The Tabula Sapiens Project

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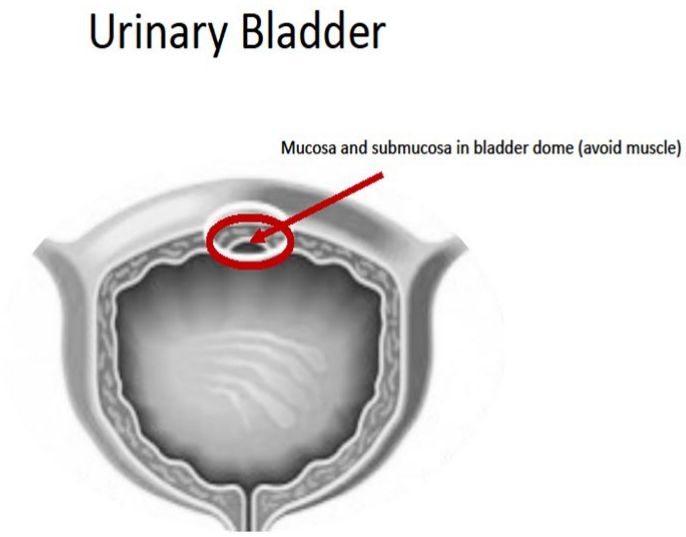
Bladder

Bladder Samples:

Ideally with most muscles trimmed away, but the full thickness of the bladder is fine if you need to shorten the time:

1. Bladder dome:
   1-2 cm^3 for cell isolation in tube of MACS buffer shipped on wet ice
2. Bladder dome:
   1-2 cm^3 for histology in tube of Formalin buffer
3. Bladder dome:
   1-2 cm^3 for bulk-seq in tube of MACS buffer shipped on wet ice
4. Bladder dome:
   1-2 cm^3 for peptide mass-spec in tube of UW buffer shipped on wet ice

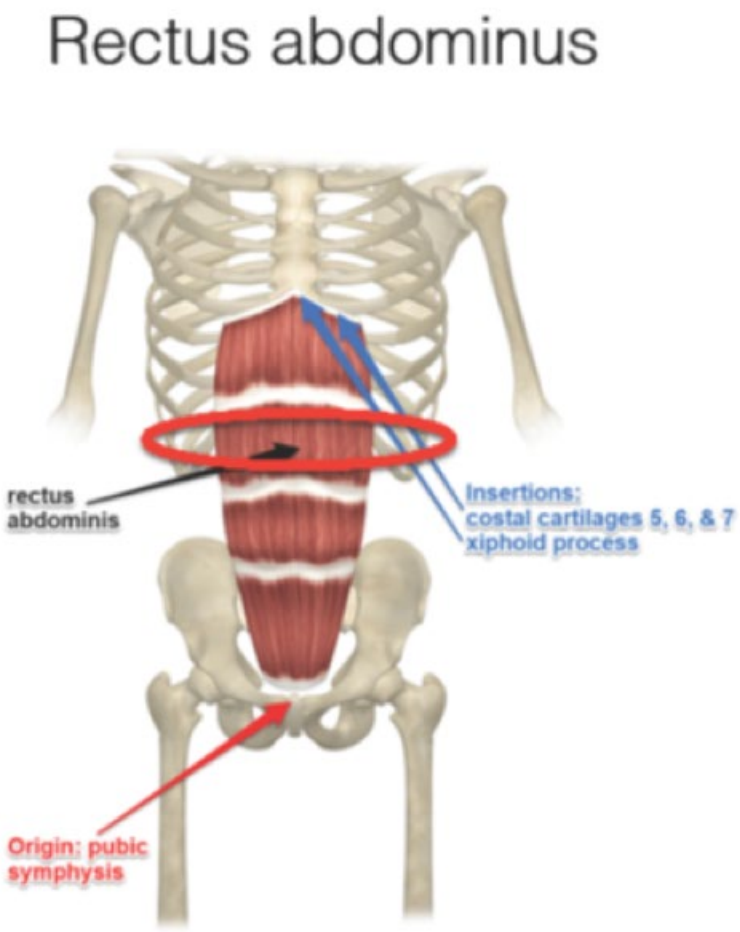


Muscle

Muscle Samples:

Rectus Abdominis, or Latissimus Dorsi, belly of the muscle, away from the tendons:

1. 1-2 cm^3 for cell isolation shipped in tube with HAMS F10 on wet ice
2. 1-2 cm^3 for histology shipped in tube with Formalin
3. 1-2 cm^3 for bulk-seq shipped in tube with HAMS F10 on wet ice
4. 1-2 cm^3 for peptide mass spec shipped in tube with HAMS F10 on wet ice



Diaphragm

Diaphragm Samples:

(Same as muscle)

1. 1-2 cm^3 for cell isolation shipped in tube with HAMS F10 on wet ice
2. 1-2 cm^3 for histology shipped in tube with Formalin
3. 1-2 cm^3 for bulk-seq shipped in tube with HAMS F10 on wet ice
4. 1-2 cm^3 for peptide mass spec shipped in tube with HAMS F10 on wet ice

Lung

rge PFA Bag

Lung Samples:

Both Whole Lungs (or if not possible, then one whole lung) with Trachea attached if possible. Not inflated. To be shipped in a bag with UW solution on wet ice.

Pancreas

Pancreas Samples:

Whole Pancreas. Time is of the essence, there is no need to carefully trim it.

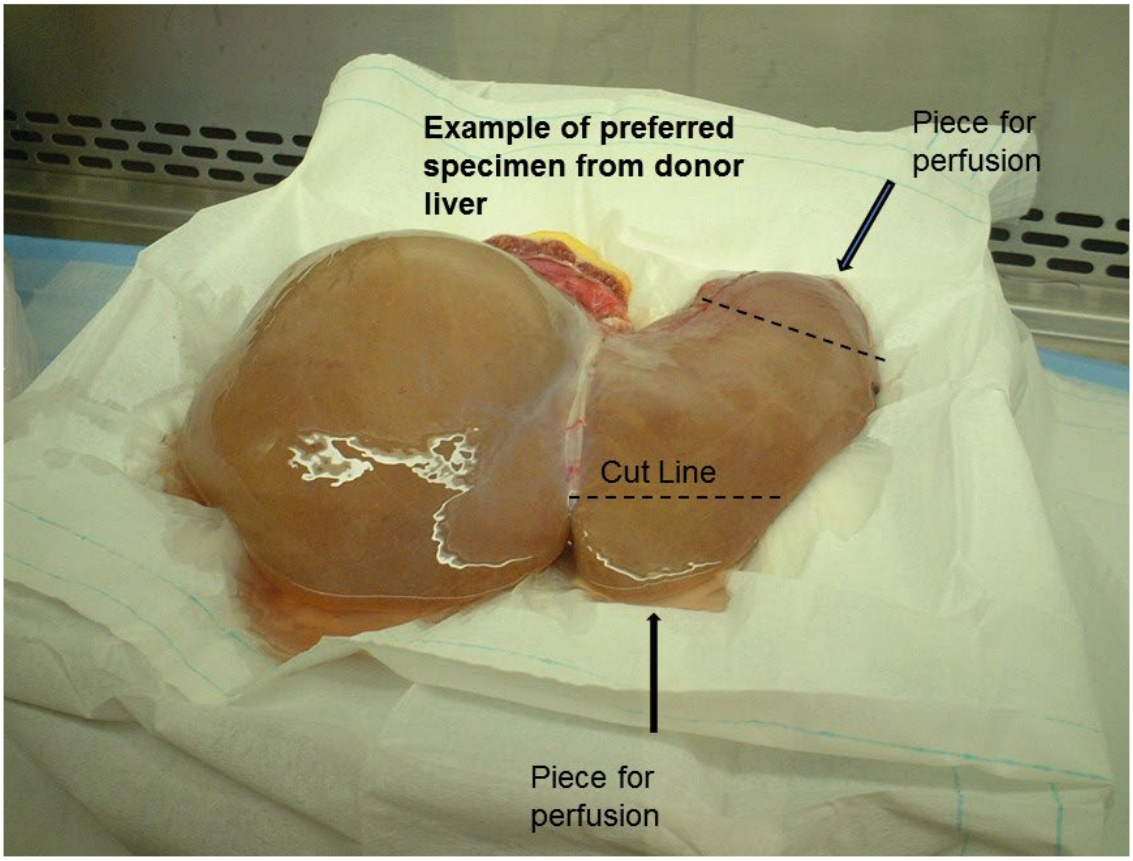
Liver

Liver Samples:

Whole liver shipped in bag in UW on wet ice.

