Translated and modified from

伝わるデザイン
研究発表のユニバーサルデザイン

Design for Scientific Communication

DASC 3240

L03 | Basics in figure and data presentation – Exercise

2024/25 SPRING SEMESTER

MASAYUKI USHIO, ASSISTANT PROFESSOR AT OCES
USHIO@UST.HK (RM CYT-2013)

Exercise

1. Slide (PowerPoint presentation)
2. Text (Word file)
3. Image
4. Video

- An example of a “bad” slide.
- What are the bad points? How can you improve the slide?

List of AI-tools

- Chat GPT
- Copilot
- Gemini
- Deepseek

- These are great tools to help you learn programming!

There are other AI tools for more specific purposes, such as a-fold (for protein structure prediction), DeepL (language translation) etc.

- An example of a “bad” slide.
- What are the bad points? How can you improve the slide?

The number of microbial cells on the insect body surface

The right figure shows the number of microbial cells on the insect body surface. Figure 1a indicates the relationship between insect species and the number of microbial cell counts. Figure 1b indicates the relationship between the microbial cell counts and the insect body weight. ***Vespa analis insularis*** harbors the largest number of microbes, and there is a positive correlation between the microbial cell counts and insect body weight.

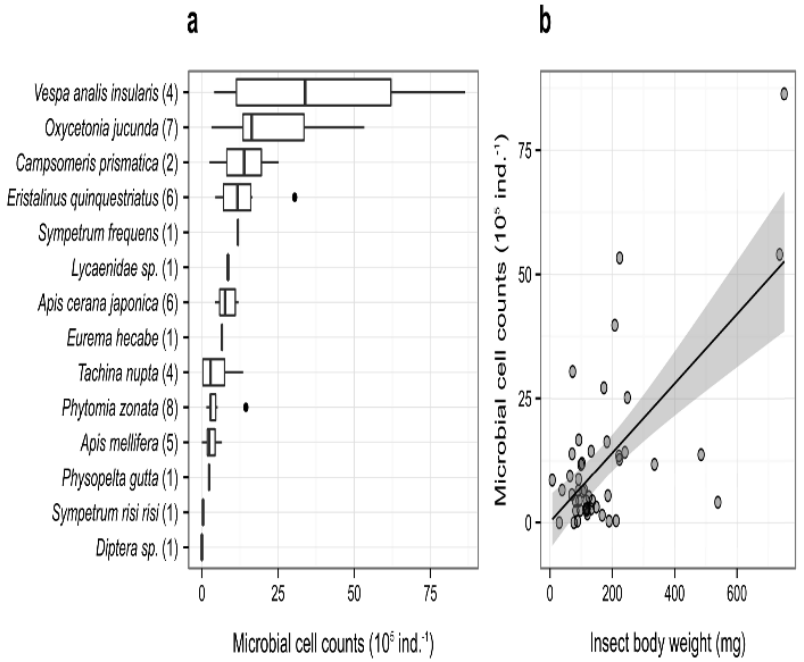

Figure 1 | Microbial cell counts and their relationship with insect body weight. (a) Microbial cell counts of collected insect species. Numbers in parentheses indicate how many individuals were analyzed for each insect species. (b) The relationship between insect body weight (i.e., fresh weight) and microbial cell counts. The solid line indicates the linear regression between the two variables. The gray region is the 95% confidence interval of the regression.

Ushio et al. (2015) *Scientific Reports*

https://doi.org/10.1038/srep08695

- An example in “Basic Design Rule (3rd edition)”
- How can you improve the word document? What make the document “not good”?
- You can download the word file from https://github.com/ong8181/DASC3240/tree/main/DASC3240_Items

Design of Presentation

AAA BBBB (Faculty of Science)

Presentation is the act of introducing via speech and various additional means (for example with sharing computer screen or projecting some screen information) new information to an audience. Usually presentations are used in seminars, courses and various other organizational scheduled meetings.

Overview

Although some think of presentations in a business meeting context, there are often occasions when that is not the case. For example, a non-profit organization presents the need for a capital fund-raising campaign to benefit the victims of a recent tragedy: a school district superintendent presents a program to parents about the introduction of foreign-language instruction in the elementary schools an artist demonstrates decorative painting techniques to a group of interior designers: a horticulturist shows garden club members or homeowners how they might use native plants in the suburban landscape: a police officer addresses a neighborhood association about initiating a safety program.

