Members of the research team

- Principal Investigator
- Postdocs
- Graduate Students
- Research Assistants
- Undergraduate Students
Members of the research team have different goals

**Principal Investigator**
- Publish
- Obtain funding
- Get tenure/promotion/other honors
- Help grad students graduate
- Help postdocs get jobs

**Graduate Students**
- Graduate
- Obtain post-graduate job
- Publish

**Postdocs**
- Achieve career stability
- Publish
- Obtain post-postdoc job

**Research Assistants**
- Keep good job
- Obtain next career opportunity
- Contribute to research/publish

**Undergraduate Students**
- Graduate
- Obtain post-graduate position
- Contribute to research/publish
Authorship has different values for different members of the team

**Principal Investigator**
- Demonstrates ability to lead productive research team
- Indicates intellectual contribution
- CRITICAL

**Graduate Students**
- Demonstrates ability to carry out research
- MAYBE IMPORTANT (depending on career goals)

**Postdocs**
- Demonstrates ability to carry out and complete independent research
- MAYBE IMPORTANT (depending on career goals)

**Research Assistants**
- Stepping stone for next career opportunity
- BONUS

**Undergraduate Students**
- Stepping stone for next career opportunity
- BONUS
Authorship order has specific meaning, which is different in different fields of scholarship

• Authorship is merited if you have contributed substantially to
  - Experimental design
  - Carrying out experiments
  - Analyzing data
  - Writing the manuscript
  - Obtaining funding for the research

Who decides who has contributed substantially?
  - Different team members may differ in their definition of “substantial”
  - Ultimately the PI makes this decision

First author: carried out bulk of experimental and/or analytical work. Usually grad student or postdoc.
  - PI should
    • Clarify expectations/lab publication policy
    • Guide other team members in effective communication and negotiation of authorship goals

Second author: likely carried out some of experimental and/or analytical work. Usually student or technician.

Other middle author: could have contributed in any way but how is unclear; less experimental/analytical role played than last author.

Last author: senior author = PI. Usually major contributor of intellectual content and funding.
Germ cell selection in genetic mosaics in Drosophila melanogaster

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The Drosophila melanogaster
Genetic Reference Panel

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Evolution of Developmental Control Mechanisms

The roles of cell size and cell number in determining ovariole number in Drosophila


Author list does not always clarify contribution to research

Pretty clear: last author is senior author = PI; first author likely graduate student or postdoc but is also corresponding author (*), suggesting much higher degree of intellectual/technical contribution relative to PI

Pretty unclear: first and corresponding author(s) are PIs, who were unlikely to have carried out experiments. What was the role/position of Gibbs (last author)? What were the role(s) of middle authors?

Clarified by “author contributions” section: last author is senior author = PI; first author likely graduate student or postdoc; roles of middle authors detailed.

Author contributions

CE conceived the idea for the research; AAB (initial S6K analyses), AA (hpo:RNAi analyses of TF number and TFC/TF number), DAG (analysis of the bab:GAL4 expression pattern), AD (D. yakuba analysis) and DS (all other experiments) performed experiments and collected data; CE, AAB and DS analyzed data; CE and DS wrote the paper with input from AA and DAG; CE obtained funding for the research.