



# The Publishing Method

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## Writing an Effective Figure Legend

### Summary

Although standards for writing legends for your figures vary from journal to journal, there are a few common principles that may help to ensure clarity.

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Figures are instrumental for conveying your results but may be inscrutable without an effective legend. Although standards for writing legends vary from journal to journal, there are a few common principles that may help to ensure clarity.

Overall, the content of a caption should make it possible for your reader to interpret and understand the significance of a figure without reading the main text. Due to this need to be independent from the rest of the text, the structure of a legend may somewhat resemble that of a pared-down paper, including a title and short descriptions of both the methods and the results. The following are components that should be included in your figure legend.

### 4 Features of a Good Figure Legend:

#### 1. Title: A brief title that applies to the entire figure, including all panels

The title can be either descriptive, stating the type of experiment(s) (e.g., “Flow cytometry analysis of US6-expressing cells”), or declarative, asserting the overall finding (e.g., “The viral protein US6 decreases MHC I surface expression”). In some cases, this title may be partly or entirely drawn from a subheading in the results section of the paper.

#### 2. Materials and methods: A description of the techniques used

This description could include the cell type or animal model, the conditions/treatments tested, the control(s) used, the laboratory and statistical tests applied, and the numbers of replicates and repeats. This information should be limited to what is absolutely necessary to understand the figure without referring to the paper’s methods section. However, in certain instances, such as in [Nature](#) manuscripts with a methods section, journal editors may request that this information not be detailed in the figure legends.

#### 3. Results: A statement of the results that can be gleaned from the particular figure

The depth of this component may vary not only between papers but also between journals. In fact, if the title is declarative, further explanation of the data may be unnecessary in the body of the legend. P-values and the sample size, if applicable, should also be included.

#### 4. Definitions: An explanation of features in the figure

Include an explanation of all symbols, patterns, lines, colors, non-standard abbreviations, scale bars, and error bars (standard deviation or standard error), as well as any other potentially non-intuitive features, in the figure itself. These definitions can exclude aspects that are already described in the actual figure, such as in a key accompanying a graph or schematic.

## Figure Legend Example

The following is an example of a well-written figure legend, drawn from [this paper](#) (West et al., 2013; [CC-BY license](#)) published in [PLOS ONE](#). It combines many of the components detailed above:

**“Gilt<sup>-/-</sup> lymphocytes exhibit deficient recall proliferation to the cockroach allergen Bla g 2 but not to the house dust mite allergen Der f 1. Recall proliferation analysis of lymphocytes isolated from (A) Bla g 2- or (B) Der f 1-challenged mice and incubated with increasing concentrations of purified (A) Bla g 2 or (B) Der f 1. Data shown as mean ± SEM of triplicate wells and are representative of two independent experiments; \* p<0.05, \*\* p<0.001.”**

To describe the two accompanying graphs, the authors included a declarative title, a very brief description of the method used (including the types of analysis, cells, treatment, and retreatment and the numbers of replicates and repeats), a definition of the error bars (“± SEM”), and statistical information.

## Other Aspects to Consider

In all cases, the content of a figure caption should be succinct (100-300 words is typical) yet comprehensive, touching upon each panel, if applicable.

Beyond conciseness, two additional stylistic features may also help to maximize the efficacy of a figure legend: **appropriate verb tense use** and **consistency**.

In particular, the past tense is frequently used to describe completed experiments (e.g., “US6-expressing cells were analyzed for MHC I surface expression by flow cytometry analysis”), whereas the present tense may be used to convey a statement of fact based on your results (e.g., “The viral protein US6 decreases MHC I surface expression”) and to highlight traits of the current figure (e.g., “The gray line indicates the control cells”). Regarding consistency, nomenclature, units, and [abbreviations](#) should match those in the main text.

Finally, if any part of the figure was reproduced, the originator should be consulted for permission and then referenced. We hope that today’s editing tip has demystified the process of writing an effective figure legend. Please email us at [AskAnExpert@aje.com](mailto:AskAnExpert@aje.com) with any questions. AJE wishes you the best!

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