

Submission ID #: 72356

Scriptwriter Name: Sri Lakshmi Priya

Project Page Link: <https://review.jove.com/account/file-uploader?src=22068628>

Title: Recovery of Preimplantation Mouse Embryos from the Oviduct and Uterus

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Author Questionnaire

1. We have marked your project as author-provided footage, meaning you film the video yourself and provide JoVE with the footage to edit. JoVE will not send the videographer. Please confirm that this is correct.

☒ Correct

☐ Incorrect

2. Microscopy: Does your protocol require the use of a dissecting or stereomicroscope for performing a complex dissection, microinjection technique, or something similar? **Yes**

If a dissection or stereo microscope is required for your protocol, please list all shots from the script that will be visualized using the microscope (shots are indicated with the 3-digit numbers, like 2.1.1, 2.1.2, etc.).

Scope shots: 2.7.1, 2.7.2, 2.9.1, 2.9.2, 2.10.1, 3.2.1, 3.2.3, 3.3.1, 3.4.2, 3.4.3, 3.5.2, 4.3.2, 4.3.3, 4.3.4, 4.4.1, 4.4.4, 4.5.1

3. Software: Does the part of your protocol being filmed include step-by-step descriptions of software usage? **No**

4. Proposed filming date: To help JoVE process and publish your video in a timely manner, please indicate the proposed date that your group will film here: **08/03/2026**

When you are ready to submit your video files, please contact our Content Manager, [Utkarsh Khare](#).

Current Protocol Length

Number of Steps: 21

Number of Shots: 55

Interviews

Authors: *Answers are slightly edited in accordance with journal guidelines. Please note that the questions will not appear on screen. Please answer in **stand-alone full sentence with sufficient context.***

INTRODUCTION:

~~REQUIRED: Summarize your research focus and the main questions it aims to answer.~~

- 1.1. **Wipawee Winuthayanon:** Our research focuses on investigating the oviduct function during sperm migration, fertilization, and preimplantation embryo development.
 - 1.1.1. INTERVIEW: Named talent says the statement above in an interview-style shot, looking slightly off-camera

~~Describe the research contexts or systems in which this protocol can be applied.~~

- 1.2. **Wipawee Winuthayanon:** This protocol can be applied to determine the fertilization rates and also the developmental rates of the embryos in the oviduct and also the uterus.
 - 1.2.1. INTERVIEW: Named talent says the statement above in an interview-style shot, looking slightly off-camera

CONCLUSION:

~~Describe the most important consideration or challenge when performing this protocol.~~

- 1.3. **Wipawee Winuthayanon:** The main challenge of this protocol is collecting the embryos, which requires practice to move them through small volume of liquid.
 - 1.3.1. INTERVIEW: Named talent says the statement above in an interview-style shot, looking slightly off-camera

~~Are there any additional methods or analyses that can be performed following this procedure?~~

- 1.4. **Wipawee Winuthayanon:** After the embryos are collected, the fertilization or the embryo developmental rates can be calculated using a percentage of total ovulated eggs.
 - 1.4.1. INTERVIEW: Named talent says the statement above in an interview-style shot, looking slightly off-camera

Ethics Title Card

All animals and procedures used in this study were conducted in accordance with the guidelines of the University of Missouri (MU) Animal Care and Use Committee (ACUC) and MU-approved animal protocols

Protocol

NOTE: Timecodes are added as provided by authors. The writer has not reviewed the footage for regular (talent) shots