Presentations can also be categorized as vocational and avocational. In addition, they are expository or persuasive. And they can be impromptu, extemporaneous, written, or memorized. When looking at presentations in the broadest terms, it's more important to focus on their purpose.

Audience

There are far more types of audiences than there are types of presentations because. audiences are made up. of people and people. come in innumerable. flavors. Individuals could be invited to speak to groups all across the country. What the individual says and how they may say it depends on the makeup of those groups. They may ask you the individual to address a room full of factory operations

- Can you identify the source of these images?
- Can you use them in your presentation or report? Explain why or why not.
- If you can use it, please explain what is the appropriate way to use the image.

Chinese White Dolphin

Probable disease resistance protein At1g58602

- How about this video?
- This is a supplement of Wiley et al. (2023) https://royalsocietypublishing.org/doi/10.1098/rsos.221376
- The paper is “open access” (anyone can see and share it), but how about the supplement?
- Please explain why or why not you can use the video freely.

Deployment of biologging tags on free swimming large whales using uncrewed aerial systems

Examples

- Fonts with low readability
- Unnecessary modifications in the characters
- No credit or URL for the image
- Meaningless colors
- Images are skewed and not aligned

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Gemini

Copilot

deepseek

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There are other AI tools for more specific purposes, such as a-fold (for protein structure prediction), DeepL (language translation) etc.

List of AI-tools

Free to use, but must follow the guideline

ChatGPT

https://chat.openai.com/

Public domain? But need to follow the guideline

Gemini

https://gemini.google.com/

Public domain

Copilot

https://copilot.microsoft.com/

MIT license

deepseek

https://www.deepseek.com/

Other AI tools for specific purposes

- **Alphafold** (https://deepmind.google/technologies/alphafold/) | protein structure prediction
- **DeepL** (https://www.deepl.com/) | language translation

List of AI-tools

ChatGPT
https://chat.openai.com/

Gemini
https://gemini.google.com/

The audience usually tries to read the sentences in your slide.

Copilot
https://copilot.microsoft.com/

DeepSeek
https://www.deepseek.com/

Deleting redundant information is a great way to make your slides simple and easy to understand

Other AI tools for specific purposes

- **Alphafold** (https://deepmind.google/technologies/alphafold/) | protein structure prediction
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- Serif font for the title
- Too many colors
- Items above the title
- The title is center-aligned
- The image and figure caption is distorted

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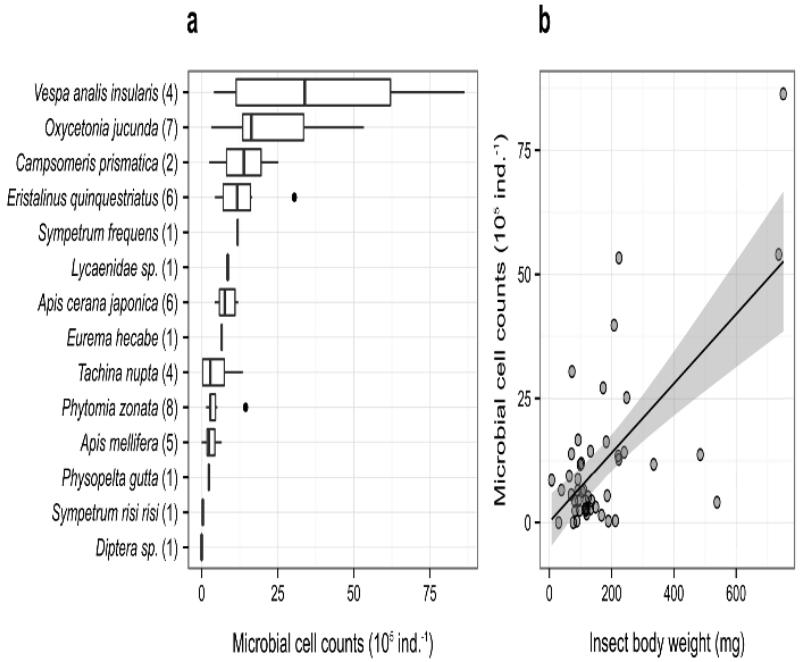

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Ushio et al. (2015) *Scientific Reports*

