

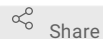


May 18, 2021

# SPARC Cat - Sham Control Chronic Implant Cat 4, Day 0

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1 Works for me



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SPARC

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## ABSTRACT

This is a procedure for a sham control chronic implant cat experiment (Day 0) for cystotomy (bladder surgery). The cystotomy is performed and an inactive UroMOCA is placed in the bladder. The cat is observed daily and imaged on day 0, 14 and 30 to track changes to the bladder and overall cat health in response to the cystotomy and device implantation. This protocol includes basic surgery, urodynamics and imaging for Day 0 in the chronic experiments.

## DOI

[dx.doi.org/10.17504/protocols.io.bfzjip4e](https://dx.doi.org/10.17504/protocols.io.bfzjip4e)

## PROTOCOL CITATION

Brett Hanzlicek, Margot Damaser 2021. SPARC Cat - Sham Control Chronic Implant Cat 4, Day 0.

**protocols.io**<https://dx.doi.org/10.17504/protocols.io.bfzjip4e>

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## CREATED

May 05, 2020

## LAST MODIFIED

May 18, 2021

## PROTOCOL INTEGER ID

36618

## MATERIALS TEXT

Cat - Domestic short-haired cat. Male or female. 6-24 months; 3.5-5.0kg  
Syringe Pump - Genie Touch; Kent Scientific  
Pressure Transducer - Catalog # 503067  
WPI Amplifier - 4 channel transbridge  
WPI National Instruments multifunction I/O device - NI USB 6259  
National Instruments Laptop with Labview software  
Tubing - Masterflex L/S Platinum-Cured Silicone Tubing ID 3/16 "; Cole Parmer  
BNC cables  
Tubing to catheter - APIS  
Laborie Catheter - Argyl Suction Catheter, 3.5 Fr Catalog # 8890703211  
Covidien Sutures - 4-0 Vicryl Polysorb (Covidien UL212)  
3-0 Prolene (Ethicon 8762)  
2-0 Silk Syringe  
60ml Contrast  
Visipaque 320mg/ml  
Surgilube  
Surgical instruments

## BEFORE STARTING

1 week before start of experiment - Confirm absence of bladder spasm; healthy cat

12 hours before experiment, start fasting the cat

You must transport the animal chart along with the cat to surgery site. The veterinary team will record all relevant data in the chart. The chart must then go back to the housing site.

### Transport Cat

- 1 Transport cat from housing site to surgery site.

### Animal Prep and catheter placement

- 2 Animal is anesthetized and abdomen is shaved by the vet team. The cat is then moved into the surgery room and attached to monitors by the vet team.
- 3 Drape animal and perform betadine scrub on abdomen and genitals.
- 4 Put surgilube on 3.5Fr catheter and insert into bladder through the urethra. Advance the catheter until resistance is met, then pull back 2-3cm.
- 5 Use gentle suction with syringe to withdraw urine from bladder through the catheter. Measure the volume and save the urine for urinalysis.

 15 mL urine removed

### Cystogram - DYNA CT

- 6 Use 1:5 dilution of contrast to saline to visualize bladder.

Fill the bladder with **10 mL** contrast and take a single CT image  
Add **10 mL** more to bladder (total of 20 ml) and take single CT image  
Add **5 mL** more to bladder (total of 25 ml) and take single CT image  
Add **5 mL** more to bladder (total of 30 ml) and take single CT image

Take a 3D CT image with 30ml contrast:saline in the bladder

CT of empty bladder 1 (timestamp 9:12:51)

CT of empty bladder 2 (timestamp 9:17:38)

## 7 Empty Bladder

### Urodynamics/Cystometry

## 8

Performed after cat is transferred from Isoflurane to propofol anesthetic.

Fill rate is 2ml saline/minute using syringe pump.

Data is recorded using Labview software.

Pressure is recorded using an external pressure transducer connected to syringe pump on one end and tubing that leads to the catheter on the other end.

## 9 Fill bladder with saline and record pressure using pressure transducer connected to LabView

Fill to **30 mL**

Pressure graph plateaued around 25ml – possible leak point  
Finished cystometry: animal held at 30ml saline, tugging on catheter produced reflex contractions

## 10 Empty Bladder

Cat transitioned back to isoflurane

## Surgery

- 11 See protocol titled "SPARC Cat surgery Day 0" for details on accessing and opening the bladder for device insertion.
- 12 1 cm incision made in bladder. Place device in bladder, suture the bladder closed, check for leaks and place bladder back into body.

4-0 Vicryl Polysorb = Bladder Mucosal Layer  
4-0 Vicryl Polysorb = Bladder Muscle  
3-0 Prolene = Fascia/muscle  
4-0 Vicryl Polysorb = Fat layer  
3-0 Monosof Nylon = Skin = 11 non-continuous sutures

- 13 Take a picture with DYNA-CT and a 3D CT  
  
11:28:33 Picture of device in empty bladder  
11:29:41 Contrast in bladder with device  
11:30:16 10 ml contrast in bladder with device – some leakage around catheter  
11:31:16 20 ml contrast in bladder with device  
11:35:37 3D CT Scan

## Urodynamics/cystometry 2

- 14 Fill bladder with saline at 2ml/min
- 15 Fill to 19 ml; saline began to leak around catheter

## Wake and return cat

- 16 Wait for cat to wake up and return to housing site.