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THE DEVELOPMENT OF THE POSTERIOR CARDINAL VEINS IN RELATION TO THE SWIM BLADDER IN LEPIDOSTEUS

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(Abstract)

The origin and development of the posterior cardinals and associated veins in relation to the swim bladder, as well as their morphology, have been studied in *Lepidosteus*. The posterior cardinals develop, beginning in the 4-mm. stage, as sinuses in the mesenchyme dorsal to the gut and near the mesonephroi. A pneumatic vein appears first in the 13-mm. stage. It collects from the posterior portion of the swim bladder and empties into the right posterior cardinal. In the younger stages the caudal vein empties directly into the joined veins dorsal to the mesonephroi forming a renal portal system. An anal vein appears in the region of the anus and joins the caudal. Later, with the development of the renal portal system, the anal separates from the caudal to become the single posterior extension of the posterior cardinals. The posterior portion of the right cardinal contributes largely to the development of an abdominal portal vein extending from the posterior root of the right posterior cardinal to the liver. These relationships of the posterior cardinals differ from those found in other fishes, due perhaps to the function of the right cardinal and its pneumatic branch in collecting blood from the swim bladder.

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