29

This Is the Sample Article Template for mSystems®, an American Society for

- Microbiology (ASM) Journal
- First Author, a Second Author, a,† Third Author, b Fourth Final Author, a,b,*
- University Name, Faculty Group, Department, City, Country^a; Company Name, City, Country^b
- Third Author and Fourth Author contributed equally. First Author and Second Author contributed equally to this
- work. Author order was determined XXXXXX.
- Research Articles have structured abstracts consisting of two sections with their own headings: "Abstract" and "Importance." Because the structured abstract will be published separately by abstracting services, it must be complete and understandable without reference to the text. The Abstract section should be no more than 250 words and should concisely summarize the basic content of the paper without presenting extensive experimental details.
- **IMPORTANCE** The Importance section should be no more than 150 words and should provide a nontechnical explanation of the significance of the study to the field. Avoid abbreviations and references, and indicate the specific organism under study. When it is essential to include a reference, use the format shown under "References" below.
- **KEYWORDS:** keyword 1, keyword 2, keyword 3.
 - Please read the Instructions to Authors carefully, or browse the FAQs for further details.

INTRODUCTION

The introduction should supply sufficient background information to allow the reader to understand and evaluate the results of the present study without referring to previous publications on the topic. The introduction should also provide the hypothesis that was addressed or the rationale for the present study. Choose references carefully to provide the most salient background rather than an exhaustive review of the topic.

Sectioning commands. Use \section to get a first-level heading. You can use \subsection or just \textbf to get a sub-heading. Further sectioning levels, such as \subsubsection, etc., are ignored.

Sections **must** be ordered as follows:

- Abstract
- Importance
- Keywords
- Introduction
- Results
- Discussion
- · Materials and Methods
- Supplemental Material file list (where applicable)
- · Acknowledgments
- · References

Compiled October 4, 2022

This is a draft manuscript, pre-submission

Address correspondence to Fourth Author, fourth@author.edu.

† Present Address: Second Author, Full Affilia-

Co-first Authors. If more than one co-first author is designated, authors are required to state how the order of names was decided as an additional footnote on the title page. See the example in the author line above.

42

43

48

49

50

51

52

53

54

55

56

57

58

59

63

FirstAuthor et al.

16×9

(Original size: 320×180 bp)

FIG 1 This is an example figure with caption. Use the fullwidth environment to make it span the entire width of the page. Lorem ipsum dolor sit amet, consectetur adipiscing elit.

Citations and References. This template uses BibTeX and natbib, so \citep and \citet such as (1), Johnson and Robinson (2) can be used as usual to produce the correct citation style, and the reference list is generated automatically. In the reference list, references are numbered in the order in which they are cited in the article (citation-sequence reference system). In the text, references are cited parenthetically by number in sequential order. Data that are not published or not peer reviewed are simply cited parenthetically in the text. The mSystems Instructions to Authors contain additional guidelines for the reference list and examples of how various types of references should be presented in the manuscript.

- (i) References listed in the References section. The mSystems Instructions to Authors contain examples of the types of items that should be cited in the reference list. Those examples have been reproduced in the template bib file, as have other sample references.
- (ii) References cited in the text. As indicated in the mSystems Instructions to Authors, certain reference types should be cited parenthetically rather than in the reference list. This paragraph shows examples of reference citations as they might appear within the manuscript text instead of in the reference list. A citation of unpublished data should appear as shown here (R. B. Layton and C. C. Weathers, unpublished data). A citation of a manuscript submitted for publication should appear as shown here (J. L. McInerney, A. F. Holden, and P. N. Brighton, submitted for publication). Citations of nonpublished abstracts and posters, etc., should appear as shown here (M. G. Gordon and F. L. Rattner, presented at the Fourth Symposium on Food Microbiology, Overton, IL, 13 to 15 June 1989). For non-U.S. patent applications, give the date of publication of the

66

67

69

70

71

72

73

74

75

76

77

78

79

80

81

82

83

84

85

86

87

89

90

91

92

93

97

98

gq

100

101

102

103

104

105

106

107

108

109

111

application, as shown here (V. R. Smoll, 20 June 1999, Australian Patent Office). A website should be cited as shown here for the World Health Organization (https://www.who.int/news-room/detail/17-01-2020-lack-of-new-antibiotics-threatens-global-efforts-to-contain-drug-resistant-infections). URLs for companies that produce any of the products mentioned in your study or for products being sold may not be included in the article. However, company URLs that permit access to scientific data related to the study or to shareware used in the study are permitted.