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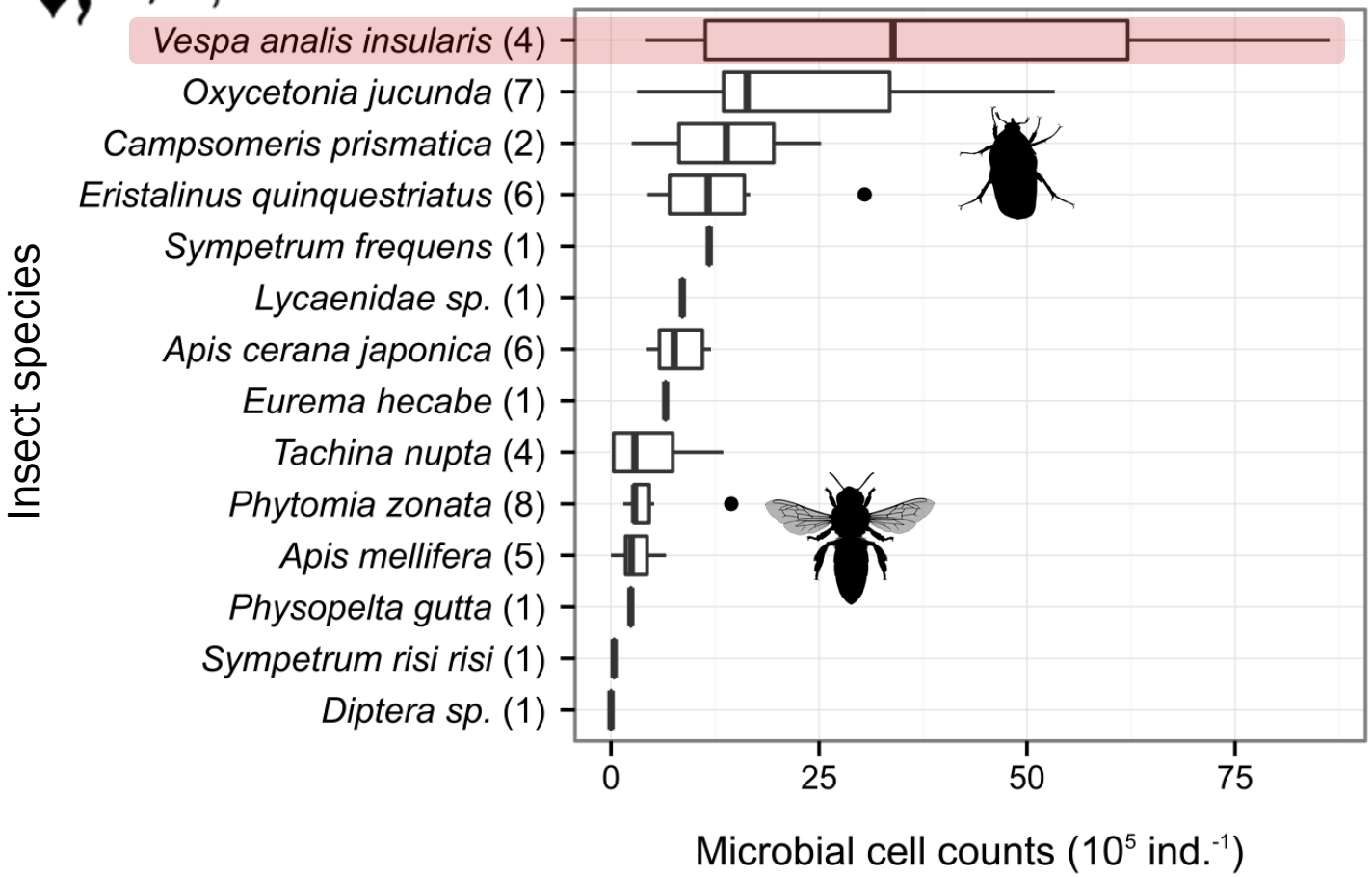
Microbial cell counts and insect species



