A study on the general visceral sensory and motor systems in fish

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Afferent information from the visceral organs is carried through the general visceral sensory system while efferent information from the central nervous system is sent through the general visceral motor system. The motor system belongs to a parasympathetic division of the autonomic nervous systems. The visceral ramus of vagal nerve function as a major pathway of the visceral systems. The present study aims to reveal the outline of the visceral sensory and motor systems of the vagal ramus in two species of catfishes, *Clarias gariepinus* and *Plotosus japonicus*. We utilized neural tracing techniques using various fluorescent tracers in vivo or fixed preparations and revealed the location of general visceral sensory and motor neurons in the fish. The cell bodies of sensory neurons were present in two distinct areas of the vagal ganglia and sent fibers bilaterally to a region under the caudal vagal lobe in *Plotosus* or a region posterior to the caudal end of vagal lobe in *Clarias.* The cell bodies of visceral motor neurons were located in a column extending longitudinally ventral to the forth ventricle in both species. The present study suggests direct or indirect link of the visceral sensory and motor neurons to regulate activities of visceral organs.