- (iii) **Citations in abstracts.** Since the abstract must be able to stand apart from the article, references cited in it should be clear without recourse to the References section. Use an abbreviated form of citation, omitting the article title, as follows.
 - (P. S. Satheshkumar, A. S. Weisberg, and B. Moss, J Virol 87:10700–10709, 2013, doi:10.1128/JVI.01258-13)
 - (J. H. Coggin, Jr., p. 93–114, in D. O. Fleming and D. L. Hunt, ed., *Biological Safety. Principles and Practices*, 4th ed., 2006)
 - "...in a recent report by D. A. Hopwood (mBio 4:e00612-13, 2013, doi:10.1128/mBio.00612-13) ..."
- (iv) References related to supplemental material. If references must be cited in the supplemental material, list them in a separate References section within the supplemental material and cite them by those numbers; do not simply include citations of numbers from the reference list of the associated article. If the same reference(s) is to be cited in both the article itself and the supplemental material, then that reference would be listed in both References sections.
- (v) Citations of data sets and/or code. To encourage data sharing and reuse, ASM recommends reporting data sets and/or code both in a dedicated "Data availability" paragraph and in the reference list. Examples related to data citation have been reproduced in the template bib file, as have other sample references.

Author Warranty. If accepted for publication, the Work will be made freely available to the public on ASM's *mSystems* website. ASM will grant the public the nonexclusive right to copy, distribute, adapt, and transmit the published Work for commercial or non-commercial use with proper attribution under the Creative Commons, Attribution license, Version 4.0 (CC-BY). For details, see https://creativecommons.org/licenses/by/4.0/ and <a href="https://creativecommons.org/li

WifeX files. Authors who prefer to use Liex for manuscript preparation may use this Overleaf template. Files from an Overleaf project may be transferred directly from Overleaf to mSystems once for initial manuscript submission. Although a compiled PDF alone is acceptable for initial submission of a manuscript prepared in Liex, mSystems requires all Liex files from a project to be uploaded at the revision stage. On the mSystems submission site, the .tex file should be classified as a Manuscript Text File. Other supporting files that appear in the Overleaf package (i.e., .bib, .bst, .cls, .ldf, and .sty files) should all be included and classified as 'LaTex Support Files'. Figure files should be classified as Figure files; the usual formatting restrictions apply (see mSystems Instructions to Authors). When the mSystems manuscript record already exists, files must be replaced on the mSystems submission site (https://msystems.msubmit.net) if modification is required. Contact journal staff with questions related to file conversion in the mSystems manuscript record.

115

116

117

118

121

122

123

124

125

126

128

129

130

131

132

133

135

136

137

139

140

141

142

FirstAuthor et al.

TABLE 1 Automobile land speed records (GR 5-10)^a

Speed (mph)	Driver	Car	Engine	Date	Extra comments
407.447	Craig Breedlove	Spirit of America	GE J47	8/5/63	(Just to demo a full-width table with auto-wrapping long lines)
412 100	Tama Cuasa	Mingfoot Everyone	NAT LAC	10/2/64	with auto-wrapping long lines)
413.199	Tom Green	Wingfoot Express	WE J46	10/2/64	
434.22	Art Arfons	Green Monster	GE J79	10/5/64	
468.719	Craig Breedlove	Spirit of America	GE J79	10/13/64	
526.277	Craig Breedlove	Spirit of America	GE J79	10/15/65	
536.712	Art Arfons	Green Monster	GE J79	10/27/65	
555.127	Craig Breedlove	Spirit of America, Sonic 1	GE J79	11/2/65	
576.553	Art Arfons	Green Monster	GE J79	11/7/65	
600.601	Craig Breedlove	Spirit of America, Sonic 1	GE J79	11/15/65	
622.407	Gary Gabelich	Blue Flame	Rocket	10/23/70	
633.468	Richard Noble	Thrust 2	RR RG 146	10/4/83	
763.035	Andy Green	Thrust SSC	RR Spey	10/15/97	