Microbial cell counts and insect body weight

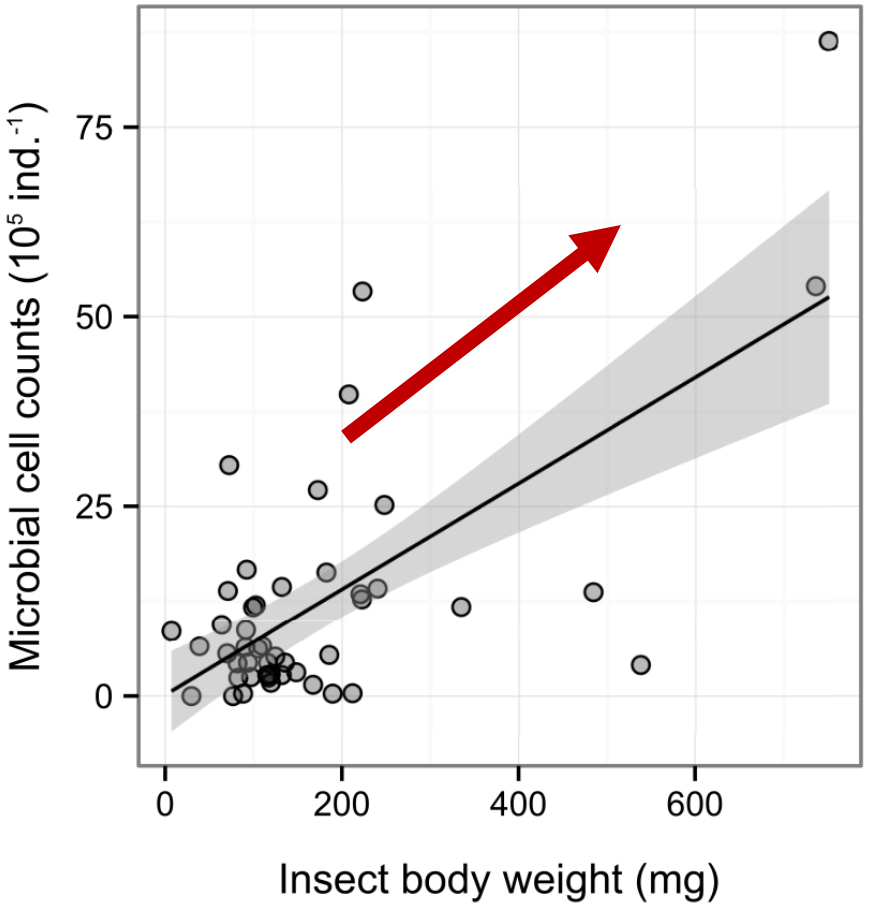


Image credits: *V. analis* (Public domain), *Apis mellifera* (CC BY, Broussard), *O. jucunda* (CC-BY, Julián-Caballero)

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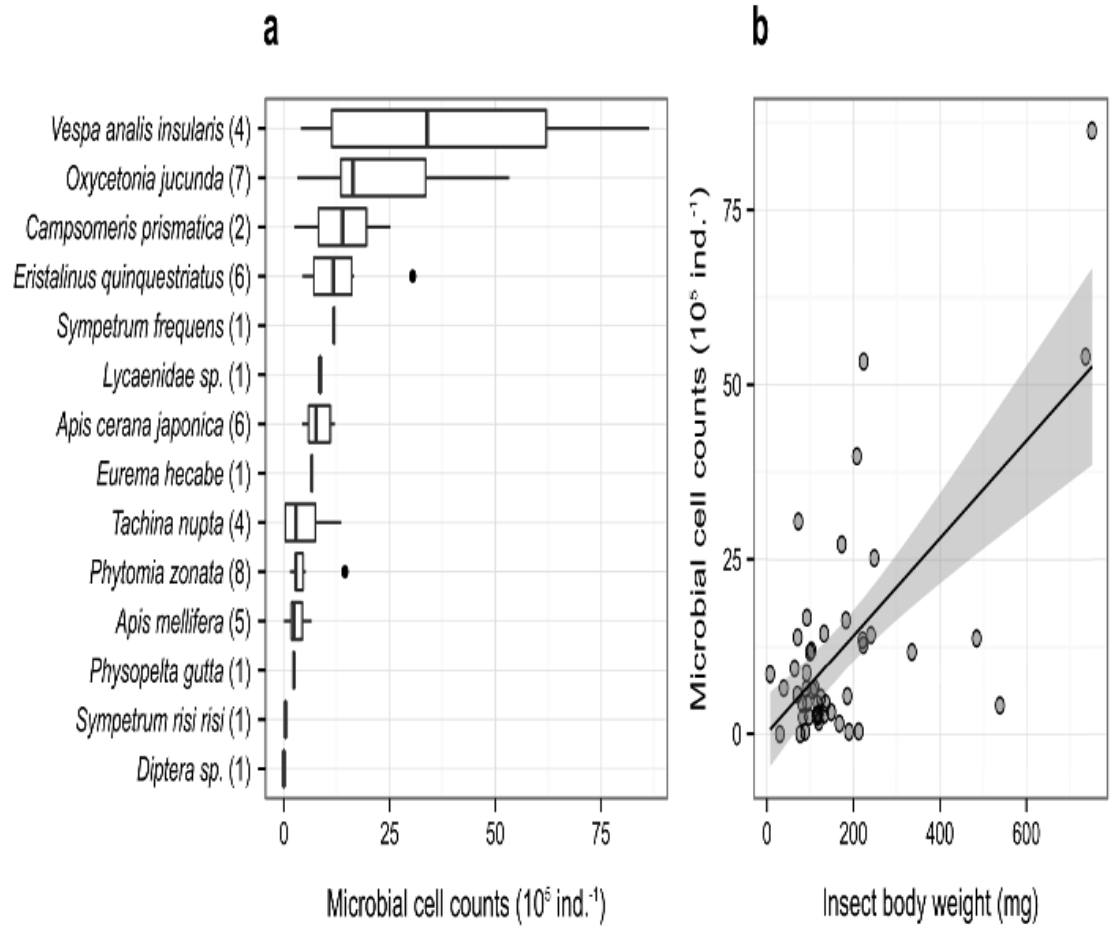

