

# SARS-CoV-2 Infection in Cats: Susceptibility, Sequelae, & Reinfection

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## In the literature

Chiba S, Halfmann PJ, Hatta M, et al. Protective immunity and persistent lung sequelae in domestic cats after SARS-CoV-2 infection. *Emerg Infect Disease*. 2021;27(2):660-663.

## FROM THE PAGE ...

Severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2), the cause of coronavirus disease (COVID-19), is a zoonotic-origin virus almost exclusively spread among humans; however, some animal species are also susceptible to infection. Cats appear to be among the most susceptible domestic animals, with reports of both clinical and subclinical infections.<sup>1-4</sup> Understanding how this virus behaves in species such as cats is important to assess potential animal and human health consequences of SARS-CoV-2 exposure and infection.

This study involved experimental infection of cats with SARS-CoV-2 using serial sampling to detect presence of the virus in different tissue. Virus isolation was used to detect infectious virus, as opposed to PCR, which can detect viable or nonviable nucleic acids.

Infectious virus was detected in the nasal turbinates and trachea of all cats on day 3 and in most cats on day 6. Virus was not detectable by day 10; this expected short duration of shedding is consistent with infection in humans. Although disease has been reported in naturally infected cats,<sup>5</sup> no cats in this study developed signs of disease, and the virus was not detected in tissues outside the respiratory tract. Although clinical signs were not apparent, there was histologic evidence of inflammation in the upper and lower respiratory tracts, including one cat with severe pneumonia. Lung lesions were still present 28 days after infection.

Susceptibility to reinfection was also investigated. Three cats that were experimentally infected were re-exposed 28 days after initial infection. None developed signs of disease, and infectious virus was not recovered on any sample. Three other cats infected via contact with infected cats were also re-exposed ≈28 days after initial exposure. Similar to the other group, no cats became clinically ill, and infectious virus was not recovered. Although the sample size in this study was small, data suggest that cats develop at least short-term immunity after experimental and natural infection and immunity may reduce or prevent virus shedding after second exposure.

## ... TO YOUR PATIENTS

Key pearls to put into practice:

- 1** Cats are susceptible to SARS-CoV-2 infection. Most infections are likely subclinical, but unrecognized inflammation can occur. Short- and long-term consequences are unclear.
- 2** Infection in cats is of short duration. Elimination of viral shedding typically takes place within 6 days after experimental infection.
- 3** Infected cats developed immunity that protected them after re-exposure. Duration of immunity is unclear, as it was only studied up to 28 days after initial infection, but this may suggest naturally infected cats are at lower risk for reinfection for at least some time.

## References

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- Gaudreault NN, Trujillo JD, Carossino M, et al. SARS-CoV-2 infection, disease and transmission in domestic cats. *Emerg Microbes Infect*. 2020;9(1):2322-2332.
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- Hosie MJ, Epifano I, Herder V, et al. Respiratory disease in cats associated with human-to-cat transmission of SARS-CoV-2 in the UK. *bioRxiv*. 2021;188(8):e247.

# NOCITA<sup>®</sup>

(bupivacaine liposome injectable suspension)

**13.3 mg/mL**

**For local infiltration injection in dogs only**

**For use as a peripheral nerve block in cats only**

**Local anesthetic**

**Single use vial**

### Caution:

Federal (USA) law restricts this drug to use by or on the order of a licensed veterinarian.

**Before using this product, please consult the Product Insert, a summary of which follows:**

### DOG Indication:

For single-dose infiltration into the surgical site to provide local postoperative analgesia for cranial cruciate ligament surgery in dogs.

### CAT Indication:

For use as a peripheral nerve block to provide regional postoperative analgesia following onychectomy in cats.

### DOG Dosage and Administration:

NOCITA is for single dose administration only. A dose of 5.3 mg/kg (0.4 mL/kg) is administered by infiltration injection into the tissue layers at the time of incisional closure for dogs. A single dose administered during surgical closure may provide up to 72 hours of pain control.

### CAT Dosage and Administration:

NOCITA is for administration only once prior to surgery. Administer 5.3 mg/kg per forelimb (0.4 mL/kg per forelimb, for a total dose of 10.6 mg/kg/cat) as a 4-point nerve block prior to onychectomy. Administration prior to surgery may provide up to 72 hours of pain control.

### Contraindications:

Do not administer by intravenous or intra-arterial injection. If accidental intravascular administration occurs, monitor for cardiovascular (dysrhythmias, hypotension, hypertension) and neurologic (tremors, ataxia, seizures) adverse reactions. Do not use for intra-articular injection. In humans, local anesthetics administered into a joint may cause chondrolysis.

### Warnings:

Not for use in humans. Keep out of reach of children. NOCITA is an amide local anesthetic. In case of accidental injection or accidental topical exposure, contact a physician and seek medical attention immediately. Wear gloves when handling vials to prevent accidental topical exposure.

### Precautions:

Do not administer concurrently with bupivacaine HCl, lidocaine or other amide local anesthetics. A safe interval from time of bupivacaine HCl, lidocaine or other amide local anesthetic administration to time of NOCITA administration has not been determined. The toxic effects of these drugs are additive and their administration should be used with caution including monitoring for neurologic and cardiovascular effects related to toxicity.

The safe use of NOCITA in dogs or cats with cardiac disease has not been evaluated.

The safe use of NOCITA in dogs or cats with hepatic or renal impairment has not been evaluated. NOCITA is metabolized by the liver and excreted by the kidneys.

The ability of NOCITA to achieve effective anesthesia has not been studied. Therefore, NOCITA is not indicated for pre-incisional or pre-procedural loco-regional anesthetic techniques that require deep and complete sensory block in the area of administration.

The safe use of NOCITA in dogs for surgical procedures other than cranial cruciate ligament surgery has not been evaluated.

The safe use of NOCITA in cats for surgical procedures other than onychectomy has not been evaluated.

The safe use of NOCITA has not been evaluated in dogs or cats younger than 5 months old.

The safe use of NOCITA has not been evaluated in dogs or cats that are pregnant, lactating or intended for breeding.

### DOG Adverse Reactions:

Field safety was evaluated in 123 NOCITA treated dogs. The most common adverse reactions were discharge from incision (3.3%), incisional inflammation (2.4%), and vomiting (2.4%).

### CAT Adverse Reactions:

Field safety was evaluated in 120 NOCITA treated cats. The most common adverse reactions were elevated temperature (6.7%), surgical site infection (3.3%), and chewing/licking of the surgical site (2.5%).

### Storage Conditions:

Unopened vials should be stored refrigerated between 36° F to 46° F (2° C to 8° C)

NOCITA may be held at a controlled room temperature of 68° F to 77° F (20° C to 25° C) for up to 30 days

in sealed, intact (unopened) vials. Do not re-refrigerate. **Do Not Freeze.**

### How Supplied:

13.3 mg/mL bupivacaine liposome injectable suspension in 10 mL or 20 mL single use vial. 10 mL supplied in 4-vial carton. 20 mL supplied in a single vial carton and 4-vial carton.

NADA 141-461, Approved by the FDA

US Patent: 8,182,835; 8,834,921; 9,205,052



Manufactured for: Aratana Therapeutics, Inc., Leawood, KS 66211

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NOC-0088-2

August 2018