CHARACTERISTICS OF THE SNAP® PARVO TEST

- **SNAP® Parvo** increases the reliability of the result by eliminating variations due to subjective preparation and reading of the sample by the operator.
- No further tests need to be carried out on the sample to reach a definitive diagnosis.
- Each test comes with a swab/conjugate device that makes it easier to collect a sample from the faecal specimen.
- **SNAP® Parvo** does react with CPV-2a, CPV-2b and CPV-2c.
- No crossreaction with the common CPV vaccines

THE IMPORTANCE OF PERFORMING THE TEST

1. A negative faecal test does not rule out a diagnosis of parvovirus disease.
2. **SNAP® Parvo** is a haemoagglutination test (based on ELISA technology), capable of detecting the presence of the antigen in faecal samples. It indicates that the animal has ingested cysts of the Parvovirus, may be actively infected and may eliminate the virus in the faeces.
3. The **SNAP® Parvo** test provides more accurate results than traditional methods used at the vet surgery.

**POSITIVE TEST PARVOVIRUS**

**NEGATIVE TEST**

Positive results may vary in colour intensity.

<table>
<thead>
<tr>
<th>Positive Result Intensity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Weak</td>
</tr>
<tr>
<td>Weak</td>
</tr>
<tr>
<td>Medium</td>
</tr>
<tr>
<td>Strong</td>
</tr>
<tr>
<td>Very Strong</td>
</tr>
</tbody>
</table>

When to use **SNAP® Parvo**

**SNAP® Parvo** is a basic diagnostic test for any animal presenting with diarrhoea.

**SNAP® Parvo** is a routine test at annual check-ups, especially for patients at a high risk of infection and contagion.
PARVOVIRUS DISEASE

The aetiological agent of parvovirus disease is a non-enveloped DNA-virus of the family Parvoviridae, whose genome is made up of linear, single-chain DNA, present as a single copy. Parvovirus is one of the smallest viruses identified in nature.

Two different parvovirus strains may be found in dogs: CPV1 and CPV2. CPV1 is non-pathogenic and is related with other strains of parvovirus. CPV2 causes gastroenteritis and myocarditis, and is related to feline parvovirus. Since the emergence of CPV2, three different antigenic variants arose consecutively, (CPV-2a, CPV-2b and CPV-2c) of which the former two have replaced the original CPV-2 completely. The disease spread worldwide within a few years of its first appearance, due to its high resistance to inactivating agents such as heat and pH.

Like all CPV parvovirus strains, CPV2 is extremely immunogenic. Antibodies appear in the circulation 4 days after infection and persist for 2 years. Protection of the puppy is dependent on humoral immunity (both active and passive) and not local immunity.

Canine parvovirus disease, a form of haemorrhagic gastroenteritis, is a serious contagious and infectious viral disease, which attacks puppies during the first few months of their lives.
Canine parvovirus type 2 (CPv-2) appeared as a pathogen of dogs in the 1970s. In 1979 a mutated strain, to be known as CPv-2a, was identified and within one year it had become the predominant type. CPv-2a was followed by CPv-2b in 1987 and in 2001 CPv-2c was first reported in Italy. Since that time CPv-2c has been spreading across Europe, Asia and North America, replacing CPv-2b completely in Italy and CPv-2a in Germany, Spain and other countries. It is currently rare in the UK with the 2a and 2b strains remaining predominant. CPv-2c causes similar clinical signs as the previously known strains, including mucoid or haemorrhagic diarrhoea, leukopenia, and lymphopenia.

In recent scientific publications, a great deal of attention has been given to the "new canine parvovirus": strain CPv-2c. This virus has a single nucleotide substitution that changes one amino acid in the capsid protein. The research to date shows that all currently available vaccines protect against all known strains of CPv-2, including the CPv-2c strain. Furthermore, it is not possible to distinguish CPv-2c from CPv-2b or -2a isolates based on clinical signs or the Idexx sNaP® Parvo tests. There is no evidence, nor reason to believe, that the Idexx sNaP® Parvo test would react differently to the various strains of CPv-2. Furthermore, preliminary analysis of two independent studies confirms that there is no significant difference in the sensitivity and specificity of the sNaP® Parvo test for the three subtypes (2a, 2b and 2c).


SNAP® Parvo

<table>
<thead>
<tr>
<th>Disease</th>
<th>Species</th>
<th>Storage</th>
<th>When to perform the test</th>
<th>Sensitivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>PARVOVIRUS</td>
<td>Canine</td>
<td>2-25°C</td>
<td>4-8 days after exposure</td>
<td>100% (CI 94.0 – 100%)</td>
</tr>
</tbody>
</table>

*ATWB = anticoagulant-treated whole blood
Canine parvovirus type 2 (CPv-2) appeared as a pathogen of dogs in the 1970s. In 1979, a mutated strain, known as CPv-2a, was identified and within one year it became the predominant type. CPv-2a was followed by CPv-2b in 1987 and in 2001 CPv-2c was first reported in Italy. Since then, CPv-2c has been spreading across Europe, Asia, and North America, replacing CPv-2b completely in Italy and CPv-2a in Germany, Spain, and other countries. It is currently rare in the UK, with CPv-2a and CPv-2b strains remaining predominant.

CPv-2c causes similar clinical signs as the previously known strains, including mucoid or haemorrhagic diarrhoea, leukopenia, and lymphopenia. In recent scientific publications, a great deal of attention has been given to the “new canine parvovirus”: strain CPv-2c. This virus has a single nucleotide substitution that changes one amino acid in the capsid protein. The research to date shows that all currently available vaccines protect against all known strains of CPv-2, including the CPv-2c strain. Furthermore, it is not possible to distinguish CPv-2c from CPv-2b or -2a isolates based on clinical signs or the IDEXX SNAP® Parvo tests.

There is no evidence, nor reason to believe, that the IDEXX SNAP® Parvo test would react differently to the various strains of CPv-2. Furthermore, preliminary analysis of two independent studies confirms that there is no significant difference in the sensitivity and specificity of the SNAP® Parvo test for the three subtypes (2a, 2b, and 2c).

**PATHOGENESIS AND CLINICAL SIGNS**

After an incubation period of about 5-6 days, the parvovirus gives rise to fever, depression, vomiting, and often bloody diarrhoea. The animal dies within 48-72 hours of the onset of these symptoms. The standard disease presents as an intestinal form. In addition to this, a cardiac form characterised by sudden death following nerve conduction problems was initially commonplace, but is now rare.

**Intestinal form**

This affects newly-born puppies or those during weaning (the change in food causes a rapid turnover of the intestinal epithelium). This form causes depression, anorexia, and fever on the third day. Infected animals experience vomiting and bloody diarrhoea and may also suffer from temporary leucopenia. The ileum and the jejunum are the areas most frequently affected. Congestion of the mesenteric lymph nodes with petechiae also occurs.

Puppies suffering from parvovirus disease have a very guarded abdomen, are reluctant to move and appear hunchbacked.

**Cardiac form**

This causes a non-suppurative acute inflammation of the heart muscle in newly-born puppies. It is now an extremely rare form, as it only occurs in those born from non-immune mothers. It causes sudden symptoms, breathlessness, dry vomiting, rapid death, not always followed by enteritis and it sometimes appears a few weeks after the animal has recovered from the intestinal form. It causes acute heart failure, with dilatation of the cardiac chambers, pulmonary oedema, hepatic congestion, hydrothorax and ascites. Some whitish striae may appear on the heart.

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