1 - About this Guide 3.2

This section introduces you to the Biospecimen Research Database User’s Guide. It includes the following topics:

- Purpose
- Audience
- Prerequisites
- Topics Covered
- Additional References

Purpose

The Biospecimen Research Database (BRD) is an initiative of the Biospecimen Research Network (BRN) program. BRD is a free and publicly accessible database that contains peer-reviewed literature pertinent to the field of human Biospecimen Science. The database is updated daily with both recent and historical publications and may serve as a vehicle for literature review, evaluation of "in use" biospecimen handling protocols, development of new protocols, and identification of analytes that are susceptible or impervious to handling variability. BRD paper entries include primary research or review articles that have been identified, reviewed, and curated by a Ph.D.-level scientist.

This guide explains how to search the BRD and use the new features included in version 3.2.

Audience

This guide is designed for researchers, clinicians, biobanking staff and others who want to search the database to retrieve published information in the field of human biospecimen science.

Prerequisites

To get the most out of this guide, you should have:

- A general understanding that pre-analytical variability associated with biospecimen collection, handling, storage and processing may or may not impact analytical results
- Familiarity working with literature databases such as PubMed
Topics Covered

This brief overview explains what you will find in the succeeding chapters.

- 2 - Search the Biospecimen Research Database explains four methods for searching the database (Simple and Advanced Searches, and Browse by Analyte or Pre-analytical Factor options) and how to interpret search results.
- 3 - Searching and Viewing SOPs and Compendiums explains how to work with SOPs and compendiums.

Additional chapters are available to curators and administrators.

Additional References

For more information about the Biospecimen Research Database, see the [Biospecimen Research Network web page](https://biospecimenresearchnetwork.org).

2 - Searching the Biospecimen Research Database 3.2

This section introduces you to the procedures for searching the Biospecimen Research Database. It includes the following topics:

- Search Overview
  - Simple Search Overview
  - Advanced Search Overview
  - Browse by Analyte Overview
  - Browse by Pre-analytical Factor Overview
- Conducting a Simple Search
- Conducting an Advanced Search
- Browsing by Analyte
- Browsing by Pre-analytical Factor
- Viewing Paper and Study Details
- Commenting on a Paper
- Suggesting a New Paper
- Citing the BRD

Search Overview
You can search the Biospecimen Research Database (BRD) to find research papers and studies that match criteria you specify. Each published paper is associated with one or more studies that address specific experimental questions. If you do not narrow your search by selecting search criteria, then all studies in the database will be returned as search results.

You can search the BRD in the following ways.

- Simple Search Overview
- Advanced Search Overview
- Browse by Analyte Overview
- Browse by Pre-analytical Factor Overview

You do not need to log in or have an account to search the Biospecimen Research Database.

From the BRD home page, all search options appear when you click the **Search** tab.

The home page also contains a News and Announcements section, a Featured Paper identified by a BRD Curator, and lists of papers that have been added recently as well as those that were recently viewed by you. A Twitter feed from the NCI Biospecimens account is also displayed. If you want to share information on the BRD, compose a new tweet via your personal Twitter account using the #BRD hashtag.
Simple Search Overview

Located in the top right portion of the header on every BRD page, is a keyword search box labeled **Search BRD Papers.** You can search very quickly for any paper in the BRD by using any keyword including paper information, authors, free text, biospecimen location or type, or pre-analytical factor.

The Simple Search is highlighted in red in the screenshot below.

Advanced Search Overview

An Advanced Search includes all possible search criteria in a query format. This is the default search method. For more information, see Conducting an Advanced Search.
Browse by Analyte Overview

The **Browse by Analyte** search option displays the contents of the BRD in a table that is organized by both the analyte investigated and the biospecimen type and location used for analysis. The numbers within the table contain links to search results that correspond to the biospecimen type/location and analyte selected. From the Search Results page, you can toggle between results for other analytes for a given biospecimen type and location without the need to return to the **Browse by Analyte** page. For more information, see Browsing by Analyte.
Browse by Pre-analytical Factor Overview

The Browse by Pre-analytical Factor search option displays the contents of the BRD in a table that is organized by the experimental questions addressed (pre-analytical factor) and the biospecimen type/location used for analysis. Due to the large number of pre-analytical factors captured by the BRD, the table can be restricted by selecting a Classification or directly entering a pre-analytical factor. The number links in the table represent all of the relevant papers in the BRD for the corresponding pre-analytical factor listed in the row. For more information, see Conducting a Pre-analytical Factor Search.
## Conducting a Simple Search

You can conduct a Simple Search for a paper from any BRD page. Enter any keyword associated with the area of interest (such as a tissue type, diagnosis, biomarker, fixative, anticoagulant, and so on) or a specific paper (such as the PubMed ID, title, journal, year, and so on). Note that gene symbol use within the BRD is not standardized and it is recommended that you search using the full gene name. Also, if you are searching for a specific author, use the Author(s) search option on the Advanced Search page. Specificity can be increased by including multiple words with or without search operators. If using multiple search operators, use parentheses to control query logic. Search operators that are supported by Simple Search, example queries, and their anticipated results are summarized in the table below.

