Publication Guidelines for Users of University Core Facilities (Feb. 2018)

Authorship and Acknowledgement on Manuscripts and Grants

Rationale. Core facility scientists are partners in the advancement of knowledge. When they make a substantial intellectual or experimental contribution to a research project, then they deserve to be recognized for their contribution. Recognition provides tangible evidence of the value of core scientists to the project and helps to advance their careers. Proper recognition of the contribution of core scientists is also necessary to ensure appropriate ethical and responsible conduct of research. Financial support of core facilities depends in part on proper recognition of contributions of core scientists on grants and publications. The latter are important metrics that demonstrate the value of core facilities to university administrators and funding agencies.

Overview. Personnel working in core facilities (core scientists) provide essential services for researchers using their facility (users). It is important for users to recognize the contributions of core scientists to their research projects. The type of recognition (acknowledgement vs. authorship) depends upon the individual project and the contribution of core scientists. Ideally, the type of recognition should be established at the beginning of the project, so that both user and core scientist are cognizant of each other's contributions. Of course, projects and expectations change, and so updating expectations should be built into the process.

The guidelines and procedures outlined in this document are intended to facilitate dialog and reduce misunderstandings between users and core scientists. They were developed and approved by the Core Facility Advisory Board and the Core Facility Working Group on Publications. Following the Guidelines is a list of "Practical Tips for Core Scientists" that aim to minimize misunderstandings with users. These are followed by links to online resources and publications related to this topic. We hope that these will provide helpful information for users and core scientists. It is our expectation that open dialog and an appreciation of the interdependence of users and core scientists will generate fruitful collaborations and enhance scientific discoveries.

Guidelines. The following guidelines are intended to ensure that research performed in core facilities is appropriately recognized and cited. They are compatible with "Authorship Guidelines" approved by the Research Affairs Committee of the Northwestern Faculty Senate on April 26, 2017. They are also compatible with recommendations of the International Committee of Medical Journal Editors (ICMJE) that describes who is an author and what merits authorship in publications (www.icmje.org).

Guideline 1: The following activities should be acknowledged on manuscripts and grants, but they do not by themselves meet the criteria for authorship.

- Core scientist provided routine training or services for the user.
- Core scientist collected data for users that required technical skill, but it did not involve interpretation of data.

- Core scientist reviewed the manuscript or grant for intellectual content or advised on a revision of it.
- A technical question from a referee about data presented in the manuscript required a response from the core scientist with technical expertise relevant to the project.
- Lab head or principle investigator (PI) provided general supervision of the research project without significant intellectual input.
- Lab head or PI provided funding for the project without significant intellectual input.

Guideline 2: If all of the following conditions are met, then a core scientist should be invited to be a co-author on the manuscript. If a core scientist contributed one or more of these, but not all, then it is up to the discretion of the PI whether authorship is warranted.

- Core scientist contributed significantly to the conception or design of the project.
- Core scientist provided "non-routine" training and services for a user. This includes development of novel procedures for data acquisition or data analyses.
- Core scientist wrote a portion of the manuscript (including materials and methods, figure legends, or technical details).
- Core scientist approved and took responsibility for the intellectual content of her/his contribution to the manuscript.
- Core scientist produced a figure for the manuscript using data collected by the core scientist.

Guideline 3: If any of the following conditions are met, then the core scientist should be invited to be a co-author on the manuscript.

- Core scientist acquired, analyzed and interpreted data for the project that required unique expertise and skills.

Guideline 4: A core scientist has the discretion to turn down an invitation for authorship if she/he believes that data and interpretation are not consistent with professional standards. The latter may include withdrawing data or figures from the manuscript generated by the core scientist.

Guideline 5: Disagreement over the type of recognition or withdrawal of data shall be handled initially by the faculty director of the facility. The faculty director will meet with the user, PI and core scientist and help to resolve the dispute. If she/he is unable to obtain a solution that satisfies all parties, then the research dean of the appropriate school will resolve the dispute. Failure to abide by the decision of the research dean may result in loss of privileges to use the core facility.

Practical Tips for Core Scientists:

- Post "Publication Guidelines for Users of University Core Facilities" prominently on your website.
- Communicate guidelines to all users, lab heads and PIs.
- Discuss roles and responsibilities at the beginning of a project to ensure that they are clearly understood. If you believe these go beyond routine services and include substantial intellectual involvement, then make that clear from the start. You may want to

create a user agreement that spells out roles and responsibilities and expectations regarding authorship.

- Be clear that payment for services does not substitute for recognition of intellectual contribution to a project.
- Offer to read drafts of manuscripts to ensure the technical aspects are sound before going to press (even when you do not contribute to the work). This builds trust and respect with users, lab heads and PIs.
- Send reminders to users, lab heads and PIs to acknowledge you and your facility in grants and publications using data generated in your facility. A good practice is to send this reminder immediately after they have used your facility.

