

Making Nuggets and Ingots in labElephant

Knowledge is organized in labElephant largely using Nuggets and Ingots. This guide describes how to make Nuggets on the Knowledge form from the major Knowledge input sources of Papers (from the Literature), Books, Conferences, Seminars, the Web, and e-mail, and also how that knowledge is integrated with Experiments using Ingots.

Nuggets are text fields up to 255 characters that are used to store information from these sources that is *important to you*. Ingots are much larger fields (up to 65,535 characters, though only one paragraph in practice), used to store a paragraph that you put together from thinking about what you learned. Ingots maintain references to the nuggets, within labElephant. Ingots thus maintain a close connection between your written thoughts and the source material, of any sort, that they are based on. Moreover, by associating Ingots with Experiments, the rationale for experiments is preserved, and hence functional integration of “the literature” with “the lab” is achieved. These are key & novel features of labElephant.

Nuggets are organized by marking them & pasting them into Subtopics. Topics/Subtopics serve as a personal library, organized by Topics and Subtopics that are specific to you. You can edit Topics and Subtopics using the buttons next to the drop-down boxes. All the Nuggets for a particular Subtopic can be viewed by selecting the Nuggets tab, then selecting Subtopic from the “Nuggets for” drop-down box. Likewise, Nuggets from the currently selected Literature File, or Nuggets from papers in particular Collections, can also be shown by selection from the “Nuggets for” drop-down box. You can also find all of your Nuggets containing particular text, by entering search text in the box(es) and selecting the binoculars button.

Ingots are made in the context of either the Project (as shown by the Project drop-down box) or the Subtopic (as shown by the Subtopics drop-down box). The context is selected from the Context drop-down box. Ingots can be pasted to additional Projects or Subtopics. Ingots can also be marked and pasted to the Rationale for experiments on the Experiments form.

In this way, Subtopics build up a library of Nuggets containing what you learned from papers, seminars, etc., and also of Ingots that contain the ideas and syntheses that you came up with as a consequence of the information input. By pasting Ingots to Experiments, the thinking that went into experimental design is preserved along with the data.

Louis Pasteur said: “In the fields of observation chance favors only the prepared mind”. Pasteur was right: it is what is in the investigator’s mind that counts when seeking to make discoveries. labElephant helps prepare the mind in three ways:

- Making Nuggets helps to create a memory of what was read
- Searching Nuggets, or viewing collections of Nuggets in a Subtopic, helps to refresh those memories
- The retrieval of Nuggets on a subject creates a juxtaposition of relevant information that can stimulate original thought

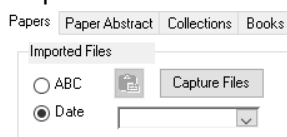
The following describes in detail how to manage each source of information from which Nuggets can be made, and how to use those Nuggets to generate Ingots.

Section 1: Making Nuggets from Papers

1. This Section assumes that you have already imported files containing papers of interest from PubMed into bibliography software such as Endnote, and from there into labElephant. See “Using labElephant with Endnote” for how to do this.

[Note: papers can also be entered manually into labElephant, under the Books tab. This can be useful for papers that cannot be found in PubMed. See Section 4 below.]

2. Open the Knowledge form in labElephant, and find the paper (Papers tab) you wish to make Nuggets for. You can do this by selecting the Literature File containing the paper from the drop-down box of the Downloaded Files, if you remember which file it is in:



Or, you can find the paper by searching for it using the search options shown:

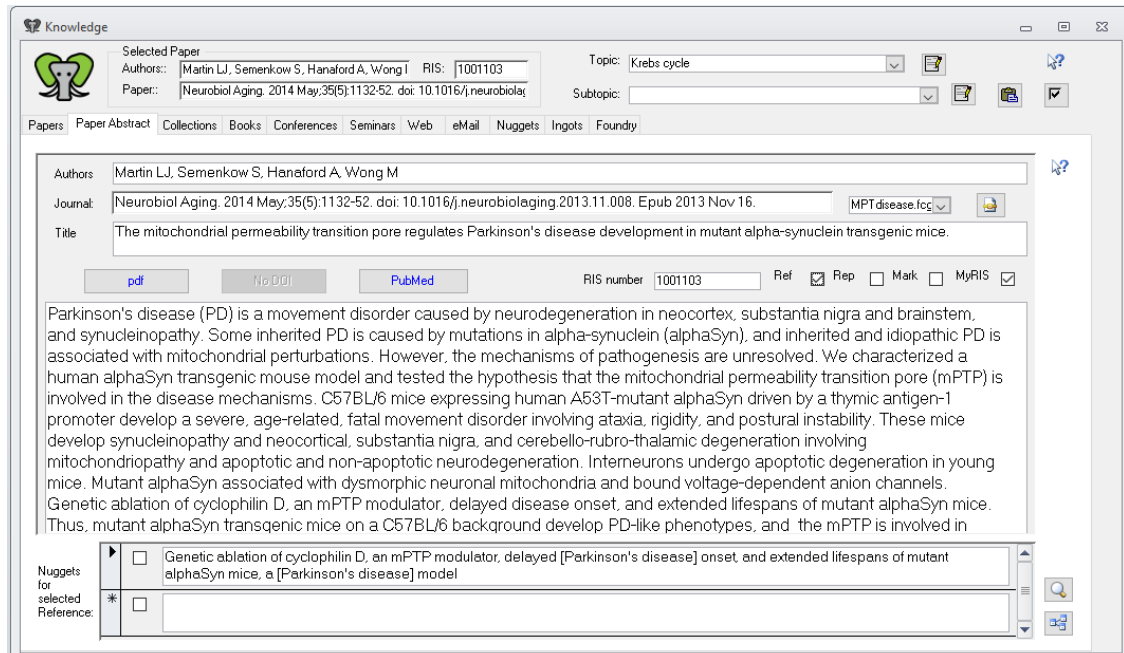




Downloaded files are listed by default in the order of date on which the file was downloaded or appended to. Files can be listed in alphabetical order by selection of that option to the left of the drop-down box.

3. Select the paper, by clicking on the record selector (triangle on blue background at the left edge of the paper record). The paper should show at the top of the form as the Selected Paper, and the button “Make Nuggets for # X” should become enabled, where X is the number at the left of the paper record:



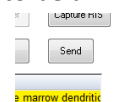
4. Select the “Make Nuggets for # X” button. The Paper Abstract tab will be selected, and a new Nugget record will appear at the bottom of the form:



5. Enter your Nugget(s) for this paper. Nuggets may contain a summary of critical observations, the “bottom line” of the paper, a critique of conclusions, or any/all of the above. What is important to you is what should be included.
6. To assign a Nugget to a Topic/Subtopic, select the check box to the left of the Nugget, select the relevant Topic/Subtopic, and click the Paste button to the right of the Subtopic drop-down box. This Paste button will paste all of your marked Nuggets.
7. If you wish to make >2 Nuggets for a paper (or a Book), the Nuggets can be displayed on a separate larger form by selecting the magnifying glass button at the bottom of the form .
8. To see Nuggets of everyone (that has given you permission) for a particular paper, select the  button at the bottom of the form. This can enhance interaction of lab personnel, while also creating a record of paper discussion.
9. To mark *all* Nuggets for a selected paper (or a Book), select the check button on the top right of the knowledge form: . This is useful when you wish to paste all Nuggets from a Book, for example, to an Ingot.

