

Abstracts: What They Are & How to Write Them

If you browse around on any science journal, you will notice that all the articles have a short paragraph at their beginning, titled as the abstract. Often, this is the only component of the article that is provided to the public; the rest of the article must be purchased. An abstract is an extremely concise summary of an otherwise long article. It details:

- 1) The purpose of the investigation,
- 2) Major findings,
- 3) Significance,
- 4) Conclusions,
- 5) And action that could be taken to apply the findings of the investigation.

Usually, they do not exceed around 250 words. Below is an example of a study, and its abstract.

<p>Commonality and Biosynthesis of the O-Methyl Phosphoramidate Capsule Modification in <i>Campylobacter jejuni</i></p> <p>David J. McNally^{1,2}, Marc P. Lamoureux^{1,2}, Andrey V. Karlyshev³, Laura M. Fiori⁴, Jianjun Li⁴, Gillian Thacker⁵, Russell A. Coleman⁶, Nam H. Khieu⁷, Brendan W. Wren⁸, Jean-Robert Brisson⁹, Harold C. Jarrell^{1,2} and Christine M. Szymanski^{1,4}</p> <p>Author Affiliations</p> <p>^{1,2} To whom correspondence may be addressed. Tel.: 613-993-5900; Fax: 613-952-9092; E-mail: harold.jarrell@nrc-cnrc.gc.ca. ⁴ To whom correspondence may be addressed. Tel.: 613-990-1569; Fax: 613-952-9092; E-mail: christine.szymanski@nrc-cnrc.gc.ca.</p> <p>Abstract</p>	
In this study we investigated the commonality and biosynthesis of the O-methyl phosphoramidate (MeOAN) group found on the capsular polysaccharide (CPS) of <i>Campylobacter jejuni</i> . High resolution magic angle spinning NMR spectroscopy	Purpose
was used as a rapid, high throughput means to examine multiple isolates, analyze the cecal contents of colonized chickens, and screen a library of CPS mutants for the presence of MeOAN. Sixty eight percent of <i>C. jejuni</i> strains were found to	Equipment Used
express the MeOAN with a high prevalence among isolates from enteritis, Guillain Barre, and Miller-Fisher syndrome patients. In contrast, MeOAN was not observed for any of the <i>Campylobacter coli</i> strains examined. The MeOAN was detected on <i>C. jejuni</i> retrieved from cecal contents of colonized chickens demonstrating that the modification is expressed by bacteria inhabiting the avian gastrointestinal tract. In <i>C. jejuni</i> 11168H, the <i>cj1415-cj1418</i> cluster was shown to be involved in the biosynthesis of MeOAN. Genetic complementation studies and NMR/mass spectrometric analyses of CPS from this strain also revealed that <i>cj1421</i> and <i>cj1422</i> encode MeOAN transferases. Cj1421 adds the MeOAN to C-3 of the β-D-GalNAc residue, whereas Cj1422 transfers the MeOAN to C-4 of D-glycero-α-L-gluco-heptopyranose. CPS produced by the 11168H strain was found to be extensively modified with variable MeOAN, methyl, ethanolamine, and	Brief Explanation of Findings
N-glycerol groups. These findings establish the importance of the MeOAN as a diagnostic marker and therapeutic target for <i>C. jejuni</i> and set the groundwork for future studies aimed at the detailed elucidation of the MeOAN biosynthetic pathway.	Practical actions and follow-up

Abstracts are an example of scientific writing, and they are essential to any published article. There are two types of abstracts: the informative abstract, which is similar to the kind of abstract described above, and the descriptive abstract, which is sort of like a table of contents in the form of a paragraph. The key, then, to writing a good abstract is to be extremely concise.

Further Reading:

- 1) <https://writing.wisc.edu/handbook/assignments/writing-an-abstract-for-your-research-paper/>
- 2) https://owl.purdue.edu/owl/subject_specific_writing/writing_in_engineering/handbook_on_report_formats/abstracts_and_executive_summaries.html