CALTECH LIBRARY

BOOK TEMPLATE

Contents

1
Introduction

Welcome to a demo of using bookdown to create an electronic textbook.

1.1 Markdown syntax

Markdown is a simple text-based way of formatting documents. There are many flavors of markdown, we'll start with standard markdown and then add some specific rmarkdown information. Let's look at some other basics:

- You can put text into *italics* and **bold** using * or **
- To create headings, put one or more # symbols at the beginning of a line, followed by a space. One # is for a level one header, ## for a level two header, etc.
- To make bullet lists (such as this one), just start lines with a -; you can get additional levels by starting a line a couple of spaces or a tab in. Numbered lists work the same way using 1. 2. 3.

  ```
  - Topic 1
  - Topic 2
  - Topic 3
    - Topic 3a
  ```

- To cite code (including markdown syntax as above) use ‘ on both sides for short bits and “‘ in a separate line above and below larger codeblocks.

- Quote text using > at the beginning of the line (maybe you remember this from old e-mail programs?)

  ```
  > This is a Quote
  ```

- A link is set putting the text that you want to highlight in square brackets followed by the link in round brackets. Don't forget to include `http://` or `https://` at the beginning of the link

```
[This is a link](http://www.example.com)
```

You can find more markdown formatting options here. Note that markdown comes in different dialects, referred to as “flavors”. The basic elements above are part of a consensus referred to as Common Markdown, though some of the more advanced options we’ll discuss later are specific to Rmarkdown.

2
Customization

A lot of customization is conducted in the header of each .Rmd document. The base file, index.rmd, includes configuration that applies to the entire book.

2.1 Citations and Citation Styles

Bookdown has great support for citations, which are handled with BibTeX files (.bib). BibTeX is a reasonably standard reference citation format that can be produced by most reference managers and online services. This template includes a bibliography file AtlasBibTeX.bib as an example.

References are handled in the bibliography section of the YAML header. You'll see the following in he header of index.rmd:

'"bibliography: AtlasBibTeX.bib"'

Let's open the `AtlasBibTeX.bib` file and see what it looks like. You'll see citation information about each article in groups indicated by a document type tag, e.g., `@article`, followed by a unique citation key (typically the last name of an author and the year of publication, e.g. Young_2015), followed by citation information. We use the *** symbol to indicate a reference, so references in test look like `@Castro_2017`.

The citation style defaults to Chicago. If you want a different citation style, you can download a csl style file from the Zotero style registry. Download your favorite citation style and put it in your directory. You add the citation style file by using the csl section of the YAML (this is a new section, like bibliography):

```
csl: american-chemical-society.csl
```

2.2 Bookdown Specific Features

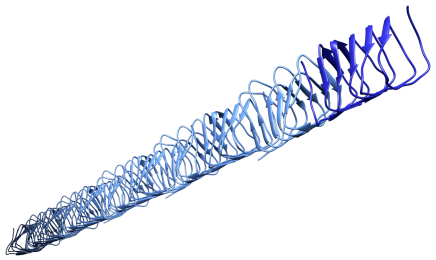
You can label chapter and section titles using `{#label}` after them, e.g., we can reference Chapter 1. If you do not manually label them,

there will be automatic labels anyway, e.g., Chapter 2.

2.3 Including Code and Images

We include images in a directory in the project (say 'img'), and include them using the include_graphics function like so:

Schematic: Bactofilin



PDB: 6RIB Bactofilins are found in many species of bacteria and archaea, suggesting that they perform diverse (and currently unknown) functions. They polymerize into very stable filaments with a triangular beta-helical structure, like this one from *Thermus thermophilus* [Deng et al., 2019]. Bactofilin filaments lack two hallmarks of actin- and tubulin-based cytoskeletal elements: polarity and dynamic assembly/disassembly. In this way, they are similar to intermediate filaments in eukaryotic cytoskeletons.

