Graphical Abstracts

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Philadelphia University + Thomas Jefferson University

SCIENCE COMMUNICATION SERIES 2020-2021

This series of lectures and hands-on workshops are brought to you by: Jefferson's College of Life Sciences, the Department of Marketing and Communications, the Graduate Student Association, and the Office for Professional Writing, Publishing, and Communication.

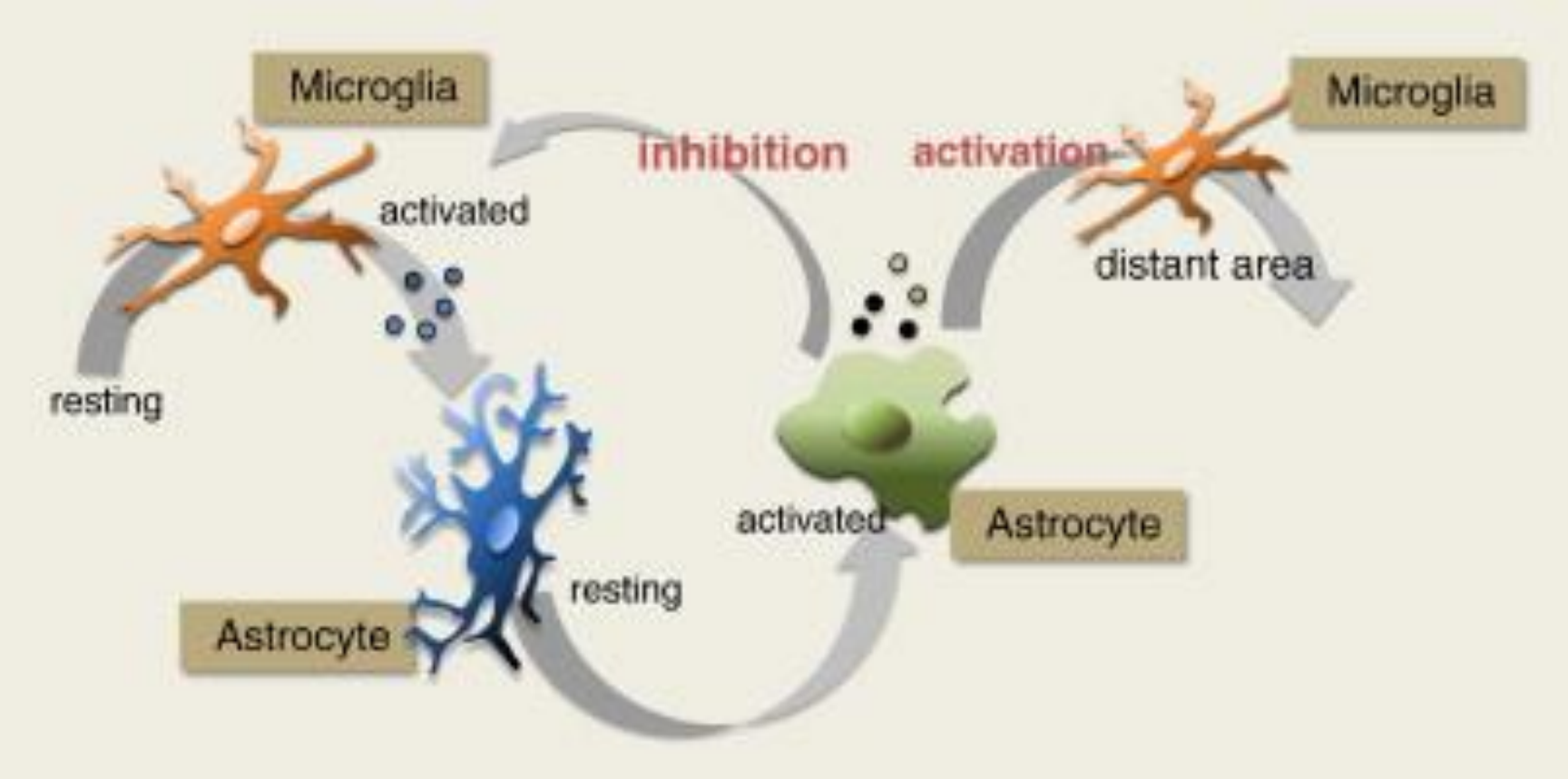
December 8, 2020 1:30-2:30 pm	LECTURE WORKSHOP	**Graphical Abstract** – "A picture is worth a thousand words." Learn how to create a concise visual summary of your article.
January 12, 2021 2:00-3:00 pm	LECTURE WORKSHOP	**Writing About Science for a General Audience** – Learn a multitude of article styles that editors look for.
February 18, 2021 1:30-3:00 pm	LECTURE WORKSHOP	**It's All About Posters!** – Learn how to nail the virtual poster presentation and how to create the new #betterposter layout.
March 11, 2021 1:00-2:00 pm	LECTURE WORKSHOP	**Science on Social Media** – Learn how to use various social media platforms (Twitter, Instagram) to boost your career and Sci-Comm skills.
April 8, 2021 5:00-6:30 pm	LECTURE WORKSHOP	**Animate Your Science** – Express your science in narrative form and create an animation depicting your favorite research.
TBD	LECTURE WORKSHOP	**3-Minute Thesis Competition** – Train to tell your science story in 3 minutes. Present your talk or attend and cheer on competing PhD candidates.

