

How to write a protein purification report for Biotechnology 2020

Science writing is a unique way to write a paper. The challenge is to write as many specifics as possible yet be as succinct as possible. Writing a good scientific paper takes practice and effort. Only spending two hours writing before a paper is due is not sufficient time to create a valid product. In order to create a better scientific document, the following outline was created. Formatting should be in paragraph form with no columns, and 12 point times new roman font. Additional points may be removed from an overall score due to grammatical or spelling errors and improper sentence structure.

Introduction (20% of points)

The Introduction should be just that, an introduction to the protein that is to be purified. Background information about the protein of interest should be included consisting of things like molecular weight, cellular location, and protein function. This information should be acquired from published scientific literature. Sources such as wikipedia or other "internet" sites are unacceptable. A minimum of five sources is appropriate. The introduction should also include a brief explanation of the type of chromatography used in the purification of the protein of interest. The introduction should end with the hypothesis or purpose for conducting the experiments to be described later in the paper.

Materials and Methods (10% of points)

The Materials and Methods sections should be a succinct outline of all experimental protocols used in such detail that anyone could repeat the same process without looking to other literature with exceptions such as common laboratory practices such as Bradford assays or SDS-PAGE, where protocols can be cited. This section should not contain figures, graphs, or other data. Nor should it reference any part of the Results section.

Results and Discussion (40% of points)

The Results and Discussion should be the section where all pertinent data is presented and explained. This does not mean all data is presented. For example, you collect many data points when conducting a Bradford assay, however, you only report the protein concentration that was calculated with its corresponding R-squared value. Once it is reported you explain the meaning of that result. Data should be presented in a chronological order and refer to figures in the Figures section. When all data has been presented and explained, conclusions need to be stated and supported with specific details from the results. The Discussion section is where you demonstrate your understanding of

the purification concepts. A simple statement of “it looks good”, or “it worked” is insufficient without supporting statements. You need to answer the “why” question for each conclusion. Failure to discuss data presented will result in loss of points. All data should be presented, explained, and used in your conclusions. It is appropriate to indicate if your data supports or argues against published results relating to the protein of interest. And again these published results need to be referenced.

References (15% of points)

References should be cited within the text and formatted in the style of the Journal of Biological Chemistry. The program ENDNOTES is required to create this section. The ENDNOTE library file must be submitted via email for each paper and will be worth half of the points for this section.

Figures (15% of points)

Figures should be numbered and titled in consecutive order. Figures should be placed at the end of the document after the references and be on a separate page for each figure. Figures should be labeled properly (i.e. labeled molecular weight markers, lanes, etc.) so that information is discernable. Each figure should contain a figure legend which gives enough details about the figure to understand what the data is that is being presented.