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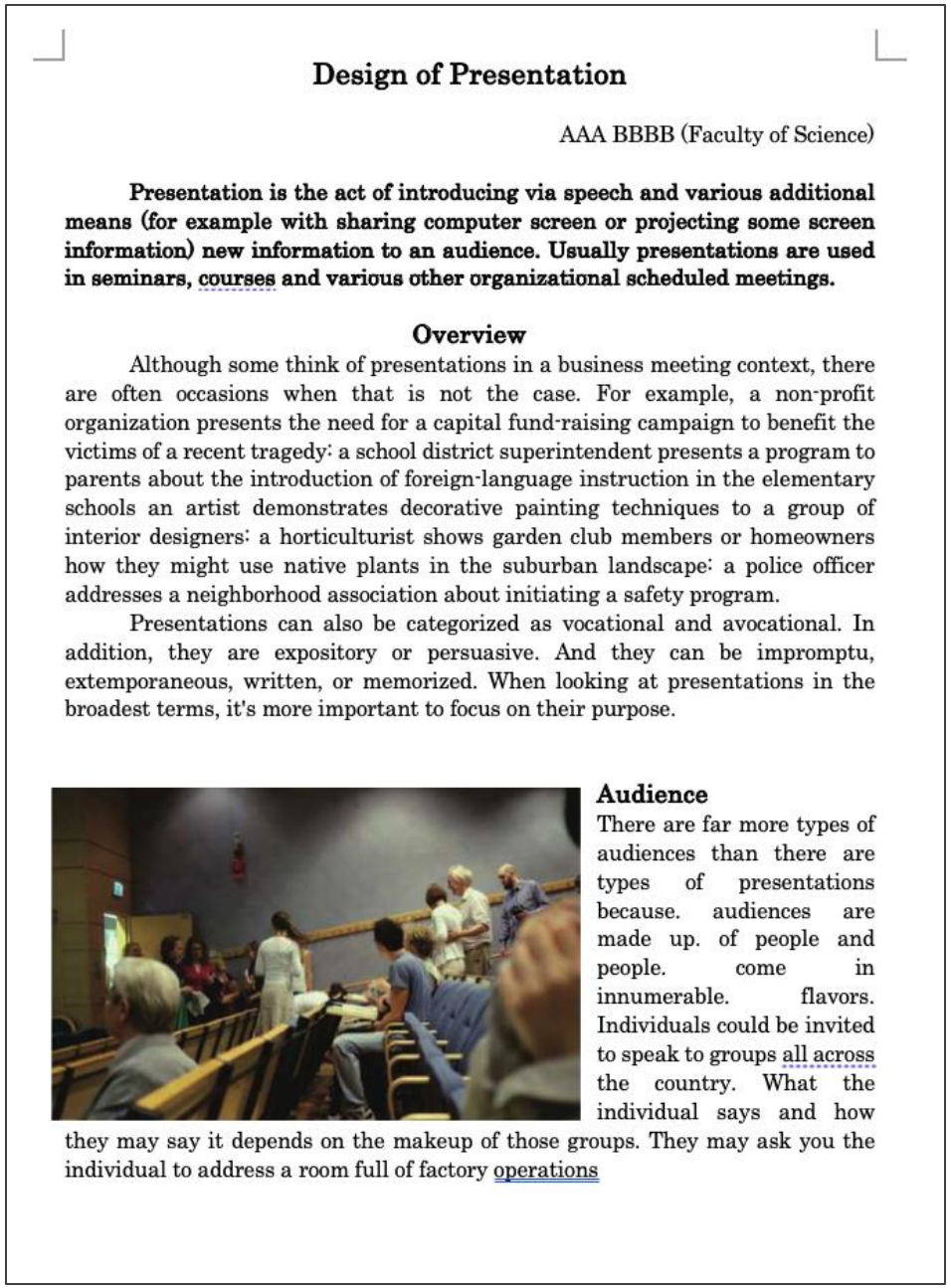
- "Century" **does not have bold face**.
  - abcded → **abcdef** (Century)
  - abcded → **abcdef** (Times New Roman)
- **Justification** (both-side aligned) is often not good as it can make the space between words large.
- You should add **citation information** (credit) and caption to the image.
- You may use a **sanserif** font for the title and headings.
- You may use **the two-column style**.



