LungMAP Image Annotation Tool FAQ

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1. **How do I become a LungMAP image annotator?**

    Image annotators can be nominated by any PI or Research Scientist within the LungMAP consortium research centers or cores. Upon submission of the request to the LungMAP Data Coordinating Center - DCC (contact Mary-Anne Ardini maa@rti.org), you will be granted access to the system.

2. **What is the LungMAP Image Anotation tool?**

    The LungMAP Image Annotation tool is a LungMAP DCC-developed tool that overlays images found in the BREATH database with feature symbols (dots, arrows, polygons) and associated information such as terms for structures (from the LungMAP anatomy) and Notes. Annotators manually place the feature symbol on the 2D image and associate the additional information. The association of a feature symbol to the image (with or without additional information) is referred to as "image annotation", as opposed to content-based image metadata (e.g., keywords or metadata associated with an entire image). The tool is engaged by selecting any single image thumbnail from within an image experiment display.

3. **How do I obtain training on the Image Annotation tool?**

    There is a Quick Reference Card Guide available at **http://discourse.lungmap.net/c/annotation**. Additional training materials will be produced and posted to the Forum website. Contact Mary-Anne Ardini **maa@rti.org** or Carol Hill **carol.hill@duke.edu** if your need additional training. The test server at http://test.lungmap.net.

4. **Who can see my annotations?**

    Image annotations, until made public, are viewable by any annotator who is logged into the system. Once an annotation is made public, all users can view the annotation.

5. **Can I make my annotations public?**

    All annotators can make any annotation public by clicking the review button to the 'thumbs up' position. As there is no appointed LungMAP review or Quality control process, it is up to each research center to be accountable for annotations that are made public, and establish their own quality control processes which the annotators agree to follow.

6. **Which images can I annotate?**

    All annotators can annotate any image within the BREATH database. Please consult with your research center or core PIs to determine which images you should annotate.

7. Can I change another annotator's annotation?

All annotators can add new terms (from the LungMAP Ontology) or notes to a feature on the image. Annotators can also reposition the feature symbol on the image. Annotators cannot edit (remove or change) terms or Notes added by other annotators. Only features added by the annotator can be deleted by the annotator.

8. What if something is wrong with someone else's annotation?

All terms and notes are associated by name with the annotator. Please contact the annotator with your concerns, rather than leaving a note with the annotation. There is an e-mail provided through the tool.

9. An annotator has left the institution, how do we make changes to their annotations?

Contact the LungMAP DCC in order to address any issues with annotations that cannot be handled by contacting the annotator.

Annotating an Image

10. How do I start to annotate an image?

Selecting any of the feature symbol icons (dot, arrow or polygon) and clicking on the image in the Image Viewer initiates the annotation event. Please see the Quick Reference Guide card for more details. If you do not see the feature icons, then check that you are logged into the lungmap.net site.

11. I cannot find a term using the search feature, what do I do?

Try using part of the term or the wildcard (*) feature to find your term. If you still cannot find the term, try to browse the ontology using the Browse table. If you cannot find your term, use the Request Term feature found within the tool to have your term added to the ontology or determine if there is a suitable substitute.

12. I want to use a term synonym. What do I do?

Only the preferred term from the LungMAP Ontologies are available for annotation. Contact Helen Pan (hpan@rti.org) to discuss the choices for preferred term.

13. I don't know which lung (left/right) is pictured in the image. The browsing tree has the left and right lung. What do I do?

Basic structures and cells are found in both the left and right trees of the ontology. It doesn't matter which tree (left or right lung) in which you select the term.

14. I added a feature symbol on the image by mistake and want to delete it. I get an error message

when I try to delete the feature. How can I delete the feature?

If no terms are assigned to a feature by an annotator, the feature window will read "No terms assigned" for that annotation and the feature cannot be deleted. You must add a term to the feature and save before you are allowed to delete the feature.

15. The polygon feature keeps closing on me before I am finished outlining the structure. What do I do?

The polygon closes when you click too closely to the last point of the polygon. Once closed, the polygon, cannot be re-opened. Therefore, you must delete the polygon and start over. To avoid premature closing, be sure to go slowly and click the points as far from the last point as possible. Making the image bigger can facilitate creating the polygon on the image.

16. I have added a URL link in a Note, but the link doesn't render? What do I do?

The link will not display properly until you refresh the page to view in the browser. The format for links is [label](url), where "label" in brackets is text for the link, and the url is placed in the parenthesis. Check that both the format is correct and the link is valid. If you continue to have problems, please contact the administrators at contact.us@lungmap.net.

17. I want to change the color of the feature symbol (dot, arrow, polygon), what do I do?

Annotators can change the color of the any feature symbol. Click on the feature icon in the Image Feature Viewer, and select a new color from the color pallet. See the Quick Reference Card guide for more details on editing features.

18. I see others have many features on the image and they all have the same terms/notes. How can I do that?

There is the ability to create instances of the same feature using the same symbol on the image. Please see the Quick Reference Card guide for instructions on creating feature annotation instances.

19. I don't know where to start or what is the best way to annotate my image. How can I find help?

We have developed some **basic best practices** to aid annotators. Also, please review the summary report from the Image Annotation Working Group found at **http://discourse.lungmap.net/c/annotation** for tips and consult experts within your research group on the best tactics for annotating images. Some general tips are to: use arrows to point to specific cells or smaller regions, use polygon to highlight gross structures, and use the dot to mark cavities or open spaces. In addition, focus on the developing structures, representative examples of such structures, and if probes are used, how the probes mark important regions on the image.