2. Oviduct Dissection and Zygote Collection

Demonstrator: Jiude Mao

- 2.1. To begin, place the euthanized mouse in a supine position [1]. After spraying the abdomen near the hind legs with 70 percent ethanol and smoothing the hair downward toward the feet, use forceps to pick up the skin of the lower abdomen [2].
 - 2.1.1. WIDE: Talent placing the mouse in a supine position. **TEXT: Euthanasia: CO₂ inhalation and cervical dislocation**
 - 2.1.2. Talent lifting the skin of the lower abdomen with forceps. Time stamps: 00:00-00:13
- 2.2. Make a small incision [1]. Hold the tail or legs of the mouse and pull back the first skin layer to reveal the inner lining [2].
 - 2.2.1. Talent making a small incision approximately 1 to 2 centimeters long.
 - 2.2.2. Talent holding the tail or legs of the mouse and pulling back the first skin layer to reveal the inner lining. Time stamps: 00:14-00:36
- 2.3. Using forceps, pick up the abdominal muscle layer [1], make a V-shaped incision [2] and flap the muscle over to expose the peritoneal cavity [3].
 - 2.3.1. Talent lifting the abdominal muscle layer with forceps.
 - 2.3.2. Talent making a V-shaped incision in the abdominal muscle layer.
 - 2.3.3. Talent flapping the muscle over to expose the peritoneal cavity. Time stamps: 00:36-00:51
- 2.4. Push the intestine toward the head of the mouse [1]. Then, pull the abdominal fat down toward the feet to reveal the reproductive tract [2].
 - 2.4.1. Talent pushing the intestine toward the head of the mouse.
 - 2.4.2. Talent pulling the abdominal fat toward the feet to reveal the reproductive tract. Time stamps: 0:51 - 1:17
- 2.5. Using forceps, gently lift the uterus near the oviduct to gain clear visibility of the oviduct and the ovary [1]. With a small pair of scissors, poke a hole underneath the oviduct [2]. Gently press down to separate the connective tissues and free the oviduct from the body cavity [3]. Gently lift the uterus [4]. Snip the area between the end of the oviduct

- and the ovary by placing the scissors against the ovary [5].
- 2.5.1. Talent lifting the uterus near the oviduct with forceps to expose the oviduct and ovary. Timestamp: 00:00-00:13
 - 2.5.2. Talent poking a hole underneath the oviduct using a small pair of scissors.
 - 2.5.3. Talent pressing down with the scissors to separate the connective tissues and free the oviduct from the body cavity.
 - 2.5.4. Talent gently lifting the uterus. Timestamp: 00:14-00:16
 - 2.5.5. Talent snipping the area between the end of the oviduct and the ovary with the scissors placed against the ovary. Timestamp: 00:17-00:19
- 2.6. Cut just below the utero-tubal junction connecting the oviduct to the uterus [1]. Place the oviducts in 1 milliliter of Leibovitz-15, or L15 (*L-fifteen*), with 1 percent FBS medium [2].
- 2.6.1. Talent cutting just below the utero-tubal junction connecting the oviduct to the uterus. Timestamp: 00:20-00:26
 - 2.6.2. Talent placing the oviducts into 1 milliliter of L15 plus 1 percent fetal bovine serum media. Timestamp: 0:27 - 0:31 - this process repeat on the other side of the oviduct from 0:32 - 0:54
- 2.7. Under the microscope, use two forceps, one holding the oviduct in place, and another to gently make a slit in the ampulla region of the oviduct [1]. With forceps, gently tear off the bulging ampulla and pull away the visible cumulus oocyte complexes or COCs (*C-O-C-S*) [2].
- 2.7.1. SCOPE: 72356_2.7.1-2.7.2.mp4: 00:00-00:12
 - 2.7.2. SCOPE: 72356_2.7.1-2.7.2.mp4: 00:13-00:18, 00:27-00:29
- 2.8. Using a glass capillary pipette with a larger tip width connected to a rubber bulb, move the COCs to a 100-microliter drop of 0.1 percent hyaluronidase in L15 with 1 percent FBS for approximately 15 seconds [1].
- 2.8.1. Talent transferring the cumulus oocyte complexes with a glass capillary pipette into 0.1 percent hyaluronidase L15 plus 1 percent fetal bovine serum under the working setup Timestamp:
- 2.9. Watch the COC mass continuously and pipette up and down twice to facilitate the cumulus cells to fall away from the fertilized eggs [1]. When the cumulus cells detach from the embryos [2], immediately transfer the zygotes to the adjacent 100-microliter drop of L15 supplemented with FBS to prevent further digestion by hyaluronidase [3].
- 2.9.1. SCOPE: 72356_2.9.1-2.9.2.mp4: 00:16-00:20, 00:50-02:09. *Video editor: Speed it up*
 - 2.9.2. SCOPE: 72356_2.9.1-2.9.2.mp4: 02:31

2.9.3. Talent transferring the zygotes to the adjacent 100 microliter drop of L15 with 1 percent fetal bovine serum

2.10. Wash the embryos free of hyaluronidase in the adjacent 100 microliter drop of L15 supplemented with FBS media [1]. Then move the embryos into one of the 15-microliter droplets of L15 supplemented with FBS and covered with mineral oil [2].

2.10.1. SCOPE: 72356_2.10.1.mp4: 01:56-02:00, 03:00-03:06

2.10.2. Talent transferring the embryos into a 15 microliter droplet of L15 plus 1 percent fetal bovine serum covered with mineral oil.