<table>
<thead>
<tr>
<th>Simple Search Operators</th>
<th>Example</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Double quotes</strong> (&quot; &quot;)</td>
<td>&quot;sodium heparin&quot;</td>
<td>Curations containing the exact phrase sodium heparin</td>
</tr>
<tr>
<td>Including <strong>AND</strong> or + between search phrases will return curations that contain both search phrases. If more than one search term is entered, this search operator will be applied as the default.</td>
<td>formalin AND paraffin or formalin + paraffin or formalin paraffin</td>
<td>Curations containing both formalin and paraffin</td>
</tr>
<tr>
<td>Including <strong>OR</strong> between search phrases will return curations that contain either search term.</td>
<td>frozen OR fresh</td>
<td>Curations containing either frozen or fresh</td>
</tr>
<tr>
<td>Including <strong>NOT</strong> or - (minus) between search terms will return curations that do not contain the term that follows the operator. This operator must be used with a search term that will return results.</td>
<td>immunohistochemistry NOT &quot;tissue microarray&quot;</td>
<td>Curations containing immunohistochemistry but not tissue microarray</td>
</tr>
<tr>
<td>Search Operator</td>
<td>Example</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------</td>
<td>---------</td>
<td>-------------</td>
</tr>
<tr>
<td>Asterisk (*)</td>
<td>freeze-thaw cycl*</td>
<td>An asterisk (*) is a wildcard search operator that can replace any number of characters in a search term. It can be used in the beginning, middle or end of a search term. Curations containing either freeze-thaw cycle, freeze-thaw cycles, or freeze-thaw cycling.</td>
</tr>
<tr>
<td>Question mark (?)</td>
<td>K?EDTA</td>
<td>A question mark (?) is a wildcard search operator that replaces a single character in the search term. It can be used in the beginning, middle or end of a search term. Multiple question marks can also be used within a single search term. Curations containing the term K2EDTA or K3EDTA.</td>
</tr>
<tr>
<td>Tilde (~)</td>
<td>anesthesia~</td>
<td>A tilde (~) is a search operator that will return terms that are spelled similarly to the term that prefaces it. It should follow a single word search term. Curations containing the terms anesthesia, anaesthesia, or anesthetized.</td>
</tr>
<tr>
<td></td>
<td>circulating AND (microRNA OR miRNA)</td>
<td>Search operators can be used together and parentheses can be used to group queries. Curations containing circulating and either microRNA or miRNA.</td>
</tr>
<tr>
<td></td>
<td>&quot;circulating DNA&quot;~2</td>
<td>The proximity of two search terms to one another can be specified by placing the terms in quotations followed by a tilde (~) and the number of words allowable. Curations containing circulating DNA, circulating cell free DNA or circulating cell-free DNA.</td>
</tr>
<tr>
<td>Prefacing a search phrase with PubMedId:</td>
<td>PubMedId: 24486652</td>
<td>Prefacing a search phrase with PubMedId: will limit the query for the search phrase to the PubMed ID field. A single curation with the PubMed ID 24486652.</td>
</tr>
<tr>
<td>Prefacing a search phrase with title: will limit the query for the search phrase to the Paper Title field.</td>
<td>title: hemoglobin</td>
<td>Curations that contain the word hemoglobin in the paper's title</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Prefacing a search phrase with publicationName: will limit the query for the search phrase to the Journal of publication field.</td>
<td>publicationName: Biopreserv Biobank</td>
<td>Curations that were published in the journal Biopreserv Biobank</td>
</tr>
<tr>
<td>Prefacing a search phrase with curatorPurpose: will limit the query for the search phrase to the Purpose of Paper field.</td>
<td>curatorPurpose: &quot;storage temperature&quot;</td>
<td>Curations that contain the exact phrase storage temperature in the Purpose of Paper field</td>
</tr>
<tr>
<td>Prefacing a search phrase with curatorConclusion: will limit the query for the search phrase to the Conclusion of Paper field.</td>
<td>curatorConclusion: clinically relevant</td>
<td>Curations that contain the words clinically and relevant in the Conclusion of Paper field</td>
</tr>
<tr>
<td>Prefacing a search phrase with purpose: will limit the query for the search phrase to the Study Purpose field.</td>
<td>purpose: ischemia</td>
<td>Curations that contain ischemia in the Study Purpose field</td>
</tr>
<tr>
<td>Prefacing a search phrase with summaryOfFindings: will limit the query for the search phrase to the study's Summary of Findings field.</td>
<td>summaryOfFindings: statistically significant</td>
<td>Curations that contain the words statistically and significant in the Summary of Findings field</td>
</tr>
</tbody>
</table>

**To conduct a Simple Search**

2. Enter text relevant to a specific paper or your area of interest into the box. You can enter any keyword or multiple keywords separated by a space.
Conducting an Advanced Search

An Advanced Search of the Biospecimen Research Database provides you with the most control over search criteria and results in comparison to other search options.

