

ARTICLE

Mini-Symposium: Training the Trainers of the Next Generation of Neuroscience Advocates

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Undergraduate neuroscience researchers and educators have a vital voice in working with policymakers to raise public awareness and increase support and funding for neuroscience. While there are many avenues and opportunities to become involved in neuroscience advocacy, finding the most effective training strategies, resources, and opportunities for involvement can sometimes be difficult and overwhelming.

To address this challenge and inform faculty of science advocacy opportunities for undergraduates, we organized a mini-symposium at the 2023 Faculty for Undergraduate Neuroscience (FUN) Workshop. Attendees had the opportunity to engage with a panel of experts with diverse experiences in neuroscience advocacy and policy. Topics presented and discussed included the importance of advocacy, effective training practices and resources, advice for scientific communication with a non-scientific audience,

and various opportunities for advocacy involvement for undergraduate students.

We share here our rationale and goals as we set out to plan this mini-symposium, a brief description of each panelist's career trajectory, relevant resources, and major takeaways. We reflect on the lessons learned from this session and recognize the need for an on-going conversation about careers involving science policy, science communication training, and opportunities for undergraduate students. Accordingly, we share future directions and recommendations to help faculty equip not only themselves but also their undergraduate trainees with the knowledge, practical skills, and resources required to engage with their communities as informed citizens.

Key words: science policy; science advocacy; science communication; career paths; professional development

Science advocacy sits at the intersection of science and society. An advocate, according to the Merriam-Webster dictionary, is one who supports or promotes the interests of a cause or group (Merriam-Webster's Collegiate Dictionary, n.d.). It is important to acknowledge that there is a difference between advocacy and activities classified as lobbying or activism (Jessani et al., 2022). Advocacy is not the same as partisanship or protest (Robbins, 2021). Science policy encompasses the use of scientific wisdom and facts to inform policy, and the understanding of how policies impact the scientific endeavor, which extends beyond science funding. Individuals working in science policy serve as liaisons for reciprocal interactions between scientists, government, and the public (Hunt, 2010; Rouzer et al., 2023). It is critical that this pipeline of liaisons between public policy and science is maintained, as there is an increased need for consultation of scientific literature by policymakers when considering and creating science policy (Newman et al., 2016; Baron and Hoeksema, 2021). Furthermore, policymakers have little time to conduct literature searches themselves and often resort to other sources that summarize the information for them (Weiss, 1986; Humphreys, 2019).

Despite evidence that the public expects scientists to have an impactful voice in science advocacy, there remain many barriers that prevent scientists and science trainees from engaging in outreach and advocacy practices (Cologna et al., 2021; Woitowich et al., 2022; Rouzer et al., 2023). A recent survey-based study examining barriers towards engaging in science outreach (including policy and advocacy) found that the most frequently voiced barriers among individuals who do participate in science outreach are a lack of time and funding to allocate towards these efforts (Woitowich et al., 2022). This group of participants also frequently reported another barrier towards engagement to be a "lack of partners and collaborators" (Woitowich et al., 2022). Unfortunately, nearly one-fifth (17%) of individuals reported that they do not engage at all in science outreach because they lack awareness of advocacy opportunities that one can become engaged in (Woitowich et al., 2022). Strikingly, most respondents in this study (96%) had already completed their undergraduate education. As undergraduate students are in a critical period of their educational path, it is important they and their educators are adequately equipped with the knowledge of potential ways to get involved in advocacy and public policy.

Many colleagues have addressed these outreach, advocacy, and public policy engagement barriers by curating impactful repositories of advocacy training tools and example opportunities for involvement (Table 1; Rouzer et al., 2023), but to our knowledge, these are not specifically curated for undergraduate students using recommendations that are provided by professionals in policy and advocacy. Thus, to address this knowledge gap, the co-chairs of the Faculty for Undergraduate Neuroscience (FUN) Public Policy Committee proposed to facilitate a panel session at the 2023 FUN workshop to showcase educational and career trajectories of individuals engaged in science advocacy either in parallel with their academic roles or as their primary professional roles. To this end, the co-chairs invited science advocacy and policy experts within their professional networks to share their experiences and insights in the context of undergraduate training. In addition to providing details about their own training, panelists shared how they identified opportunities and currently engage in science advocacy within their professional fields.

