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## Post-Surgical Dissection of Uterine Body

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**Protocol status:** Working

**We use this protocol and it's working**

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**Keywords:** dissection of the uterine body, posterior walls of the uterus, dissection, uterine body, uterus perpendicular to the true axis, uterus, orientation of biospecimen, biospecimen, pathology, 10x multiomic, preparation for 10x visium, pathology review, posterior wall, 10x visium

**Funders Acknowledgements:**







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## Abstract

This protocol describes dissection of the uterine body in preparation for 10X Visium, 10X Multiomics, pathology review, and biobanking. Various systems can be used to sample and maintain the orientation of biospecimens collected from the uterus. In this protocol we divide the uterus along its true axis and process the anterior and posterior walls of the uterus separately. Other investigators have divided the uterus perpendicular to the true axis which captures both the anterior and posterior walls together at various points along the true axis.

## Materials

- Ice
- Clean cutting surface
- Disposable scalpels
- Kimwipes
- Disposble rulers (with centimeter measurements)
- Ice bucket
- Biohazard bags and container
-  Nuclease-free Water
-  DMEM/F-12 **Thermo Fisher Catalog #11320033**
-  RPMI 1640 Medium **Thermo Fisher Catalog #11875085**
-  MACS® Tissue Storage Solution **Miltenyi Biotec Catalog #130-100-008**
-  DPBS (10X), no calcium, no magnesium **Thermo Fisher Scientific Catalog #14200075** - dilute to 1X with nuclease-free water
-  Marking dye **Cancer Diagnostics Catalog #03000P**

### Equipment

VWR® Pour-Boat Weighing Dishes

NAME

flat-bottomed dish

TYPE

VWR International

BRAND

10803-166

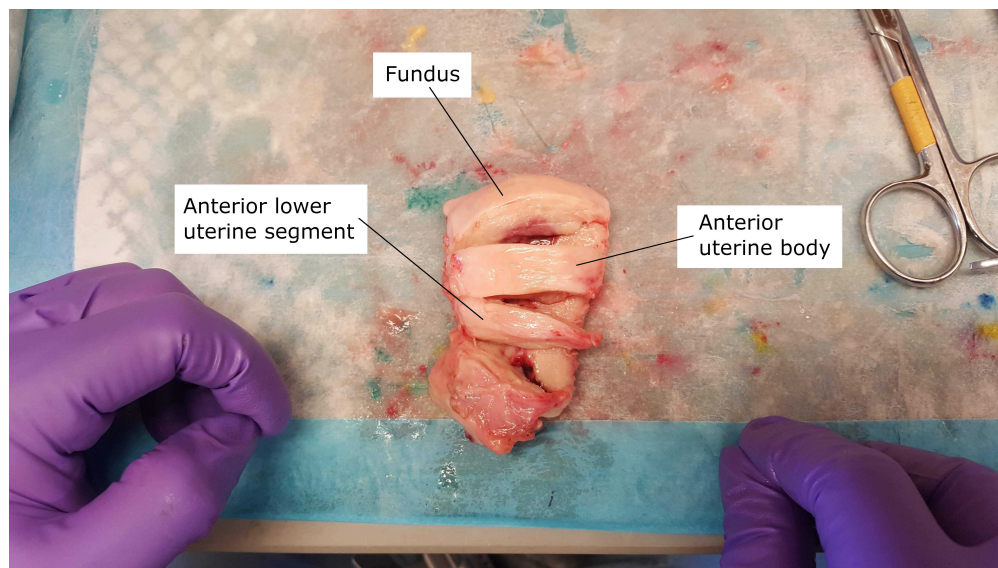
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## Troubleshooting

