The influence of rearing on behavior, brain monoamines and gene expression in three-spined sticklebacks

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Ladda ner data

DATASET01.xlsx *(36.95 KB)*

Citering

Abbey-Lee, R. N., Uhrig, E. J., Zidar, J., Favati, A., Almberg, J., Dahlblom, J., Winberg, S., et al. (2018) The influence of rearing on behavior, brain monoamines and gene expression in three-spined sticklebacks (Version 1) [Dataset]. Linköpings universitet. Tillgänglig via: https://doi.org/10.5878/1txx-m695

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Beskrivning

Data file for the study: The influence of rearing on behavior, brain monoamines, and gene expression in three-spined sticklebacks, RN Abbey-Lee, EJ Uhrig, J Zidar, A Favati, J Almberg, J Dahlblom, S Winberg, H Lovlie.

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File contents: All data used for the study- including treatment status, behaviour, qPCR gene expression, and HPLC-EC monoamine levels.

The causes of individual variation in behavior are often not well understood, and potential underlying mechanisms include both intrinsic and extrinsic factors, such as early environmental, physiological, and genetic differences.

In an exploratory laboratory study, we raised three-spined sticklebacks (Gasterosteus aculeatus) under 4 different environmental conditions (simulated predator environment, complex environment, variable social environment, and control). We investigated how these manipulations related to behavior, brain physiology and gene expression later in life, with focus on brain dopamine and serotonin levels, turnover rates, and gene expression.

The different rearing environments influenced behavior and gene expression, but did not alter monoamine levels or metabolites. Specifically, compared to control fish, fish exposed to a simulated predator environment tended to be less aggressive, more exploratory, and more neophobic; and fish raised in both complex and variable social environments tended to be less neophobic. Exposure to a simulated predator environment tended to lower expression of dopamine receptor DRD4A, a complex environment increased expression of dopamine receptor DRD1B, while a variable social environment tended to increase serotonin receptor 5-HTR2B and increased serotonin transporter SLC6A4A expression. Despite both behavior and gene expression varying with early environment, there was no evidence that gene expression mediated the relationship between early environment and behavior.

Our results confirm that environmental conditions early in life can affect phenotypic variation. However, the mechanistic pathway of the monoaminergic systems translating early environmental variation into observed behavioral responses was not detected.

Datasetet har ursprungligen publicerats i DiVA och flyttades över till SND 2024.

Data innefattar personuppgifter

Nej

Språk

Engelska

Identifierare

URN: urn:nbn:se:liu:diva-148013

Forskningsområde

Biologi (Standard för svensk indelning av forskningsämnen 2011)

Nyckelord

Hjärnans kartläggning, Genuttryck, Gasterosteus aculeatus

Publikationer

Abbey-Lee, R. N., Uhrig, E., Zidar, J., Favati, A., Almberg, J., Dahlbom, J., Winberg, S., & Løvlie, H. (n.d.). The Influence of Rearing on Behavior, Brain Monoamines, and Gene Expression in Three-Spined Sticklebacks. In Brain, behavior, and evolution (Vol. 91, Issue 4, pp. 201–213).
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Tillgänglighetsnivå

Åtkomst till data via SND
Data är fritt tillgängliga

Användning av data

Att tänka på vid användning av data som delas via SND

Versioner

Version 1. 2018-05-24

Denna resurs har följande relationer

Refereras till av The Influence of Rearing on Behavior, Brain Monoamines, and Gene Expression in Three-Spined Sticklebacks:

Ladda ner metadata

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JSON-LD

PDF

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Filöversikt (CSV)

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