Purpose of this hour

Learn ways to develop a pictorial or graphical expression of your research question and hypothesis.

Graphical abstract = a single and concise visual representation of your research.

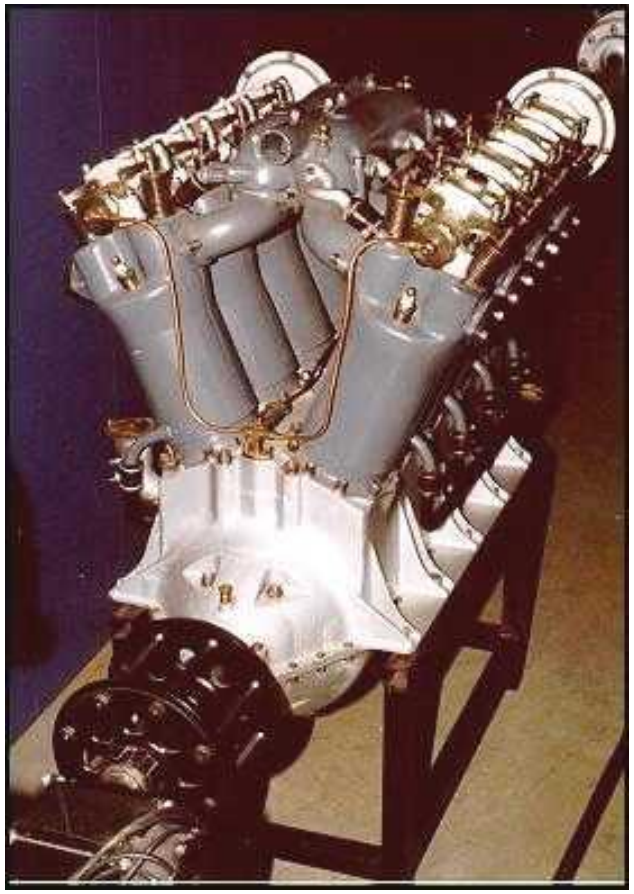
Example: Cross talk between activation of microglia and astrocytes in pathological conditions in the central nervous system
http://dx.doi.org/10.1016/j.lfs.2011.05.011



Our agenda

- Recognize the graphical abstract's purpose
- Analyze examples
- Describe elements you want in yours
- Use a tool to plan & sketch yours
- Review tools to build a graphical abstract

The Walter Bedtime Story: The V8 engine



According to Elsevier, graphical abstracts should:

- Capture the content at a single glance
- Allow readers to quickly get the take-home message
- Encourage browsing
- Promote interdisciplinary scholarship
- Help readers identify relevant research faster

What to look for in a graphical abstract

- Is the story clear?
- Does it summarize the research?
- Is it simple and uncluttered?
- Is it enough?

