

Psittacine circoviral disease (beak and feather disease)

SAMPLE REQUIRED:

Refer to instructions below

Indication

For the diagnosis of avian Circovirus infection. This can affect a variety of birds. Clinical symptoms may include acute systemic illness and death in neonates, transient infection with or without clinical disease, to a protracted illness with effects on feathers and beak.

Protocol

LIVE BIRD. The following tests are available:

- **HI** (haemagglutination inhibition test) for detection of antibody.
- **HA** (haemagglutination test) for detection of viral antigen.
- **PCR** for detection of viral nucleic acid.
- **Histopathology.**

The various tests answer different questions:

- **HI** antibody determines whether a bird has ever been infected.
- **HA** demonstrates whether a bird is shedding virus. It would appear to be less sensitive than PCR for detection of shed virus.
- **PCR** is more sensitive than **HA**. However, the extreme sensitivity of PCR may lead to false positives due to contamination of non-infected material (e.g. with infected feather dander from other birds in the household/facility), or cross-contamination within the laboratory. PCR may also yield results that are difficult to interpret (e.g. PCR may detect circovirus DNA for several weeks following recovery from infection). PCR is the best test to determine whether a live bird is currently infected.
- Ideally the **PCR, HA and HI** tests would be run together to provide as complete a picture as possible regarding the infection status of the bird. Running the **HA** and **PCR** together helps compensate for weaknesses of each test. The presence of **HI** antibody in a **PCR**-positive bird may indicate that it is transiently infected and developing immunity.
- **Histopathology** is used to demonstrate circoviral lesions and circovirus inclusion bodies.

Suitable specimens from a live bird (submitted in separate containers) are:

- EDTA whole blood. Suitable for **HI, PCR**.
- Blood spot on filter paper (minimum 6 mm diameter circle of blood, which must penetrate the filter paper). Allow to dry at room temperature for 12-24 hours in a vertical position, then store in a ziplock bag at 4°C. Does not have to be refrigerated during shipment (preferably ship within 48 hours of collection). Suitable for **HI, PCR**.
- New growth feather (with a blood-filled quill) (minimum 2 feathers). A good site to sample is over the rump (under the wings). Store in a ziplock bag at 4°C until shipment. Does not have to be refrigerated during shipment (preferably ship within 48 hours of collection). Suitable for **HA, PCR**.
- Formalin-fixed affected dystrophic feathers or new growth feathers (minimum 2 feathers). Suitable for **histopathology**.

DEAD BIRD. The following tests are available:

- **Histopathology** of formalin fixed tissues. The best tissues to submit are dystrophic feathers and cloacal bursa. Submission of a complete set of tissues is recommended to pursue other possible diagnoses, or to diagnose concurrent infections.
- **PCR** on fresh tissues (liver, affected dystrophic feathers).