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Taro Suzuki (Faculty of Science)

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Visuals

A study done by Wharton School Of Business showed that the use of visuals reduced meeting times by 28 percent. Another study found that audiences believe presenters who use visuals are more professional and credible than presenters who merely speak. Other research indicates that meetings and presentations reinforced with visuals help participants reach decisions and consensus more quickly.

A presentation program, such as Microsoft PowerPoint, Apple Keynote, OpenOffice.org Impress or Prezi, is often used to generate the presentation content. Modern

Word

An example in the textbook (https://tsutawarudesign.com)

- Ocean Park Image on the webpage.
- “©Mandy Lo” is intentionally cropped.
- This is NOT allowed.

Chinese White Dolphin

Image https://www.opcf.org.hk/en/species/indo-pacific-humpback-dolphin

- The protein structure is predicted by AlphaFold (https://deepmind.google/technologies/alphafold/; Jumper et al. 2021 *Nature*).

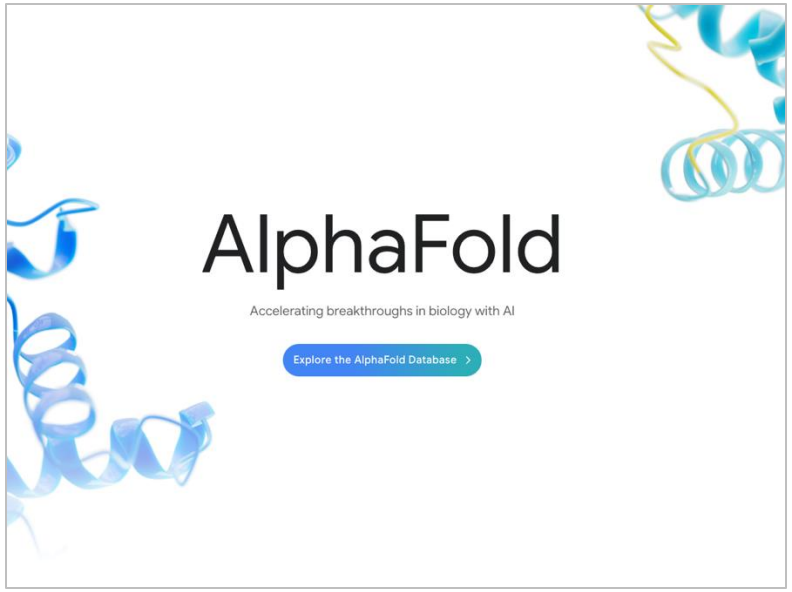

Image Probable disease resistance protein At1g58602 https://alphafold.ebi.ac.uk/entry/Q8W3K0