Section 3. Supplemental Resources

Northwestern University "Policy Development FAQs" (2017) - http://policies.northwestern.edu/policy-development-resources/faqs.html

Northwestern University "Report of the Research Affairs Committee – Authorship Guidelines" (Apr. 26, 2017) - http://www.northwestern.edu/faculty-senate/documents/2016-2017/Draft_Authorship_Guidelines.pdf

International Committee of Medical Journal Editors (ICMJE) "Recommendations for the Conduct, Reporting, Editing and Publication of Scholarly Work in Medical Journals" (Dec. 2016) - http://www.icmje.org/index.html#authorship

National Institutes of Health Intramural Research "Sourcebook: Ethical Conduct" (Dec. 11, 2015) - https://oir.nih.gov/sourcebook/ethical-conduct

Association for Biomolecular Resource Facilities (ABRF) "ABRF Recommended Guidelines for Authorship on Manuscripts" (May 2010) - http://pcf-ptp.epfl.ch/files/content/sites/pcf-ptp/files/Documents/ABRF_Guidelines.PDF

Section 4. Relevant Publications

Authorship: why not just toss a coin? (Strange K, Am J Physiol Cell Physiol 295: C567-C575, 2008) - https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2544445/

What Is an Author? (Bailey B J, Otolaryngol. Head Neck Surg 124: 2-3, 2001) - http://www.ncbi.nlm.nih.gov/pubmed/11228443

Who did what? Authorship and contribution in 2001 (Drummond R, Muscle Nerve 24: 1274-1277, 2001) - http://www3.interscience.wiley.com/journal/85511729/abstract?

Research Technologies: Fulfilling the Promise (Angeletti R, The FASEB Journal 13: 595-601, 1999) - http://www.fasebj.org/cgi/content/full/13/6/595

Guidelines on Authorship of Medical Papers (Huth E, J Annals Int Med 104: 269-274, 1986) - http://www.annals.org/content/104/2/269.extract

Section 5: Institutional Policies on Authorship – General

Yale University "Guidance on Authorship in Scholarly or Scientific Publications" (2017) - http://provost.yale.edu/policies/academic-integrity/guidance-authorship-scholarly-or-scientific-publications

Michigan State University "Guidelines on Authorship" (Jan. 2013) - https://vprgs.msu.edu/michigan-state-university-guidelines-authorship

Washington University "Policy for Authorship on Scientific and Scholarly Publications" (Dec. 15, 2009) - https://research.wustl.edu/PoliciesGuidelines/Pages/AuthorshipPolicy.aspx

Harvard Medical School "Authorship Guidelines" (Dec. 17, 1999) - https://hms.harvard.edu/sites/default/files/assets/Sites/Ombuds/files/AUTHORSHIP%20GUIDELINES.pdf

Section 6: Institutional Policies on Authorship - Core Facilities

Genomics Core Facility, *The Huck Institutes of the Life Sciences, Pennsylvania State University* - http://www.huck.psu.edu/facilities/genomics-up/acknowledge

Protein Analysis Facility, Skirball Institute of Biomolecular Medicine, NYU Langone Medical Center (August 29, 2001) - http://skirball.med.nyu.edu/resources/facilities/protein-analysis-facility/nyu-protein-analysis-facility-policies-user-fees-auth

Frequently Asked Questions:

1. **Does payment for services in a core facility preclude authorship or acknowledgement on manuscripts?** No. Payment for services in a core facility is comparable to paying students and/or staff for research performed in a principle investigator's laboratory.
2. **What constitutes new, non-routine methods and procedures in a core facility that would qualify as "substantial contribution to the conception or design of the work"?** A substantial contribution should meet each of the following criteria. (1) *Specificity* - the material/method/procedure/technique was specifically designed to achieve the project's goal. (2) *Novelty* - the work involved use of a new material developed by the facility (e.g., PCR primer, computer code, chamber); or used a non-standard method, operating procedure or technique devised by the facility; or employed a new combination of existing material/method/procedure/technique to achieve something that is not available to other users. (3) *Effort* – the new material/method/procedure/technique required substantial, non-trivial effort to develop, document, implement and validate. (4) *Expertise* - the contribution was deemed to have required formal training and/or significant practical experience. In short, the project could not have been completed without the effort and expertise of the core scientist.
3. **What constitutes routine measurements and procedures in a core facility?** Routine measurements and procedures meet the following criteria. (1) They involve materials/methods/procedures/techniques that are available in the published literature. (2) They are available to all users as standard operating procedures. (3) They can be executed by a competent scientist without special training or expertise. If measurements and procedures exceed these criteria, then users should discuss options with the core scientist.
4. **Could a core scientist be invited to be a co-author if she/he does not meet the criteria outlined in Guideline 2?** Yes, as long as the user and PI agree that the core scientist provided valuable insight, expertise and service for the project.
5. **Is it appropriate for a user or PI to publish data obtained in a core facility if neither of them can explain the technical details related to how the data was obtained?** No. Under such circumstances, it would be appropriate to ask a core scientist to become more involved in the project to ensure that the research team has the requisite expertise necessary to address the scientific problem.
6. **Why should contributing a figure to a manuscript be sufficient for authorship (Guideline 3)?** Preparing a figure (including a supplemental figure) for a manuscript goes above and beyond the conditions described in Guideline 2. It requires understanding project goals, technical expertise, data collection, analysis and interpretation of the data in the context of the project, and constructing a means for displaying the data suitable for publication.
7. **If a core scientist is asked to be a co-author, but by the end of the project, it was determined that the contribution was not significant, is there an obligation to still include the core scientist as co-author or contributor?** No. As project goals and expectations change, users are encouraged to revisit the authorship agreement as often as it seems necessary; invitations can be rescinded or authors can be added at any point during the period of the project.

8. **What happens if a user or PI publishes work without including a core scientist that has provided contributing work that meets Guidelines 2 or 3?** The research dean of the PI's school is empowered to resolve disputes over authorship. Failure to abide by the decision of the research dean may result in loss of privileges to use the core facility.