Alternate Liver Sample:

If whole liver is not possible or if time is critical then take pieces from the following areas two areas and ship in bags in UW on wet ice.



Kidney

Kidney Sample:

One Whole Kidney shipped in bag in UW on wet ice

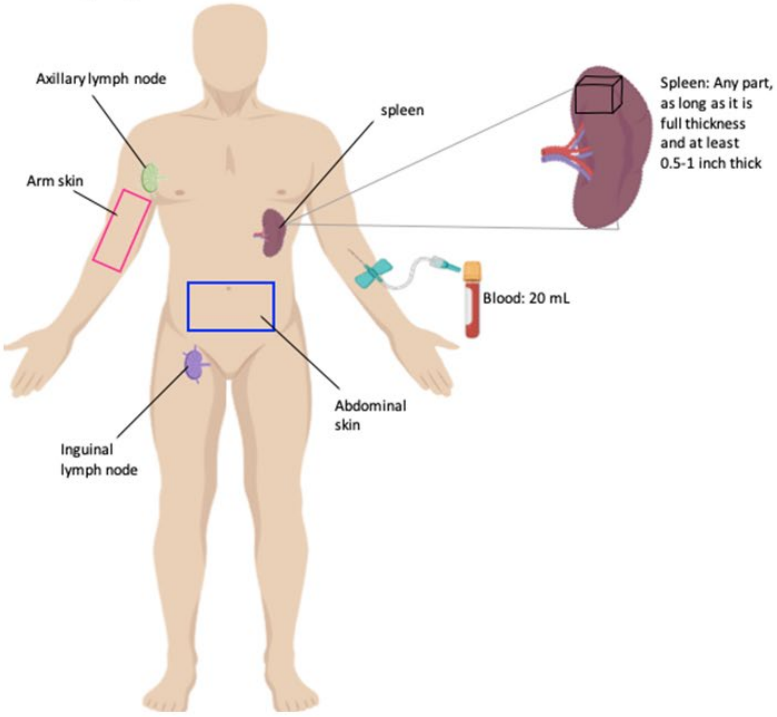
Alternate Kidney Sample:

if whole kidney is not available then pieces as large as possible with a good representation of both cortex and medulla shipped in labeled bags, or conical tube in UW solution on wet ice.

Spleen

Spleen Samples:

Attachment 2. Example Drawing to go with DNW instructions



Lymph Nodes

Lymph Nodes Samples:

All lymph nodes must have the capsule intact or they are not useful for our experiment.

Supradiaphragmatic Lymph Nodes:

1. All, or as many as possible, **supradiaphragmatic** lymph nodes with shipped in 50ml tube with UW on wet ice

Inguinal Lymph Node (near groin):

2. All, or as many as possible, **inguinal** lymph nodes shipped in 50ml tube with UW on wet ice

Mesenteric Lymph Node

3. Half, or as many as possible, **mesenteric** lymph nodes shipped in 50ml tube in formalin.
4. Half, or as many as possible, **mesenteric** lymph nodes shipped in 50ml tube with UW on wet ice.

Skin

Skin Samples:

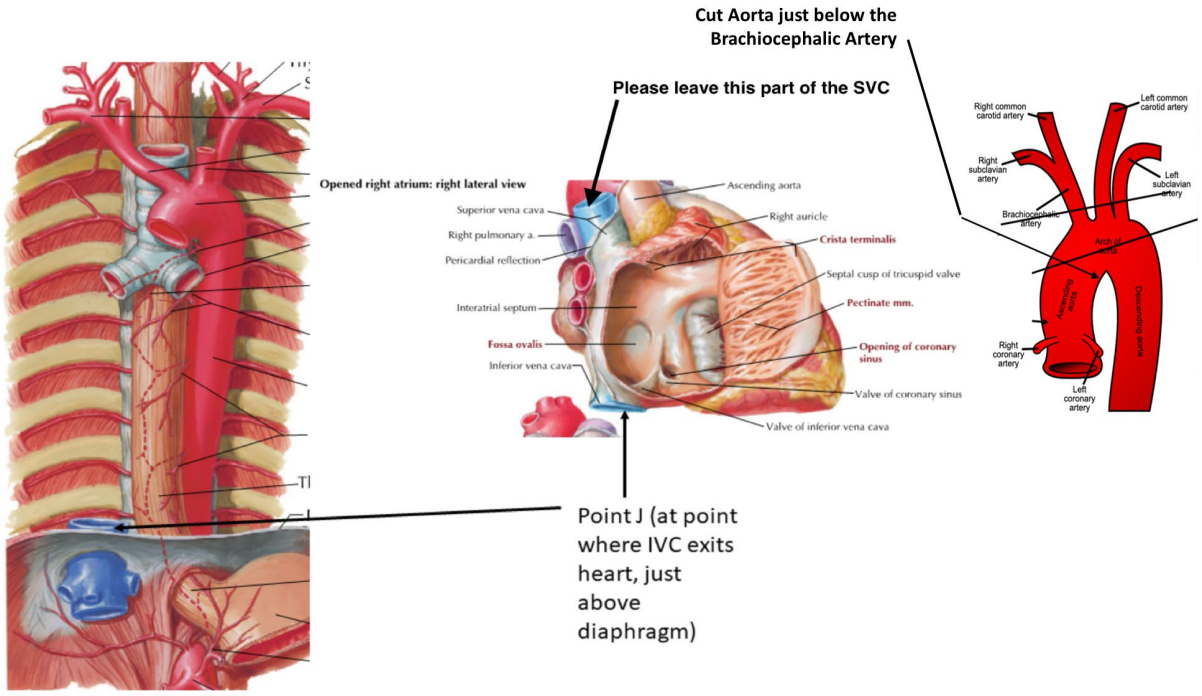
Does not matter particularly from where. Although please note this. Depth of skin is not important. We only need dermis and epidermis, not subcutaneous tissue.

50ml conical tube with 1-2 cm2 in UW on wet ice for cell suspension	50ml conical tube with 1-2 cm2 in UW on wet ice for snap freeze.	50ml conical tube with 1-2 cm2 in UW on wet ice for snap freeze.	50 ml tube with 1-2 cm2 in Formalin Buffer.

Heart

Heart Samples:

Heart with Coronary Arteries, short segment of Aorta, and short segment of Superior Vena Cava shipped in bag on wet ice.

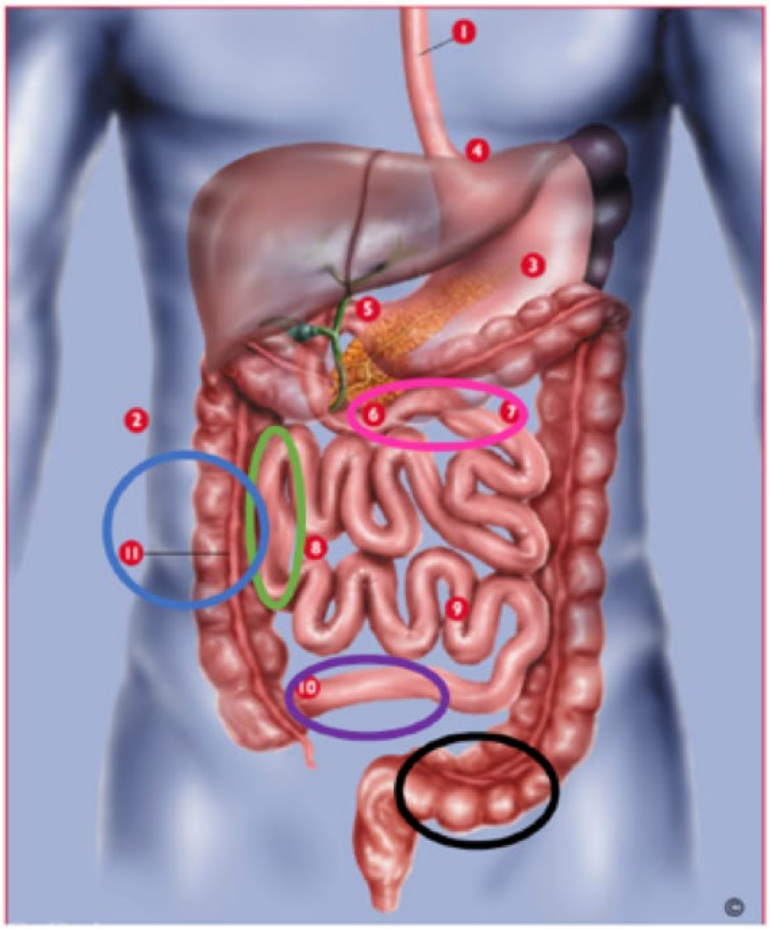


Intestines

Intestines Samples:

Intestinal Tissue and Microbiome OR protocol (10.27.2019)

1. 5, 1 foot sections shipped on wet ice via the courier service (aerobically):
    a. Duodenum (distal to sphincter of oddi)
    b. Jejunum
    c. Ileum
    d. Ascending colon
    e. Sigmoid
2. GI stapled on both sides
3. Triple bagged, no buffer, clearly identified as to which section and shipped in multiple boxes



1 ft of Duodenum
1 ft Jejunum
1 ft Ileum
1 ft Ascending colon
1 ft Sigmoid

Blood

Blood Samples:

Send as many as you can get of 5-7ml in EDTA Vacutainers on wet ice. Do not spin down.

Vascular System

Vascular System Samples:

1. Thoracic Aorta as much as can be provided after organ transplant and heart sample are taken. Ship in bag with UW solution on wet ice.

2. Abdominal Aorta as much as can be provided after organ transplant and heart sample are taken. Ship in bag with UW solution on wet ice.

3. Inferior Vena Cava as much as can be provided after organ transplant and heart sample are taken. Ship in bag with UW solution on wet ice.

Vertebral bodies

Bone Marrow Samples:

Eight vertebral bodies, with brown fat still attached, wrapped in cloth and shipped on wet ice.

We prefer to have one of them separated individually but will take them together if best for the surgeon’s time management.

Eyes

Eye Samples:

Both Whole Eyes in shipped in UW in a specimen cup on wet ice.

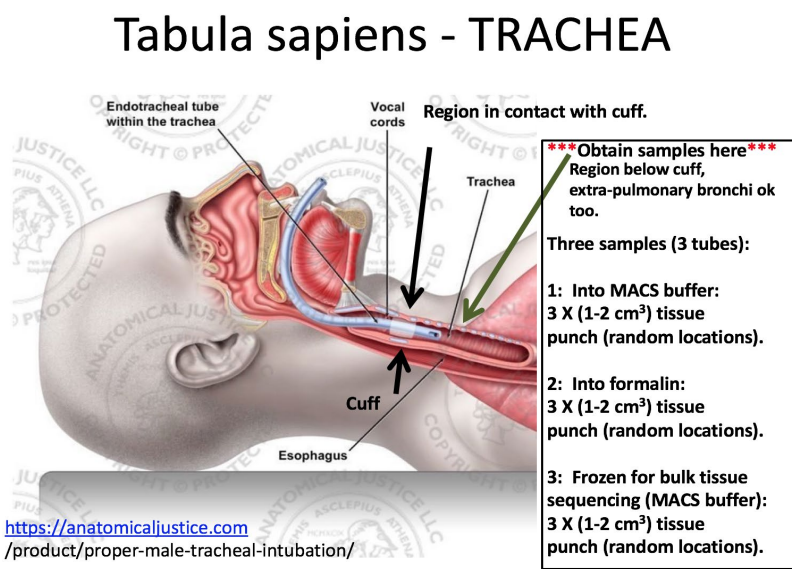
Trachea

Trachea Samples:

Ideally the Trachea will be sent still attached to the lung and the lung group will detach and send to the Trachea team.

First Alternative Trachea Samples: If unable to send trachea attached to the lung, then the Trachea region well below the cuff, but extra pulmonary and above the carina cartilage. Extrapulmonary bronchi will work if cuff is deep in trachea.

1. Trachea region below the cuff:
   Three punch 1-2 cm^3 for cell isolation. Ship in tube with MACS buffer on wet ice.
2. Trachea region below the cuff:
   Three punch 1-2 cm^3 for histology. Ship in tube with Formalin.
3. Trachea region below the cuff:
   Three punch 1-2 cm^3 for bulk RNA-seq. Ship in tube with MACS buffer on wet ice.
4. Trachea region below the cuff:
   Three punch 1-2 cm^3 for bulk Peptide MS. Ship in tube with MACS buffer on wet ice.