When specifying search criteria in the Biospecimen Research Database, there are no required fields. You can add as much detail or only those criteria that you consider essential to the search. You can also select multiple search terms in the same list by selecting the first item, pressing and holding Ctrl, and then selecting the next item(s).
If you don't specify any criteria, all entries in the BRD appear in the search results.

If a paper you are looking for is not in the BRD, you can suggest a new paper.

**To conduct an Advanced Search**

2. For maximum search accuracy, specify search criteria by clicking items in the lists.
   - To select multiple fields in the same list, click the first field, press and hold the CTRL key, and then click additional fields. The fields you select are highlighted and your search results contain all studies matching any of the fields.
For example, if you select both the Cell and Fluid biospecimen types, your search results contain all studies that concern either cells or fluid.

- When you select fields from different lists, you narrow your search. For example, if you select the Cell biospecimen type and the Kidney biospecimen location, your search results include studies that concern **both** cells and kidneys.

Note that the selections you make in the lists on the left determine the selections in the lists on the right. For example, selecting the Biospecimen Type “Fluid” makes “Blood” an available Biospecimen Location.

The following table describes the Advanced Search criteria.

<table>
<thead>
<tr>
<th>Advanced Search Criteria</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specimen Type</td>
<td>Select the type of biospecimen (Tissue/Fluid/Cell).</td>
</tr>
<tr>
<td>Biospecimen Location</td>
<td>Select the bodily location from which the biospecimen was obtained.</td>
</tr>
<tr>
<td>Diagnosis</td>
<td>Select the term that identifies the nature of a disease or condition associated with the biospecimen.</td>
</tr>
<tr>
<td>Diagnosis Subcategory</td>
<td>Select the diagnosis subdivision that differentiates the disease within the larger category. (Diagnosis Subcategory is only available for the diagnosis &quot;neoplastic.&quot;)</td>
</tr>
<tr>
<td>Preservative Type</td>
<td>Select the substances added to the biospecimen, or other treatment to protect it from chemical change or microbial action.</td>
</tr>
<tr>
<td>Platform</td>
<td>Select the analyte, or endpoint that was qualitatively or quantitatively examined in the biospecimen. Select &quot;Morphology&quot; for macro- and microscopic analysis.</td>
</tr>
<tr>
<td>Technology Platform</td>
<td>Select the specific technology used to analyze the biospecimen.</td>
</tr>
<tr>
<td>Author(s)</td>
<td>Enter the author’s name(s) in the format of last name followed by first initial (first initial is optional). Separate authors' names by a comma. Use &quot; * &quot; as wildcard. Examples: Smith J, Doe L. If an author's name has a special character in it, be sure to include that special character in your keyword search. You can only use special characters included in the UTF-8 character set.</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Paper Type</td>
<td>Select among the paper type options: Review, Non-review, or All. If you do not select any search criteria prior to clicking the Search button, the search uses Paper Type: All as its default search criterion.</td>
</tr>
<tr>
<td>Pre-analytical Factors</td>
<td>Classification: The type of biospecimen handling variable that was the subject of the study (pre-acquisition, post-acquisition, or platform specific). Factor: The specific pre-analytical factor that was the subject of the study (e.g., the post-acquisition variable, &quot;type of fixative,&quot; is a specific pre-analytical factor in a study that examines the effects of different types of tissue fixatives on molecular analysis).</td>
</tr>
</tbody>
</table>

3. If you want to search for items not present in the drop-down lists such as specific genes or biomarkers, enter those items in the **Keyword** box. Multiple words can be entered with or without a search operator to increase specificity. See Conduct a Simple Search for a list of supported search operators. This search method searches all fields including paper information, authors, summary fields, and Pre-analytical Factors and their values. The keyword search can be used together with other fields on the Advanced Search page.

Gene symbol use is not standardized, so search by the full gene name.
5. Page through the results or click any blue link to see study details.

On the search results page, you can:

- View a summary of all of the studies matching your search criteria.
- Click the paper title hyperlink to view detailed information about the paper.
- Click the Study Purpose hyperlink to view detailed information about the study.

Show and Hide Study Details

Paper and study details are both on the Paper Details page. Click View More or View Less to show or hide the study details.

- Click most recent search results link at the top left of the page to return to the search page and search criteria you last used.
- Comment on the paper or study listed on the page by registering with Disqus or logging in with a social media account.

**Browsing by Analyte**

When you browse the BRD by analyte, you can navigate between analytes for a given biospecimen location by clicking a number link in the table.
If a paper you are looking for appears to be missing, first run an Advanced Search and then consider suggesting a new paper.

**To browse by analyte**

1. Click **Browse by Analyte**, which is located under the Search tab. The Browse by Analyte page appears, displaying all of the papers in the BRD within a table that is organized by biospecimen type and location and analyte(s) investigated.

