



NOV 21, 2022

WORKS FOR ME

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## Lumbar Puncture

In 1 collection

COMMENTS 0

DOI

[dx.doi.org/10.17504/protocols.io.q26g78x11lwz/v1](https://dx.doi.org/10.17504/protocols.io.q26g78x11lwz/v1)Clemens Scherzer<sup>1,2</sup>, Bradley Hyman<sup>3,2</sup>,  
Charles Jennings<sup>1,2</sup><sup>1</sup>Brigham and Women's Hospital;<sup>2</sup>Harvard Medical School;<sup>3</sup>Massachusetts General Hospital

Daniel's workspace



Daniel El Kodsí

### ABSTRACT

This protocol explains the Standard Operating Protocol for performing a Lumbar Puncture.

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[dx.doi.org/10.17504/protocols.io.q26g78x11lwz/v1](https://dx.doi.org/10.17504/protocols.io.q26g78x11lwz/v1)

### PROTOCOL CITATION

Clemens Scherzer, Bradley Hyman, Charles Jennings 2022. Lumbar Puncture. **protocols.io**  
<https://dx.doi.org/10.17504/protocols.io.q26g78x11lwz/v1>

### COLLECTIONS ⓘ

**[BIOSPECIMENS SOPs](#)**

### KEYWORDS

lumbar , puncture, ASAPCRN

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### CREATED

Feb 18, 2021

### LAST MODIFIED

Nov 21, 2022

## OWNERSHIP HISTORY

Feb 18, 2021		Liz Brydon	Protocols.io
May 03, 2021		Yuliya Kuras	
May 05, 2021		Yuliya Kuras	
Oct 03, 2022		Daniel El Kodsi	

## PROTOCOL INTEGER ID

47407

## PARENT PROTOCOLS

Part of collection

[BIOSPECIMENS SOPs](#)

## GUIDELINES

### FREEZER STORAGE



Freezers are divided into 4 shelves, with 6 racks per shelf, and 24 boxes that can be held in each shelf. In total, 576 boxes, approximately 2,160 sample sets, can be stored in one -80°C freezer. The first three shelves are designated by visit number: Shelves A1-6 (top shelf) house samples from enrollment visits, shelves B1-6 (2nd shelf) house samples from the 1st year follow-up, and shelves C1-6 (3rd shelf) house samples from the 2nd year follow-up. Shelves D1-6 contain packed red blood cell tubes (PRBC), DNA, and RNA, extracted from blood as described in the protocols above. CSF is designated between two freezers in selected racks. Freezer storage and transactions of samples are recorded in the Freezerworks Inventory software.

## MATERIALS TEXT

### MATERIALS:

#### **Safety Lumbar Puncture Kit** (SIMS mfg., 5858-A34420\*163041)

Kit includes:

1. Three Sponge Sticks
2. Three 2 X 2 Gauze pads
3. Fenestrated Paper Drape
4. Lidocaine Hydrochloride USP, 1%, 5 ml ampule
5. Needle-pro® device with 22g X 1 ½ in needle
6. Point-Lok® device
7. Plastic syringe (5 ml Luer Lock) Needle-pro® device and 25g X 5/8 in needle
8. Filter straw, 5µM
9. 4 way Stopcock, No Caps, Luer Slip
10. Manometer
11. Flexible extension unit
12. Needle stick pad
13. Specimen vials for cell count, protein and glucose
14. Adhesive Bandage (Band-Aid)
15. Povidone-Iodine solution
16. Quincke Spinal Needle (20G x 3 ½ in.)

### Additional materials:

1. 22g. Sprotte Atraumatic Spinal Needles and Introducers PAJ-021151-30C
2. 24g. Sprotte Atraumatic Spinal Needles and Introducers PAJ-121151-30A
3. 13 mL transfer tubes with clear caps
4. 50 mL Falcon tube
5. Styrofoam transfer cooler
6. Dry ice

### The following "stock" items will also be used:

1. Sterile gloves in correct size for person performing the LP (one plus extras for backup)
2. 2 Blue pads (plus extras for backup)
3. Bottle of Betadine solution (not Betadine scrub)
4. Individually wrapped alcohol wipes
5. Sterile 25g, 1 1/2" needle for deep infiltration of lidocaine (one, plus extras for backup)
6. Sterile 3 cc syringe with 20g needle attached (in case more lidocaine is needed). Attached needle is used for drawing up lidocaine, but NOT for injecting it.
7. Bottle of lidocaine (in case more lidocaine is needed)
8. Sterile 4 by 4 gauze pads (extras)
9. Extra adhesive bandages (Band-Aids)
10. Clean washcloths and towels

## SAFETY WARNINGS

Please refer to Safety Data Sheets (SDS) for health and environmental hazards. Gain all required consent and experimental approvals before beginning any procedures.

## BEFORE STARTING

\*Optimum time delay between withdrawal and freezing should be within 1-2 hours per European consensus.

Ref:








#### CITATION

Teunissen CE, Petzold A, Bennett JL, Berven FS, Brundin L, Comabella M, Franciotta D, Frederiksen JL, Fleming JO, Furlan R, Hintzen RQ, Hughes SG, Johnson MH, Krasulova E, Kuhle J, Magnone MC, Rajda C, Rejdak K, Schmidt HK, van Pesch V, Waubant E, Wolf C, Giovannoni G, Hemmer B, Tumani H, Deisenhammer F (2009). A consensus protocol for the standardization of cerebrospinal fluid collection and biobanking.. Neurology.

LINK

<https://doi.org/10.1212/WNL.0b013e3181c47cc2>


## Lumbar Puncture

- 1 Label the collection tubes with the sample ID as appropriate.
- 2 Place aliquot tubes on dry ice prior to procedure so they are pre-cooled.
- 3 Perform lumbar puncture using the atraumatic technique, inserting the needle with the bevel in parallel to the dura fibers. If bloody, discard the first 0.5 mL to clear any blood then collect. Record time of lumbar puncture.
- 4 Collect  1 mL CSF into one 14 mL polypropylene tube at  Room temperature for routine diagnostic labs.
- 5 Collect  20 mL CSF into two 10 mL syringes at  Room temperature . Then, transfer all 20 ml into one 50 ml Falcon tube, mix gently by inverting 3-4 times.
- 6 Place  0.5 mL CSF in one transfer tube for routine cell count, and  0.5 mL CSF in another transfer tube for glucose and total protein. Send at  Room temperature to core lab with completed requisition form.

Note


Send to local clinical lab for basic CSF analyses - *must be analyzed within 4 hours of collection*.

- Cell count (500 µl)
- Total protein and Glucose (500 µl)

7 Spin at  400 x g, Room temperature, 00:10:00 right after CSF is collected. Record time of spinning.



Time of  
Spinning:

8 Pipet  0.5 mL CSF into the remainder (34-36 aliquots) 1.5 mL pre-cooled Fisherbrand siliconized polypropylene transfer tubes.



9 Freeze aliquots immediately on dry ice and transfer to Scherzer lab.

10 Identify samples with obvious blood contamination.

11 Scan specimens and place in -80°C freezer within 2 hours. Record time of freezing.

Time of  
Freezing:

12 Time of LP collection, spinning and freezer time will be recorded and entered into freezerworks.

13 Specimens will be scanned, frozen, and stored in two separate freezers at the Scherzer lab.

