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1: [Int J Dev Neurosci.](#) 2005 Apr-May;23(2-3):287-97.

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Maternal administration of thalidomide or valproic acid causes abnormal serotonergic neurons in the offspring: implication for pathogenesis of autism.

[Miyazaki K](#), [Narita N](#), [Narita M](#).

Neurobiology Laboratory, Institute of Basic Medical Sciences, University of Tsukuba, 1-1-1 Tennodai, Tsukuba-City, Ibaraki 305-8575, Japan.

Embryonic exposure to thalidomide (THAL) or valproic acid (VPA) before neural tube closure has been demonstrated as a useful model for human autism in rats. Abnormalities of the serotonergic system which are often observed in human autism have been shown in these rats. Thus, we examined whether early serotonergic neuronal development is perturbed by THAL/VPA. When pregnant rats were exposed to THAL or VPA on embryonic day 9, a dramatic shift of the distribution of serotonergic neurons in the dorsal raphe nucleus was observed on postnatal day 50. This alteration is thought to reflect abnormality of serotonergic neuronal differentiation and migration. In vitro studies revealed that VPA retards the maturation of serotonergic neuron from ES cell-derived neuronal progenitors, whereas exogenously added Sonic hedgehog, a morphogen that has been implicated in serotonergic cell fate, partially prevented this retardation. These results indicate that disruption of early serotonergic neuronal development might be involved in the etiology of autism.

PMID: 15749253 [PubMed - indexed for MEDLINE]

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