

**U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
NATIONAL INSTITUTES OF HEALTH (NIH)
NATIONAL LIBRARY OF MEDICINE (NLM)
BOARD OF REGENTS (BOR) COMPARATIVE GENOMICS RESOURCE (CGR)
WORKING GROUP (WG) MEETING
APRIL 25, 2023**

MEMBERS PRESENT

Kristi L. Holmes, PhD, Northwestern University, Chair

EXTERNAL MEMBERS PRESENT

Hannah Carey, PhD, University of Wisconsin-Madison

Ani W. Manichaikul, PhD, University of Virginia School of Medicine

Valerie Schneider, PhD, DHHS/NIH/NLM/NCBI, Executive Secretary

Cathy Wu, PhD, University of Delaware

EXTERNAL MEMBERS NOT PRESENT

Alejandro Sanchez Alvarado, PhD, Stowers Institute for Medical Research

Wayne Frankel, PhD, Columbia University Medical Center

Len Pennacchio, PhD, Lawrence Berkeley National Laboratory

Kenneth Stuart, PhD, Seattle Children's Research Institute

Tandy Warnow, PhD, University of Illinois, Champaign-Urbana

Rick Woychik, PhD, NIEHS & NTP, NIH CGR Steering Committee Liaison

OTHERS PRESENT

Anne Ketter, Sr. Product Manager, NCBI

Sarah Kinling, Strategic Communications Principal, MITRE

Danny McLean, Strategic Communication Specialist, MITRE

Kim Pruitt, Chief, Information Engineering Branch, NCBI

I. WELCOME AND INTRODUCTIONS

Kristi Holmes, PhD, Chair

Dr. Holmes greeted Working Group members and thanked them for their continued participation in the Working Group. She introduced the agenda topics for the meeting and welcomed the Working Group members' continuing feedback on how best to engage the scientific community to promote CGR.

II. CGR PROGRESS UPDATE

Kristi Holmes, PhD, Chair

Valerie Schneider, PhD, Executive Secretary

Working Group Members

Dr. Schneider reviewed recent progress of the CGR project, focusing on maximizing its potential impact for scientific research communities. There have been continued updates to several component products of CGR. The Foreign Contamination Screen (FCS) tool suite has progressed out of its Beta stage and has been updated to include a new automated step to clean assemblies of contaminant sequences. A manuscript detailing the FCS Genome Cross-Species Aligner (FCS-GX) has been drafted and is targeted for publication soon. The Comparative Genome Viewer (CGV) was also recently expanded to include more than 50 cross-species alignments. Links within the CGV have also been added, providing additional opportunities for integration into comparative genome analysis workflows. In Summer 2023, legacy NCBI Genome and Assembly webpages, as well as HomoloGene pages, will be updated to redirect to the NCBI Datasets pages and gene tables. Finally, based on user feedback, the Basic Local Alignment Search Tool (BLAST) has been updated with taxonomically restricted nucleotide searches.

Dr. Schneider noted learning from recent engagements with specific CGR product user communities, not only to promote the use of new tools, but also to collaborate with users to identify areas for improvement. She also highlighted the ongoing development of Impact Spotlights, example case studies which can be used to help engage researchers. Per a previous recommendation by the NIH CGR Steering Committee, Impact Spotlights have been developed based on two published studies; outreach materials have also been generated based on these two examples. Dr. Holmes recommended that the Impact Spotlights also be leveraged in outreach to researchers as a valuable opportunity to disseminate and publicize their research.

Dr. Hannah Carey, a Working Group member, detailed her experience collaborating with biomedical researchers at a research conference, identifying opportunities to promote CGR in the context of cross-disciplinary genomic research. Dr. Schneider will continue to collaborate with the Working Group members to support user group-oriented avenues of community outreach.