Salivary glands

Salivary Glands Samples:

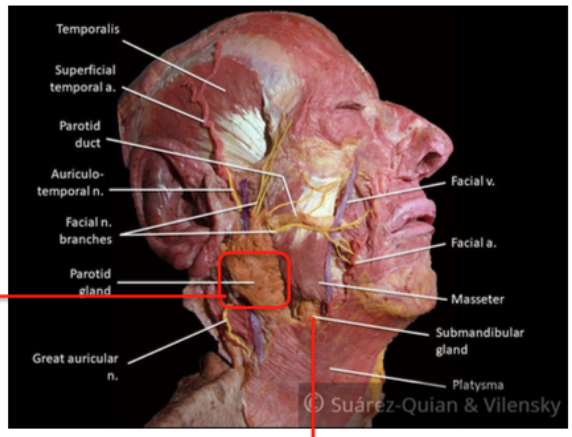
1. Parotid gland: 0.5-2 cm^3 (more if possible) shipped in tube with MACS buffer on wet ice.
2. Parotid gland: 0.5-2 cm^3 shipped in tube with Formalin.

3. Sublingual gland: 0.5-2 cm^3 (more if possible) shipped in tube with MACS buffer on wet ice.
4. Sublingual gland: 0.5-2 cm^3 shipped in tub

If available:

5. Submandibular gland: 0.5-2 cm^3 (more if possible) shipped in tube with MACS buffer on wet ice.

Require Parotid and Submandibular glands
If only parotid is feasible, that is fine too.



Parotid: require 0.5-1cm x 0.5-1cm
More is even better if it's possible

Submandibular:require 0.5-1cm x 0.5-1cm
More is even better if it's possible

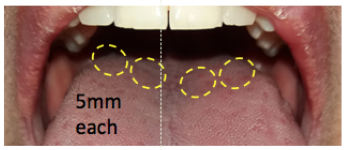
This is the incision that DNW plans to ask the family to authorize.

Tongue

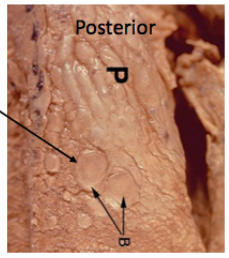
Circumvallate papillae using ~5mm-sized biopsy

Figure 1. Circumvallate papillae collection

- 5mm size tool
- Two biopsies will be collected from the left side of the tongue, stored in formalin for histology (CV-L1, CV-L2)
- Two biopsies from the right side will be stored in MACS Tissue Storage Solution for dissociation (together with fungiform papillae)



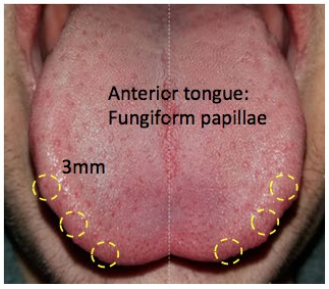
Circumvallate papillae are located between the posterior 1/3 and anterior 2/3s.
(The posterior 1/3 is much smoother.)

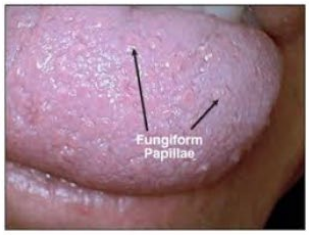


Fungiform papillae at ~3mm-sized biopsy

Figure 2. Fungiform papillae collection

Distribution and density of fungiform papillae is highly variable among individuals.
Suggest to use 3mm tool, 3 sites from each side (can be more if permitted)





Applying blue food dye may be helpful:

Left side for histology; right side for tissue dissociation

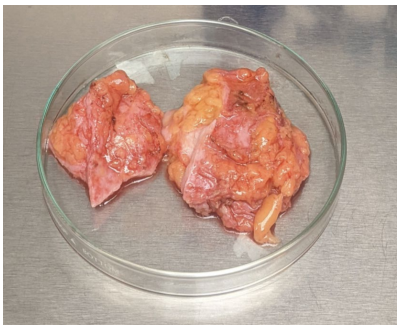
Mammary Gland

Mammary Sample:

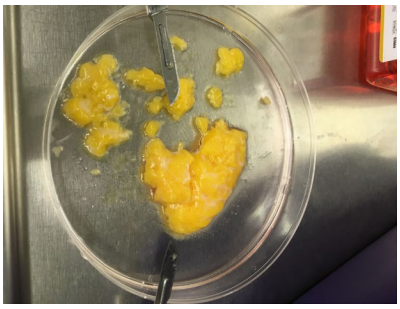
“Excise using no new skin incision. Extend from sternotomy incision. Minimize fat and maximize gland lobules.