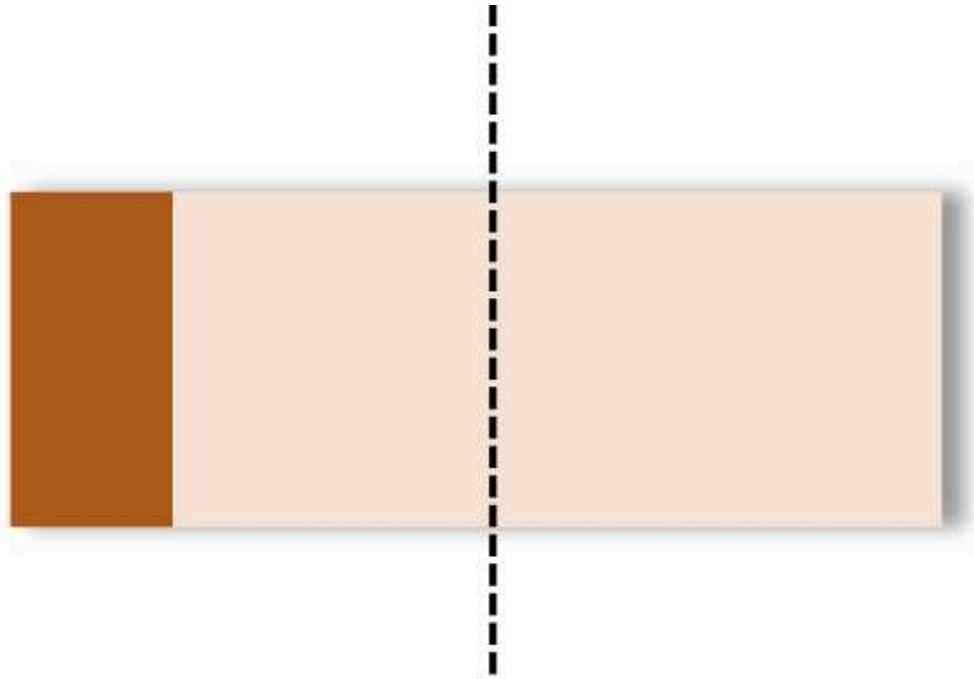
### Before start

Dilute phosphate buffered saline (Gibco; 14200-075) to 1X with nuclease-free water.

- 1 Ensure you have a clean cutting surface and fresh, disposable surgical blades.
- 2 Remove uterus from ice and dry it.
- 3 Divide the cervix and uterus into halves in coronal or frontal plane.
- 4 Identify internal cervical os.
- 5 Working on the anterior side of the uterine body, slice it into three horizontal sections from the internal cervical os as the lower limit to the fundus as the upper limit: fundus, anterior uterine body, and anterior lower uterine segment.



**Dissection of the Uterine Body.** First the coronal plane of the uterus is used to divide the anterior and posterior walls of the uterus. The uterus is then divided into the fundus, uterine body and lower uterine segment (LUS). The LUS is the area of the uterus that undergoes circumferential dilatation during labor. Its inferior anatomic border is the junction of the cervix and uterus (internal cervical os). Here the vesicouterine reflection was used as the superior anatomic border of the LUS. The fundus is the round area at the top of the uterus above the openings of the Fallopian tubes. The remaining area about the LUS and below the fundus is the uterine body.



**Tissue layers in the uterus.** The outer layer of the uterus, the serosa, consists of a thin layer of epithelial cells. The inner lining of the uterus is the endometrium. The endometrium is comprised primarily of stromal fibroblasts, epithelial cells and immune cells. Proliferation, differentiation and function of the cells in the endometrium varies by the level of reproductive hormones. Then endometrium is the tissue shed in the cyclic process of menstruation. The myometrium is a muscular layer that lies between the serosa and endometrium and is the predominant tissue type in the uterus. In this protocol the anterior or posterior wall of the uterus in each region (lower uterine segment, body and fundus) are cut in multiple pieces (which vary based on the size of the uterus). Each individual piece is divided into the serosa and myometrium and the endometrium and myometrium which assists with maintenance of orientation.

- 6 Remove the anterior lower uterine segment and place the remainder of the specimen on ice.
- 7 Divide the anterior lower uterine segment into five sections, from right to left.
- 8 Divide each section into four additional sections, from right to left.
- 9 Place each of the 20 anterior lower uterine sections on its side and using a razor blade, separate the serosa and myometrium from the submucosal myometrium and endometrium.
- 10 Using disposable weigh boats, weigh each of the 40 tissue specimen.



- 11 Tissue can be processed with protocols **OCT-Embedded Tissue Preparation**, **Tissue Fixation Preparation**, or **Snap-Frozen Tissue Preparation** depending on the desired downstream processing.
- 12 Repeat steps for anterior uterine body, anterior uterine fundus, posterior lower uterine segment, posterior uterine body, posterior uterine fundus.