

Spring

# NEWSLETTER



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## SPECIAL ISSUE

In addition to our personal and political takes on these issues, there are scientific studies that are helpful to understand these issues. This newsletter is dedicated to the issues and science surrounding gender expression and identity.

## MARK YOUR CALENDARS



**OCT 13-16 - Out & Equal Workplace Summit, Seattle, WA**



**OCT 16-18 - oSTEM Conference, Baltimore, MD**



**MAR 6-8, 2026 - OTI Summit, Los Angeles, CA**

## ABOUT US

Out to Innovate is NOGLSTP doing business as "Out to Innovate." We are a 501(c)(3) educational organization and professional society of gay, lesbian, bi-sexual, transgender, asexual, queer (LGBTQ+) people, and allies employed or interested in science, technology, engineering, or mathematics (STEM) fields. Out to Innovate empowers LGBTQ+ individuals in STEM by providing education, advocacy, professional development, networking, and peer support. Out to Innovate educates all communities regarding scientific, technological, and medical concerns of LGBTQ+ people.

## INFOGRAPHIC ON BIOLOGICAL SEX

Scientific American published an article in 2017 on biological sex as a spectrum with an infographic here: <https://www.scientificamerican.com/article/beyond-xx-and-xy-the-extraordinary-complexity-of-sex-determination/>

# SCIENCE NEWS ARTICLE ON BIOLOGICAL SEX



Out to Innovate released an [op-ed in The Hill](#) in February. Shortly after, an article in *Science News* was also published on executive order 14168.

The article, written by Dr. Tina Hesman Saey, touches on the complexity of biological sex beyond a binary of gametes, the lack of gamete production at conception, and possible sex chromosome and developmental outcomes. Read more here: <https://www.sciencenews.org/article/biological-sex-male-female-intersex>

The LGBTQ+ Bar is tracking litigation regarding these executive orders here: <https://lgbtqbar.org/programs/trump-executive-order-tracker/>

You can find a tracker for all E.O.s here: <https://www.akingump.com/en/insights/blogs/trump-executive-order-tracker>

And a litigation tracker for all E.O.s here: <https://www.justsecurity.org/107087/tracker-litigation-legal-challenges-trump-administration/>

## TRUMP ADMINISTRATION EXECUTIVE ORDERS

There have been a flurry of executive orders coming from the Trump Administration since January 20, 2025. Below are some key EOs related to trans or other LGBTQ+ issues:

EO #	Title
14168	<a href="#">“Defending Women From Gender Ideology Extremism and Restoring Biological Truth to the Federal Government”</a>
14151	<a href="#">“Ending Radical and Wasteful Government DEI Programs and Preferencing”</a>
14183	<a href="#">“Prioritizing Military Excellence and Readiness”</a>
14187	<a href="#">“Protecting Children From Chemical and Surgical Mutilation”</a>
14190	<a href="#">“Ending Radical Indoctrination in K-12 Schooling”</a>
14201	<a href="#">“Keeping Men Out of Women’s Sports”</a>

## CELL 2024 SPECIAL ISSUE ON SEX AND GENDER

In March of 2024, *Cell* released a special issue of its flagship publication featuring a perspective on re-thinking sex as a biological categorization rather than merely a variable and some common study-design issues related to sex; commentary on supporting transgender scientists; gender inequality in academia; a historical perspective on sex in science and possible new way forward; an interview with Dr. Shirin Heidari, lead author of the Sex and Gender Equity in Research (SAGER) guidelines; an interview with Dr. Londa Schiebinger on gender gaps in STEM; and a voices section from various scientists on the future of sex and gender in scientific research.

Read more here: [https://www.cell.com/cell/issue?pii=S0092-8674\(23\)X0007-5](https://www.cell.com/cell/issue?pii=S0092-8674(23)X0007-5)

## NON-BINARY GENDERS ACROSS CULTURES

There are many examples of genders that extend beyond binaries in cultures across the cultures and time. Some documented examples include: Biza’ah (Teotitlan); calalai/bissu, waria, and bugis (Indonesia); chibados

(continued on pg. 3)

(Angola); fa'afafine (Polynesia); femminiello (Italy); hijra (India); kathoey (Thailand); mahu (Hawaii); mashoga (Kenya); muxe (Mexico); sworn virgins (Balkans); tida (Warao); xanith/khanith (Oman); X-gender and wakashu (Japan); two-spirit (Native American, umbrella term), wíŋkte (Lakota), mixuga (Ponca), badé (Crow). This list is not meant to be exhaustive but to provide starting points to learn more.

