General Information

Peste des Petits Ruminants (PPR) is a contagious disease affecting goats and sheep primarily in Africa, the Middle East and the Indian subcontinent. It is caused by the Peste des Petits Ruminants Virus (PPRV), a species of the *Morbillivirus* genus. The disease is highly contagious, with approximately 80 percent mortality in acute disease.

Detection of PPR virus can be useful to identify and monitor new outbreaks. IDvet offers a full range of diagnostic kits to detect PPRV : an antigen capture ELISA called ID Screen® PPR Antigen Capture (product code: PPRAG), and a RT-qPCR kit, ID Gene™ Peste des Petits Ruminants Duplex (product code: IDPPR).

The ID Rapid® PPR Antigen is a pen-side test based on reagents also used in the ID Screen® PPRAG ELISA. As the elution buffer used in both tests is fully compatible, swab eluates obtained with the ID Rapid® PPR Antigen test may, if necessary, be sent directly to laboratories for confirmatory diagnosis using the ID Screen® PPRAG ELISA.

The test may be used on: **ocular swabs (preferred)**, nasal swabs, oral swabs, or rectal swabs.

Description and Principle

The ID Rapid® PPR Antigen test is a simple direct test (immuno-chromatographic assay) for the detection of all 4 lineages of the PPRV antigen in swabs and may be carried out in the field.

PPRV antigen-specific antibodies are either bound to colloid gold particles or immobilized as a thin line on the membrane (Test Line (T)).

If present in the sample, PPRV antigen binds to the colloid gold conjugate and forms an immune complex. The complex then migrates by capillary flow along the membrane until it reaches the monoclonal antibody immobilized on the T-line, where it accumulates. The accumulation of colloid gold thus forms a red/purple line visible by eye. **A band in the Test (T) line indicates a positive result. No band in the Test (T) line indicates a negative result.**

Each dipstick has a Control line (C) to validate the migration. In both positive and negative samples, the excess colloid gold conjugate will be bound to a capture antibody on the C-line. This C-line ensures correct test performance and allows for test validation. **Result interpretation on the T-line is possible only if there is a band on the C-line.**

Kit Components

Kit content
Swabs (in peel pouch) ❶
Cardboard rack ❷
Soft tubes (for swab elution and assay migration) ❸
Elution buffer (for sample ; dropper) ❹
Dipsticks (in storage tube, with desiccant) ❺
Kit insert

***** *Quantities supplied are indicated on the kit label.*

Materials required but not provided

Other swabs than those included in the kit can be used, especially if others are more adapted for the sampling to be done (species, type of sampling). The swab tip can be of any appropriate material, preferably viscose/rayon.

Precautions

1. All single-use material used for the assays should be considered as potentially infectious material and should be eliminated in accordance as per local requirements.
2. **After opening the dipstick storage tube ❺, close the tube immediately and tightly to protect the remaining dipsticks from humidity** (desiccants are present inside the storage tube, both in the lid and in a small bag)
3. **The dipstick must remain in a vertical position after being in contact with the sample, and during all the migration/reaction step, thanks notably to the cardboard rack ❷ provided in the kit.**

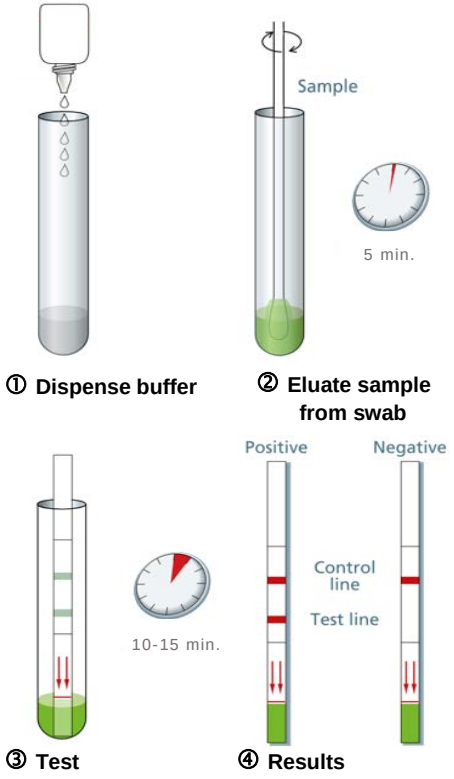
Storage

All reagents may be stored at room temperature (+4°C to 30°C) until the expiry date indicated on the packaging. Avoid freezing of the devices and buffer.

