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Mechanism of RLRs signal pathway against NNV in Sea Perch, *Lateolabrax japonicus*

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Sea perch (*Lateolabrax japonicus*), an economically important cultured fish species in Asia, has been challenged by RNA virus in recent years. Nervous necrosis virus (NNV) consisting of two co-encapsidated positive-sense RNA segments has been identified as the main cause of high mortality of mass larval-stage sea perch. The RIG-I-like receptors (RLRs) play a major role in sensing RNA virus infection to initiate and modulate antiviral immunity in low order vertebrates. To decipher the mechanisms of RLRs response to NNV in sea perch, we identified an NNV (strain SBN147), established two cell lines (LJB cells and LJF cells) from the brain of sea perch and cloned the LGP2, MDA5, MAVS and other related genes in RLRs signal pathway from the sea perch. Quantitative RT-PCR analysis showed that mRNA of these genes were widespread expressed in the tested tissues of healthy fish and significantly up-regulated post NNV infection. Furthermore, time course analysis showed that these genes transcripts significantly increased in the spleen, kidney and liver tissues after NNV infection. LjLGP2 mRNA expression was rapidly and significantly up-regulated in LJB cells after poly I:C stimulation and NNV infection. RNA interference experiment demonstrated that silencing of LjMDA5 significantly increased NNV replication in NNV infected LJF cells. The viral gene transcription of NNV was significantly decreased in LjMAVS over-expressing LJB cells. The present results suggest that RLRs may play a vital role in antiviral innate immune against NNV in sea perch.

Biography

Peng Jia has completed his Bachelor's degree from Hunan Normal University and currently is a doctoral candidate at Sun Yat-sen University. He has published 5 papers in reputed journals.

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