![Browse by Analyte Table](image)

2. To search the database, do one of the following
   1. If you only want to see results of one biospecimen type, choose it from the Select a Biospecimen Type list. The table immediately refreshes to show only those biospecimen locations and results for that biospecimen type. Specifying this filter option narrows your search.
   2. If you want to search directly for one biospecimen location, type it into the Enter a Biospecimen Location box. The table immediately refreshes to show only those results for that biospecimen location. Specifying this filter option narrows your search.
   3. Click a number link as explained in the following table.

<table>
<thead>
<tr>
<th>Click a link in the...</th>
<th>To see...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biospecimen columns</td>
<td>all research studies in the database that involve that biospecimen location or type</td>
</tr>
<tr>
<td>Analyte columns</td>
<td>all research studies in the database that involve that analyte</td>
</tr>
</tbody>
</table>
all research studies in the database that involve the unique combination of biospecimen location, biospecimen type, and analyte in that table row. The numerical link corresponds to the number of research papers that fulfill the search criteria combination.

The numerical links do not add up to the total number of papers in the database. Each cell represents only the number of papers that meet the specified search criteria in this table. Many other search criteria can be accessed by conducting an Advanced Search.

3. Click a link in the table, either a biospecimen location or a number. Note that in the screenshot above, the biospecimen type is not selectable because the previous search resulted in showing only those papers involving one biospecimen type. The studies matching your selection appear. Note that your search criteria appear above
4. Page through the results or click any blue link to see study details. Note that you can filter your results by selecting an analyte from the Analyte list.

On the search results page, you can:

1. View a summary of all of the studies matching your search criteria.
2. Click the paper title hyperlink to view detailed information about the paper.
3. Click the Study Purpose hyperlink to view detailed information about the study.

Show and Hide Study Details

4. Click the PubMed link to view that paper’s listing in PubMed in a new browser window.
5. Click the most recent search results link at the top left of the page to return to the search page and search criteria you last used.
6. Comment on the paper listed on the page by registering with Disqus or logging in with a social media account.

**Browsing by Pre-analytical Factor**

Browsing by Pre-analytical Factor allows you to find research studies corresponding to selected Pre-analytical Factors.
If you are not able to find a specific paper, first run an Advanced Search and then consider suggesting a new paper.

**To browse by Pre-analytical Factor**

2. To search the database, do one of the following
   1. If you only want to see results of one Classification, select it from the first list. The table immediately refreshes to show only Pre-analytical Factors assigned to that classification and results for each of those Pre-analytical Factors. Note that selecting an option here narrows your search and gives you fewer results.
   2. If you only want to search directly for one Pre-analytical Factor, enter that term or factor in the text box. The table immediately refreshes to show results only for that term or Pre-analytical Factor. Note that all Classifications will be screened for the term or factor. Also, selecting an option here also narrows your search and gives you fewer results.
   3. Click a number link as explained in the following table.

<table>
<thead>
<tr>
<th>Click a link in the...</th>
<th>To see...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-analytical Factor column</td>
<td>all research papers and studies in the database that involve that Pre-analytical Factor</td>
</tr>
<tr>
<td>Classification column</td>
<td>all research papers and studies in the database that involve that Classification</td>
</tr>
</tbody>
</table>
all research papers and studies in the database that involve a unique combination of Pre-analytical Factor, Classification, and either bodily fluid or cells/tissue in that table row. The numerical link corresponds to the number of papers that fulfill the search criteria combination.

The numerical links do not add up to the total number of papers in the database. Each cell represents only the number of papers that meet the specified search criteria in this table. Many other search criteria can be accessed by conducting an Advanced Search.

3. Page through the results or click any blue link to see paper or study details.

On the search results page, you can:

1. View a summary of all of the studies matching your search criteria.
2. Click the paper title hyperlink to view detailed information about the paper.
3. Click the Study Purpose hyperlink to view detailed information about the study.

Show and Hide Study Details

Paper and study details are both on the Paper Details page. Click View More or View Less to show or hide the study details.
5. Click the most recent search results link at the top left of the page to return to the search results page and search criteria you last used.
6. Comment on the paper listed on the page by registering with Disqus or logging in with a social media account.

Viewing Paper and Study Details

Once you have searched the database and are viewing your results, click the paper title to open the Paper Details page, where you can view a paper’s entire record. Click the Study Purpose and open the Paper Details page at the section for that study’s details.

Each paper includes one or more associated studies. Studies are defined as the set(s) of experiments within a paper that investigate different pre-analytical factors, use different analytical platforms for analysis, or explore different biospecimen sample sets. For example, a paper that examines the effect of a biospecimen handling variable on RNA and protein analysis may have two studies in the database, one study describing the results of RNA analysis and one describing the results of protein mass spectroscopy analysis.

On the Paper Details page, you can:

- View complete bibliographic information about the paper.
- View whether the paper is a Review or Nonreview paper.
- View the paper’s purpose and conclusion.
- View a summary of the paper’s associated studies.
- Click the View More link at the bottom of the page to view additional study details.