In this article, we highlight our panelists' professional journeys, reflect on their insights, outline the levels at which interested educators and their trainees can get involved in science advocacy, and share resources for advocacy and policy training along with opportunities that may be accessible for undergraduate students and their educators (Table 1).

PANELISTS' PROFESSIONAL JOURNEYS

To highlight the diverse career trajectories and experiences that can enable trainees and their educators to get involved in science advocacy, we share the educational and professional training and experiences for each of the invited panelists below, starting with a panelist who is an undergraduate neuroscience educator and a member of the FUN Public Policy Committee.

Cecilia Fox, PhD

Cecilia Fox is the Louise E. July Professor of Biological Sciences and Director of the Neuroscience Program at Moravian University, located in the Lehigh Valley of Pennsylvania. Here, C.F. has tied the learning objectives of the Neuroscience program to the cultivation of civically responsible young scholars.

For over 20 years, C.F. has mentored undergraduates in the lab where they investigate the neuroprotective potential of antioxidants and anti-inflammatories in a rodent model of Parkinson's disease. As the founder and former president of the Lehigh Valley Society for Neuroscience (SfN) Chapter, C.F. has engaged undergraduates and faculty in brain awareness, service learning, and scientific advocacy for years. She has served on the SfN Government and Public Affairs Committee and has regularly attended SfN Day on the Hill as well as the Rally for Medical Research on Capitol Hill.

During the panel session, C.F. shared some initiatives that have successfully engaged undergraduates in their journey to becoming more civic-minded advocates for educating the public and elected officials about the benefits of neuroscience research. These initiatives are described

later in the article.

Thomas Burnett, MS

Thomas Burnett is the outgoing Chair of the Diversity, Equity, and Inclusion Committee to the National Science Policy Network, a non-profit dedicated to early-career researchers and their pursuit of science policy. After graduating Summa Cum Laude with his B.S. in Biology from University of Maryland Baltimore County as a Meyerhoff/MARC Scholar, T.B. went on to study sensory neuroscience at Johns Hopkins University.

Along with his M.S. degree, he earned the Martin Luther King Jr. Community Service Award and induction into the Edward A. Bouchet Honor Society for his work to enhance equity and access to STEM for underrepresented and marginalized groups. His advocacy thus far has centered on science communication, grantsmanship, and constructing a more equitable educational landscape.

T.B. began law school last fall at the Northwestern University Pritzker School of Law, where he intends to continue advocating for the disadvantaged in our legal system.

Chanel Matney, PhD

Chanel Matney earned her doctorate in neuroscience from Johns Hopkins University, where her research mapped cortical microcircuits using transgenics, electrophysiology, and morphological reconstructions of single neurons. While there, she co-founded the Johns Hopkins Science Policy Group, a grassroots advocacy organization that empowers early career researchers to engage with decision makers about the role of research data in policy discussions.

After graduating, C.M. took on an array of professional opportunities at the intersection of neuroscience and society via roles in policy, advocacy, national security, consulting, and communications in the Washington D.C. area. In 2019, C.M. headed out to the West Coast as a California Council of Science and Technology (CCST) science fellow. Over the next two years, she analyzed policy proposals, negotiated bill amendments, and provided subject-matter expertise to the legislative committees for Education, and later, Transportation.

These days, C.M. works at the National Academies of Science, Engineering, and Medicine as a Program Officer in the Forum for Traumatic Brain Injury, a Washington D.C. based non-profit that advises the federal government on emerging issues in science and society.

Daniel Pham, PhD

Daniel Pham, is a director at the Milken Institute's Science Philanthropy Accelerator for Research and Collaboration (SPARC). He utilizes his expertise in scientific research, neuroscience, science policy, communication, and advocacy to advise philanthropic partners on opportunities to make the biggest impact in various fields of science and health. D.P. is also a program director of Breakthrough Discoveries for Thriving with Bipolar Disorder, or BD2, a funder collaborative to accelerate bipolar disorder research and care.

Prior to BD2, D.P. worked in science advocacy and policy

at the American Society for Biochemistry and Molecular Biology, as well as Research!America and Future of Research. D.P. received his bachelor's degree in neuroscience from UCLA and a doctorate in neuroscience from Johns Hopkins University.