^aSource is from this website: https://www.sedl.org/afterschool/toolkits/science/pdf/ast_sci_data_tables_sample.pdf

RESULTS

In the Results section, include the rationale or design of the experiments as well as the results; reserve extensive interpretation of the results for the Discussion section. Present the results as concisely as possible in one or more of the following: text, table(s), or figure(s). Data in tables (e.g., cpm of radioactivity) should not contain more significant figures than the precision of the measurement allows. Illustrations (particularly photomicrographs and electron micrographs) should be limited to those that are absolutely necessary to show the experimental findings. Number figures and tables in the order in which they are cited in the text, and be sure to cite all figures and tables. Figure 1 is just for show, but this sentence shows how a figure could be cited in the text of the manuscript.

The tabularx, booktabs and siunitx packages are loaded by asm-article.cls; see Table 1 for an example table. Use \begin{fullwidth}...\end{fullwidth} in your table for the table to span the entire width of the page. Shading in the field of tables is allowed, to demonstrate relationships among data. You can use the \columncolor, \rowcolor or \cellcolor commands to do this: allowed color values are black!20 and black!30.

File types and formats. Illustrations may be continuous-tone images, line drawings, or composites. On initial submission, illustrations may be supplied as PDF files, with the legend on the same page, to assist review. At the modification stage, production quality digital files must be provided, along with text files for the legends. The legends are copyedited and typeset for final publication, not included as part of the figure itself.

All graphics submitted with modified manuscripts should be grayscale or in the RGB color mode. Minimum resolution is 300 dpi for all file types. All images imported into a figure file must be at the correct resolution before they are placed in the file. (For instance, placing a 72-dpi image in a 300-dpi EPS file will not result in the placed image meeting the minimum requirements for file resolution.) Note that publication quality will not be improved by using a resolution higher than the minimum.

All graphics should be submitted at their intended publication size; that is, the image uploaded should be 100% of its print dimensions so that no reduction or en-

Running Title

largement is necessary. Resolution must be at the required level at the submitted size. Include only the significant portion of an illustration. White space must be cropped from the image, and excess space between panel labels and the image must be eliminated.

- Maximum figure width: 6.875 inches (ca. 17.4 cm)
- Maximum figure height: 9.0625 inches (23.0 cm)

DISCUSSION

The Discussion section should provide an interpretation of the results in relation to previously published work and to the experimental system at hand and should not contain extensive repetition of the Results section or reiteration of the introduction. In short papers, the Results and Discussion sections may be combined.

$$\frac{\partial^2 \Phi}{\partial x^2} + \frac{\partial^2 \Phi}{\partial y^2} + \frac{\partial^2 \Phi}{\partial z^2} = \frac{1}{c^2} \frac{\partial^2 \Phi}{\partial t^2}$$
 (1)

Please note that display equations in the Overleaf template may be rendered with a slightly different presentation in the final published (*mSystems*) article.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

$$\int_0^\infty e^{-\alpha x^2} dx = \frac{1}{2} \sqrt{\int_{-\infty}^\infty e^{-\alpha x^2}} dx \int_{-\infty}^\infty e^{-\alpha y^2} dy = \frac{1}{2} \sqrt{\frac{\pi}{\alpha}}$$
 (2)

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat.

MATERIALS AND METHODS

The Materials and Methods section should include sufficient technical information to allow the experiments to be repeated. When centrifugation conditions are critical, give enough information to enable another investigator to repeat the procedure: make of centrifuge, model of rotor, temperature, time at maximum speed, and centrifugal force (xg rather than revolutions per minute). For commonly used materials and methods (e.g., media and protein concentration determinations), a simple reference is sufficient. If several alternative methods are commonly used, it is helpful to identify the method briefly as well as to cite the reference. For example, it is preferable to state "cells were broken by ultrasonic treatment as previously described (9)" rather than to state "cells were broken as previously described (9)." This allows the reader to assess the method without constant reference to previous publications. Describe new methods completely and give sources of unusual chemicals, equipment, or microbial strains. When large numbers of microbial strains or mutants are used in a study, include tables identifying the immediate sources (i.e., sources from whom the strains were obtained) and properties of the strains, mutants, bacteriophages, and plasmids, etc.

