**Habenula as the multimodal switching board for controlling behaviors**

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The habenula is a part of an evolutionarily highly conserved conduction pathway within the limbic system that connects telencephalic nuclei to the interpeduncular nucleus (IPN) of the midbrain. In mammals, the medial habenula receives inputs from the septohippocampal system, and relaying such information to the IPN. In contrast, the lateral habenula receives inputs from the ventral pallidum, a part of the basal ganglia. The physical adjunction of these two habenular nuclei suggests that the habenula may act as an intersection of the neural circuits for controlling emotion and behavior. We have recently elucidated that zebrafish has the equivalent structure as the mammalian habenula. Taking advantage of the anatomical conservation of the habenula, we are now investigating the physiological functions of the habenula by using both zebrafish. The transgenic zebrafish, in which the neural signal transmission from the lateral subnucleus of the dorsal habenula to the dorsal IPN was selectively impaired, showed extremely enhanced levels of freezing response to presentation of the conditioned aversive stimulus. This result suggests this tract may normally function to suppress the choice of freezing as a response to fear after establishment of fear conditioning.