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Sommario/riassunto	<p>Neuronal function relies on the establishment of proper connections between neurons and their target cells during development. This basic statement involves several cellular processes, such as neuronal differentiation, the polarized outgrowth of axons and dendrites from differentiated neurons, and the pathfinding of axons towards target cells. The subsequent recognition of complementary synaptic partners finally triggers the formation, maturation, and maintenance of functional synapses. Morphogens are secreted signaling molecules commanding tissue patterning and cell identity during early embryonic development. Remarkably, growing evidence over the last years arising from different invertebrate and vertebrate model organisms has shown that, after cell fate has been established, morphogens also control the precise wiring and function in the developing and mature nervous system. Accordingly, dysfunctions of the signaling pathways activated by these molecules contribute to synaptic disassembly and altered function in diseases affecting the nervous system. We consider it timely to bring together cumulative evidence pointing to crucial roles for signaling activated by different morphogens in the establishment of precise contacts between neurons and their synaptic partners. Therefore, this research topic issue combines review and research articles aimed to cover the functional relevance of such morphogens on the different steps involved in synaptic assembly and function. Diverse model systems of physiological or pathological conditions have been</p>

included, as well as different cellular, biochemical and molecular approaches. Altogether, they contribute in different and complementary ways to build a holistic view of the roles that early development morphogens play during the assembly, maintenance and/or regeneration of functional synapses.

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