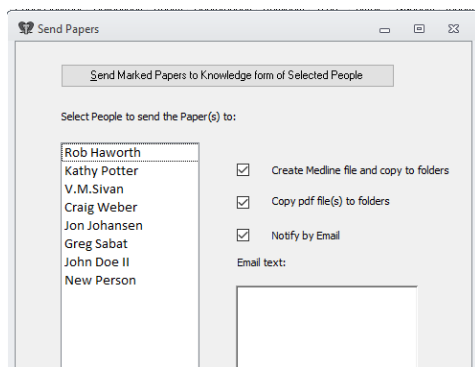
Section 2: Sharing Papers

1. labElephant also allows you to share papers quickly and easily with others in the lab. First, Mark all of the Papers you wish to share. They do not need to be all from the same

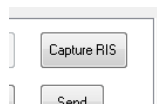


Downloaded File. Marking Papers enables the Send button:

2. Select the Send button to open the Send Papers form:



3. Select the People you wish to send the marked papers to. These People will see on their Knowledge form a new Downloaded File labeled as being from you. Selecting that file will show them the paper you sent them, without their having to import it into labElephant. After selecting the check box options (described below), select the top button to Send.
4. Option to create Medline file and copy to folders. The sent papers will have RIS numbers associated with them that relate to your bibliography software database. For this reason, the MyRIS checkbox when they see it will be unchecked, and the RIS number will show red. The People you send the Papers to may maintain their own bibliography software database. By checking the “Option to create Medline file and copy to folders”, a new Medline-format text file will be generated for all of the Marked Papers, and placed in the default Literature Files directory of each person. The file name will be a composite of your name and the date & time you sent the Papers. People can then use this file if they so wish to import the Papers into their own bibliography software database. They can then export the Papers from their bibliography software database into a RIS file. The correct RIS numbers can then easily be captured by marking the Papers that need changing, and then selecting the Capture RIS button:




Alternatively, if people already have the papers in their bibliography software database, they can export them to a RIS file as usual, and then mark the Papers and use the Capture RIS button. Or, if not, the papers could be found in PubMed, imported into their bibliography software database, then exported as a RIS file, and then imported into labElephant as usual (See “Using labElephant with Endnote” for how to do this). Or, that RIS file could be used to capture just the RIS numbers by marking the Papers and using the Capture RIS button. [Note: The ability to create the new Medline file requires that you have the original Medline files (like filename.txt) in your default Literature Files directory that you used to import each paper into your own bibliography software database, and also that the RIS files you exported from your own bibliography software database have the related name filenameRIS.txt, the file you captured for import into labElephant].

5. Option to Copy pdf file(s) to folders. The sent papers will have a link to the pdf file(s) of the sending person. For this reason, the background color of the Paper title when they see it will show grey instead of yellow (if the paper has no pdf, it will show white, as usual). This may

- be acceptable, as the link will work as usual. However, it is more desirable for each person to have their own pdf file, so that they can make their own highlights. By selecting “Copy pdf file(s) to folders”, a copy of each pdf will be placed in the default pdf folder of each person. In this case, the background color of the Paper title when they see it will show yellow, because the link will be to their own Paper. [Note: the ability to copy pdfs requires that your pdfs reside in your default pdf folder, and that the recipient has a default pdf folder. These default paths can be entered on the Defaults form.]
6. Option to Notify by Email. Finally, the People you are sending Papers to can be notified by Email that you have sent them Papers, by checking this box. Text entered into the Comment field will show in the body of the Email. [Note: the ability to send & receive Emails requires that sender and recipient both have Email addresses entered on the People form.]


Section 3: Collections

7. Collections allow you to define Collections of Papers for a particular purpose, such as writing a paper of your own, or organizing your thoughts for a grant application, or collecting papers on a particular topic, or creating a list of papers for a Journal Club. A Collection may contain Papers from many different Downloaded Files.
8. Select the Collections tab to show the Collections subform.
9. The default Collection is called “Most Recent”. This is a list of the 15 Papers most recently selected. This list is useful for quickly returning to a Paper that you were recently viewing, without having to search for it. To return to a Paper on the list, select the record, then select the Papers tab, where the paper will be shown on the subform. Selecting the paper on the Papers subform will then show Nuggets for this Paper.
10. To make a new Collection, select the Collections tab, and then the New Collection button. Type the name of the new Collection into the Collections drop-down box. Select the Papers tab. You will be asked if you want to add the new collection to the list: select OK. Under the Papers tab, find and Mark the Papers you wish to add to the Collection. Select the Collections tab, and Paste the Papers to the Collection: .