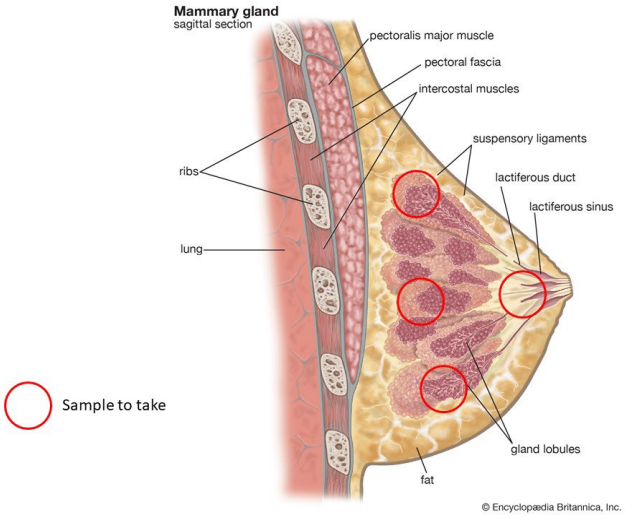
1. One 3”x3” section in a 50ml conical tube with UW buffer shipped on wet ice.
2. A second 3”x3” section in a 50ml conical tube with UW buffer shipped on wet ice.
3. A 1-2cm^3 section in a 50ml conical tube with formalin.”

YES



NO



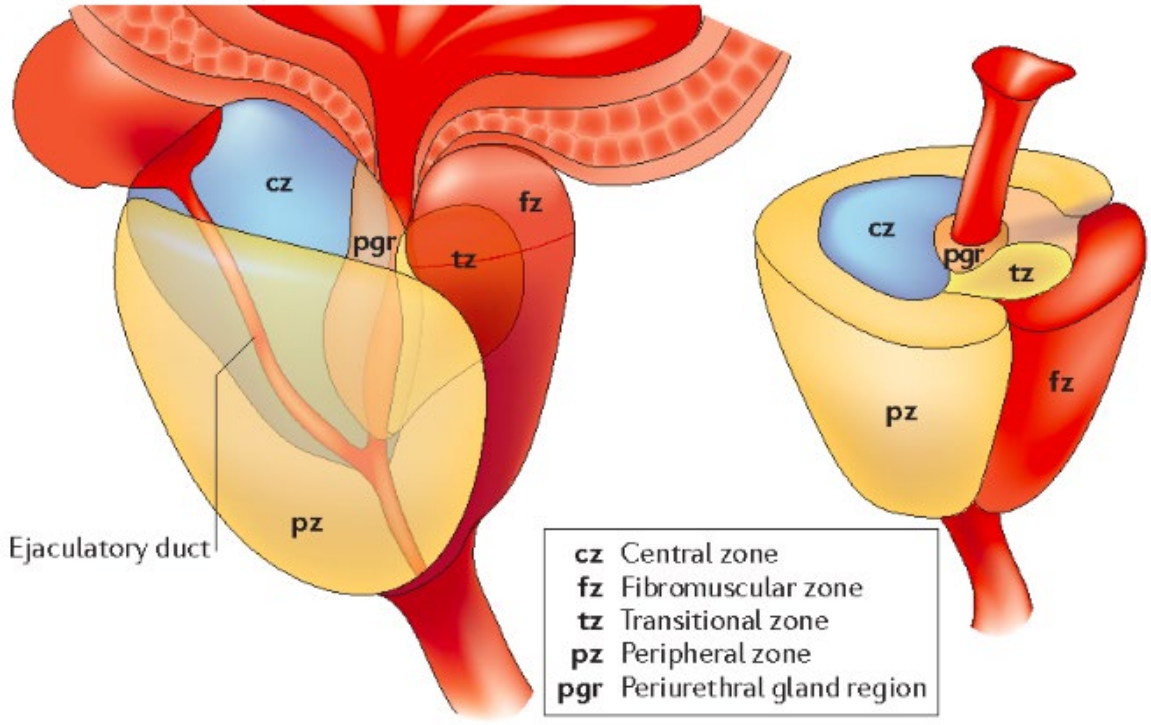


Sample to take

Prostate

Prostate Samples:

As much of the prostate as you can retrieve. Please include as much from the peripheral zone (the outermost zone of the prostate on the side of the ejaculatory ducts) and the periurethral zone (the innermost zone surrounding the urethra), as these zones have the most cell diversity. To be shipped in one 50-ml tube with UW solution on wet ice.