You can also choose to expand the page to view all of the study details, including:

- Study Purpose
- Information about biospecimen type and location
- Analyte studied
- Platform used
• Pre-analytical Factors
• Study Findings

You can search the BRD for related studies with the same biospecimen type and location, classification(s), and pre-analytical factor(s) by clicking the links in the study details.
Comparison of microarray analysis of fine needle aspirates and tissue specimen in thyroid nodule diagnosis.

PubMed ID: 20166005
Review Paper? No

Purpose of Paper
The purpose of this paper was to determine if collection of thyroid biospecimens by fine needle aspiration (FNA) versus whole tissue affects gene expression quantification by microarray.

Conclusion of Paper
Overall clustering analysis of a 61 gene subset was 100% sensitive, specific and accurate for FNA specimens, and 85.7% specific, 100% sensitive and 92.3% accurate for tissue specimens. In total, 67 genes were found to be differentially expressed among procurement methods, with 6 genes elevated and 61 genes depressed in FNA specimens compared to paired tissue specimens. The authors conclude that ex-vivo FNA can be used for analytical microarray diagnosis with a high degree of accuracy but that there are collection method specific differences in expression not related to diagnostic criteria.

Studies
1. Study Purpose
The purpose of this study was to compare gene clustering by microarray technology of thyroid nodule specimens collected by ex-vivo FNA and those from whole tissue.

Summary of Findings:
Expression clustering based on 61 genes known to be differentially expressed between benign and malignant thyroid tumors properly clustered all 13 FNA specimens and 12 tissue specimens with their pathological diagnosis. Overall clustering analysis of FNA specimens was 100% sensitive, specific and accurate. Clustering analysis of whole tissue specimens was 85.7% specific, 100% sensitive and 92.3% accurate, as one tissue specimen improperly clustered as benign which the authors attribute to sampling error or heterogeneity within the tumor. When all gene expression was compared between the two collection methods, 67 genes were found to be differentially expressed. The 6 genes that were elevated in FNA specimens were hemoglobin subgroups and the STGD calcium binding protein A. The 61 genes that were depressed in FNA specimens were predominantly matrix proteins, laminins and collagens. The authors attribute the differential expression between FNA and tissue specimens to reflect the enrichment of follicular cells in the specimens collected by FNA. The authors conclude that ex-vivo FNA can be used for analytical microarray diagnosis with a high degree of accuracy.

Biospecimens
- Tissue - Thyroid Gland

Preservative Types
- Frozen

Diagnoses:
- Neoplastic - Benign
- Neoplastic - Carcinoma

Platform:
<table>
<thead>
<tr>
<th>Analyte</th>
<th>Technology Platform</th>
</tr>
</thead>
<tbody>
<tr>
<td>RNA</td>
<td>DNA microarray</td>
</tr>
</tbody>
</table>

Pre-analytical Factors:

<table>
<thead>
<tr>
<th>Classification</th>
<th>Pre-analytical Factor</th>
<th>Value(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preacquisition</td>
<td>Diagnosis/ patient condition</td>
<td>Benign Malignant</td>
</tr>
<tr>
<td>Preacquisition</td>
<td>Surgical procedure type</td>
<td>Fine needle aspiration Tissue resection</td>
</tr>
</tbody>
</table>

Click to return to the search results page

To return to your search results, click most recent search results... at the top of the page.
Commenting on a Paper

Add a comment to a paper to share your thoughts with others using the BRD. Before you can comment, you must either register with Disqus or log in with your Facebook, Twitter, or Google account. All comments are subject to moderation by the BRD Curation Team.

To add a comment to a paper

2. Follow the prompts to either create and log in with a Disqus account, log in with an existing Disqus account, or log in with a social media account. If you choose a social media account, you merge that account with Disqus and can log in with those credentials each time you want to comment.
3. In the comment box, enter your comment. If you have not yet logged in, the application prompts you to log in using one of the methods in the previous step.
4. Click Post to complete the comment.
5. Optionally, sort the comments, share them on social media, and make the paper a favorite.

To sort the comments, select one of the following options from the Sort by list:

1. Best - Comments with the most votes trending over time.
2. Newest - Most recent comments first.
3. Oldest - Oldest comments first.
For more information about using Disqus, see the Disqus Knowledge Base.

Suggesting a New Paper

If you know of a paper that would be a useful addition to the Biospecimen Research Database, you can suggest it. Paper suggestions are screened against BRD contents to prevent duplication. Curators will review each suggestion and add BRD-appropriate papers to the database.

If you include your email address you will receive an update when your paper suggestion has been added.