3. Oviduct Flushing and Embryo Collection

3.1. As previously demonstrated, place the dissected oviducts in L15 supplemented with FBS medium [1] and then transfer to 500 microliters of L15 supplemented with FBS medium to identify the infundibulum and its opening [2].

3.1.1. Talent placing the dissected oviducts in L15 supplemented with 1 percent FBS. Timestamp: 00:00-00:16

3.1.2. Talent transferring the dissected oviducts to 500 microliters of L15 with 1 percent FBS. Timestamp: 00:17-00:27

3.2. Using forceps, gently hold the infundibulum [1]. Insert the tip of a blunted-end 30-gauge needle into the ostium of the oviduct while holding the needle as if holding a pencil [2]. Using forceps, gently glide the infundibulum up the needle shaft [3].

3.2.1. SCOPE: 72356_3.2.1,-3.2.3-attempt1.mp4: 00:08-00:15

3.2.2. Talent inserting the tip of a blunted-end 30-gauge needle into the ostium while holding the needle like a pencil.

3.2.3. SCOPE: 72356_3.2.1,-3.2.3-attempt1.mp4: 00:16-00:21

3.3. Gently pin the oviduct to the bottom of the dish to secure its position and prevent it from sliding during flushing [1].

3.3.1. SCOPE: 72356_3.2.1-3.4.3-attempt2.mp4: 00:17-00:18

3.4. Release the forceps [1]. Push the media until the liquid and luminal contents are visibly flushed out from the utero-tubal junction end of the oviduct [2]. Observe the entire tube as it puffs up with liquid throughout the flushing process [3].

3.4.1. Talent releasing the forceps while maintaining the needle position. Timestamp: 0:01 - 0:12

3.4.2. SCOPE: 72356_3.2.1-3.4.3-attempt2.mp4: 00:19-end

3.4.3. SCOPE: 72356_3.2.1-3.4.3-attempt2.mp4: 00:24

- 3.5. Remove the flushed tissues from the dish [1]. Using a small-tip-width glass capillary pipette, collect the embryos [2] and place them into a 15-microliter droplet of L15 supplemented with FBS [3].
 - 3.5.1. Talent removing the flushed tissues from the dish.
 - 3.5.2. SCOPE: 72356_3.5.2.mp4: 00:10-00:17
 - 3.5.3. Talent transferring the embryos into a 15-microliter droplet of L15 plus 1 percent fetal bovine serum medium.
- 3.6. Move the embryos through droplets of L15 supplemented with FBS until no cell debris remains and leave the dish on a heated stage until imaging [1].
 - 3.6.1. Talent transferring the embryos through successive droplets of L15 plus 1 percent fetal bovine serum to remove cell debris and leaving the dish on a heated stage.

4. Recovery of Embryos from the Uterus and Oviduct

- 4.1. Once the reproductive tract is visible, poke a hole underneath the oviduct to free it from the connective tissue and cut the oviduct away from the ovary [1]. At the cervix, lift the uterus and cut the uterus near the cervix [2]. Trim away the connective tissue and fat and continue trimming upward toward the oviduct and ovary [3]. Repeat the procedure on the contralateral side of the uterus [4]. **NOTE: The VO is edited as per the shot**
 - 4.1.1. Talent poking a hole underneath the oviduct and cut the oviduct away from the ovary. **NOTE: The shot has been modified** timestamp: 00:25-00:47
 - 4.1.2. Talent lifting the uterus at the cervix and cutting the uterus above the cervix. **NOTE: The shot has been modified** timestamp: 01:01-01:11
 - 4.1.3. Talent trimming away the connective tissue and fat and continuing upward toward the oviduct and ovary. timestamp: 01:12-01:39
 - 4.1.4. Talent repeating the procedure on the contralateral side of the uterus. timestamp: 01:40-01:50
- ~~4.2. Cut the oviduct away from the ovary [1] and the uterus near the cervix [2]. **NOTE: Not filmed**~~
 - ~~4.2.1. Talent cutting the oviduct away from the ovary.~~
 - ~~4.2.2. Talent cutting the uterus near the cervix.~~
- 4.3. Place the reproductive tract in a dish containing 1 milliliter of L15 supplemented with FBS [1].
 - 4.3.1. Talent placing the reproductive tract into a dish containing 1 milliliter of L15 plus 1 percent fetal bovine serum.

