Abstract Writing Guides and Examples

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# **Guide for Research Project Abstract**

***Essentials***

* **Be sure that all appropriate individuals are listed as authors.**
* Be sure to **include appropriate institutional affiliations for all authors and indicate the affiliation for each**. If an author is a student, his/her current academic institution should be listed as his/her institutional affiliation (e.g., VCOM-Auburn is the affiliation for VCOM-Auburn students). Please see the example abstract.

***Tips for a good abstract***

* The title is a summary of the abstract itself and should convince the reader that the topic is important and relevant. Make the title short, descriptive, and interesting.
* Avoid the use of jargon and excessive reliance on abbreviations. Always spell out the abbreviations the first time they are mentioned unless they are commonly recognized (e.g., CBC).
* Get help from a mentor who is not familiar with the case; such mentors can quickly point out areas that are unclear. Make revisions based upon the feedback.
* Have others read your draft to check for technical errors, such as spelling and grammar mistakes. Reading the abstract aloud is another good way to catch awkward phrasing and word omissions.

***Parts of the abstract (please see example abstract)***

**Background:** Provide the key background information about why the study was done (what is known, what is not known, what needs to be determined). This section should make it clear why the work is important and/or novel.

**Objective:** Concisely, state the objective(s) of the study. This section should make it clear what the aim of the study was and/or what hypothesis was being tested.

**Methods:** Concisely, but fully describe the Methods. This section should make it clear what was done (e.g., what population was studied, what experimental system was used, what qualitative and/or quantitative methods were used, what type of statistical analysis was performed). Do not include Results here.

**Results:** Concisely, but fully describe the Results of the study. This section should make it clear what the main findings, with data, are from the study.

**Conclusions:** Concisely summarize/explain the main findings of the study (i.e., the “take-home messages”). Relate these findings back to the objective of the study. Conclusions should be reasonable and supported by the data.

# **Example Abstract for Research Project**

|  |  |  |  |
| --- | --- | --- | --- |
| Presenting Author: | Nicole Anthony | Email address:  | nia0003@auburn.edu |
| Mentor: | Clay E. Pandorf |
| Category: | Graduate/Undergrad Student | Discipline: | Biomedical Research |
| Characterizing the structure-to-function relationship of an antisense long non-coding RNA associated with the β-myosin heavy chain gene of skeletal and cardiac muscle |
| Nicole I. Anthony1, Devadatta Gosavi1, Joanna Sztuba-Solinska1, Clay E. Pandorf2 |
| 1Department of Biological Sciences, Auburn University, 2Cell Biology and Physiology, VCOM-Auburn |
| **Background:** Skeletal and heart muscle phenotype and metabolism are subject to physiological regulation. Inactivity of muscle induces abnormal changes in the expression of muscle genes, presenting a serious challenge to musculoskeletal health. At the center of this phenomenon is the motor protein β-myosin heavy chain (β-MHC) encoded by the MYH7 gene. Diminished muscle activity results in a loss of β-MHC that is mediated by the transcriptional repression of MYH7 gene. **Objective:** The overall objective of this project is to characterize the MYH7-associated antisense long non-coding RNA (MYH7-AS lncRNA) that regulates MYH7 gene function. **Methods:** Structural analysis of MYH7-AS lncRNA was performed by the selective 2’-hydroxyl acylation analyzed by primer extension and mutational profiling (SHAPE-MaP) with single-nucleotide resolution. The MYH7-AS lncRNA was *in vitro* synthesized, purified, and qualitatively and quantitatively assessed. Folding conditions were developed to force the MYH7-AS lncRNA into the native and homogeneous conformation, optimal PCR conditions were determined, and obtained cDNA libraries were purified and assessed, all requirements for SHAPE-MaP structural probing. **Results:** SHAPE-MaP analysis and resolution of the MYH7-AS lncRNA was performed *in vitro*, and one stem-loop structure predicted to interact with a muscle-specific microRNA (mir-208b) was confirmed at a highly favorable minimum free energy. We next examined MYH7-AS transfected and expressed in L6 myotubes. SHAPE-MaP structural probing analyses are currently underway to compare the *in cellulo* to the *in vitro* structure of MYH7-AS. **Conclusions:** This work is expected to provide comprehensive insight into the MYH7-AS lncRNA structure and interactome network, which will contribute to an underrepresented body of knowledge regarding lncRNA plasticity as a biological control mechanism. |

# **Guide for Case Report Abstract**

***Essentials***

* **Be sure that all appropriate individuals are listed as authors.** **The attending physician(s) who was responsible for the patient should be an author and should be involved in preparing and approving the abstract.**
* Be sure to **include appropriate institutional affiliations for all authors and indicate the affiliation for each**. If an author is a student, his/her current academic institution should be listed as his/her institutional affiliation (e.g., VCOM-Auburn is the affiliation for VCOM-Auburn students). The hospital/clinical site for the attending physician(s) should be listed as the institutional affiliation of the attending physician(s). Please see the example abstract.