After the first opening of the storage tube, the dipsticks remain stable for 15 weeks (in the closed container) if stored between +4°C and 30°C in a dry environment.

Cardboard rack, the swabs and the soft tubes do not have any specific temperature requirements for storage.

Test procedure description



① **Dispense buffer**

② **Eluate sample from swab**

③ **Test**

④ **Results**

Preparation

Assemble the portable cardboard rack ❷ before testing.

Testing Procedure

Allow all reagents to come to room temperature before use. **Homogenize the Elution buffer dropper ❹ by inversion (2 to 3 times).**

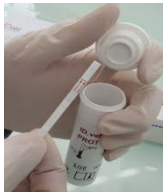
1. Take one of the soft tubes ❸ provided in the kit, and add **12 drops** (each drop is approximatively 20µL) **of the Elution buffer from the dropper bottle ❹**. Label the tube with the animal ID.

2. **With the swabs ❶ provided, collect samples** from inside the lower eyelid or inside the nose, of the animal. Eye swabs are generally preferred over nasal swabs. If not tested immediately, the swabs can be kept dried.
3. **Place the swab tip into the soft tube containing the Elution buffer**. **Press the soft tube several times** (for approximately 5 seconds) **onto the swab tip** to facilitate extraction and **incubate 5 minutes** at room temperature, **keeping the swab tip immersed in the Elution buffer**.

Note: Longer **elution times** are **permitted** (up to 15 min) and may **enhance** the **test sensitivity**.

4. Remove the swab from the soft tube, pressing on the swab tip to recover the maximum liquid volume. Discard the swab tip.

5. Open the dipstick storage tube ❺ and take a dipstick.



After opening the storage tube, close the tube immediately and tightly to protect the remaining dipsticks from humidity

6. Place the dipstick in the soft tube containing the swab eluate. **Make sure that the two red arrows are pointing down** (see picture to the right). Once immersed, the **eluate liquid level should not exceed the red line below the red arrows** (as illustrated in section "Test procedure description", n°3).

7. Allow the test to **develop** for up to **10-15 minutes.**

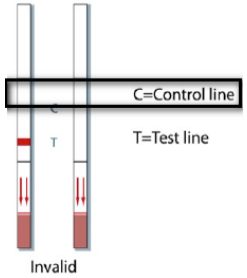
   If both bands (test and control line) are clearly visible before 10 minutes, further incubation is not required.

To ensure correct performance of the test, **the dipstick must remain in a vertical position** once in contact with the sample, and **during all the migration/ reaction steps.** The cardboard rack provided ❷ may be used for that purpose.

Validation

The test is **validated** and **may be interpreted only if there is a visible red band on the Control line (C).**

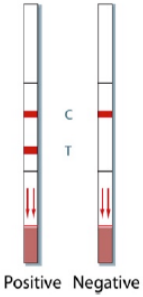
If the band is not visible on the Control line (C), as in the example below, the **test is invalid and should be repeated.**



Interpretation

The test is considered as (see illustration below):

- ✓ **NEGATIVE** if **no red band** is **visible** on the **Test line (T)**
- ✓ **POSITIVE** if a **red band**, is **visible** on the **Test line (T)**



Note : even a weak red band is considered as a POSITIVE result ; see examples below.

Negative sample	Weak positive sample	Positive sample
		

Control line (C)

Test line (T)

Troubleshooting

If no signal is visible on the Control line (C), this may either be because:

- the test device was faulty (see chapter Precautions – protection from prolonged exposure to humidity);
- the sample contained particulate material that blocked buffer flow;
- the sample was not applied correctly on the dipstick (see Protocol step 6 - take care of the red-arrows position);
- the volume of swab eluate was insufficient to perform full migration : if so, repeat sampling with a new swab and elute again. If necessary, add a few more drops (max 20 drops) of elution buffer before performing the test. The liquid level should not exceed the red line. See protocol step 5.

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Certified management system

ID Rapid®
PPR Antigen

Dipstick field test for detection of PPR virus infection

For *in vitro* use

PPRAGDIP ver 0718 EN

IDvet, 310, rue Louis Pasteur – Grabels - FRANCE
Tel: + 33 (0)4 67 41 49 33 - Fax: + 33 (0)4 67 45 36 95
www.id-vet.com - E-mail: info@id-vet.com

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