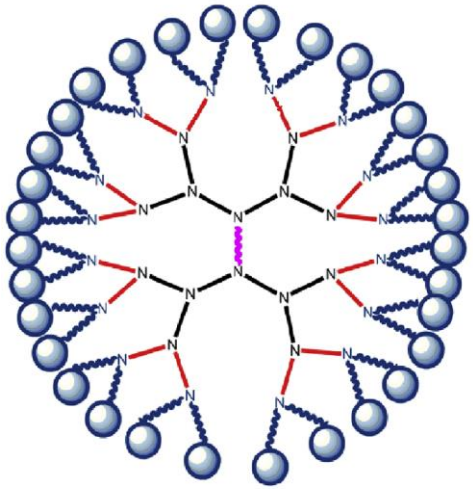
Without or With a graphical abstract

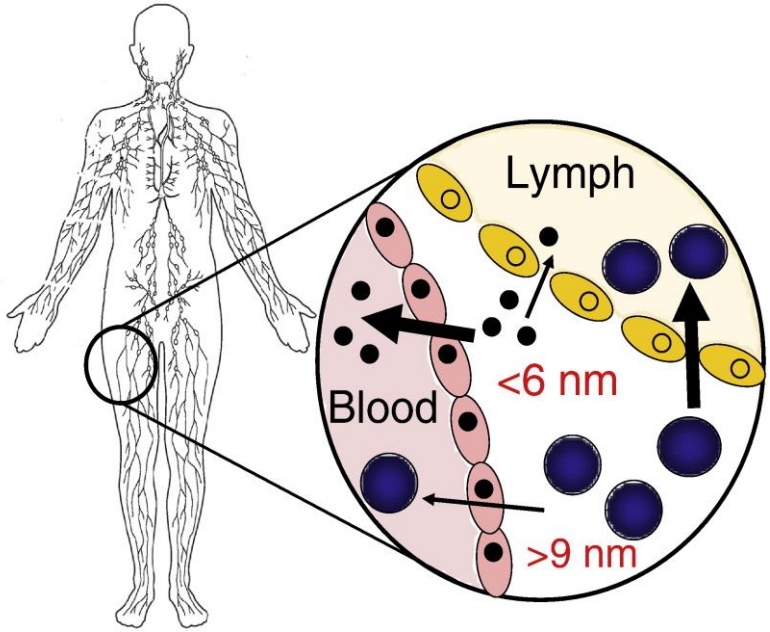
Abstract
Dendrimers are unique biomaterials that are constructed by the stepwise addition of layers (generations) of polymer around a central core. They can be constructed with a range of molecular weights and have a polyfunctional surface that facilitates the attachment of drugs and pharmacokinetic modifiers such PEG or targeting moieties. These properties have led to considerable interest in the development of dendrimers for a range of biomedical applications. After subcutaneous administration, larger dendrimers in particular (> 8 nm), preferentially drain from the injection site into the peripheral lymphatic capillaries and therefore have potential as lymphatic imaging agents for magnetic resonance and optical fluorescence lymphangiography and as vectors for drug-targeting to lymphatic sites of disease progression. In general, lymphatic targeting of dendrimers is enhanced by increasing size although ultimately larger constructs may be incompletely absorbed from the injection site. Increasing hydrophilicity and reducing surface charge enhances drainage from subcutaneous injection sites, but the reverse is true of uptake into lymph nodes where charge and hydrophobicity promote retention. Larger hydrophilic dendrimers are also capable of extravasation from the systemic circulation, absorption into the lymphatic system and recirculation into the blood. Lymphatic recirculation may therefore be a characteristic of PEGylated dendrimers with long systemic circulation times.