2.4 LaTeX

You can embed any LaTeX directly in the document.

Inline LaTeX equations can be written in a pair of dollar signs using the LaTeX syntax, e.g., $f(k) = \binom{n}{k} p^k (1-p)^{n-k}$

Math expressions of the display style can be written in a pair of double dollar signs, e.g.,

$$f(k) = \binom{n}{k} p^k (1-p)^{n-k}$$

2.5 Caltech Custom Features

If you have a video on CaltechDATA, we can add embed it using just the DOI. This example also shows how you can define a caption using

a () label outside of am element, let Bookdown format it, and them embed it

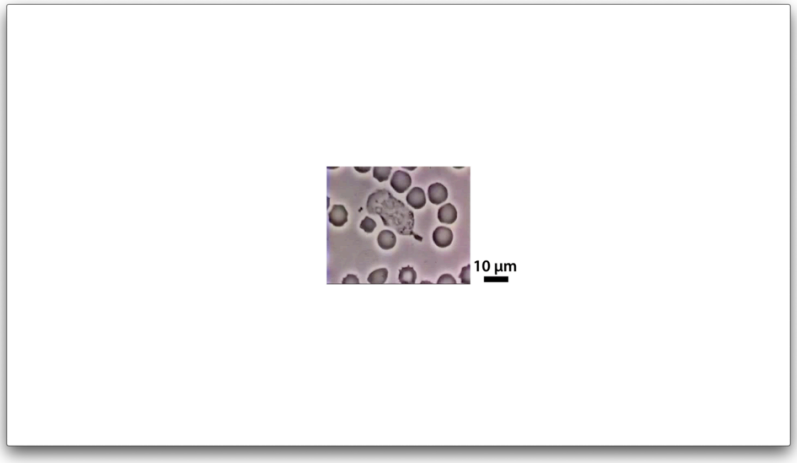


Figure 2.1: Staphylococcus aureus
Collected by: David Rogers Movie
DOI: 10.22002/D1.1463

We also provide a method for embeddig video files locally, if you want the book to work offline.

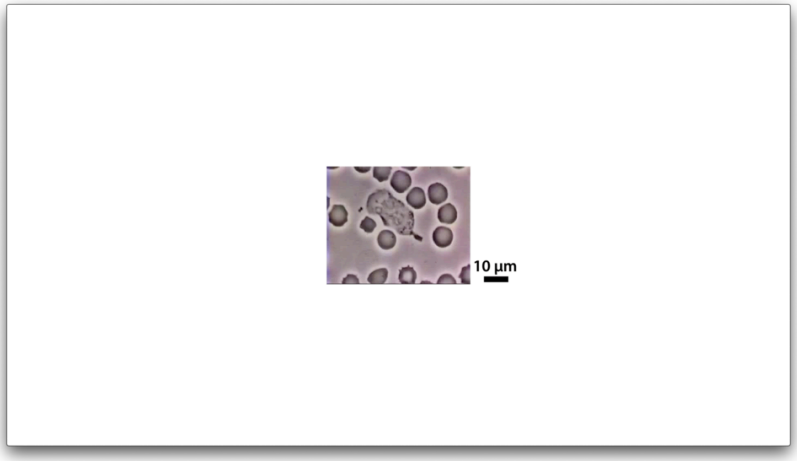


Figure 2.2: Staphylococcus aureus
Collected by: David Rogers Movie
DOI: 10.22002/D1.1463

Further Reading

Errington (2013). *L-form bacteria, cell walls and the origins of life* [Errington, 2013].

Ptacin and Shapiro (2013). *Chromosome architecture is a key element of bacterial cellular organization* [Ptacin and Shapiro, 2013].

Sleytr and Beveridge (1999). *Bacterial S-layers* [Sleytr and Beveridge, 1999].

Strahl and Errington (2017). *Bacterial membranes: Structure, domains, and function* [Strahl and Errington, 2017].

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