Section 4: Books

1. The Books subform allows you to make Nuggets for references such as papers or books that are be entered into labElephant manually, rather than by importing a RIS file from Endnote.
2. To make a new Book reference, select the Books tab, and then select the New Book Reference button. A new Book reference is generated on the subform, along with a new Nugget record on the form below.
3. In the new reference record on the subform, enter the reference code from Endnote or other bibliography software in the field “RM ref”, if you have entered the book into that software. Then enter the Book Author in the “Authors” field, and Book Title in the “Title” field. In the Topic field, select a Topic from the drop-down box. This allows the Book

references to be sorted by Topic (right click on Topic column head, select Sort Ascending or Sort Descending).

4. In the new Nugget record, enter your first Nugget for this Book. One Book may generate many Nuggets. Using the expanded Nuggets form () is especially useful for Books.
5. Assign Nuggets to a Topic/Subtopic as in Section 1.6 above, as desired.
6. Note 1: While this subform is labeled Books, any reference that is entered manually into labElephant can be entered into this subform. This can include papers that may not be available in PubMed and that cannot be downloaded in Medline format.
7. Note 2: Bibliography software such as Endnote allows any kind of reference to be entered into it, including books. Such references (like references to papers) can be included in a RIS file export, and imported into labElephant (see "Using labElephant with Endnote"). However, references to books (and other non-paper formats) do not display well as Papers in labElephant. Such references are therefore better handled in labElephant by entry under the Books tab. By manually entering the reference ID from the bibliography software in the Book reference, any references to these Book references in an Ingot will still be formatted correctly for bibliography generation using any text that is cut & pasted from an Ingot, using the bibliography software.

Section 5: Conferences

1. Nuggets can be made with reference to talks given at Conferences, using the Conferences tab. Conferences are organized by Society or organizing body, so this information must be entered before Nuggets can be made.
2. To enter a new Society/Conference, select the Conferences tab, then select the Edit button by the Conferences drop-down box. The Societies form opens (top of form), with a Conferences subform below.
3. Enter information about the Society or organizing body that organized the Conference you wish to enter. If the Society has already been entered, you can simply select the Society record on the top half of the form. Conferences previously entered for that society will show on the subform below.
4. Enter the new Conference on the subform. Include the year, Conference title (<150 characters), and location.
5. Scroll right on the subform to show additional fields. Under "confRef", optionally enter the root reference for Conference Abstracts (e.g. "Circulation 104(17):"). Under Abbreviation, enter an abbreviated name for the Conference (<50 characters, e.g. AHA 2001 Anaheim). Close the Societies form.
6. Select the Conference from the Conferences drop-down box.
7. To enter information from a talk you heard at this Conference, select the New Reference button. This creates a new reference record for that talk on the subform below.
8. Enter the speakers name under Authors, and the talk title under Reference. Select a Topic from the drop-down box that is appropriate for this talk. The list of Topics in the drop-down

box is the same as that for the Topics drop-down box at the top of the form. If new Topics need entering, use the edit button next to the Topics drop-down box at the top of the form.

9. To enter Nuggets for a talk, select the reference record for that talk. On the Nuggets form below, enter Nuggets for this talk.
10. Assign Nuggets to a Topic/Subtopic as in Section 1.6 above, as desired.
11. Repeat steps 7-10 for the next talk.

