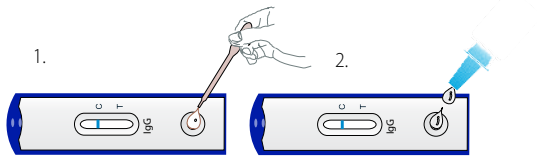
Test Procedure for Serum and Plasma

1. Collect blood from the foal to prepare the serum or plasma sample.
   Open the pouch, and remove the test cassette.
   Place one drop of serum or plasma from the pipette into the sample well.
   Ensure that there are no air bubbles (if air bubbles occur, pop them with the pipette). Wait until the sample fluid is completely absorbed.

2. Open the buffer and add 2 drops of the buffer into the sample well.

If the liquid is not running well up the strip after 30 sec., add an additional drop of buffer into the sample well and poke/gently scratch the bottom of the sample well with the pipette.

3. The test result should be read 10 minutes after the fluids have reached the control line.



Test Procedure for Whole Blood

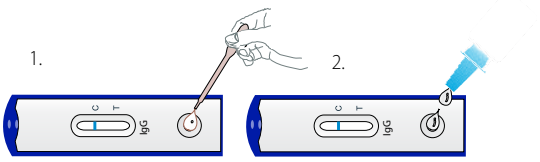
Collect blood from the foal. Open the pouch, remove the cassette and place it on a flat surface.

1. Using the pipette, transfer one drop of whole blood into the sample well -wait for sample fluid to be absorbed

2. Add 2 drops of buffer into the well. First add one drop to the sample well, wait a few seconds until the drop is absorbed, then add the second drop.

If the liquid is not running well up the strip after 30 sec., add an additional drop of buffer into the sample well and poke/gently scratch the bottom of the sample well with the pipette.

3. The test result should be read 10 minutes after the fluids have reached the control line.



NB: The **controle line (C)** may only be **faintly visible** in case of high IgG level, this does not effect the functionality of the test nor the correct test result.

References

1. G. Riedel-Caspari, H.-J. Schuberth (2007): „Sicherung der passiven Immunität des neugeborenen Fohlens - eine Übersicht". Praktischer Tierarzt 88: 7; Schlütersche Verlagsgesellschaft mbH & Co. KG; ISSN 0032-681 X.
2. Borghesi, J., et al. (2014) Immunoglobulin Transport during Gestation in Domestic Animals and Humans—A Review. Open Journal of Animal Sciences, 4, 323-336.
3. Erhard, M. H. , Luft, C. , Remler, H.-P. and Stangassinger, M. (2001), Assessment of colostral transfer and systemic availability of immunoglobulin G in new-born foals using a newly developed enzyme-linked immunosorbent assay (ELISA) system. Journal of Animal Physiology and Animal Nutrition, 85: 164–173. doi: 10.1046/j.1439-0396.2001.00313.x.

Test Evaluation

Test evaluation is based on the reaction field, the test area (T).
The test result should be read 10 minutes after the fluids have reached the control line.

No visible line in the T-line area

No test line is visible. The concentration of IgG is high (>800 mg/dl). An adequate transfer of passive immunity is assumed.

Remark
The test is still valid if the Control line appears very thin or weak

A weak/faint line is visible in the T-line area

In the T-line area, a weak/faint line is visible. The concentration of IgG is between 400 and 800 mg/dl. A partial failure of transfer of passive immunity is assumed.

A strong line is visible in the T-line area

In the T-line area, a strong/very visible line appeared. The concentra tion of IgG is too low (< 400 mg/dl). A nearly complete failure of transfer of passive immunity is assumed.

Remark
The stronger the T-line appears, the lower the IgG concentration.
Even a faint or weak C-line indicates that the test is used right and works properly.

Invalid Result

If no control line is visible after the test is conducted, the test is invalid. In this case, the test may not have been correctly carried out, the test may have passed the expiry date or the test was exposed for too long to ambient air outside the sealed pouch. If this occurs, a new test must be conducted.

Storage

KRUUSE IgG Foal Quick Test must be stored at 4°C to 30°C.

Disposal

A safe disposal is recommended. Sample material and test cassettes should be collected in a sealable plastic bag.

Test Performance Characteristics

Sensitivity and Specificity in serum sample. Evaluation study 2015

Concentration Foal IgG in blood		Radial Immunodiffusion (RID)		
		>800 mg/dl	<800 mg/dl	Total
Foal IgG Test	Positive	37	2	39
	Negative	1	25	26
	Total	38	27	65

Sensitivity = 97,37% Specificity = 92,59%

Symbols Used

2	Only for one use		Read user instruction carefully
Σ	Content	+30°C +4°C	Storage temperature
LOT	Lot number		Expiry date