Guidelines for Human Biospecimen Storage, Tracking, Sharing, and Disposal within the NIH Intramural Research Program

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Contents

Preface

The intramural research program (IRP) at the National Institutes of Health (NIH) performs research from bench to bedside, leveraging extensive scientific resources and expertise. The IRP excels at innovative basic and clinical research that translates to new approaches to improve health through prevention, early detection, diagnosis, and treatment.

Breakthrough research would not be possible without the participation of individuals who selflessly donate biological specimens ("biospecimens"), which are used in research as a bridge between basic and translational research. It is our privilege to use human biospecimens, and we honor the donors with respectful use of biospecimens throughout the lifecycle of the research project. These guidelines provide information on the ethical storage, tracking, sharing, and disposal of human biospecimens within the IRP. There are many important regulations and policies on the ethical acquisition of human biospecimens, summarized in the *Guidelines and Policies for the Conduct of Research in the Intramural Research Program at NIH*, which I encourage you to read.

The guidelines for human biospecimens were originally developed by a committee appointed by the NIH Scientific Directors, who approved them in 2007. The guidelines were revised and approved in 2012, and the current edition was approved in September 2019, by the Scientific Directors.

Michael M. Gottesman, M.D.
Deputy Director for Intramural Research, NIH
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Introduction

All biospecimens collected by scientists in the NIH Intramural Research Program (IRP) should be handled and stored following the best practices available. To ensure proper stewardship of human biospecimens within the NIH IRP, the Deputy Director for Intramural Research (DDIR) and the Scientific Directors (SDs) of the NIH have endorsed guidelines for human biospecimen storage and tracking in relation to these topics:

1. Legal and ethical considerations
2. Collection and storage
3. Inventory database systems and tracking
4. Quality management practices including standard operating procedures
5. Custodianship
6. Disposal, sharing, or release
7. Shipping

Definition of Human Biospecimens

These guidelines apply to human biospecimens, including--but are not limited to--blood and other body fluids, tissues, and other biological materials obtained from humans. Subsets of human materials, such as derived cell lines that are traceable to a human subject or patients with linked identifiers or Personally Identifiable Information (PII) as well as those materials that cannot be linked to identifiers, should be handled as independent biospecimens. A list of biospecimens covered by these Guidelines is in the Appendices of this document.

Definitions demarcated with "*Pre-2018 Common Rule definition*"[1] apply to research approved (or deemed to be exempt or for which no IRB review was required under the regulations) prior to the effective date of the 2018 Common Rule (January 21, 2019)[2]. Definitions demarcated with "*2018 Common Rule definition*" apply to all research approved by an IRB (or deemed to be exempt or for which no IRB review was required under the regulations) on or after January 21, 2019 and to research transitioned to the 2018 requirements in accordance with Human Research Protection Program (HRPP) policy.

While all biospecimens should be handled according to best practices, these guidelines apply specifically to human biospecimens that are classified as:

[1] HHS, Title 45 Part 46 Protection of Human Subjects (Pre-2018) https://www.hhs.gov/ohrp/regulations-and-policy/regulations/regulatory-text/index.html

[2] HHS, Title 45 Part 46 Protection of Human Subjects (2018) https://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title45/45cfr46_main_02.tpl

- *"Identified,"* meaning that they or their associated data are linked to a readily available subject identifier (*e.g.,* social security number, address, telephone number, medical record number, *etc.*). [3]

- *"Identifiable biospecimen" (2018 Common Rule definition)* meaning a biospecimen for which the identity of the subject is or may readily be ascertained by the investigator or associated with the biospecimen. [4]

- "*Individually Identifiable*"*(Pre-2018 Common Rule definition)* meaning that the identity of the subject is or may readily be ascertained by the investigator or associated with the information or biospecimen. [5]

- *"Coded"* meaning that (1) identifying information (such as name or social security number) that would enable the investigator to readily ascertain the identity of the individual to whom the private information or materials pertain has been replaced with a number, letter, symbol, or combination thereof (i.e. the code); and (2) a key to decipher the code exists, enabling linkage of the identifying information to the private information or biospecimens. [6] An example of biospecimens of this type are materials provide by the NIH Department of Transfusion Medicine, where additional materials can be requested, but have no PII directly available to the researcher.