III. CGR TRADEOFFS EXERCISE FOLLOW-UP

*Valerie Schneider, PhD, Executive Secretary
Working Group Members*

Dr. Schneider presented a follow-up to the CGR Tradeoffs Exercise conducted during the previous CGR Working Group meeting. First, Working Group responses to the question of whether NCBI should run genome screening and annotation tools as a public service or prioritize their adoption and use by data submitters were summarized. Dr. Schneider noted Working Group member concerns regarding heterogeneity in submitter expertise and needs, as well as the resource demands involved in running these tools as a public service. Second, regarding the question of whether NCBI should develop its own genome analysis tools or should adapt externally available tools, Dr. Schneider noted the Working Group's recommendation that NCBI act as a clearinghouse to curate available comparative genomics analysis tools. Considering NCBI's potential assumption of this role, Working Group members recommended basing inclusion of a tool on the success of its use in published research.

In addition, Dr. Schneider reviewed Working Group member feedback on additional tradeoffs collected after the previous meeting. Regarding the question of whether to expand the taxonomic scope of annotations or to continue to improve the annotations of the current taxonomic scope, Working Group members supported expanding the taxonomic scope as an opportunity to also expand the CGR user base. Regarding focus on either organism-specific or organism-agnostic CGR tools and data development, Working Group members favored the prioritization of organism-specific tools and data. An organism-specific focus was identified as an opportunity to foster deeper connection with research communities and increased adoption of CGR overall. Conversely, Working Group members also noted a greater need for organism-agnostic genome analysis tools than for organism-specific tools.

IV. CGR COMMUNITY ENGAGEMENT PRIORITIZATION

*Valerie Schneider, PhD, Executive Secretary
Working Group Members*

Dr. Schneider facilitated a discussion of CGR community engagement priorities, inspired by the priorities identified in the CGR Tradeoffs, but also intended to maximize CGR adoption and impact. She identified two categories – inclusion and prioritization – of factors to guide community engagement. Research community inclusion factors include strong connections or communications with established organism databases or individual organism research communities. Research prioritization factors are based on engagements which enhance the pursuit of the NIH mission or benefit the continued adoption and development of CGR.

Dr. Schneider presented the Community Engagement Prioritization Table, listing the organisms and communities identified for prioritized engagement based on the established inclusion and prioritization factors. Working Group members discussed new research which aims to identify potential new model organisms and agreed that engagements should be prioritized based on research which shows the greatest potential for broad applicability.

Working Group members also noted that research communities which express strong initial curiosity should be prioritized for further engagement to help maximize CGR adoption.

V. CGR ENGAGEMENT THEMES AND CONTENT OPTIONS

Kristi Holmes, PhD, Chair

Valerie Schneider, PhD, Executive Secretary

Working Group Members

Dr. Holmes presented several potential themes and questions for consideration in the context of CGR community engagement. Working Group members discussed the questions, suggesting focuses on emerging research questions and the potentially relevant model organisms to guide the focus of CGR data development.

Working Group members then participated in an interactive polling activity, facilitated by Dr. Schneider, providing feedback to rank community engagement goals and direct the development outreach content and materials. Via poll, Working Group members ranked engagement themes, such as developing new model organisms or providing genome data for computational approaches, based on their relevance to the current research landscape. Working Group members also ranked several communication channels by effectiveness. The polling results were collected by NCBI and will be used to inform future Working Group discussions.

VI. MESSAGING REFRESH UPDATE

Valerie Schneider, PhD, Executive Secretary

Dr. Schneider noted recent and ongoing updates to CGR messaging based on Working Group feedback. The intended impacts of the CGR tool will be emphasized, rather than descriptions of the CGR project. Connections both with research community resources, as well as with the ongoing work of NIH, NLM, and NCBI will be highlighted. The descriptions of CGR component tools are also being updated. Updated CGR messaging language will be distributed to Working Group members for additional comments and recommendations.

VII. CLOSE OUT

Kristi Holmes, PhD, Chair

Valerie Schneider, PhD, Executive Secretary

Working Group Members

Working Group members were asked to evaluate, via polling, their experience and NCBI's support engaging their research communities to promote CGR. Dr. Holmes thanked Working Group members for their continued participation and for their valuable feedback. In a future meeting, the Working Group will discuss a collaborative process whereby the NCBI team can help prepare written content for CGR with Working Group members.