A method or strain, etc., used in only one of several experiments reported in the paper may be described in the Results section or very briefly (one or two sentences)

FirstAuthor et al.

in a table footnote or figure legend. It is expected that the sources from whom the strains were obtained will be identified.

Availability of data and materials. By publishing in mSystems, the authors agree that, subject to requirements or limitations imposed by local and/or U.S. Government laws and regulations, any materials and data that are reasonably requested by others are available from a publicly accessible collection or will be made available in a timely fashion, at reasonable cost, and in limited quantities to members of the scientific community for noncommercial purposes. Similarly, the authors agree to make available computer programs and/or code, originating in the authors' laboratory, that is the only means of confirming the conclusions reported in the article but that is not available commercially. The program(s) and suitable documentation regarding its (their) use may be provided by any of the following means: (i) as a program transmitted via the Internet, (ii) as an Internet server-based tool, or (iii) as a compiled or assembled form on a suitable medium. The authors guarantee that they have the authority to comply with this policy either directly or by means of material transfer agreements through the owner. ASM asks authors to assert this in a "Data availability" paragraph, which should appear at the end of the Materials and Methods section (or at the end of the text) of their submitted manuscript.

Therefore, a condition of publication in mSystems is that authors make data fully available and without restriction, except in rare circumstances. Data availability will be confirmed prior to publication and must be provided during the modification stage, if not before. Furthermore, data must be made available, upon request, for peer review. See Data Policy.

Data citation. To promote reproducibility, ASM expects researchers to identify and cite data sets and/or code used in their experiments and studies. These may be large or complex data sets that can include, but are not limited to, data from microarray, genomic, structural, proteomic, or video imaging analyses. Authors should cite both the data set repository and the published article in which the data set and/or code was originally described. Citations of data should be included in the reference list with persistent unique identifiers (e.g., active DOIs, accession numbers, etc.). If computer code or software was created to generate results or interpret data, then a statement to that effect should be included in the "Data availability" paragraph. For cases in which the software is publicly available (e.g., FigTree to generate phylogenetic trees), the URL of the software informational page should be provided. It is preferred that authors use established, publicly available data type-specific repositories. If there is no appropriate repository available, general publicly available repositories should be used (e.g., Dryad, figshare, etc.).

SUPPLEMENTAL MATERIAL

Guidelines for supplemental material appear in the Instructions to Authors. This section of the paper should include legends for any supplemental material that is intended for posting. Such supplemental material must be submitted with the manuscript. Files can be added to the submission at the publisher's submission site. Here is a list of sample legends for supplemental material:

FIG S1. Supplemental file 1 is a figure that shows results related to the study, although the study stands on its own. This legend for the figure may include multiple sentences.

FIG S2. Supplemental file 2 is a figure that shows results related to the study, although the study stands on its own. This legend for the figure may include multiple sentences.

Running Title

236

237

238

239

241

242

243

244

248

249

250

251

252

254

255

256

257

258

259

260

261

262

263

264

265

266

267

268

269

270

271

272

273

274

275

276

FIG S3. Supplemental file 3 is a figure that shows results related to the study, although the study stands on its own. This legend for the figure may include multiple sentences.

TABLE S1. Supplemental file 4 is a large table that shows results related to the study, although the study stands on its own. This legend for the table may include multiple sentences.

TABLE S2. Supplemental file 5 is a complex table that shows results related to the study, although the study stands on its own. This legend for the supplemental material may include multiple sentences.