- *"Unlinked"* meaning that the biospecimens were initially collected with identifiers but, before the research use, have been irreversibly stripped of all identifiers by use of an arbitrary or random alphanumeric code and the key to the code is destroyed, thus making it impossible for anyone to link the biospecimens to the sources. This does not preclude linkage with existing clinical, pathological, and demographic information so long as all individual identifiers are removed. [7] Biospecimens provided through collaborations may fall into this category, where they were originally collected with PII, which has been stripped. [8]

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[3] NIH, Intramural Research Program, Policy 3016 (2015) https://policymanual.nih.gov/3016
[4] 45 CFR § 46.102(e)(6), Protection of Human Subjects https://www.ecfr.gov/cgi-bin/retrieveECFR?gp=&pitd=20180719&n=pt45.1.46&r=PART&ty=HTML
[5] 45 CFR § 46.102(f)(2), Pre-2018 Protection of Human Subjects https://www.hhs.gov/ohrp/regulations-and-policy/regulations/regulatory-text/index.html#46.102
[6] HHS, Office for Human Research Protections, Coded Private Information or Specimens Use in Research Guidance (2008), https://www.hhs.gov/ohrp/regulations-and-policy/guidance/research-involving-coded-private-information/index.html
[7] NIH, Intramural Research Program, Policy 3016 (2015) https://policymanual.nih.gov/3016
[8] HHS, Public Health Service Technology Transfer Policy Manual, Policy 500, Policy for the transfer of materials from NIH Intramural laboratories (2012) https://www.ott.nih.gov/policy/hhs-technology-transfer-policies

- *"Unidentified" or "Anonymized,"* meaning that the biospecimens are being maintained without identifiers of any kind. Surgical tissues, cadaveric tissues, and swabs which are pathological waste or discarded materials would be considered anonymized. The act of unlinking biospecimens by re-coding them with an arbitrary code is also a form of anonymization.

The terms "biospecimens", "specimens", and "samples" can be used interchangeably.

The guidelines apply regardless of whether the biospecimens were originally collected for patient care-related purposes or for research. They also apply regardless of whether or not the individual from whom the specimen was originally collected is still living.

The guidelines apply regardless of whether the biospecimens were acquired from a NIH Core Facility or from a NIH collaborator.

The guidelines do not apply to tracking and reporting of biological materials that were obtained from commercial sources for use as "reagents". For example, reagents would include human cell lines or tissues purchased from ATCC or other vendors.

In addition, human biospecimens that are put into animals or biological inventions that have been derived from human biospecimens are not covered by these guidelines.

1. Legal and ethical considerations

Human biospecimens used by NIH intramural investigators or researchers for research purposes must be collected, stored, used, shared, and disposed of in accordance with the informed consent signed by the subject, or under a waiver of informed consent granted by an independent ethical review body called an Institutional Review Board (IRB) or Ethics Committee, in accordance with 45 CFR 46 -Protection of Human Subjects, as appropriate. [9]

Generally, initial and continuing IRB review and approval is required for research using identifiable biospecimens as described above. However, under the Revised Common Rule, certain research may be subject to limited IRB review [§46.104(d)(2)(iii), (d)(3)(i)(C), or (d)(7) or (8)], or not require continuing review under §46.109(f). For more information about whether and when continuing review is required contact the NIH Office of Institutional Review Board Operations (IRBO).

Research that involves coded biospecimens where the researcher does not have access to the code key or research that involves unlinked/anonymized biospecimens is called "not

[9] 45 CFR § 46, Protection of Human Subjects https://www.ecfr.gov/cgi-bin/retrieveECFR?gp=&pitd=20180719&n=pt45.1.46&r=PART&ty=HTML#sp45.1.46.a

human subjects research." This type of research requires no initial review or determination by an IRB or IRBO. Certain human subjects research with biospecimens may be exempt from the requirement for initial and continuing IRB review and approval if the research involves temporary access to identifiable biospecimens, but the research data is recorded by the researcher in a de-identified manner. In this case, the researcher must have no way to link back to original subjects once he or she begins analysis. At the NIH, the NIH IRBO is authorized to determine whether a research activity using human biospecimens is exempt. The researcher must submit a request for an exemption to the IRBO by completing an application and submitting a protocol in the Clinical Research Operations, Integrated Research Information System (iRIS).