Cora Smiley, PhD

Cora Smiley received her doctorate in Neuroscience from the Medical University of South Carolina where her research was focused on testing treatments for comorbid post-traumatic stress disorder and substance use disorder. Currently, C.S. is pursuing her postdoctoral fellowship in the lab of Dr. Susan Wood at the UofSC School of Medicine examining the neurobiological mechanisms of anxiety and opioid seeking behavior after stress exposure. C.S. emphasizes the importance of advocacy as an academic since, as a substance abuse researcher, it is important to bring this expertise to political discussions.

C.S. received experience in the science policy field by serving as an ASPET Washington Fellow where she was able to learn how scientists can be involved in the policy making process and met with Congress members and staff as a science policy advocate.

REFLECTIONS AND RECOMMENDATIONS

The panel discussion was successful in highlighting professionals and their engagement in science advocacy via a variety of roles at different organizations. It offered insight into their motivations for seeking involvement in neuroscience advocacy and committing to their career paths, and resources for enhancing advocacy training and experiences. Upon reflection of panelists' experiences, career paths, and advice, a few key takeaways emerged:

Importance of Mentorship for Trainees Who are Considering a Career in Science Advocacy and Policy

Unlike careers in health professions and academia that have dedicated graduate programs to train students, there is no singular degree, program, or path to a career in science advocacy and policy. A common theme that emerged during the discussion with the panelists was the importance of having mentors who were in careers that they themselves aspired for. Panelists shared that it was crucial for them to be connected with such mentors and especially helpful when their professors or research advisors were able to acknowledge the need for these external mentors and/or facilitate these interactions. External mentors helped some panelists discover opportunities and activities that their research advisors did not have the knowledge about. These mentors also helped clarify potential career trajectories and spoke to preconceptions that may or may not be true in a field that many students have little knowledge of.

To help students identify future jobs of interest in advocacy, faculty, and mentors can remind students that science advocacy and public policy jobs exist at many different regional levels, as individuals in this sector are employed at the local, state and/or national levels (Chamberlin et al., , 2020; Rouzer et al. 2023) and in many different settings, including the non-profit sector, think tanks, law firms, professional science societies, etc. (Chamberlin

et al., 2020).

Faculty and mentors can further help students expand their networks and explore potential career paths in this sector by setting up informational interviews with professionals, organizing visits by guest speakers either physically or virtually, designing coursework that encourages students to propose and execute initiatives or connect with professionals involved in science advocacy, or developing community-engaged learning projects that require students to work with community partners in the science policy and advocacy space.

For instance, as an assignment for one of her neuroscience courses, coauthor S.H. requires students to identify a pressing neuroscience-related need in the community and propose an outreach and/or advocacy project to address that need. Panelist C.F. shared that as part of the Moravian University Neuroscience major, students are required to submit a reflection of how their engagement in service-learning and advocacy has impacted their personal and professional growth, which further develops students' understanding of the importance of being more civic-minded. Additionally, coauthor A.S. incorporates community-engaged learning into her course on the neuroscience of drug addiction. Here, one of the student groups collaborates with the local chapter of Students for Sensible Drug Policy, gaining insights into policy decisions surrounding controlled substances and educating peers outside the neuroscience field about the neuroscience of addiction. Such initiatives not only enrich students' academic experiences but also cultivate a sense of social responsibility and practical understanding of real-world issues.

Consideration of the Value of a PhD or Other Postgraduate Degrees for Advancement in a Career in Public Policy and Advocacy

The question of whether an individual needs a PhD or postgraduate degree in order to pursue a career in public policy is an important one to ask and consider. Postgraduate training in STEM inherently trains students for several skills that are transferable and relevant to careers in public policy and advocacy. First, the increased independence, multi-tasking, problem-solving, and critical thinking required during graduate training allows graduate trainees to further develop and hone valuable transferable skills for time and project management, navigating collaboration dynamics, and leadership that are recognized by employers (Chamberlin et al., 2020). Additionally, postgraduate training in STEM requires students to conduct comprehensive literature searches, evaluate scientific information, and synthesize vast amounts of it often within short spans of time. Students also have to learn to communicate complex ideas persuasively, both orally and in writing. These are valuable skills for jobs in science policy. Not only does graduate training allow trainees to develop and refine valuable skills, but a doctoral or other postgraduate degree, such as law, can significantly enhance and expedite upward growth in one's career in science policy. A PhD, however, is not a strict requirement for establishing a career in science advocacy or policy. In fact, many individuals enter public

policy and advocacy careers without having a postgraduate degree. This important consideration was raised during our panel session, as panelists acknowledged that experience through undergraduate internships and fellowships would certainly help open doors but may not be sufficient to give the individual an edge over colleagues with postgraduate degrees.

