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Role of neural stem cell activity in postweaning development of the sexually dimorphic nucleus of the preoptic area in rats

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The sexually dimorphic nucleus of the preoptic area (SDN-POA) has received increased attention due to its apparent sensitivity to estrogen-like compounds found in food and food containers. The mechanisms that regulate SDN-POA volume remain unclear as is the extent of postweaning development of the SDN-POA. Here we demonstrate that the female Sprague-Dawley SDN-POA volume increased from weaning to adulthood, although this increase was not statistically significant as it was in males. The number of Ki67-positive cells in the SDN-POA and the hypothalamus was higher at weaning than adulthood. A subset of those Ki67-positive cells in the SDN-POA territory displayed cell dividing morphology. Nestin-immunoreactivity delineated a potential neural stem cell niche in the rostral end of the 3rd ventricle. In conclusion, stem cells may partially account for the sexually dimorphic postweaning development of the SDN-POA

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