Lisa M. Kaminskas, Christopher J.H. Porter

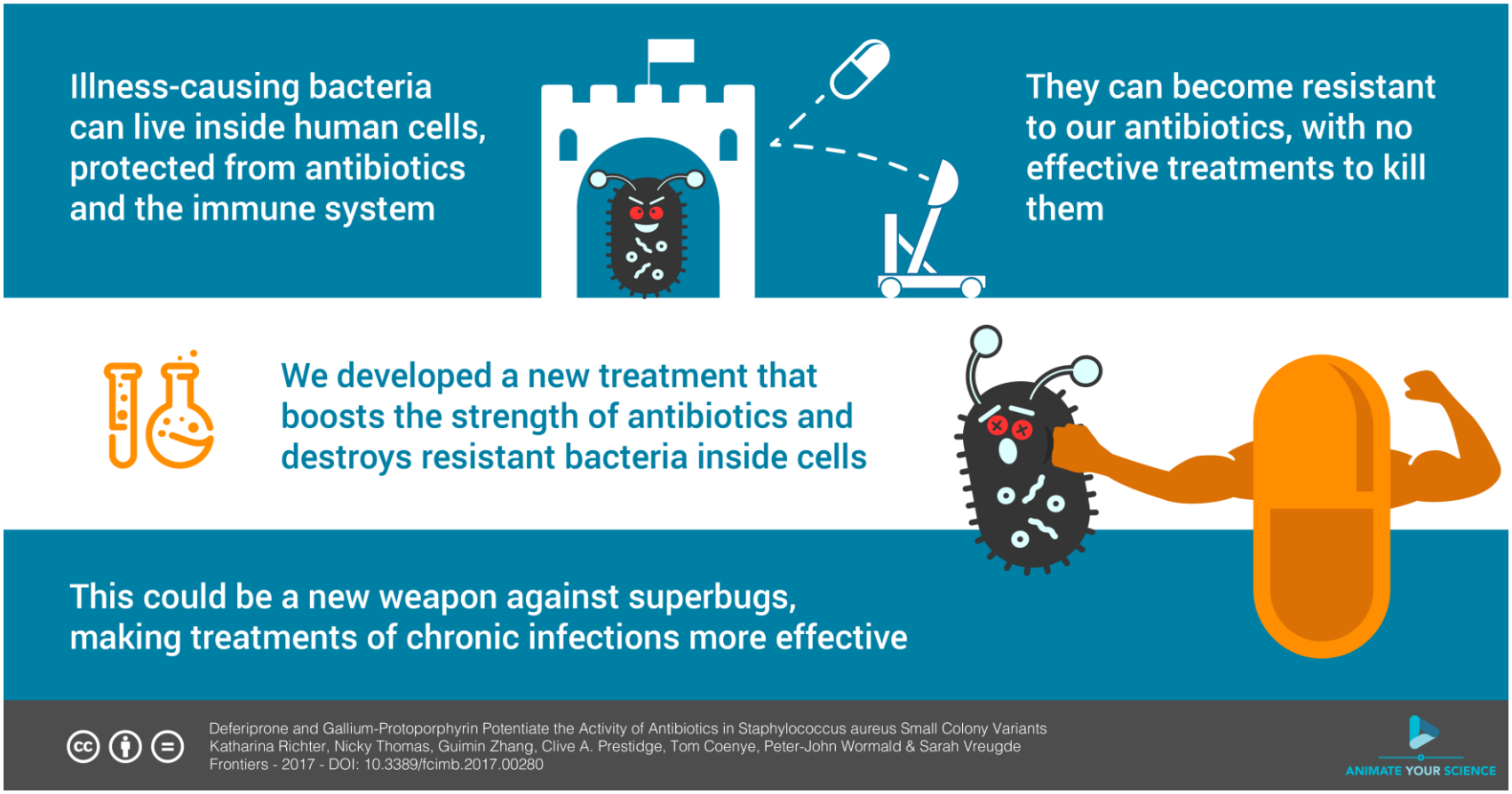
Abstract
Dendrimers are unique biomaterials that are constructed by the stepwise addition of layers (generations) of polymer around a central core. They can be constructed with a range of molecular weights and have a polyfunctional surface that facilitates the attachment of drugs and pharmacokinetic modifiers such PEG or targeting moieties. These properties have led to considerable interest in the development of dendrimers for a range of biomedical applications. After subcutaneous administration, larger dendrimers in particular (> 8 nm), preferentially drain from the injection site into the peripheral lymphatic capillaries and therefore have potential as lymphatic imaging agents for magnetic resonance and optical fluorescence lymphangiography and as vectors for drug-targeting to lymphatic sites of disease progression. In general, lymphatic targeting of dendrimers is enhanced by increasing size although ultimately larger constructs may be incompletely absorbed from the injection site. Increasing hydrophilicity and reducing surface charge enhances drainage from subcutaneous injection sites, but the reverse is true of uptake into lymph nodes where charge and hydrophobicity promote retention. Larger hydrophilic dendrimers are also capable of extravasation from the systemic circulation, absorption into the lymphatic system and recirculation into the blood. Lymphatic recirculation may therefore be a characteristic of PEGylated dendrimers with long systemic circulation times.

Targeting the lymphatics using dendritic polymers (dendrimers)





Infographic style example



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Plan and sketch a **draft** of a graphical abstract

Who is my audience?	
Research question: Hypothesis:	
What's unknown/the gap you're trying to fill with your work?	
How can I summarize my research graphically? • Photograph • Flowchart • Diagram • Image • Clip Art **Sketch it on paper first.**	

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Tools for Building Graphical Abstracts

- Power point – simple graphics
- Biorender - sign up for free to build your own graphical abstract: https://biorender.com/
- Adobe tools are free for Jeffersonians: https://www.jefferson.edu/adobe.html

What's next: Your assignment

- Create your own graphical abstract
  - Illustrating your own science
  - Illustrating an assigned abstract (in the chat)
- Submit it by December 22nd
- Receive feedback from seasoned reviewers in early January

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