

What's Wrong with Animal Models of Pain?

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Recent decades have seen an explosion in our understanding of the molecular and cellular underpinnings of pain, but virtually none of this knowledge has resulted in new clinical therapies. Many pain researchers believe that the problem may lie in the existing animal models of pain, which are reliable but much more complex and subtle than is commonly realized, and of questionable clinical relevance. Most basic science studies of pain continue to rely on the measurement of reflexive, evoked hypersensitivity responses after artificial neuropathic or inflammatory injuries, whereas clinical pain in humans features much spontaneous pain and an important cognitive and emotional overlay. In addition to the disconnect between clinical symptoms and animal measures, there is a disconnect between the clinical epidemiology of pain and the types of pain being modeled in animals. We have recently attempted to develop an “ethological” approach to animal models of common pain pathologies, involving systematic and rigorous analysis of videotaped spontaneous mouse behaviors. I will talk about some recent successes in our laboratory, involving migraine, vestibulodynia, and the development of a facial expression-based pain scale for the mouse.