ACKNOWLEDGMENTS

Statements regarding sources of direct financial support (e.g., grants, fellowships, and scholarships, etc.) should appear in the Acknowledgments. A funding statement indicating what role, if any, the funding agency had in your study (for example, "The funders had no role in study design, data collection and interpretation, or the decision to submit the work for publication.") may be included. Funding agencies may have specific wording requirements, and compliance with such requirements is the responsibility of the author. In cases in which research is not funded by any specific project grant, funders need not be listed, and the following statement may be used: "This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors." Statements regarding indirect financial support (e.g., commercial affiliations, consultancies, stock or equity interests, and patent-licensing arrangements) are also allowed. It is the responsibility of authors to provide a general statement disclosing financial or other relationships that are relevant to the study. Recognition of personal assistance should be given as a separate paragraph, as should any statements disclaiming endorsement or approval of the views reflected in the paper or of a product mentioned therein. In addition to acknowledging sources of financial support in the manuscript, authors should list any sources of funding in response to the Funding Sources question on the online submission form, providing relevant grant numbers where possible, and the authors associated with the specific funding sources. In the event that your submission is accepted, the funding source information provided in the submission form may be published, so please ensure that all information is entered accurately and completely. (It will be assumed that the absence of any information in the Funding Sources fields is a statement by the authors that no support was received.)

Authors may include a statement that specifies contributor roles as a separate paragraph in the Acknowledgments section. ASM encourages transparency in authorship by publishing author contribution statements using the CRediT taxonomy as recommended by CASRAI. For some manuscript types, authors have the option of assigning CRediT roles during the online submission process.

Please read the <u>Instructions to Authors</u> or browse the FAQs for further details.

REFERENCES

- Caserta E, Haemig HAH, Manias DA, Tomsic J, Grundy FJ, Henkin TM, Dunny GM. 2012. *In vivo* and *in vitro* analyses of regulation of the pheromone-responsive *prgQ* promoter by the PrgX pheromone receptor protein. J Bacteriol 194:3386–3394.
- Johnson J, Robinson VR. 2016. Cleavage of JPS-1 in cells infected with human rhinovirus. mSystems 1:e00001–15.
- 3. Winnick S, Lucas DO, Hartman AL, Toll D. 2005. How do you im-
- prove compliance? Pediatrics 115:e718-e724.
- 4. **Falagas ME, Kasiakou SK**. 2006. Use of international units when dosing colistin will help decrease confusion related to various formulations of the drug around the world. Antimicrob Agents Chemother 50:2274–2275. (Letter) ["Letter" or "Letter to the editor" is allowed but not required at the end of such an entry.].
- 5. Cox CS, Brown BR, Smith JC. J Gen Genet, in press. [Article title is

optional; journal title is mandatory].

FirstAuthor et al.

- Forman MS, Valsamakis A. 2003. Specimen collection, transport, and processing: virology, p 1227–1241. *In* Murray PR, Baron EJ, Pfaller MA, Jorgensen JH, Yolken RH (ed), Manual of clinical microbiology, 8th ed. ASM Press, Washington, DC.
- da Costa MS, Nobre MF, Rainey FA. 2001. Genus I. Thermus Brock and Freeze 1969, 295, AL emend. Nobre, Trüper and da Costa 1996b, 605, p 404-414. In Boone DR, Castenholz RW, Garrity GM (ed), Bergey's manual of systematic bacteriology, 2nd ed, vol 1. Springer, New York, NY.
- Fitzgerald G, Shaw D. In Waters AE (ed), Clinical microbiology, in press. EFH Publishing Co, Boston, MA. [Chapter title is optional].
- Green PN, Hood D, Dow CS. 1984. Taxonomic status of some methylotrophic bacteria, p 251-254. In Crawford RL, Hanson RS (ed), Microbial growth on C₁ compounds. Proceedings of the 4th International Symposium. American Society for Microbiology, Washington, DC.
- 10. Rotimi VO, Salako NO, Mohaddas EM, Philip LP. 2005. Abstr 45th Intersci Conf Antimicrob Agents Chemother, abstr D-1658. [Abstract title is optional].
- 11. Smith D, Johnson C, Maier M, Maurer JJ. 2005. Distribution of fimbrial, phage and plasmid associated virulence genes among poultry Salmonella enterica serovars, abstr P-038, p 445. Abstr 105th Gen Meet Am Soc for Microbiol. American Society for Microbiology, Washington, DC. [Abstract title is optional].
- 12. Garcia CO, Paira P, Burgos R, Molina J, Molina JF, Calvo C. 1996. Detection of salmonella DNA in synovial membrane and synovial fluid from Latin American patients. Arthritis Rheum 39 (Suppl):S185. [Meeting abstract published in journal supplement].
- 13. O'Malley DR. 1998. PhD thesis. University of California, Los Angeles, CA. [Title is optional].
- 14. **Stratagene**. 2006. Yeast DNA isolation system: instruction manual. Stratagene, La Jolla, CA. [Use the company name as the author if none is provided for a company publication].
- 15. **Odell JC**. April 1970. Process for batch culturing. US patent 484,363,770. [Include the name of the patented item/process if possible; the patent number is mandatory].
- 16. Harrison F, Roberts AEL, Gabrilska R, Rumbaugh KP, Lee C, Diggle SP. 2015. A 1000-year-old antimicrobial remedy with antistaphylococcal activity. mBio 6:e01129-15. [Original article that describes how data submitted to a database were generated].
- 17. Harrison F, Roberts AEL, Gabrilska R, Rumbaugh KP, Lee C, Diggle SP. 2015. Data from "A 1000-year-old antimicrobial remedy with antistaphylococcal activity". Dryad Digital Repository https://doi.org/