Section 6: Seminars


1. Nuggets can be made with reference to Seminars, using the Seminars tab. Seminars are organized by Seminar Series, so this information must be entered before Nuggets can be made.
2. If the Seminar Series has already been entered, you can skip to step 6.
3. To enter a new Seminar Series, select the Seminars tab, then select the Edit button by the Seminar Series drop-down box. The Seminar Series form opens.
4. Enter the Seminar Series (Series Name, and an Abbreviation) that organized the Seminar for which you wish to make Nuggets.
5. Close the Seminar Series form.
6. Select the Seminar Series from the drop-down box.
7. To make a new Seminar reference, select the New Seminar Reference button. This creates a new reference record for that Seminar on the form below.
8. Enter Date, Speaker, and the Seminar Title information. Select a Topic from the drop-down box that is appropriate for this Seminar. The list of Topics in the drop-down box is the same as that for the Topics drop-down box at the top of the form. If new Topics need entering, use the edit button next to the Topics drop-down box at the top of the form.
9. To enter Nuggets for a Seminar, select the reference record for that Seminar. On the Nuggets form below, enter Nuggets for this Seminar.
10. Assign Nuggets to a Topic/Subtopic as in Section 1.6 above, as desired.

Section 7: Web

1. The Web tab allows Nuggets to be made for pages on the Internet. This is better than merely bookmarking pages of interest in a browser, for two reasons. First, finding the page is facilitated by the ability to search Nuggets, since each page has its own Nugget(s). Second, since each page has its own Nugget(s), pages can be referenced in Ingots, like any other Nugget. This makes Web pages referred to in an Ingot easily accessible from the Ingot (see Section 8 below).
2. To make a reference to a Web page, select the Web tab, and then select the New Web Reference button. This creates a new Web reference record on the subform below, and an associated Nugget on the Nuggets subform at the bottom.
3. Open a Web browser and find the page of interest.
4. Highlight and copy (Ctrl Insert) the URL of the Web page shown in the browser.

5. Left click in the URL field of the new Web reference. The blinking cursor will show at the left edge of the field.
6. Paste the URL (Shift Insert) into the URL field.
7. Enter cryptic information about the Website into the Site field of the new Web reference. This enables you to identify the Website on the Web reference subform, which is not always evident from URLs.
8. Select a Topic from the drop-down box of the new Web reference that is appropriate for this Webpage. The list of Topics in the drop-down box is the same as that for the Topics drop-down box at the top of the form. If new Topics need entering, use the edit button next to the Topics drop-down box at the top of the form.
9. Left click in the new Nugget that was created by the New Web Reference button. The information you entered about the Website is copied into the Nugget, as a start for the Nugget. You can add a colon (:) and enter additional information about the Website that makes it valuable to you, and that will help you find it again using a Nugget search. Make additional Nuggets if needed.
10. Assign Nuggets to a Topic/Subtopic as in Section 1.6 above, as desired.
11. Note: References can also be made to files on your own network under the Web tab. Simply right click on the URL field of the new Web reference, and select Hyperlink/Edit Hyperlink to open the Edit Hyperlink browser. Find your file, select it, and then select OK. This can be useful for referencing internal documents in Ingots.




Section 8: eMail

1. Critical information can sometimes be communicated in e-mails, so labElephant accommodates this by enabling the generation of Nuggets with reference to e-mails.
2. To make a Nugget from an e-mail, select the eMail tab, then select the New eMail Reference button. This creates a new eMail reference record on the subform below, and an associated Nugget on the Nuggets subform at the bottom.
3. Open the e-mail of interest in your e-mail application and save it (usually Save As/File under the File menu) to the specific folder for e-mail files that you made during Installation of labElephant.
4. Return to labElephant, and right click on the Link field on the new eMail reference record. Select Hyperlink/Edit Hyperlink to open the Edit Hyperlink browser. If you entered a Default folder location for eMail files during Installation, this will show as the default path to the eMail files in the address field. In this case select the  button in the Edit Hyperlink browser to go straight to the default folder, and select the file you just made. Otherwise, use the Look In drop-down box to locate the folder and the file.
5. Enter the name of the sender in the From field of the new eMail reference record.
6. Select a Topic from the drop-down box of the new Web reference that is appropriate for this eMail. The list of Topics in the drop-down box is the same as that for the Topics drop-



down box at the top of the form. If new Topics need entering, use the edit button next to the Topics drop-down box at the top of the form.