The use of human fetal tissue (HFT) for research is sensitive and researchers must be mindful of its ethical implications. Researchers must ensure that allowable uses of HFT is in accordance with applicable federal, state, and local laws, regulations and policies. This includes the need for NIH approval prior to acquiring HFT (see the Sourcebook for further information), the need for informed consent from the donor, and the need for continuous oversight review during the performance of the research.

2. Collection and storage

NIH investigators or researchers must safeguard individual privacy and handle PII in accordance with the Privacy Act of 1974, as applicable and appropriate.

When biospecimens are being collected from humans for research purposes or clinical specimens to be used for research purposes, the collection and storage process must adhere to and follow procedures appropriate for the type of biospecimen being collected and its intended uses. They must be handled in accordance with the U.S. Occupational Safety and Health Administration's Bloodborne Pathogens Standard. [10] Each laboratory collection or biorepository must have and adhere to a Standard Operating Procedure (SOP) for labeling, handling, and storage of biospecimens. Biospecimens containing select agents or toxins are regulated under 42 CFR 73. [11] Please contact the Division of Occupational Health and Safety and Health Specialist for further guidance on biospecimens classified as select agents or toxins.

NIH intramural researchers who collect and share biospecimens or data for research purposes from collections or biorepositories must consider certain ethical principles and regulations. A biorepository is defined as the infrastructure within which biospecimens are identified, collected, processed, stored, and distributed, if applicable. If biospecimens are

[10] OSHA, Standards Booklet 3186-06R, Model Plans and Programs for the OSHA Bloodborne Pathogens and Hazard Communications Standards (2003) https://www.osha.gov/Publications/osha3186.pdf
[11] 42 CFR § 73, Quarantine, Inspection, Licensing, Select Agents and Toxins https://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title42/42cfr73_main_02.tpl

being shared from an IRB-approved protocol, the researcher should have received consent from the subject to share for the planned research (i.e. consent specifies the possible research use(s)) or for unspecified future research, and the uses must be consistent with the permissions described in the informed consent. This principle applies whether the biospecimens will be identifiable or not. If identifiers are being shared, the recipient researcher should have IRB approval for the planned research. If identifiable results (e.g. coded and linked) will be returned to the sender, the sender should have IRB approval for the planned research collaboration.

When researchers want to create a biorepository, which will contain identifiable biospecimens (including coded biospecimens with the code key), they must seek IRB approval. The protocol should explain the process for accepting biospecimens and data into the biorepository, as well as the process for distributing biospecimens and data for research use.

Human biospecimens in storage must have a unique identifier, should have a printed label and should contain either a one-dimensional (1D) or two-dimensional (2D) barcode with electronic record documentation. If the biospecimen is associated with PII, the identifier must enable the investigator to link the biospecimen to clinical or research data about the subject or patient, the protocol, and informed consent under which the specimen was collected, as well as an NIH Clinical Center Biomedical and Translational Research Information System (BTRIS) patient identification number, as appropriate. The label should be able to withstand all potential transportation and storage conditions.

Biospecimens with no PII (unlinked, unidentified, or anonymized materials) should be labeled in accordance with a SOP which must be developed in the custodian's laboratory, or by those maintaining the biorepository. Minimum information should identify biospecimen type and date of acquisition.

All biorepositories, whether large or represented by individual freezers in laboratories, should follow best practices for specimen storage and retrieval. [12, 13] Biorepositories should be operated using effective facility environments that include ambient temperature controls, good air circulation, lighting, and security with backup emergency power. Systems should be in place to allow for local and remote temperature monitoring of freezers, refrigerators, and other temperature-controlled environments. Biorepositories should have emergency preparedness plans that cover equipment failures and power interruption that include back-up storage capacity and back-up power supplies such as generators.

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[12] International Society for Biological and Environmental Repositories, Best Practices, Recommendations for Repositories (2018) https://www.isber.org/page/BPR

[13] NIH, National Cancer Institute, Division of Cancer Treatment and Diagnosis, Cancer Diagnosis Program, Biorepositories and Biospecimen Research Branch, Best Practices (2016) https://biospecimens.cancer.gov/bestpractices/

3. Inventory database systems and tracking

Human biospecimens stored at NIH under the Intramural Research Program should be tracked using a computer-based inventory system that records the location and detailed information of every biospecimen.[14]