- 4.4. Place the uterus with the oviducts attached into a clean 500 microliter droplet of L15-FBS medium [1]. Under the stereo microscope, use forceps to hold the upper uterine horn in place [2]. Insert the needle at the top of the uterus near the utero-tubal junction [3]. Flush the uterine lumen with approximately 500 microliters per horn [4].
 - 4.4.1. Talent placing the uterus with the attached oviducts into a clean 500 microliter droplet of L15 plus 1 percent fetal bovine serum medium.
 - 4.4.2. SCOPE: 72356_4.3.2-4.3.4.mp4: 00:00-00:09
 - 4.4.3. SCOPE: 72356_4.3.2-4.3.4.mp4: 00:10-00:21
 - 4.4.4. SCOPE: 72356_4.3.2-4.3.4.mp4: 00:22-00:36
- 4.5. If needed, cut the oviduct near the utero-tubal junction from both sides of the uterus [1]. Place the dissected oviducts into a clean 500 microliter droplet of L15 supplemented with FBS [2]. After repeating the oviduct flushing as previously demonstrated, remove the uterus from the flushed dish [3]. Swirl the dish to bring the embryos to the center [4].
 - 4.5.1. SCOPE: 72356_4.4.1.mp4: 00:15-00:37
 - 4.5.2. Talent placing the dissected oviducts into a clean 500 microliter droplet of L15 plus 1 percent fetal bovine serum.
 - 4.5.3. Talent removing the uterus from the flushed dish.
 - 4.5.4. SCOPE: 72356_4.4.4.mp4: 00:16-00:20
- 4.6. Collect all embryos from the uterus and the oviduct [1]. Place the embryos into a separate 15 microliter droplet of L15 supplemented with 1 percent FBS on a heated stage until imaging [2].
 - 4.6.1. SCOPE: 72356_4.5.1.mp4: 00:21-00:23, 00:35-00:40.
 - 4.6.2. Talent transferring the embryos into a separate 15 microliter droplet of L15 plus 1 percent fetal bovine serum on the heated stage.

Results

5. Results

- 5.1. At 0.5 days post coitum or dpc (*D-P-C*), zygotes were identified by visible maternal and paternal pronuclei [1]. Second polar bodies were marked with arrowheads [2].
 - 5.1.1. LAB MEDIA: Figure 4A. *Video editor: Highlight the black arrows and the structures it points to.*
 - 5.1.2. LAB MEDIA: Figure 4A. *Video editor: Highlight the black arrowheads and the structures it points to.*
- 5.2. Pronuclei could be visualized at different focal planes [1].
 - 5.2.1. LAB MEDIA: Figure 4A,A'. *Video editor: Highlight the arrows and the round structures it points to.*
- 5.3. Unfertilized eggs were occasionally present at 0.5 dpc and often lacked the 1st polar body [1].
 - 5.3.1. LAB MEDIA: Figure 4B.
- 5.4. Rare nonviable eggs or embryos included fragmented [1], degraded [2], or unevenly divided blastomeres [3].
 - 5.4.1. LAB MEDIA: Figure 4C. *Video editor: Highlight the embryo marked with *.*
 - 5.4.2. LAB MEDIA: Figure 4C. *Video editor: Highlight the embryo marked with x.*
 - 5.4.3. LAB MEDIA: Figure 4C. *Video editor: Highlight the embryo marked with #.*
- 5.5. At 1.5 dpc, embryos developed to the 2-cell stage [1], and at 2.5 dpc, embryos developed to the 4- to 8-cell stages [2].
 - 5.5.1. LAB MEDIA: Figure 6A. *Video editor: Highlight the embryos in the 1.5 days post coitum panel that are divided into 2 cells.*
 - 5.5.2. LAB MEDIA: Figure 6A. *Video editor: Highlight the embryos in the 2.5 days post coitum panel that are divided into 4 to 8 cells.*
- 5.6. Embryo development was quantified as the percentage of ovulated eggs or embryos collected [1].
 - 5.6.1. LAB MEDIA: Figure 6B.