To suggest a new paper
2. Enter the following required fields about yourself: your name, email address, and organization.
3. In the How do you want your name and organization to be displayed list, specify your acknowledgement preference.
4. If the paper is indexed for PubMed, enter the PubMed ID in the PubMed ID field and click **Import Paper Data from PubMed**. This populates all of the required bibliographic fields.
5. If the paper is not in PubMed, enter the following required information about the paper in the relevant fields: paper title, author(s), and journal name.
6. Optionally, enter the publication year, volume, page number, and comments about your suggestion in the relevant fields.
7. If the paper is a review paper, check the box.
8. In the Verification area, enter the characters exactly as you see them. If you cannot see the characters you can click the refresh icon to obtain a new set of characters.
9. Click **Suggest**.
Citing the BRD

We encourage you to cite the Biospecimen Research Database (BRD) when utilizing the resource to develop written materials including articles and SOPs. When citing the BRD as a resource, we recommend you include the most recent access date as well as the following information:

<table>
<thead>
<tr>
<th><strong>Database Title:</strong></th>
<th>Biospecimen Research Database</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type of Medium:</strong></td>
<td>Internet</td>
</tr>
<tr>
<td><strong>Place of Publication:</strong></td>
<td>Bethesda, MD</td>
</tr>
<tr>
<td><strong>Publisher:</strong></td>
<td>Biorepositories and Biospecimen Research Branch, National Cancer Institute</td>
</tr>
<tr>
<td><strong>Availability:</strong></td>
<td><a href="http://biospecimens.cancer.gov/brd">http://biospecimens.cancer.gov/brd</a></td>
</tr>
</tbody>
</table>

An example using the citation style provided by the National Library of Medicine in *Citing Medicine: The NLM Style Guide for Authors, Editors, and Publishers, 2nd edition* is below.


3 - Searching and Viewing SOPs and Compendiums 3.2

This section introduces you to the procedures for searching, viewing, and downloading Standard Operating Procedures (SOPs) and Compendiums in the Biospecimen Research Database (BRD). It includes the following topics:

- Overview of Standard Operating Procedures
- Searching for an SOP
- Viewing and Downloading SOPs
- Commenting on an SOP
Overview of Standard Operating Procedures

An SOP provides instructions for a process for which uniformity in performance are optimal and sometimes required. In BRD, SOP types are organized hierarchically, with progression to a higher level representing the work invested and the confidence the Biorepositories and Biospecimen Research Branch (BBRB) has in the document. From lowest to highest, SOPs progress through the following levels: SOP, Biospecimen Evidence-Based Practices, and Expert-vetted.

SOPs are version-controlled. Each time a new version is available in the BRD, the SOP receives a new unique identifier, called a BRD ID, allowing you to clearly identify differences between SOPs that may have clinical and scientific implications.

SOPs are available to the public. To provide comments on specific SOP versions, register with Disqus or log in with your Facebook, Twitter, or Google account. All comments are subject to moderation by the BRD Curation Team.

Searching for an SOP

You can search for SOPs by keyword or by selecting a curated field.

When searching for an SOP, there are no required fields. You can add as much detail or only those criteria that you consider essential to the search. You can also select multiple search terms in the same list by selecting the first item, pressing and holding Ctrl, and then selecting the next item(s).

If you don't specify any criteria, all SOPs appear in the search results.

To search for SOPs
2. For maximum search accuracy, specify search criteria by clicking items in the lists.
   o To select multiple fields in the same list, click the first field, press and hold the CTRL key, and then click additional fields. The fields you select are highlighted and your search results contain all SOPs matching any of the fields. For example, if you select both the Cell and Fluid biospecimen types, your search results contain all SOPs that concern either cells or fluid.
   o When you select fields from different lists, you narrow your search. For example, if you select the Cell biospecimen type and the Kidney biospecimen location, your search results include SOPs that concern both cells and kidneys.

The following table describes the SOP search criteria.

<table>
<thead>
<tr>
<th>SOP Search Criteria</th>
<th>Description</th>
</tr>
</thead>
</table>

Note that the selections you make in the lists on the left determine the selections in the lists on the right. For example, selecting the Biospecimen Type “Fluid” makes “Blood” an available Biospecimen Location.
Source | Select the organization or institution that developed the SOP.
---|---

Tier | SOPs are organized in a hierarchy system. The base tier is SOP. Progression to a higher tier will represent the work invested and the confidence level BBRB has in the document.  
- **SOP**: A library of collection of SOPs reviewed and formatted for public dispersal.  
- **Biospecimen Evidence-Based Practices**: An SOP that has been transformed into evidence-based procedural guidelines. The protocols are more flexible, indicating the optimal but also acceptable practices when possible. Evidence is summarized in "Summaries of Literature Evidence" and includes internal citation and two reference sections (one for laboratory guidelines and one for literature references).