***Tips for a good abstract***

* The title is a summary of the abstract itself and should convince the reader that the topic is important and relevant. Make the title short, descriptive, and interesting. Creativity is welcomed and can serve as a hook to grab attention.
* Avoid the use of medical jargon and excessive reliance on abbreviations. Always spell out the abbreviations the first time they are mentioned unless they are commonly recognized (e.g., CBC).
* Get help from a mentor who is not familiar with the case; such mentors can quickly point out areas that are unclear. Make revisions based upon the feedback.
* Have others read your draft to check for technical errors, such as spelling and grammar mistakes. Reading the abstract aloud is another good way to catch awkward phrasing and word omissions.

***Parts of the abstract***

**Introduction:** This brief section describes the context of the case and explains its relevance and importance. It is typically 1-2 sentences.

**Case Description:** When reporting the case, describe in sequence the history, physical examination, investigative studies, and the patient's progress and outcome. Be complete without obscuring the essence of the case with irrelevant details. A detail is important if necessary to understand the clinical course or will be used to emphasize a learning point in the discussion.

**Discussion:** The main purpose of the discussion is to extract the lesson from the case. Before writing the discussion, think of 1-3 learning objectives. What should clinicians be able to do after reading this case? Then make sure your discussion highlights points that apply to those learning objectives. Remove unnecessary points that do not address your objectives. Typically, the most effective case reports make a small number of teaching points in clear and succinct language. Be careful in stating that your case is the "first" to describe a particular phenomenon, since even the most thorough searches often fail to reveal all instances of similar cases.

# **Example Abstract for Case Report**

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| --- | --- | --- | --- |
| Presenting Author: | Nathan Anthony | Email address:  | nanthony@auburn.vcom.edu |
| Mentor: | Nathan Douthit, MD |
| Category: | Medical Student | Discipline: | Clinical Case Report |
| Actinomyces Acting Out: *A. europaeus* as an Emerging Cause of Necrotizing Fasciitis |
| Nathan Anthony1Clayton Johnson1Nathan Douthit, MD1, 2 |
| 1Edward Via College of Osteopathic Medicine-Auburn Campus2East Alabama Medical Center, Opelika, AL |
| **Introduction:** *Actinomyces europaeus* is a facultatively anaerobic, gram-positive filamentous rod that is a culprit of abscesses, decubitus ulcers, and UTIs. Until the year 2019, *A. europaeus* had never been known to cause necrotizing infections. To our knowledge this is the second case report of *A. europaeus* associated necrotizing fasciitis.**Case Description:** A 60-year-old female patient with a history of type 2 diabetes mellitus and hypertension presented to the emergency department with encephalopathy. The patient developed a decubitus ulcer while hospitalized for COVID-19 infection 11-days prior. She was prescribed cephalexin and trimethoprim-sulfamethoxazole, but after discharge home she began dressing the ulcer with cornstarch. Now, the ulcer had progressed to a draining abscess with overlying crepitus and black eschars involving the left buttock, labia, medial thigh, and flank. The patient’s vital signs were as follows: BMI of 35.73, blood pressure of 70/34 mmHg, pulse rate of 108 bpm, respiratory rate of 22/min, temperature of 36.5 ºC, and oxygen saturation of 98% on room air. Her labs were significant for creatinine of 2.9 mg/dL, lactic acid of 10.5 mmol/L, glucose of 736 mg/dL, creatine phosphokinase of 340 IU/L, and WBC count of 12 x 103/𝝻L. The patient was started on empiric antibiotic therapy with meropenem, clindamycin, and vancomycin. Surgery was performed; all skin, subcutaneous tissue, and fascia were removed extending from the left buttock to the left costal margin. On post-operative day five, deep tissue cultures showed a polymicrobial anaerobic infection with heavy growth of *A. europaeus.* The antibiotic spectrum was narrowed to piperacillin-tazobactam, but over the subsequent days the patient developed severe respiratory distress. On hospital day 12, the patient developed multisystem organ failure and ultimately expired. **Discussion:** *Actinomyces* are slow-growing organisms; incubation takes five days before growth appears but can occur as late as 15-20 days. While culturing for this type of infection is accessible, studies have shown that only 21% of hospitals have in-house antibiotic susceptibility testing available for anaerobic infections. Therefore, current literature recommends treating polymicrobial actinomycosis with beta-lactam antibiotics. Penicillin G is an exception, as the anaerobes accompanying *Actinomyces* often produce neutralizing beta-lactamases. Accepted regimens consist of piperacillin-tazobactam or carbapenems for systemic infections as these cover for gram-negative and beta-lactamase producing organisms. While this treatment plan is sufficient for most cases, it may not be ideal for *A. europaeus*, specifically. In fact, recent studies have found that *A. europaeus* is among the most resistant species of its genera as it exhibits resistance to erythromycin, ceftriaxone, ciprofloxacin, clindamycin, and piperacillin-tazobactam. The same studies also showed susceptibility to aminopenicillins, carbapenems, vancomycin, tigecycline, and doxycycline. Although Actinomyces has been a docile organism in the past, the emergence of resistance and evolution of *A. europaeus* to cause necrotizing fasciitis could alter our approach for treating these infections in the future. |