- 10.5061/dryad.mn17p. [Citation for the database where the data in the previous reference were deposited; the URL is necessary].
- 18. Wang Y, Rozen D. 2016. Colonization and transmission of the gut microbiota of the burying beetle, Nicrophorus vespilloides, through development. bioRxiv https://doi.org/10.1101/091702.
- Magalon A, Mendel RR. 15 June 2015, posting date. Biosynthesis and insertion of the molybdenum cofactor. EcoSal Plus 2015 doi: 10.1128/ecosalplus.ESP-0006-2013. [In some online journal articles, posting or revision dates may serve as the year of publication; a DOI (preferred) or URL is required for articles with nontraditional page numbers or electronic article identifiers. A posting or accession date is required for any online reference that is periodically updated or changed.].
- Wang GG, Pasillas MP, Kamps MP. 15 May 2006. Persistent transactivation by Meis1 replaces Hox function in myeloid leukemogenesis models: evidence for cooccupancy of Meis1-Pbx and Hox-Pbx complexes on promoters of leukemia-associated genes. Mol Cell Biol doi:10.1128/MCB.00586-06. [Citations of accepted ASM manuscripts (articles from other, issue-based ASM journals that are published ahead of the issue).].
- 21. Zhou FX, Merianos HJ, Brunger AT, Engelman DM. 13 February 2001, posting date. Polar residues drive association of polyleucine transmembrane helices. Proc Natl Acad Sci United States Am doi:10.1073/pnas.041593698. [Journals not published by ASM may use various styles for their publish-ahead-of-print manuscripts, but citation entries must include the following information: author name(s), posting date, title, journal title, and volume and page numbers and/or DOI.].
- 22. Christian SL, McDonough J, Liu C-Y, Shaikh S, Vlamakis V, Badner JA, Chakravarti A, Gershon ES. 2002. Data from "An evaluation of the assembly of an approximately 15-Mb region on human chromosome 13q32-q33 linked to bipolar disorder and schizophrenia". Gen-Bank https://www.ncbi.nlm.nih.gov/nuccore/AF339794 (accession no. AF339794). [Accession number].
- 23. Sun Z. 2013. Reprocessed: in-depth membrane proteomic study of breast cancer tissues. ProteomeXchange http://proteomecentral. proteomexchange.org/cgi/GetDataset?ID=RPXD000665 number requested). [Unassigned accession number].
- Hogle S. 2015. Supplemental material for Hogle et al. 2015 mBio. figshare https://doi.org/10.6084/m9.figshare.1533034.v1. Retrieved 16 March 2017. [Code and/or software.].
- Nesbitt HK, Moore JW. 2016. Data from "Species and population diversity in Pacific salmon fisheries underpin indigenous food security". Dryad Digital Repository https://doi.org/10.5061/dryad.ng8pf. [Data set in repository].