<table>
<thead>
<tr>
<th>Specimens</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Biospecimen Type</strong></td>
<td>Select the type of biospecimen (Cell/Fluid/Tissue).</td>
</tr>
<tr>
<td><strong>Biospecimen Location</strong></td>
<td>Select the anatomical location from which the biospecimen was obtained.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Diagnoses</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Diagnosis</strong></td>
<td>Select the term that identifies the nature of a disease or condition associated with the biospecimen.</td>
</tr>
</tbody>
</table>
| **Diagnosis Subcategory** | Select the diagnosis subdivision that differentiates the disease within the larger category.  
Diagnosis Subcategory is only available for the diagnosis "neoplastic." |

<table>
<thead>
<tr>
<th>Topics</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Topic</strong></td>
<td>Select the topic or scope of the SOP document.</td>
</tr>
</tbody>
</table>

3. If you want to search for items not present in the lists such as specific genes or biomarkers, enter those items in the **Keyword(s)** box. A keyword search searches all curated fields as well as the SOP document. To increase specificity, you can combine the keyword search with other fields on the Search SOPs page. You can enter multiple words into the Keyword(s) box with or without a search operator. See Conduct a Simple Search for a list of supported search operators. See the table below for field-specific search operators.
Case-Sensitivity

All fields and search operators are case-sensitive.

<table>
<thead>
<tr>
<th>Field-Specific Search Operator</th>
<th>Example</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prefacing a search phrase with <strong>Title</strong> limits the query for the search phrase to the SOP title.</td>
<td>title: GTeX</td>
<td>All SOPs containing the word GTeX in their title fields.</td>
</tr>
<tr>
<td>Prefacing a search phrase with <strong>Description</strong> limits the query for the search phrase to the SOP description.</td>
<td>description: &quot;surgical tissue&quot;</td>
<td>All SOPs containing the exact phrase &quot;surgical tissue&quot; in their description fields.</td>
</tr>
<tr>
<td>Prefacing a search phrase with <strong>BRD-ID</strong> limits the query for the search phrase to the BRD ID.</td>
<td>brdId: 8</td>
<td>The single SOP with a BRD ID of 8.</td>
</tr>
<tr>
<td>Prefacing a search phrase with <strong>Body</strong> limits the query for the search phrase to the SOP document.</td>
<td>body: procurement procedure</td>
<td>All SOPs containing the words procurement and procedure in the body of the document.</td>
</tr>
</tbody>
</table>

Gene symbol use is not standardized, so search by the full gene name.

**Viewing and Downloading SOPs**

Clicking an SOP on the Search SOPs Results page opens the SOP page, where you can view a detailed description of the SOP and download associated SOP files.

When multiple SOP versions exist for a single SOP, you can download them as a ZIP file.
To view an SOP

1. Search for SOPs.
   The Search SOPs Results page appears.

Return to the search results

Return to the search results by clicking **most recent search results...** (A) at the top-left of the page.

3. Note the following information about the SOP on this page:
   - The BRD ID is unique for this version of the SOP.
   - You can add the SOP to a Session Compendium (B).
4. Download the documents associated with this SOP by clicking links under Documents for Download (E). Files listed here are either in Adobe Acrobat or Microsoft Word format.

Commenting on an SOP

Add a comment to an SOP version to share your thoughts with others. Before you can comment, you must either register with Disqus or log in with your Facebook, Twitter, or Google account. All comments are subject to moderation by the BRD Curation Team.

To add a comment to an SOP
3. Follow the prompts to either create and log in with a Disqus account, log in with an existing Disqus account, or log in with a social media account. If you choose a social media account, you merge that account with Disqus and can log in with those credentials each time you want to comment.

4. In the comment box, enter your comment. If you have not yet logged in, the application prompts you to log in using one of the methods in the previous step.

5. Click **Post** to complete the comment.

6. Optionally, sort the comments, share them on social media, and make the SOP a favorite. **To sort the comments**, select one of the following options from the **Sort by** list:

   1. Best - Comments with the most votes trending over time.
   2. Newest - Most recent comments first.
   3. Oldest - Oldest comments first.
To make the SOP a favorite, click the star next to Favorite.

For more information about using Disqus, see the Disqus Knowledge Base.

Understanding Versioning

Any time the BRD curation team updates an SOP or a Compendium, a new version of that SOP or Compendium is created with a unique BRD-ID. The most recent versions of the SOP or Compendium are displayed by default. Differences may exist between versions that have clinical and scientific implications.

Before you download an SOP or a Compendium, confirm that you have selected the correct version, if applicable. Versions are associated with a release date.

The following is an SOP version list:

**Formalin-Fixation and Paraffin Processing of Tissue Biospecimens**

**caHUB Pathology Review Procedures for GTEx**

When multiple versions of an SOP exist, you can download all of them at once as a ZIP file. You can also download all SOP documents associated with a Compendium at once as a ZIP file.

To download SOP documents of all versions
2. Select the SOP.
   The SOP details page appears.

4. Open or save the folder.
   The SOP documents are now available on your computer.
Overview of Compendiums

You can work with SOPs individually or with a Compendium. A compendium is a family of SOPs that a curator has created. Compendiums can be project-specific.

You can also create a Session Compendium that lasts only for a work session. You can add any version of one or more SOPs to this Compendium and then download them all at once as a ZIP file.

Compendium Examples

- All SOPs for the GTEx program that pertain to biospecimen collection.
- A collection of SOPs that can be used together. For example, a biospecimen collection SOP that was created to be used with a formalin-fixation SOP, that also has a separate tissue processing SOP.

