

# Special Report

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## Message from the Editors

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MUCH OF OUR CURRENT UNDERSTANDING OF PHYSIOLOGY AND CELL BIOLOGY is based on work in animals and established cell lines, but what if certain physiologic responses or intracellular mechanisms are specific to the sex of the animal or the sexual genome of that specific cell line? As many physiologists appreciate, certain animal experiments are easier to perform in either male or female animals; some animals are more readily available as the male or female sex. Cell lines may have a certain phenotype of interest, for example, malignancy, but has the genome of these cell lines arisen from a single “donor” and thereafter cloned many, many times, for instance, the HeLa cells? What if the donor was a male or a female? Does the genomic programming (not the phenotype but rather the genotype) affect intracellular signaling, mitochondrial function, cell-surface expression of certain receptors, immune response, etc. In this treatise by Yoon et al, the authors question (and challenge—rightfully so)

previous work, much of which was carried out in animal models/cell lines in which the sex of the animal or cell lines, not the phenotype, was neither defined, possibly even known, and most importantly, probably not appreciated.

Moreover, many/most studies never address the possible differences in men versus women. The editors understand this concept, appreciate its importance, and have now required authors to define the sex of the animal models studied and at least provide more insight into the origin of various cell lines used. This work by Yoon et al may prove to be a very valuable addition to the design of future studies across many disciplines. We ask the question again—*Have some of the principles of physiology or cell biology that we accept as gospel been derived from a unisex model that might not be true in the other sex?* The future will then be to address how other variables may influence the results – race, age, weight, etc.

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