Importance of Evaluating One's Interest in Careers in Science Advocacy by Engaging in Initiatives

As summarized by Rouzer et al. (2023) and showcased by panelists during the mini-symposium, individuals can engage in advocacy at various levels, ranging from local all the way up to the international level. Panelists emphasized the importance of engagement in advocacy initiatives, no matter how small, whilst students are immersed in educational training, as this would help them evaluate their interest in science advocacy and policy as a future career prospect. Additionally, it would help students appreciate the societal impact of scientific research.

There are several opportunities for undergraduate students to learn more about careers in, and the importance of, policy and advocacy. Many professional science and neuroscience societies have advocacy training and education programs that students can participate in. Panelist D.P. shared an example of American Society for Biochemistry and Molecular Biology's Advocacy Training Program as an avenue through which undergraduate members of the society can further explore advocacy and policy. Undergraduate students who are members of scientific societies may find that their society has a dedicated advocacy initiative (AAAS, n.d.). A useful compilation of such initiatives can be found in American Association for the Advancement of Science's *List of Scientific Societies and their Advocacy Initiatives* and the Alumni Network of the California Council on Science and Technology's *Science Policy: A Guide to Policy Careers for Scientists* linked in Table 1.

In addition to engaging in science societies' advocacy initiatives, there are many undergraduate-accessible activities that students can participate in to learn more about advocacy and policy, many of which are nicely summarized by Baron and Hoeksema (2021). Engagement in these suggested policy activities, such as reading and sharing congressional offices' newsletters, attending events such as their local town halls and advocacy days, hosting a congressman on campus, and interacting with congressional office staff members via social media and messaging (Baron and Hoeksema, 2021) are all undergraduate-accessible ways in which students can become more engaged and educated in the field of public policy and advocacy. The feasibility and accessibility of these initiatives by undergraduate students and their mentors have been demonstrated by the workshop panelists as highlighted below.

Undergraduate neuroscience programs located in the vicinity of community organizations, such as libraries and science museums, or K-12 schools with after-school programs can encourage and support student engagement in local neuroscience outreach in the form of science talks

and workshops. Many scientific societies, including SfN, host annual meetings about every three years in Washington, D.C., affording neuroscience educators, and their undergraduate trainees who attend these meetings, an opportunity to engage with legislators and other policymakers in the capital by arranging meetings with them or inviting them to attend their research poster presentations or talks, thus making an impact at the national level. Students wishing to reach a larger audience and make a global impact could choose to write summaries of scientific articles for a non-specialized audience via blogs or contributions to professional societies' internet platforms, spotlight their own scientific research and its impact on social media outlets, or host scientists on podcasts, or YouTube channels (Rouzer et al., 2023).

Undergraduate neuroscience programs interested in training students in communicating science to policymakers and other non-scientific audiences may find a previously reported service-learning and advocacy event at Moravian University of particular interest. Initiated as a grassroots effort to engage students in advocacy, Moravian University organizes "Advocacy Day" where select undergraduate trainees walk around campus with iPads and interact with other students, faculty, and staff to discuss petitions that are then sent to policymakers to highlight the importance of allocated funding for undergraduate research (Fox, 2015). Additionally, undergraduate neuroscience students at Moravian University have invited policymakers to their campus during Brain Awareness Week to tell them about their research and to provide undergraduate neuroscience students with advice on how to appropriately advocate for science funding (Fox, 2015). They have also organized an 'advocacy table' during outreach events to inform the public about the importance of funding scientific research and to gather signatures for petitions. Panelist, C.F. notes that this is an ideal opportunity, since families usually enjoy hands-on activities and are more willing to engage in the conversation. SfN's Hill Day presents another opportunity. C. F. emphasizes the importance of having representatives not only from medical and graduate schools speaking with elected representatives, but also undergraduate institutions. Colleges and universities feed the pipeline for future physicians, scientists, educators, etc. In addition to C.F.'s visits to Capitol Hill, Moravian University has sent some undergraduates to share their experiences in person.

More information on undergraduate trainee-relevant activities shared during the mini-symposium can be found in Table 1.