7. Enter Nugget information for the eMail into the new Nugget record that was made by the New eMail Reference button. Make additional Nuggets if needed.
8. Assign Nuggets to a Topic/Subtopic as in Section 1.6 above, as desired.
9. Note: If you did not create a folder for e-mail files and assign a Default path during Installation, you can do this at any time. This folder should preferably be on the server, if your back end is on the server. See “Installation of labElephant” for further details.

Section 9: Making Ingots using the Ingots and Foundry tabs

1. Ingots allow you to integrate information from many different sources, to synthesize new ideas and hypotheses, while retaining easy reference to each source. These Ingots can be organized by Topic/Subtopic, or by Project, and can be marked and pasted to Experiments to provide context for those experiments.
2. To make an Ingot, first select the Ingots tab on the Knowledge form.
3. Select the context of the Ingot to be created, from the Context drop-down box: either Project (default) or Subtopic, as defined by the Topic/Subtopic drop-down boxes at the top of the form. Selection of context will display all of your Ingots for the Project or Subtopic shown.
4. Select the “new Ingot” button on the right: 
5. Enter a title for the Ingot on the new record.
6. Select the Foundry tab.
7. Enter text into the Ingot field.
8. When you wish to make a reference within the Ingot text to a Nugget (of any sort):
 - a. Find the Nugget, then mark it (check box to the left of the Nugget text), and then paste it to the Ingot (Foundry tab) by clicking the Paste button on the subform below the Ingot: . The nugget will then show on this subform.
 - b. To make a reference to this Nugget in the Ingot text, mark the Nugget by selecting the check-box to the left of the Nugget on the subform, and click the curly bracket button above the Ingot: . This will insert a reference to the paper at the end of the Ingot text. If the reference is to a paper, it will use the reference number & style of delimiters that you specified for your bibliographic software in Defaults. In this way, text can be copied & pasted into manuscripts in a word processor, ready for generation of a Bibliography. References can also be placed anywhere in the Ingot text, by placing an asterisk (*) in the desired location, before clicking the curly bracket button.
 - c. Multiple papers can be referenced by marking and pasting simultaneously.
 - d. References that are not papers are inserted between <<>> brackets, with information that allow the relevant Nugget to be identified in the list on the

subform below. These references (e.g. to Web pages) will of course be ignored by Bibliography software if pasted into manuscript text.

9. Ingots can also be found & listed under the Ingots tab, by searching their text using the search parameters for context, field and text that you specify. The Context drop-down box for searching includes all of the different types of Ingot that are used in labElephant.
10. Any Ingot selected under the Ingots tab will show up under the Foundry tab. To review the references in an Ingot under the Foundry tab, select the Nugget on the subform below the Ingot text, and then the tab appropriate for the type of Nugget it is (e.g. Papers tab, or Paper Abstract tab, if it is a Nugget from a paper). The appropriate paper (or Web reference, etc.) is automatically selected, and can be viewed under the appropriate tab. In this way Ingots maintain a close connection between your written thoughts and the source material, of any sort, that they are based on.
11. Any Ingot can then be assigned to an Experiment, as a part of the experimental rationale. Under the Ingots tab, mark the Ingot(s) (select check-box to the left of the Ingot title). Open the Experiments form, select the relevant Experiment under the Browse tab, select the Rationale tab, and click on the "Paste the Ingots to Expt" button.
12. Any Ingot can be further assigned to a different (additional) Project or Subtopic context. Under the Ingots tab, mark the Ingot (select check-box to the left of the Ingot title), specify the new context using the Context drop-down box (& the appropriate Topic/Subtopic or Investigation/Project), and then paste the Ingot by clicking the Paste button above the Context drop-down box.
13. Ingots in any context can be organized by reordering them under the Ingots tab. Select the Ingot to be moved (blue record selector at the left of the record), and click on the up/down buttons on the right:  
14. To delete Ingots, select the Ingot to be moved (blue record selector at the left of the record), and click on the delete button on the right: 