Inventory systems should have the capacity to assign a unique identifier to each biospecimen, document custodianship, link and track aliquots, and track significant events such as thaws, receipt and/or processing events, warnings, destruction, or transfers out of the biorepository. [15] Systems should be able to generate reports on each of these conditions and activities and should be able to link to detailed information on clinical and other variables (*e.g.,* participant information, protocol number, informed consent, clinical and epidemiological data) to facilitate research and serve as an archive so that the information remains available for future use. Inventory systems must meet federal requirements related to data privacy and security, such as those outlined in the Privacy Act. [16]

The inventory system should be able to provide data for the annual NIH-wide assessment of storage and tracking practices known as the Biospecimen Report, as required by the NIH Reform Act of 2006. [17] Investigators who indicate in their annual 'Z' report that they work with human biospecimens must report the type of biospecimens currently stored, along with information about labels and tracking systems used in the Biospecimen Report, which is separate from the NIDB Annual Report.

The tracking of historical collections of biospecimens obtained before guidelines were issued in 2008 should be upgraded to meet these revised guidelines when feasible with some approved exceptions. Tracking as a single entity should *only* be considered when entry and initiation of tracking of individual biospecimens within a historical collection is not feasible.

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[14] International Society for Biological and Environmental Repositories, Best Practices, Recommendations for Repositories (2018) https://www.isber.org/page/BPR

[15] NIH, National Cancer Institute, Division of Cancer Treatment and Diagnosis, Cancer Diagnosis Program, Biorepositories and Biospecimen Research Branch, Best Practices (2016) https://biospecimens.cancer.gov/bestpractices/

[16] DOJ, Privacy Act 1974 (2015) https://www.justice.gov/opcl/privacy-act-1974

[17] H.R. 6614, 109th U.S. Congress NIH Reform, Public Law 109-482, Title 1 (2017) https://www.congress.gov/bill/109th-congress/house-bill/6164

4. Quality management practices including standard operating procedures

All human biospecimen collections and biorepositories, whether large or represented by individual freezers in laboratories, should have written SOPs detailing the policies and procedures used to collect, process, handle, label, store, track, ship, and share biospecimens. Human biospecimens must be handled safely in accordance with OSHA regulations and recommendations, as applicable. The quality assurance program should include periodic (at least annually) evaluation of adherence to the standard operating procedures.

Repositories should perform an annual self-audit of the physical location of a random sampling of the biospecimens to confirm that the appropriate biospecimens are in the correct location, as indicated by the inventory system.

5. Custodianship

Human biospecimens obtained by NIH researchers are federal property and must remain in the custody of NIH unless removal, destruction, or transfer is approved by the IC leadership. If approved by the IC, biospecimens can be transferred via a specific written agreement such as an MTA, CTA, CA[18] or CRADA to an outside organization [19] or destroyed when appropriate. [20] When an investigator departs NIH, unless the IC has agreed to allow the investigator to properly transfer the biospecimens, the IC will coordinate with another investigator to assume custodianship of the biospecimens. The investigator, or other institutional representative, such as the custodian, is responsible for ensuring that biospecimens are collected, processed, stored, and reported properly, as well as used according to what is allowed by informed consent documents, when applicable. There may be occasions when the custodianship of biospecimens is evaluated, and the decision is made to transfer oversight to a new investigator outside of or within their originating Institute/Center (IC). The guidance described below applies to all collections or any subset thereof, regardless of the study whether or not the protocol is still under IRB oversight (e.g. protocol status of "open" or "closed".").

The investigator or researcher as custodian is responsible for the effective transfer and its prompt reporting of the biospecimens, associated data (as appropriate), and consent documents to a new custodian should the investigator leave NIH or if a change needs to occur for other reasons. It is critical that when entire collections with >1000 samples are transferred or destroyed that the leadership of the IC/Division is aware of and approves the

[18] HHS, Public Health Service Technology Transfer Policy Manual, Policy 500, Policy for the transfer of materials from NIH Intramural laboratories (2012) https://www.ott.nih.gov/policy/hhs-technology-transfer-policies
[19] HHS, Public Health Service Technology Transfer Policy Manual, Policy 400, Cooperative Research and Development Agreements, (2012) https://www.ott.nih.gov/policy/cradas
[20] HHS, Public Health Service Technology Transfer Policy Manual, Policy 502, Uniform Biological Material Transfer Agreement (2012) https://ott.nih.gov/sites/default/files/documents/policy/pdfs/502-Policy.pdf

request to transfer or destroy, before it is implemented. There are a variety of reasons that a collection may no longer be of scientific value and consequently, the cost of continued storage may no longer be justified, and the Scientific Director may consult with the Principal Investigator or responsible party who has custody of the biospecimens. For example, destruction may be warranted if the biospecimens have been compromised in some way or if data associated with the biospecimens are no longer available. Those with overall responsibility for specimen collections must understand and approve either the transfer of a collection to another investigator outside of the IC/Division or the destruction or culling of the biospecimens.

