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P-glycoprotein in the developing human blood–brain barrier

Advance online publication 10 February 2016. doi:10.1038/pr.2016.5

To the Editor: The recent publication by Lam and colleagues titled "The Ontogeny of P-glycoprotein in the Developing Human Blood Brain Barrier: implication for opioid toxicity in neonates" (1) was of keen interest. In a prior study, the ontogeny of P-glycoprotein (P-gp/ABCB1) in the human central nervous system was characterized not only by a marked progressive increase in P-gp/ABCB1 immunostaining in microvascular endothelial cells between 22 and 42 wk gestation but also by differential staining intensity between the hindbrain/thalamus and regions of the forebrain and neocortex (2). Given that opiates affect the brainstem, cerebellum, midbrain, and cortex, did the authors of the current study explore potential subcortical and/or regional differences in P-gp/ABCB1 immunoreactivity that might be germane to understanding opioid effects in the developing central nervous system? In this regard, the developmental increase of human microvascular endothelial cell P-gp/ABCB1 immunostaining mirrors that of murine studies showing marked perinatal (3), early postnatal (4), and late postnatal (5) increases in central nervous system microvessel P-gp expression and suggests that murine models may be helpful in studying the developmental effects of P-gp expression on central nervous system morphine pharmacodynamics.

STATEMENT OF FINANCIAL SUPPORT
No financial assistance was received to support this letter.

Disclosure: No conflict of interest to disclose.

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