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DEBATE ABSTRACTS

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D1.1

Abstract not available

D1.2

This House Believes that the Study of Mouse Physiology Usually Translates into New Insights into Human Physiology

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The optimal use of animal models of human physiology requires at least three things; (1) that the animal studies are performed in such a way as to minimize the risks of bias; that is, that their findings accurately reflect what happened in the animal experiment; (2) that the animal model has some relevance to the human condition and that any limitations to their relevance are considered when such findings are interpreted; and (3) that all relevant information from animal models is available to those seeking new insights into human physiology. I will argue that, across a range of animal models of human physiology and pathophysiology, these conditions are not always met. Unless mouse physiology studies are a completely atypical beacon in a field characterized by poor reporting of measures to reduce the risk of bias (and I am aware of no empirical evidence to support this claim) then the prevalence of reporting of for instance randomization and blinding is likely to be low; and studies which, by virtue of this are at high risk of bias, are likely to overstate the effects observed. Further, the sheer volume of research in this field, publication bias, and the increasing pace of publication, make it more and more difficult for investigators to identify all relevant previous research as they plan new animal or human studies. Because of this, the narrative review article has become a less and less valuable method for synthesizing what is already know, and systematic approaches to such evidence synthesis are increasingly required. By increasing the validity of animal and human studies, and by adopting a systematic approach to evidence synthesis, we can increase the value of research which is done and reduce the waste that is a consequence of underpowered experiments, poor evidence synthesis, and high risks of bias in primary data.