

# Functional development of the ovarian noradrenergic innervation

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A substantial fraction of the noradrenergic innervation targeting the mammalian ovary is provided by neurons of the celiac ganglion. Although studies in the rat have shown that noradrenergic nerves reach the ovary near the time of birth, it is unknown how the functional capacity of this innervation unfolds during postnatal ovarian development. To address this issue, we assessed the ability of the developing ovary to incorporate and release 3H- norepinephrine. Incorporation of 3H-norepinephrine was low during the first 3 wk of postnatal life, but pharmacological inhibition of norepinephrine (NE) neuronal uptake with cocaine showed that an intact transport mechanism for NE into nerve terminals is already in place by the first week after birth. Consistent with this functional assessment, the mRNA encoding the NE transporter was also expressed in the celiac ganglion at this time. During neonatal-infantile development [postnatal (PN) d 5-20], the spontaneous, vesicle-independent outflow of