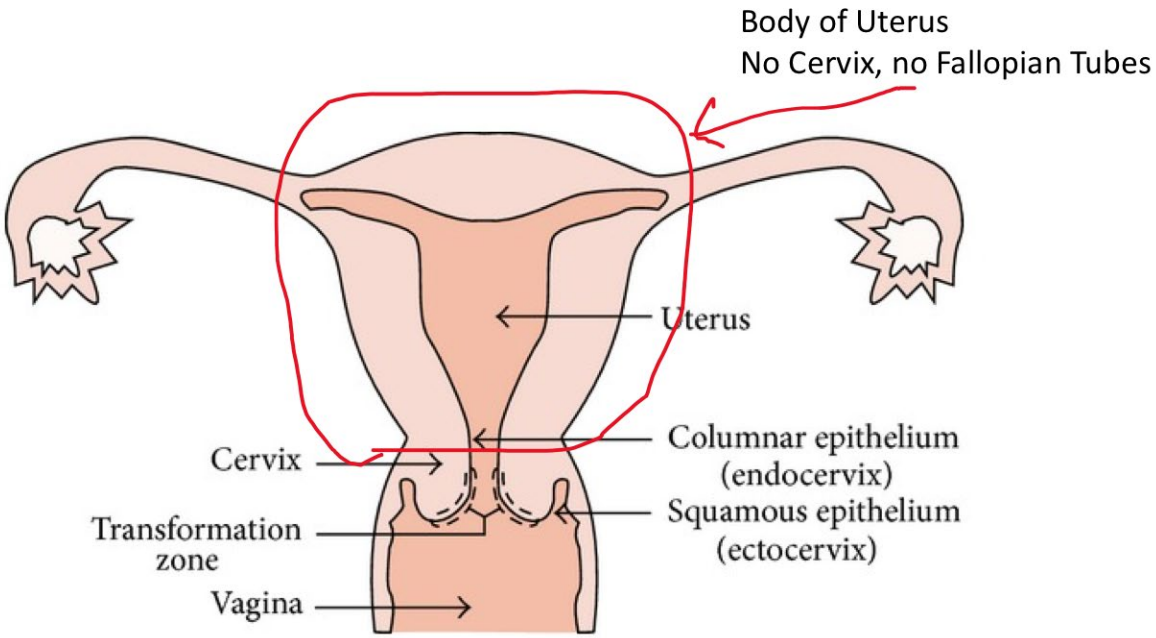


Thymus

Thymus Samples:

1. Whole Thymus shipped in 50 ml tube with UW sol ution on wet ice.

Uterus


Body of Uterus
No Cervix, no Fallopian Tubes
Uterus
Columnar epithelium
(endocervix)
Cervix
Squamous epithelium
(ectocervix)
Transformation
zone
Vagina

Fat

Fat Samples:

Three 1-2cm3 pieces of subcutaneous fat to be shipped in UW Buffer on wet ice.	Three 1-2cm3 pieces of mesenteric fat to be shipped in UW Buffer on wet ice.	One 1-2cm3 piece of subcutaneous fat to be shipped in Formalin.	One 1-2cm3 piece of mesenteric fat to be shipped in Formalin.

Testes

Teste Sample:

One or two whole testes shipped in a sample cup or tube provided by DNW in UW solution on wet ice.

Ear

Ear Samples:

As Dr. Cheng sees fit.

Stomach

t needed

Stomach Sample:

Whole Stomach with contents GI stapled, triple bagged and sent on wet ice in a box.

Ovary

Buffers sent? No

Ovary Samples:

1. Left Ovary in specimen cup in UW solution on wet ice. Labeled to indicate Left Ovary.

2. Right Ovary in specimen cup in UW solution on wet ice. Labeled to indicate Right Ovary.

Buccal Mucosa

Buccal Mucosa Samples:

50ml conical tube with 1-2 cm2 in UW on wet ice for cell suspension	50ml conical tube with 1-2 cm2 in UW on wet ice for snap freeze.	50 ml tube with 1-2 cm2 in Formalin Buffer.	