

論文 / 著書情報
Article / Book Information

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Category(English)	Doctoral Thesis
種別(和文)	論文要旨
Type(English)	Summary

論文要旨

THESIS SUMMARY

専攻： 生体システム 専攻
Department of
学籍番号：
Student ID Number
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Student's Name

申請学位(専攻分野)： 博士 (理学)
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指導教員(主)： 広瀬 茂久
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要旨 (英文 800 語程度)

Thesis Summary (approx.800 English Words)

NHE3 provides one of the major Na^+ absorptive pathways of the intestine and kidney in mammals, and recent studies of aquatic vertebrates (teleosts and elasmobranchs) have demonstrated that NHE3 is expressed in the gill and plays important roles in ion and acid-base regulation. To understand the role of NHE3 in elasmobranch osmoregulatory organs, I analyzed renal and intestinal expressions and localizations of NHE3 in a marine elasmobranch, Japanese banded houndshark (*Triakis scyllium*). mRNA for *Triakis* NHE3 was most highly expressed in the gill, kidney, spiral intestine, and rectum. The kidney and intestine expressed a transcriptional isoform of NHE3 (NHE3k/i), which has a different amino terminus compared to that of NHE3 isolated from the gill (NHE3g), suggesting that NHE3k/i and NHE3g arise from a single gene by alternative promoter usage. Immunohistochemical analyses of the *Triakis* kidney demonstrated that NHE3k/i is expressed in the apical membrane of a part of the proximal and late distal tubules in the sinus zone. In the bundle zone of the kidney, NHE3k/i was expressed in the apical membrane of the early distal tubules known as the diluting segment. In the spiral intestine and rectum, NHE3k/i was localized towards the apical membrane of the epithelial cells. The transcriptional levels of NHE3k/i were increased in the kidney when *Triakis* was acclimated in 130% seawater, whereas those in the spiral intestine were increased in fish acclimated in diluted seawater. These results suggest that NHE3 is involved in renal Na^+ reabsorption, urine acidification, and intestinal Na^+ absorption in elasmobranchs.

備考：論文要旨は、和文 2000 字と英文 300 語を 1 部ずつ提出するか、もしくは英文 800 語を 2 部提出してください。

Note: Thesis Summary should be submitted in either a copy of 2000 Japanese Characters and 300 Words (English) or 2 copies of 800 Words (English).