- 5.7. Zygotes collected at 0.5 dpc [1] and 2-cell embryos collected at 1.5 dpc developed at similar rates in the control or *Pgr^{f/f}* (*progesterone receptor floxed*) and *Pgr^{d/d}* (*progesterone receptor mutant*) mice [2].
 - 5.7.1. LAB MEDIA: Figure 6B. *Video editor: Highlight both the zygote bars in 0.5 dpc.*
 - 5.7.2. LAB MEDIA: Figure 6B. *Video editor: Highlight both the 2-cell bars in 1.5 dpc.*
- 5.8. At 2.5 dpc, the percentage of 4- to 8-cell embryos was significantly reduced in *Pgr^{d/d}* mice [1] compared to *Pgr^{f/f}* controls [2].
 - 5.8.1. LAB MEDIA: Figure 6B. *Video editor: Highlight the 4- to 8-cell (2.5 days post coitum) bar for Pgrd/d*
 - 5.8.2. LAB MEDIA: Figure 6B. *Video editor: Highlight the 4- to 8-cell (2.5 days post coitum) bar for Pgrf/f*
- 5.9. Not all embryos developed to the 2-cell stage [1] or the 4- to 8-cell stage even in the *Pgr^{f/f}* control group [2].
 - 5.9.1. LAB MEDIA: Figure 6B. *Video editor: Highlight the 2-cell (1.5 days post coitum) bar for Pgrf/f, which is below 100%.*
 - 5.9.2. LAB MEDIA: Figure 6B. *Video editor: Highlight the 4- to 8-cell (2.5 days post coitum) bar for Pgrf/f, which is below 100%.*
- 5.10. At 3.5 dpc, approximately 85% of embryos retrieved from *Pgr^{f/f}* mice were morulae [1] and blastocysts [2].
 - 5.10.1. LAB MEDIA: Fig.-8_WithColorLabeled.jpg: *Video editor: Highlight the grey section labelled as Morulas in the bar graph for Pgrf/f .*
 - 5.10.2. LAB MEDIA: Fig.-8_WithColorLabeled.jpg: *Video editor: Highlight the white Blastocysts section in the bar graph for Pgrf/f .*
- 5.11. Most embryos collected from *Pgr^{d/d}* mice were at the morula stage [1], developmentally delayed or nonviable [2].
 - 5.11.1. LAB MEDIA: Fig.-8_WithColorLabeled.jpg: *Video editor: In 8A, highlight the embryos labeled "M" under Pgrd/d and in 8B, highlight the grey Morulas section in the bar graph for Pgrd/d*
 - 5.11.2. LAB MEDIA: Fig.-8_WithColorLabeled.jpg: *Video editor: Highlight the embryos marked "X" under Pgrd/d in 8A and the black Developmentally delayed or non-viable section in the bar graph for Pgrd/d in 8B.*

6. Euthanized
Pronunciation link: <https://www.merriam-webster.com/dictionary/euthanize>
IPA: /'ju:θəˌnaɪzd/
Phonetic Spelling: YOO·thuh·nyzed
7. Supine
Pronunciation link: <https://www.merriam-webster.com/dictionary/supine>
IPA: /'suːˌpaɪn/
Phonetic Spelling: SOO·pine
8. Euthanasia
Pronunciation link: <https://www.merriam-webster.com/dictionary/euthanasia>
IPA: /ˌju:θəˈneɪʒə/
Phonetic Spelling: yoo·thuh·NAY·zhuh
9. Cervical
Pronunciation link: <https://www.merriam-webster.com/dictionary/cervical>
IPA: /'sɜːvɪkəl/
Phonetic Spelling: SUR·vih·kuhl
10. Peritoneal
Pronunciation link: <https://www.merriam-webster.com/dictionary/peritoneal>
IPA: /ˌperətəˈni:əl/
Phonetic Spelling: pair·uh·tuh·NEE·uhl
11. Oviduct
Pronunciation link: <https://www.merriam-webster.com/dictionary/oviduct>
IPA: /'oʊvəˌdʌkt/
Phonetic Spelling: OH·vuh·dukt
12. Ovary
Pronunciation link: <https://www.merriam-webster.com/dictionary/ovary>
IPA: /'oʊvəri/
Phonetic Spelling: OH·vuh·ree
13. Utero-tubal
Pronunciation link: No confirmed link found
IPA: /ˌju:təroʊˈtu:bəl/
Phonetic Spelling: yoo·tuh·roh·TOO·buhl
14. Leibovitz
Pronunciation link: No confirmed link found
IPA: /'laɪbəvɪts/
Phonetic Spelling: LY·buh·vits
15. Ampulla
Pronunciation link: <https://www.merriam-webster.com/dictionary/ampulla>
IPA: /æmˈpʊlə/
Phonetic Spelling: am·PUUL·uh
16. Cumulus
Pronunciation link: <https://www.merriam-webster.com/dictionary/cumulus>
IPA: /'kju:mjələs/
Phonetic Spelling: KYOO·myuh·luhs