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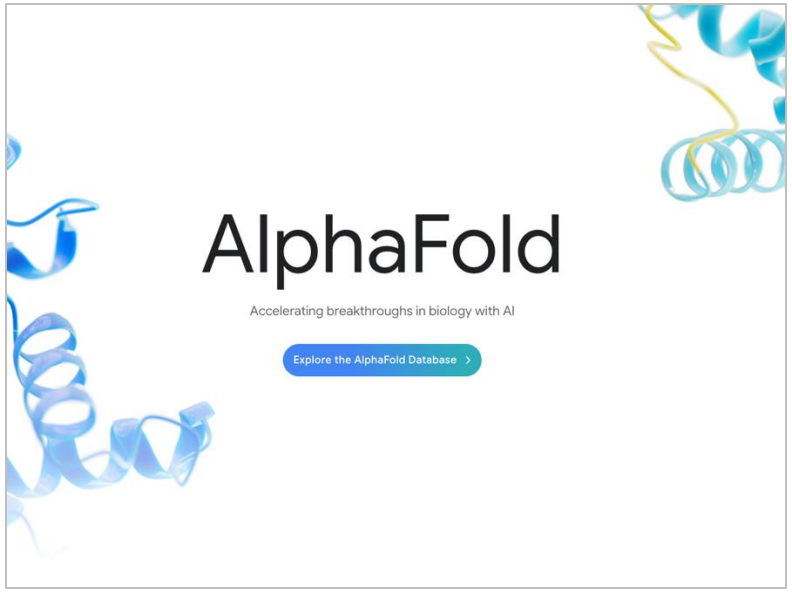


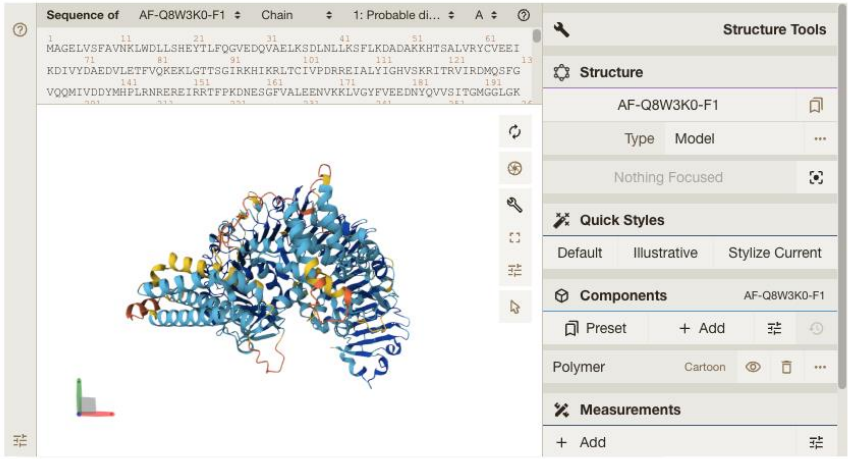
Probable disease resistance protein At1g58602

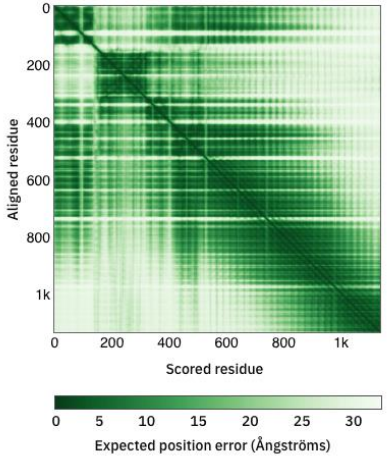
AF-Q8W3K0-F1-v4

Download **PDB file** **mmCIF file** **Predicted aligned error**

Share your feedback on structure with Google DeepMind **Looks great** **Could be improved**

Structure viewer





Model Confidence

Very high (pLDDT > 90) High (90 > pLDDT > 70) Low (70 > pLDDT > 50) Very low (pLDDT < 50)

AlphaFold produces a per-residue model confidence score (pLDDT) between 0 and 100. Some regions below 50 pLDDT may be unstructured in isolation.

