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Pitfalls of mouse models: Know your mouse

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Many researchers use animal models in their research. The most common model is the mouse. Similarly to humans, the mouse genome has been sequenced allowing specific genes to be removed, inserted or mutated in order to work out biological pathways. Many commercially available gene-knockout or mutant mice are used as disease models to better understand pathogenesis, molecular mechanisms and to help elucidate therapeutics. What is not well publicized is how both background of the model and techniques used in mouse modeling can confound or obfuscate results. There are numerous examples in the literature of false reports of tumor genes because investigators did not know the normal anatomy of a mouse and how it differs from the human. Background lesions are also abundant since many of the mouse models are inbred allowing some disease susceptibilities and lesions to become fixed in their genome. Common background lesions and few anatomical differences will be covered. While there are numerous online resources available to help with studies, it is always best to have a mouse pathology expert or veterinary pathologist as a member of your research team.

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The phenomenon of maternal cradling bias: Occurrence and purpose in newborn neural development

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Maternal cradling bias is the act of human females to tend to cradle newborns to the left side in the first few weeks of life. Many factors contributing to the occurrence of leftward cradling bias have been explored including handedness and hemispheric dominance, neural development in neonates, breast-feeding influences and early communicative acts. Accepted best practices for developmental support for premature infants incorporate positioning and holding neonates in their protocols. Questions as to what function leftward cradling serves and what impact it has on the developmental trajectory of the infant in the first few weeks of life is the subject of much research. This presentation will review the literature focusing on maternal cradling bias and explore implications on best practices for pediatric professionals.

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