2020

A rubric for grading laboratory research paper writing assignments in plant biology

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Student Name:

Biol431-F2020 Lab Report Grade Sheet Rubric with Guidelines

Abbreviations used in grading: Gr = grammar issue; **NAS** = not a complete sentence; **Sp** = spelling issue; **W** = wording issue; **Unc** = writing is unclear; **Inc** = section/concept is incomplete; **DSSWN** = don't start a sentence with a number; **Logic** = issue with logic used to arrive at conclusion; **Logic flow** = issue with the logical flow- usually means illogical organization

Abstract (0.5-0.75 pg.)

Score = /10 pts.

Components:

1) Brief intro to plant stress problem & HSPs & previous data
2) Hypothesis
3) Brief summary of how hypothesis was tested
4) Brief summary of results:
5) Brief summary of what results mean:

- overall quality of writing, including:
  - logic flow:
  - clarity of writing:

Introduction (1.5-2 pgs.)

Score = /15 pts.

Components (Note: each of these should be no more than 4 sentences):

1) Intro to plant stress problem
2) Intro to HSPs
3) BRIEF Intro to Arabidopsis (*Arabidopsis thaliana*)- only 1-2 sentences (optional)
4) BRIEF Intro to gene expression- only 1—2 sentences (optional)
5) BRIEF Introduction to reporter genes / luciferase- only 1-2 sentences
6) Previous data- BRIEF summary (about 2 sentences)
7) Hypothesis
8) How hypothesis was tested
9) BRIEF Summary of MAIN results- just cloning success and heat response of reporter gene (optional)

- accuracy & completeness of presented background information:
- accuracy & completeness of description of problem investigated / purpose of experiment(s):
- overall quality of writing, including:
- logic flow:
- clarity of writing:

Materials & Methods (3-4 pgs.)

Score = /10 pts.

Components:

1) 1st seed planting
2) Plant growth
3) PCR
4) RE digest
5) AGE1
6) Purification from gel
7) AGE2
8) Ligation
9) Bacterial cell growth to make competent cells
10) Making competent cells
11) *Agrobacterium tumefactions* C58 transformation
12) Bacterial cell growth after transformation
13) Plasmid DNA isolation
14) RE digestion
15) AGE3
16) Plant transformation
17) Seed collection
18) 2nd seed planting
19) Heat stress & plant analysis
20) Imaging

- accuracy of description of details in protocol:
- overall quality of writing, including:
  - logic flow:
  - clarity of writing:

Results (3-4 pgs.)
Score = /20 pts.
Components:
1) Results of AGE1- PCR & digestion
2) Results of AGE2- purification of PCR product
3) Results of *Agrobacterium tumefactions* C58 transformation- colonies obtained?? how worked overall?
4) Results of AGE3- success of obtaining correct construct??
5) Results of plant growth from seeds for planting 1:
6) Results seed production after transformation
7) Results of plant growth & development from seeds after putative transformation:
8) Results of plant imaging
Fig legends:
1) Completeness- all data discussed:
- All lanes labeled and referred to (if appropriate):
2) Accuracy:
3) Clarity:
- accuracy of reporting of obtained data:
- accuracy of stated results derived from data:
- completeness and accuracy of figures / tables / graphs:
- quality of writing, including:
- logic flow:
- clarity of writing:

Discussion (2-3 pgs.)
Score = /30 pts.
Components:
1) Discuss results of AGE1- PCR & digestion
2) Discuss results of AGE2- purification of PCR product
3) Discuss results of *Agrobacterium* transformation- colonies obtained
4) Discuss results of AGE3- success of obtaining correct construct
5) Discuss results of plant growth & development before & after transformation including seed production:
6) Discuss results of plant imaging
- clear statements of conclusion(s) generated from results:
- connection of evidence (results and what they mean) to support conclusions:
- discussion of implications of the results for your future experimentation in this lab project:
- description of problems / anomalies encountered and reasons and ways to correct / adjust experiment:
- overall quality of writing, including:
- logic flow:
- clarity of writing:

References/ bibliography (~0.5-0.75 pgs.)
Comments:
Score = /5 pts.

Format, style, grammar / spelling/ wording:
Comments:

Score = /10 pts.

Sub-total = /100 pts. Total
General Comments/deductions:
Final Comments:

Final Grade total: /100 pts. --> divide by 2 --> /50