

KRUUSE PiDia Light Quick Test

The on-site rapid test for detection of Rotavirus and Clostridium perfringens in pigs

Instruction Manual

KRUUSE PiDia Light is used for detection of specific antigens of Rotavirus and Clostridium perfringens in pigs.

Rotavirus and Clostridium perfringens in pigs

Diarrhea can cause severe losses in livestock farming, especially during the first 3 weeks of life. Diarrhea generally leads to deterioration in individual animal health and can cause serious economic losses in herds. The causes of diarrhea are multiple. Both infectious and non-infectious factors can trigger the onset of diarrhea. Besides non-infectious factors, such as general hygienic conditions and immune system function of the individual animal, infectious factors, such as viruses, bacteria or single-cell parasites, are the main causes of serious diarrheal disease. Dominant pathogens vary between different herds. Diarrhea is usually caused by mixed infections. A thorough diagnosis is therefore of particular importance. KRUUSE PiDia Light can reliably detect two of the most common pathogens causing diarrhea: Rotavirus and Clostridium perfringens.

Problems in livestock management, such as husbandry, feeding and climate, can also cause or exacerbate diarrhea. In good livestock management, regular screening is recommended to check for possible increased concentrations of pathogens in order to identify and handle problems as fast and effectively as possible. For example, if a high concentration of Clostridium perfringens (<104 Clostridium perfringens/gram) is detected when screening, immediate preventive measures should be taken.

KRUUSE PiDia Light has been developed as an on-site diagnostic test for mixed infections causing diarrhea. Furthermore KRUUSE PiDia Light is also a screening instrument in herd management.

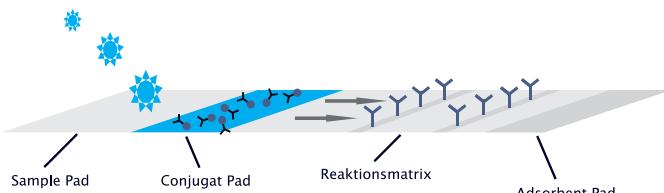
Test Principle

KRUUSE PiDia Light is a sandwich immunoassay. Gold-labelled antibodies, antigens from the specimen and immobilized antibodies form a sandwich construction which shows as the test line on the test strip.

KRUUSE PiDia Light is a highly sensitive immunoassay in a convenient test cassette, wherein test strips for the parallel detection of 2 parameters are included.

Explanation of the testing process

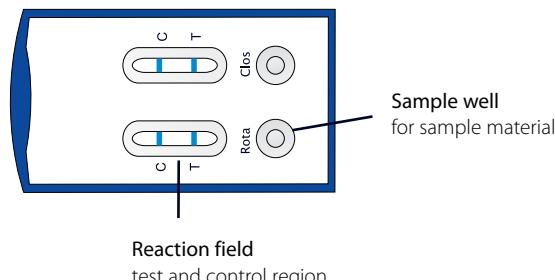
The test strips consist of different components.



When a specimen is placed in the sample well, it will be absorbed by the absorbent pad of the test strip. The fluid mixes with the gold labelled antibodies in the conjugate pad. Due to capillary action the fluid starts to run up the test strip, crossing the test line region followed by the control line region. The control line should always appear to show that the test is functioning correctly. If the specimen contains the pathogen the respective test strip is testing for, a line will appear in the test line region. The test line is formed by building a sandwich between the gold labelled antibodies from the conjugate pad, the antigen from the specimen and the immobilized antibody in the test line region. If no pathogen is present in the specimen, the gold-labelled antibodies cannot connect to the immobilized antibodies in the test line region and therefore no test line appears; the test result is negative.

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
- Consider the test results as invalid after the indicated read-out time

Reagents, Materials, Instruments

I. Contents

- 5 double test cassettes with drying pads
- 5 test tubes with 1,5 ml dilution buffer
- 5 pipettes
- 1 instruction manual

II. Additional necessary equipment

- Timer

Sample Preparation

The sample should be tested as quickly as possible after collection. If this is not possible, the tube incl. the sample can be stored at temperatures between 2°C and 8°C for a period of up to 24 hours. If it is necessary for the specimen to be stored longer, it must be kept at a temperature below -20°C. Make sure that the sample is not contaminated with formaldehyde solutions or derivatives.

If specimens are to be shipped, they should be packed in compliance with local transportation regulations for etiologic agents.