FUTURE DIRECTIONS

It is difficult to recapitulate the entirety of the presentation and discussions that occurred during the live session in this article. Some attendees who were undergraduate neuroscience educators acknowledged their own lack of expertise in providing career options or guidance to their students interested in non-traditional or unconventional career paths such as those involving science advocacy and policy. They appreciated the exposure that this mini-symposium provided to example careers and paths and felt better prepared to share these along with relevant

RESOURCES FOR UNDERGRADUATE STUDENTS AND THEIR MENTORS

Example Activities for Advocacy and Policy Engagement

Undergraduate neuroscience advocacy initiatives I (Fox et al. 2015)	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4640479/
Society for Neuroscience's <i>Capitol Hill Day</i>	https://www.sfn.org/advocacy/us-advocacy-programs/capitol-hill-day
Society for Neuroscience's <i>Take Action</i> Advocacy Page	https://www.sfn.org/advocacy/advocacy-network/advocacy-action-center

Example Opportunities for Training / Internship

American Society for Pharmacology and Experimental Therapeutics' <i>Washington Fellows Program</i> : Public policy training program	https://www.aspet.org/aspnet/advocacy/aspnet-washington-fellows-program
Society for Neuroscience's <i>Early Career Policy Ambassadors</i> : undergraduate students may apply to join this neuroscience advocacy network	https://www.sfn.org/advocacy/us-advocacy-programs/early-career-policy-ambassadors
National Science Policy Network's <i>Scholars-In-Residence Training</i>	https://www.scipolnetwork.org/spsr#eligibility-header
Neuronline: Society for Neuroscience's Community Platform for Advocacy	https://neuronline.sfn.org/advocacy
Science and Technology Policy Academy	https://scitechpolicyacademy.com/
UC Irvine's <i>Science Policy & Advocacy Certificate Program</i>	https://gps-stem.grad.uci.edu/scipol/

General Background Information on Policy and Advocacy Resources

Alumni Network of the California Council on Science and Technology's <i>Science Policy: A Guide to Policy Careers for Scientists</i>	https://ccst.us/reports/science-policy-a-career-guide-to-policy-careers-for-scientists/
American Society for Pharmacology and Experimental Therapeutics' <i>Resources for Getting Involved as a Science Policy Advocate</i>	https://www.aspet.org/aspnet/advocacy/advocacy-resources
Federation of American Societies for Experimental Biology <i>Science Policy and Advocacy Page</i> : Tools and other resources	https://www.faseb.org/science-policy-and-advocacy
National Science Policy Network	https://www.scipolnetwork.org/
Society for Neuroscience's <i>Government and Public Affairs Committee</i>	https://www.sfn.org/about/volunteer/committees/government-and-public-affairs-committee

Other Repositories

American Association for the Advancement of Science's list of advocacy initiatives and opportunities provided by various scientific societies	https://www.aaas.org/resources/workshop-advocacy-science-advocacy-initiatives
National Science Policy Network's SciComm and SciPol Resources (crowdsourced list of resources curated by NSPN)	https://airtable.com/appKv1wWwGkr0OhGY/shr8J7s6QDqzX4uGz/tblCpmGJYqqtCcjs8
Online repository of neuroscience advocacy and outreach activities (Rouzer et al. 2023)	https://airtable.com/appY7la9iAKHNvKNp/shra7CQDe0qqq4knF/tblL0UEzey2gEAclK

Table 1. Undergraduate Trainee-Relevant Resources Highlighted During Advocacy Panel Session. Resources for identifying, training for, and engaging in advocacy and public policy, including those suggested by panel experts as particularly helpful.

opportunities, such as fellowships, and considerations with their undergraduate trainees.

The positive reception of this panel session and an acknowledgement of the need for on-going conversations

between undergraduate neuroscience students, their educators, and professionals in advocacy, has strongly incentivized the FUN Public Policy committee to organize a professional development seminar series for undergraduate

students to highlight the range of careers and training opportunities in the realm of science advocacy and policy. Held in a virtual format, this informational interview-style series will invite professionals in the fields of science advocacy, public policy, and outreach to speak about their careers and educational paths and to answer students' questions. In addition to empowering undergraduate students with an awareness of different career paths and opportunities, we envision this professional development seminar series will provide them with mentors and role models in the fields of science advocacy, public policy, and outreach.