Adding an SOP to a Session Compendium

To add an SOP to a Session Compendium
You can add more than one version of the same SOP to a Session Compendium.

The SOP is added to the Session Compendium.

Viewing Session Compendiums

Any user can create their own Compendium that lasts only for the duration of a work session. When you end the work session and close the browser window, the Session Compendium is deleted.

To view a Session Compendium
Click **Download all SOP documents** to download all documents as a ZIP file.

Click **Clear** to remove all contents of the Session Compendium.

### Viewing All Compendiums

You can view all public Compendiums and sort the list by title and release date.

**To view a list of compendiums**
Sort the list by title or release date by clicking the respective column heading.

Click an SOP title link to see the details for the SOP on the SOP page.

**Viewing Compendium Details**

You can view the details of a Compendium including its available versions and a list of all SOPs associated with it.

**To view Compendium details**

1. Open the SOP Compendiums page.

<table>
<thead>
<tr>
<th>SOP Name</th>
<th>Version (Release Date)</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>GTEEx Tissue Procurement Procedure</td>
<td>1.2.1 (12-19-2014)</td>
<td>BBRB</td>
</tr>
<tr>
<td>GTEEx Work Instruction For Postmortem Collection of Normal Tissues</td>
<td>1.1.5 (12-19-2014)</td>
<td>BBRB</td>
</tr>
<tr>
<td>GTEEx Work Instruction For Surgical Collection of Normal Tissues</td>
<td>1.1.1 (12-19-2014)</td>
<td>BBRB</td>
</tr>
</tbody>
</table>
Like SOPs, Compendiums can have different versions. Select the version of the Compendium (A) you want to view.

The SOP section lists all of the SOPs included in this compendium. Select the SOP version and then click an SOP title (B) to view the SOP details page.

Download all SOP documents of the compendium version you selected (C).

Comment on this version of this compendium (D).

Commenting on a Compendium

Add a comment to a Compendium version to share your thoughts with others. Before you can comment, you must either register with Disqus or log in with your Facebook, Twitter, or Google account. All comments are subject to moderation by the BRD Curation Team.

To add a comment to a Compendium

1. Open an SOP Compendium page.

4. Follow the prompts to either create and log in with a Disqus account, log in with an existing Disqus account, or log in with a social media account. If you choose a social media account,
media account, you merge that account with Disqus and can log in with those credentials each time you want to comment.

5. In the comment box, enter your comment. If you have not yet logged in, the application prompts you to log in using one of the methods in the previous step.

6. Click Post to complete the comment.

7. Optionally, sort the comments, share them on social media, and make the compendium a favorite.

To sort the comments, select one of the following options from the Sort by list:

- Best - Comments with the most votes trending over time.
- Newest - Most recent comments first.
- Oldest - Oldest comments first.

To share the comment, click Share and then click either the Twitter or the Facebook icon.

For more information about using Disqus, see the Disqus Knowledge Base.

Submitting an SOP

If you know of an SOP that would be a useful addition to the Biospecimen Research Database, you can suggest it. SOP submissions are screened against BRD contents to prevent duplication. Curators will review each submission and add BRD-appropriate SOPs to the database.

If you include your email address, you will receive an email with a link to monitor the status of the submitted SOP.
2. Enter the following required fields about yourself: name, email address, and organization.
3. Optionally, provide your phone number.
4. Enter the SOP's title.
5. Optionally, enter the SOP's version and description. The Description field should include relevant information about the SOP, its source, and any other URLs where it may be found. This field will be made public.

6. Click Browse to upload the SOP document.

7. From the Source list, select the organization or institution that developed the SOP. If the Source is not listed, select "Other" and type the Source into the text box.

8. In the Note to Curator box, indicate whether this SOP is part of a new or an existing Compendium. If this SOP is a new version of an existing entry, include any updates to fields here or specify them by selecting additional biospecimens, diagnoses, and topics (see steps 10-12). Note that this field will remain private and will not be published as part of the entry.

9. If the suggested SOP is a new version of an existing BRD entry, enter its BRD ID. The BRD ID is located on the SOP page of individual versions. Use the BRD ID of the last published version of this SOP, if applicable.

10. Select the biospecimen associated with this SOP suggestion, as follows:
    1. From the Biospecimen Type list, select a biospecimen. Options are Cell, Fluid, and Tissue.
    2. Select the anatomical location from which the biospecimen was obtained.
    3. Click Add Biospecimen.

    You can add multiple biospecimen types and locations to the SOP suggestion.

11. From the Diagnosis list, select the term that identifies the nature of a disease or condition associated with the biospecimen, then click Add Diagnosis. Not Specified and General are available options. You can add multiple diagnoses to the SOP suggestion.

12. From the Topic list, select the topic or scope of the SOP suggestion, then click Add Topic. You can add multiple topics to the SOP suggestion.

13. In the Verification area, enter the characters exactly as you see them. If you cannot see the characters you can click the refresh icon to obtain a new set of characters.

14. Click Submit.