6. Disposal, sharing, or release of NIH biospecimens

Biomedical research at NIH often relies on the collection, storage and use of human biospecimens. Every Institute has the responsibility for stewardship and oversight of Intramural collections. The Institute's Scientific Director and their respective technology transfer office or other administrative staff should work together on communicating to their IC staff its SOPs that outline policies, processes, and procedures on how to share, transfer, and track biospecimens with the research community inside or outside the NIH. NIH investigators must abide by the highest scientific and ethical standards to preserve the public's trust and the substantial investment these valuable research resources represent. NIH Investigators must abide also by the disposal or destruction, sharing, or release procedures described in the IRB-approved protocol.

Institutes should adopt procedures to evaluate at least biennially when and how to discard human biospecimens or make them available for sharing with other researchers as outlined in the IRB approved protocol or the signed MTA. When specimens are being shared from IRB-approved protocols, the sharing plan must be consistent with the permissions described in the informed consent, or the IRB must waive informed consent, or if the consent form is silent on sharing, the IRB Chair must review the specific scenario to allow the sharing. When identifiable biospecimens, including coded and linked, are being shared that were not collected under IRB-approved protocols, investigators should consult NIH IRBO for guidance. When completely anonymized biospecimens are being shared that were not collected under an IRB-approved protocol, the investigator does not need to submit an application or protocol for IRBO/IRB review. Investigators should follow the principles governing sharing of resources described in the Guidelines and Policies for the Conduct of Research in the Intramural Research Program at NIH [21] and comply with the NIH relevant material transfer policies. [22]

[21] NIH, Intramural Research Program, Sourcebook, Ethical Conduct, Research Ethics (2019) https://oir.nih.gov/sites/default/files/uploads/sourcebook/documents/ethical_conduct/guidelines-conduct_research.pdf

[22] HHS, Public Health Service Technology Transfer Policy Manual, Policy 500, Policy for the transfer of materials from NIH Intramural laboratories (2012) https://www.ott.nih.gov/policy/hhs-technology-transfer-policies

7. Shipping

Packaging and shipping of human biospecimens must conform to all applicable regulations and standards, including, but not limited to, the U.S. Department of Transportation (DOT)[23], International Air Transport Association (IATA) standards [24] and guidelines.[25] All personnel involved in shipping biological materials should be trained properly for both air and ground shipments. In addition, NIH researchers should use best practices to protect biospecimens from factors that could influence specimen integrity (i.e., temperature, humidity, light, structural quality, and spill containment) and to provide protection to workers, individuals involved in the transportation of the biospecimens, and the environment.

Conclusion

Human biospecimens are a valuable resource and are essential to the biomedical research conducted at the NIH. They must be collected, stored, tracked, and used, according to the highest scientific and ethical standards. These guidelines provide a framework for NIH scientists for properly handling human biospecimens, maximizing their use in research, mitigating possible risks, as well as ensuring subject or patient safety and rights.

[23] DOT, Pipeline and Hazardous Materials Safety Administration, Office of Hazardous Materials Safety, PHH50-0079, Regulations and Compliance (2006)
https://hazmatonline.phmsa.dot.gov/services/publication_documents/PHH50-0079
[24] International Air Transport Association, 62nd edition, Dangerous Goods Regulations (2021)
https://www.iata.org/publications/dgr/pages/index.aspx
[25] International Air Transport Association, Infectious Substances Shipping Guidelines (2021)
https://www.iata.org/publications/store/Pages/infectious-substances-shipping-guidelines.aspx