Lastly, as these and future advocacy and public policy initiatives are organized, it remains vital to consider the audience being reached with these initiatives. There remains a crucial need to engage individuals of all backgrounds in advocacy efforts, as science advocacy and outreach initiatives have historically failed to equally reach all groups, especially excluding minority groups (Dawson 2014; Canfield et al. 2020; Tormos-Aponte et al., 2023). For recommendations and a proposed model to increase engagement in science advocacy, outreach, and communication initiatives, we refer students and their mentors to Canfield and colleagues' (2020) summary and recommended steps for increasing diversity in such endeavors.

REFERENCES

- American Association for the Advancement of Science (n.d.) Workshop on advocacy in science: advocacy initiatives. Washington, DC: AAAS. Available at <https://www.aaas.org/resources/workshop-advocacy-science-advocacy-initiatives>.
- Chamberlin SJ, McCall J, Thompson J (2020) Science Policy: A Guide to Policy Careers for Scientists. Sacramento, CA: California Council on Science and Technology. Available at <https://ccst.us/wp-content/uploads/CCST-Alumni-Science-Policy-Career-Guide-Feb-2020.pdf>.
- Baron J, Hoeksema MJ (2021) Science advocacy 101: Realizing the benefits, overcoming the challenges. *Behav and Soc Issues* 30(1):121-138. doi: 10.1007/s42822-021-00069-9
- Canfield KN, Menezes S, Matsuda SB, Moore A, Mosley Austin AN, Dewsbury BM, Feliú-Mójer MI, McDuffie KWB, Moore K, Reich CA, Smith HM, Taylor C (2020) Science communication demands a critical approach that centers inclusion, equity, and intersectionality. *Front Comm* 5:2. doi: 10.3389/fcomm.2020.00002
- Cologna V, Knutti R, Oreskes N, Siegrist M (2021) Majority of German citizens, US citizens and climate scientists support policy advocacy by climate researchers and expect greater political engagement. *Environ Res Lett* 16:024011. doi: 10.1088/1748-9326/abd4ac
- Dawson, E (2014) Reframing social exclusion from science communication: moving away from 'barriers' towards a more complex perspective. *J Sci Comm* 13(2):C02. doi: 10.22323/2.13020302
- Fox CM (2015) Developing the next generation of civic-minded neuroscience scholars: incorporating service learning and advocacy throughout a neuroscience program. *J Undergrad Neurosci Educ* 14(1):A23-A28.
- Humphreys K (2019) Networking: Translating neuroscience to public policy. *Neuron* 103(6):964-966. doi: 10.1016/j.neuron.2019.08.016
- Hunt G (2010) What is science policy? *ASBMBToday*, December 15, 2023. Available at: <https://www.asbmb.org/asbmb-today/policy/102510/what-is-science-policy>.
- Jessani NS, Ling B, Babcock C, Valmeekanathan A, Holtgrave DR (2022) Advocacy, activism, and lobbying: How variations in interpretation affects ability for academia to engage with public policy. *PLOS Glob Public Health* 2:e0000034 doi: 10.1371/journal.pgph.0000034.
- Merriam-Webster (n.d.) Advocate. Springfield, MA: Merriam-Webster, Incorporated. Available at <https://www.merriam-webster.com/dictionary/advocate>.
- Newman J, Cherney A, Head BW (2016) Do policy makers use academic research? Reexamining the "two communities" theory of research utilization. *Public Administration Review* 76(1):24-32. doi: 10.1111/puar.12464
- Robbins AM (2021) Can Scientists Be Good Policy Advocates? *Am Soc Microbio*, September 9. Available at <https://asm.org/Articles/Policy/2021/August-21/Can-Scientists-Be-Good-Policy-Advocates>.
- Rouzer SK, Kalinowski LM, Kaseda ET (2023) The importance of promoting scientific advocacy & outreach for trainees. *Neuropsychopharm* 48:713-715. doi: 10.1038/s41386-023-01530-6
- Tormos-Aponte F, Brown P, Dosemagen S, Fisher DR, Frickel S, MacKendrick N, Meyer DS, Parker JN (2023) Pathways for diversifying and enhancing science advocacy. *Sci Adv* 9(20): eabq4899. doi: 10.1126/sciadv.abq4899
- Weiss CH (1986) The circuitry of enlightenment: Diffusion of social science research to policymakers. *Knowl* 8(2):274-281. doi: 10.1177/107554708600800211
- Woitowich NC, Hunt GC, Muhammad LN Garbarino J (2022) Assessing motivations and barriers to science outreach within academic science research settings: A mixed-methods survey. *Front Commun*. 7:907762. doi: 10.3389/fcomm.2022.907762

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