Predicted aligned error (PAE)

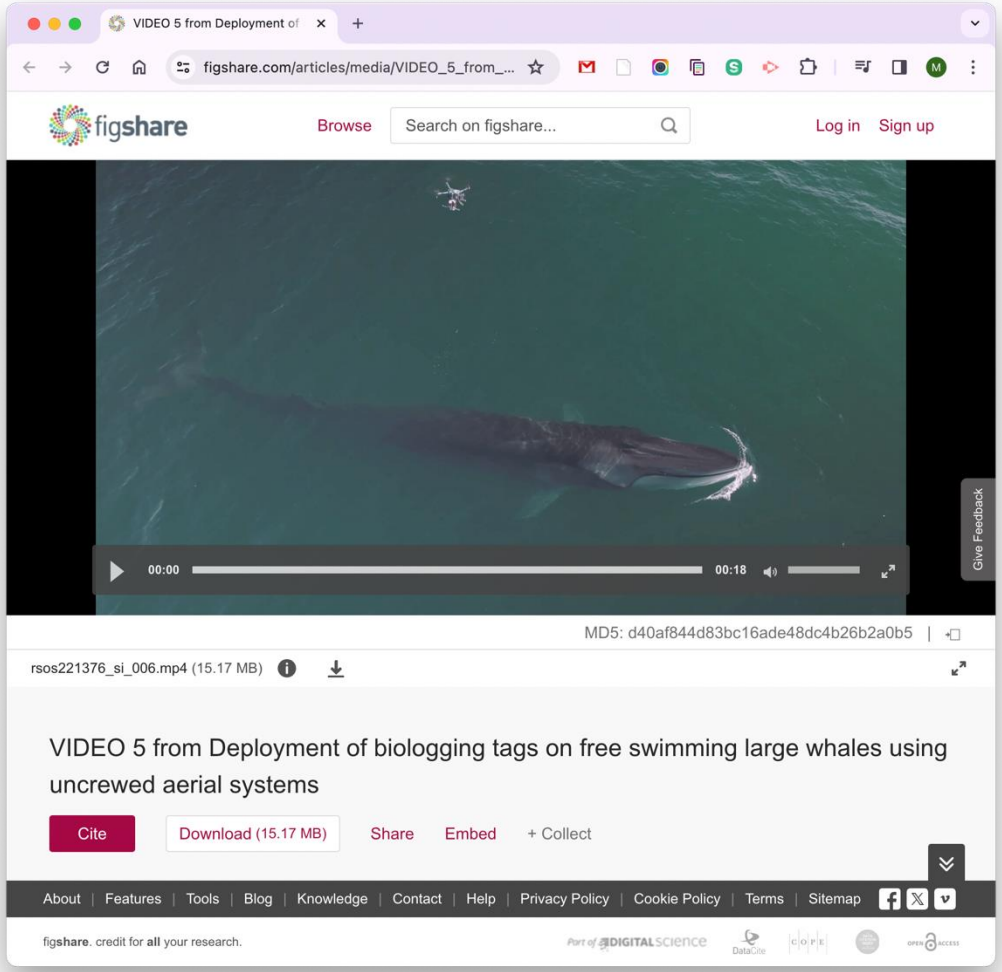
Click and drag a box on the PAE viewer to select regions of the structure and highlight them on the 3D viewer.

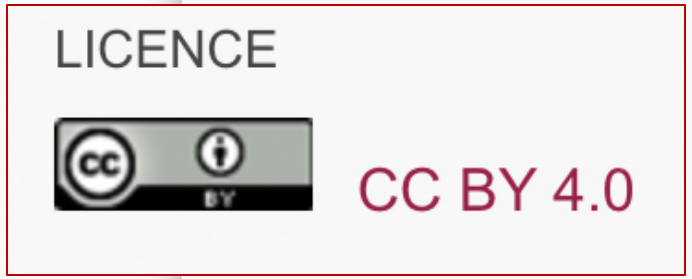
Licence and attribution

Data is available for academic and commercial use, under a CC-BY-4.0 licence.

Image Probable disease resistance protein At1g58602 https://alphafold.ebi.ac.uk/entry/Q8W3K0

- Access here: https://figshare.com/articles/media/VIDEO_5_from_Deployment_of_biologging_tags_on_free_swimming_large_whales_using_uncrewed_aerial_systems/22567681





Video

Next lecture: 12 Feb (WED) from 10:30–11:50

L04 | R and Rstudio – I Overview and installation

- Start using RStudio
- Basics of R and RStudio
- **Please bring your own laptop!**
- There is NO assignment, but you will do some hands-on.