A review article "Intersexuality and Alternative Gender Categories in Non-Western Cultures" by Lang and Kuhnle detailing gender classifications in cultures from all over the world: <https://doi.org/10.1159/000113025>

A similar non-pay-walled article without citations:  
<https://link.ucop.edu/2019/10/14/exploring-the-history-of-gender-expression/>

## SCIENTIFIC ARTICLES ON BIOLOGICAL SEX

While by no means exhaustive, this list provides some sources for research on biological sex:

"Sex continuum in the brain and body during adolescence and psychological traits"  
<https://doi.org/10.1038/s41562-020-00968-8>

"Two *Doublesex1* mutants revealed a tunable gene network underlying intersexuality in *Daphnia magna*"  
<https://doi.org/10.1371/journal.pone.0238256>

"The Role of Sex Spectrum Differences in Reproductive Strategies and the Endocrine Mechanisms Underlying It"  
[https://doi.org/10.1007/978-981-19-5359-0\\_10](https://doi.org/10.1007/978-981-19-5359-0_10)

"Incorporating Sex As a Biological Variable in Neuropsychiatric Research: Where Are We Now and Where Should We Be?"  
<https://doi.org/10.1038/npp.2016.79>

"Beyond the Sex Binary: Toward the Inclusive Anatomical Sciences Education"  
<https://doi.org/10.1002/ase.2002>

"Untangling the Gordian Knot of Human Sexuality: What Is the Biologic Basis of Variations in Sexual Phenotype?"  
<https://doi.org/10.1177/2470289718803639>

## MEDICAL OPINIONS ON TRANS ATHLETE PARTICIPATION

The topic of trans athletes participating in competitive sports has been fraught with controversy, but new literature is emerging:

"Sex differences and athletic performance. Where do trans individuals fit into sports and athletics based on current research?"  
<https://doi.org/10.3389/fspor.2023.1224476>

"Fairness for Transgender People in Sport"  
<https://doi.org/10.1210/jendso/bvac035>

"Transgender Women Athletes and Elite Sport: A Scientific Review"  
<https://cces.ca/transgender-women-athletes-and-elite-sport-scientific-review>

## 2005 OUT TO INNOVATE PANEL ON BIOLOGY AND LAW

On February 19, 2005, Out to Innovate hosted a panel at the AAAS Annual meeting, titled "Defining Male and Female: Biology and the Law." The panel was organized by Rochelle Diamond and featured speakers Eric Vilain, William Reiner, Mara Keislin, and Susan Becker.

Read more here:  
<https://www.outtoinnovate.org/symposium--biology-and-the-law-2005>

## MEMBER SERVICES

The Out to Innovate member services site allows for self-serve member update and automated renewal notices. Visit our website at:

<https://www.outtoinnovate.org/membership> and log in to explore or update your profile, or to renew your annual dues. Of course, you're welcome to renew or join the old-fashioned way with pen, paper, and check by filling out a download-able form from our website. We're happy to have your support any way you want to give it!

## AFFILIATES

- 500 Queer Scientists
- American Astronomical Society (AAS)
- Committee for Sexual Orientation and Gender Minorities in Astronomy (SGMA)
- American Institute of Chemical Engineers (AIChE)
- CSUN QueerSTEM
- gAyGU (American Geophysical Union)
- L'GASP: Lesbian, Gay, Bisexual Audiologists and Speech-Language Pathologists
- LAGLS: Los Angeles Gay and Lesbian Scientists
- LGBTQ Chemists and Allies (ACS PROF Gay and Transgender Chemists and Allies)
- NOGLSTP at Oklahoma State University
- NOGLSTP at Purdue
- NOGLSTP at University of Nebraska - Lincoln
- Diversity and Inclusion in American Nuclear Society Committee (formerly NuclearPride)
- LBGTQ STEM at Oklahoma State University
- PrideSTEM at Texas Tech
- QSTEM of Lake Nona High School
- Queer Science (University of Minnesota)
- Queer Science Society
- Spectra: The Association for LGBT Mathematicians

## EXECUTIVE BOARD

- **TJ Ronningen** (Chair), Columbus, OH
  - [tj-board@noglstp.org](mailto:tj-board@noglstp.org)
- **Barbara Belmont** (Treasurer), Pasadena, CA
  - [bbelmont@noglstp.org](mailto:bbelmont@noglstp.org)
- **Christine Bland** (Member), Denver, CO
  - [rc-board@noglstp.org](mailto:rc-board@noglstp.org)
- **Rochelle Diamond** (Member), Pasadena, CA
  - [rd-board@noglstp.org](mailto:rd-board@noglstp.org)
- **Maria Gentile** (Member), Pasadena, CA
  - [mg-board@noglstp.org](mailto:mg-board@noglstp.org)
- **Amlan Mukherjee** (Member), Washington, DC
  - [am-board@noglstp.org](mailto:am-board@noglstp.org)
- **Ben Gerstner** (Member), Washington, DC
  - [bg-board@noglstp.org](mailto:bg-board@noglstp.org)
- **Dane Samilo** (Secretary), Washington, DC
  - [ds-board@noglstp.org](mailto:ds-board@noglstp.org)

## SUBMISSIONS

The **Out to Innovate Bulletin** is published quarterly, most of the time. Contributed articles are welcome and encouraged and may be emailed as plain text to [editor@noglstp.org](mailto:editor@noglstp.org). The next publication deadline (for the fall newsletter) is **October 15, 2025**. Please acknowledge the Out to Innovate Bulletin as your source if you choose to reproduce any of these articles.

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