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As scientists, we write to express our concerns about the Executive Order “Defending Women From Gender Ideology Extremism And Restoring Biological Truth To The Federal Government”. That Order states first, that “there are two sexes...[which] are not changeable”. The Order goes on to state that sex is determined at conception and is based on the size of the gamete that the resulting individual will produce. These statements are contradicted by extensive scientific evidence.

Scientific consensus defines sex in humans as a biological construct that relies on a combination of chromosomes, hormonal balances, and the resulting expression of gonads, external genitalia and secondary sex characteristics. There is variation in all these biological attributes that make up sex. Accordingly, sex (and gendered expression) is not a binary trait. While some aspects of sex are bimodal, variation along the continuum of male to female is well documented in humans through hundreds of scientific articles. Such variation is observed at both the genetic level and at the individual level (including hormone levels, secondary sexual characteristics, as well as genital morphology). Beyond the incorrect claim that science backs up a simple binary definition of sex, the lived experience of people clearly demonstrates that the genetic composition at conception does not define one's identity. Rather, sex and gender result from the interplay of genetics and environment. Such diversity is a hallmark of biological species, including humans.

We note that you state that “Basing Federal policy on truth is critical to scientific inquiry, public safety, morale and trust in the government itself”. We agree with this statement. However, the claim that the definition of sex and the exclusion of gender identity is based on the best available science is false. Our three scientific societies represent over 3500 scientists, many of whom are experts on the variability that is found in sexual expression throughout the plant and animal kingdoms. More information explaining why sex lies along a continuum can be found [here](#). If you wish to speak to one of our scientists, please contact any of the societies listed below.

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