- 17. Oocyte**
Pronunciation link: <https://www.merriam-webster.com/dictionary/oocyte>
IPA: /'oʊə,saɪ/
Phonetic Spelling: OH·uh·site
- 18. Capillary**
Pronunciation link: <https://www.merriam-webster.com/dictionary/capillary>
IPA: /'kæpə,leri/
Phonetic Spelling: KAP·uh·lair·ee
- 19. Hyaluronidase**
Pronunciation link: <https://www.merriam-webster.com/dictionary/hyaluronidase>
IPA: /,haɪə,lər'ɑ:nə,deɪs/
Phonetic Spelling: hy·uh·loor·ON·uh·days
- 20. Fertilized**
Pronunciation link: <https://www.merriam-webster.com/dictionary/fertilize>
IPA: /'fɜ:tə,laɪzd/
Phonetic Spelling: FUR·tuh·lyzed
- 21. Embryo**
Pronunciation link: <https://www.merriam-webster.com/dictionary/embryo>
IPA: /'embri,oo/
Phonetic Spelling: EM·bree·oh
- 22. Zygote**
Pronunciation link: <https://www.merriam-webster.com/dictionary/zygote>
IPA: /'zaɪ,goʊt/
Phonetic Spelling: ZY·goht
- 23. Infundibulum**
Pronunciation link: <https://www.merriam-webster.com/dictionary/infundibulum>
IPA: /,ɪnfʌn'dɪbjələm/
Phonetic Spelling: in·fun·DIB·yuh·luhm
- 24. Ostium**
Pronunciation link: <https://www.merriam-webster.com/dictionary/ostium>
IPA: /'ɑ:stiəm/
Phonetic Spelling: OS·tee·uhm
- 25. Luminal**
Pronunciation link: <https://www.merriam-webster.com/dictionary/luminal>
IPA: /'lu:mənəl/
Phonetic Spelling: LOO·muh·nuhl
- 26. Contralateral**
Pronunciation link: <https://www.merriam-webster.com/dictionary/contralateral>
IPA: /,kɑ:ntɹə'lætərəl/
Phonetic Spelling: kon·truh·LAT·er·uhl
- 27. Cervix**
Pronunciation link: <https://www.merriam-webster.com/dictionary/cervix>
IPA: /'sɜ:vɪks/
Phonetic Spelling: SUR·viks

28. Uterine

Pronunciation link: <https://www.merriam-webster.com/dictionary/uterine>

IPA: /'ju:tərɪn/, /'ju:təˌraɪn/

Phonetic Spelling: YOO·tuh·rin / YOO·tuh·rine

29. Post coitum

Pronunciation link: No confirmed link found

IPA: /pəʊst 'kɔɪtəm/

Phonetic Spelling: pohst KOH·ih·tuhm

30. Pronuclei

Pronunciation link: <https://www.merriam-webster.com/dictionary/pronucleus>

IPA: /proʊ'nu:kliˌaɪ/

Phonetic Spelling: proh·NOO·klee·eye

31. Unfertilized

Pronunciation link: No confirmed link found

IPA: /ʌn'fɜ:təˌlaɪzd/

Phonetic Spelling: un·FUR·tuh·lyzed

32. Blastomere

Pronunciation link: <https://www.merriam-webster.com/dictionary/blastomere>

IPA: /'blæstəˌmɪr/

Phonetic Spelling: BLAS·tuh·meer

33. Ovulated

Pronunciation link: <https://www.merriam-webster.com/dictionary/ovulate>

IPA: /'ɑ:vjəˌleɪtɪd/

Phonetic Spelling: OV·yuh·lay·tid

34. Progesterone

Pronunciation link: <https://www.merriam-webster.com/dictionary/progesterone>

IPA: /proʊ'dʒestəˌroʊn/

Phonetic Spelling: proh·JES·tuh·rohn

35. Morulae

Pronunciation link: <https://www.merriam-webster.com/dictionary/morula>

IPA: /'mɔ:rjəˌli:/

Phonetic Spelling: MOR·yuh·lee

36. Blastocysts

Pronunciation link: <https://www.merriam-webster.com/dictionary/blastocyst>

IPA: /'blæstəˌsɪsts/

Phonetic Spelling: BLAS·tuh·sists

37. Nonviable

Pronunciation link: No confirmed link found

IPA: /nɑ:n'vaɪəbəl/

Phonetic Spelling: non·VY·uh·buhl