Appendices

Abbreviations

ATCC	American Type Culture Collection
BBRB	Biorepositories and Biospecimen Research Branch at NCI
BTRIS	Biomedical and Translational Research Information System
CA	Collaboration Agreements
CMV	Cytomegalovirus
CRADA	Cooperative Research and Development Agreement
CTA	Clinical Trial Agreement
DDIR	Deputy Director for Intramural Research
DOT	Department of Transportation
EBV	Epstein-Barr Virus
HRPP	Human Research Protection Program
IAA	Interagency Agreement
IATA	International Air Transport Association
IRB	Institutional Review Board
iRIS	Integrated Research Information System
IRP	Intramural Research Program
IRBO	(NIH) Office of IRB Operations
ISBER	International Society for Biological and Environmental Repositories
iPSCs	Induced Pluripotent Stem Cells
MOU	Memorandum of Understanding
MTA	Material Transfer Agreement
NCI	National Cancer Institute
NIDB	NIH Intramural Data Base
OHSRP	Office of Human Subjects Research Protection
OSHA	Occupational Safety and Health Administration
PBMC	Peripheral Blood Mononuclear Cells
PHI	Personal Health Information
PI	Principal Investigator
PII	Personally Identifiable Information
RBC	Red Blood Cells
SD	Scientific Directors
SLA	Simple Letter of Agreement
SOP	Standard Operating Procedure
WBC	White Blood Cells

Biospecimen List

Blood or Blood Components

Blood
Blood Clot
Buffy Coat
Menstrual Blood
White Blood Cells
Red Blood Cells
Serum
Plasma
Umbilical Cord Blood
Peripheral Blood Mononuclear Cells

Body Fluid or Substances

Amniotic Fluid
Nipple Aspirate
Ascites or Peritoneal Cavity Fluid
Pericardial Fluid
Bile
Prostatic Fluid
Breast Milk
Rectal Secretions
Bronchia or Pleural Fluids
Saliva/Buccal Cells
Cerebrospinal Fluid
Sebum
Cerumen
Semen
Cervical Secretions
Sputum
Colostrum
Stool
Eggs/Oocytes
Swabs (any)
Eye Fluids
Sweat
Gallstones
Tears
Gastric Secretions
Urine
Kidney Stones
Vaginal Secretions
Miscellaneous Body Fluids

Human Cell Lines (Derived at NIH or by Collaborators)

Immortalized/transformed human cell lines from healthy tissue or tumors, tumorigenic, diseased tissue

Stem Cells/Transformed Stem Cells (Acquired from NIH core or NIH collaborators)

Induced Pluripotent Stem Cells
Human Embryonic Stem Cells
Other Stem Cell Lines

Tissues

Adipose
Nail Specimen
Adrenal Gland Specimen
Nasopharynx Specimen
Artery Tissue Specimen
Nerve Specimen

Bile Duct Tissue Specimen
Bladder Tissue Specimen
Bone Marrow Specimen
Bone Specimen
Brain Tissue Specimen
Breast Tissue Specimen
Bronchial Tissue Specimen
Cartilage Specimen
Cataract Specimen
Central Nervous System Tissue
Colon Tissue Specimen
Duodenal Tissue Specimen
Embryonic Tissue Specimen
Endocervical Specimen
Endometrium Specimen
Esophageal Tissue Specimen
Eye Tissue Specimen
Fallopian Tube Specimen
Fetal or Embryonic Primary Cells
Gallbladder Tissue Specimen
Gastric Tissue Specimen
Hair Specimen
Heart Tissue Specimen
Histopathology Slides
Human Fetal Tissue
Ileal Tissue Specimen
Jejunal Tissue Specimen
Kidney Tissue Specimen
Liver Tissue Specimen
Lung Tissue Specimen
Lymph Node Specimen
Middle Ear Tissue Specimen
Miscellaneous Tissue Specimens
Muscle Specimen
Nose Specimen
Oral Cavity
Ovary Specimen
Pancreas Specimen
Paraffin Tissue Blocks
Parathyroid Gland Specimen
Pericardial Tissue Specimen
Peritoneal Tissue Specimen
Pharynx Specimen
Placenta Specimen
Pleura Specimen
Prostate Tissue Specimen
Rectal Tissue Specimen
Skin Specimen
Small Intestine Tissue Specimen
Soft Tissue Specimen
Specimen from Non-Specified Site
Specimen of Product of Conception
Stoma Specimen
Teeth
Tendon Specimen
Testes Specimen
Thymus Specimen
Thyroid Gland Specimen
Tongue Specimen
Tonsil Specimen
Trachea Specimen
Ureter Tissue Specimen
Urethra Tissue Specimen
Uterine Cervix Specimen
Uterus Specimen
Vaginal Tissue Specimen
Vocal Cord Specimen
Vulva Specimen

Tumors

Malignant/Benign Tumors