## **SUPPLEMENTAL MATERIAL 3**

Group name:						Points
TITLE	0 point Missing	1 point Inaccurate or too lengthy of description	2 points Concise accurate title representative of the work completed			/2
INTRODUCTION	0 point Missing	1-2 points Lacks clarity and is missing multiple primary elements (ex: no description of goal, inadequate mention, or no mention of methods); too short	3-5 points Lacks clarity; missing a primary element (goal or method); methods are only listed without purpose recognized	6-8 points Lacks full clarity or too lengthy of a description of the goals and methods	9-10 points Clearly and concisely explains the goal of the experiment and primary methods used.	/10
METHODS	0-3 points Missing or copied from the lab manual	4-7 points Several methods are omitted; others are presented in a piecemeal, vague form.	8-10 points Methods are listed as tables or figures, and/or bullet points rather than text; Some methods are omitted. The purpose of the method steps is omitted.	11-13 points Some methods are presented so briefly and/or vaguely that it is unclear how or why they were done. Written as a protocol rather than a description.	14-15 points Gives the reader a clear picture of the methods and materials used and their purpose. Does not use prescriptive language. Uses specific, not general, terminology. Detailed, step-by-step procedures are clearly referenced. Avoids long, redundant descriptions.	/15
RESULTS -DATA	0-4 points Missing many pieces of data (figures, tables, etc.)	5-8 points Data is included but legends are not present. Irrelevant data may be included, and relevant data left out.	9-12 points Data is presented haphazardly. It is sometimes not possible to tell what material or procedure was used to obtain the data.	13-16 points All or most of the data is present. Legends may be too brief, vague, or uninformative. Controls or borrowed data not clearly indicated.	17-20 points All figures and tables have titles and legends with all items labeled. All results are clearly presented, with a logical sequence. Controls are clearly indicated. Borrowed data is referenced.	/20
RESULTS-TEXT	0-4 points Missing textual description of the results (text other than figure legends/table headings)	5-8 points Text lacks full description of each item in each figure, table, etc. No logical connection between methods and data	9-12 points Text presents most data but haphazardly and is difficult to follow.	13-16 points Text clearly presents almost all data. Comparisons of experimental to control results are stated.	17-20 points Clear, Full description in the text of each item in each figure, table, etc. Comparisons of experimental to control results are stated	/20
DISCUSSION	0-4 points Missing textual descriptions of the results (text other than figure legends/table headings)	5-8 points Mostly a restatement of results. No analysis given. No recognition of error sources. No understanding of controls.	9-12 points Very little analysis of the results. Statements are vague and general. Inconsistencies are explained by 'human error' with no further explanation or discussion of other alternative sources of error. Biological meaning is not discussed.	13-16 points Some lack of clarity. Summary of results or expectations are not included. Incomplete analysis of inconsistencies and unexpected results (sources of error unidentified).	17-20 points It was clear that methods and results have been understood. Summary of results included and compared to expectations. Possible explanations for inconsistencies and/or unexpected results are given. All data is referenced and discussed	/20
REFERENCES	0 point No citations or relevant sources	1-2 points Citation of references but inconsistent formatting or lack of citations in the text. Or other relevant external sources are missing	3-5 points Citation of some articles but less than 15 external citations from reputable journals. Inconsistent formatting Lack of in text citations	6-8 points Citation of at least 15 external citations from reputable journals. In text citations but bibliography not annotated	9-10 points Citation of 15 external citations from reputable journals. In text citations and bibliography annotated at the end	/10
SPELLING & GRAMMAR	O point Frequent grammatical errors or misuse of technical terminology; no evidence of proofreading	1 point Multiple grammatical errors or incorrect use of technical terminology	2 points An occasional error	3 points No spelling or grammatical errors		/3
COMMENTS:					TOTAL	/100

S3. Grading rubric for the research manuscript.