Useful Tips

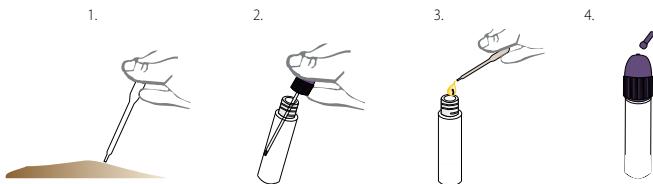
Collection of samples should be performed using either the pipette or the sample stick, depending on the consistency of the faeces. In case of nearly liquid or very watery feces, use the pipette. If the faeces are slightly grainy or include larger particles, use the stick for sample taking.

Sampling

All materials used to perform the test should have room temperature.

Liquid faeces

1. Use the pipette to pick up the liquid material
2. Open the purple lid of the sample test tube and remove the sampler
3. Add 3 drops of the faecal sample to the test tube. If the faecal sample is very watery, put up to 3 drops more into the tube (up to 6 drops total can be added)
4. Return the pin to the tube and close it tightly, then shake the tube well. The clear liquid should change to a slightly brown/yellow colour



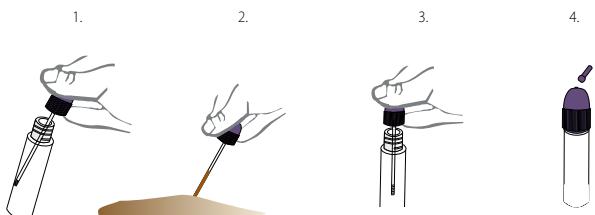
Remarks

When using a sample from the pipette, first add 3 drops faecal sample into the sample tube and shake it gently. If the liquid in the tube is slightly brown or yellow, no more drops of the sample are necessary. If the colour of the buffer still appears clear with no significant colour change, please add additional drops of the specimen until the colour of the buffer changes.

Grainy faeces

If the faeces are quite grainy or contain larger particles, use the stick for sample taking. The stick can also be used for taking a faecal sample from the anus.

1. Open the purple lid of the sample test tube and remove the sampler.
2. Take the sample stick and stab the pin into three different places of the specimen. A large amount of faeces is not necessary; if the liquid in the tube is slightly brown or yellow, no more faecal material is needed.
3. Return the pin to the tube and close it tightly, then shake the tube well. The clear liquid should change to a slightly brown/yellow colour.
4. Break off the pin of the test tube



Remarks

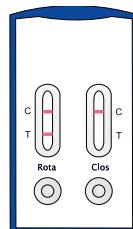
No big particles should come into the sample wells. In this case the liquid can stop running. Please use the pipette for removing the particles from the sample well and poke the sample well with the tip of the pipette in order to activate the run. Also, an additional drop of the sample fluid into the respective sample well supports further run on the test strip.

Test Procedure

1. Take a test cassette out of the protective pouch
2. Shake the tube once more
3. Break off the pin of the test tube
4. Apply 3 to 4 drops of the specimen to each of the sample wells by slightly squeezing the test tube

Test Evaluation

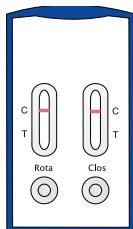
The test result should be read 10 minutes after the fluids have reached the control line.



Positive Results

Two red lines appear in the reaction field.
The image to the left shows a positive rotavirus test result with a clear test line.

Also faint test lines are considered to be positive!



Negative Results

Only the control lines appear in the reaction field.
No test lines are visible.
The image shows clear negative test results. Neither Rotaviruses nor C. perfringens were detected

Invalid Result

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

Storage

KRUUSE PiDia Light Quick must be stored at 4°C to 30°C.

Disposal

- No special disposal necessary

Test Performance Characteristics

ELISA Comparison study 2012/2013.

| | Sensitivity | Specificity |
|-----------------------|-------------|-------------|
| Rotavirus | 98% | 96% |
| C. perfringens | 97% | 99% |

References

- 1) Achacha, M., Duhamel, G. E., Kheyar, A., Villeneuve, A.: "New approach for veterinarian diagnostic", American Association of swine Veterinarians: p. 69 – 72. 2005
- 2) Songer JG, Uzal FA.: "Clostridial enteric infections in pigs", J Vet Diagn Invest 2005

Symbols Used

| | | | |
|--|---------------------|--|---------------------------------|
| | For single use only | | Read user instruction carefully |
| | Content | | Storage temperature |
| | Lot number | | Expiry date |