10th

International Symposium on Viruses of lower Vertebrates

BUDAPEST · 2017

ABSTRACT BOOK

Budapest, 4–7 June 2017

European sea bass DLB-1 cell line is susceptible to nodavirus infection. A RNA-seq analysis

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The generation of fish cell lines is a major task for specific virological studies. Although there are many cell lines described in fish, only one is available in the case of European sea bass (*Dicentrarchus labrax*), the most important fish species in the Mediterranean area. Among the viruses affecting this species, nervous necrosis virus (NNV; *Nodaviridae* family, *Betanodavirus* genus), is one of the most threatening virus for aquaculture and sea bass is one of the most susceptible species. NNV causes the viral encephalopathy and retinopathy (VER) disease that alters brain and retina structure and function and mainly affect to larvae and juvenile stages. The aim of this study was to characterize the susceptibility of the sea bass brain derived DLB-1 cell line to NNV and evaluate its transcription pattern by RNA-seq analysis. To do this, DLB-1 cells were infected with NNV strains belonging to the four genotypes at two temperatures (20 and 25ºC). The cytopathic effect was monitored and the presence of NNV was confirmed by RT-PCR. DLB-1 cells infected with SGWak97 strain (RGNNV genotype) at 25ºC were sampled at 0, 12, 24, 36, 48 or 72 h and RNA isolated. Then, RNA-seq (Illumina) 2x100bp was performed and incorporated in an in-house pipeline to improve the current annotation of the seabass reference genome. Differential expression and GO enrichment analysis were performed on the annotated genes. Our results demonstrated that the DLB-1 cell line is susceptible to the four NNV genotypes at 25ºC but only to RGNNV and SJNNV at 20ºC. Around 13,000 genes were annotated and several GO terms important for cellular function were assigned. In conclusion, our study demonstrates that the DLB-1 cell line is susceptible to NNV and could be used for viral detection and studies of immunity in the European sea bass-NNV model. The RNA-seq reveals transcripts related to the viral infection and sea bass immunity. (Support: Grants AGL2013-43588-P and AGL2016-74866-C3-1-R (MINECO and FEDER), PTA2014-09515 (MINECO), PT13/0001/002 (Instituto de Salud Carlos III) and 19883/GERM/15 (*Fundación Séneca de la Región de Murcia*, Spain) are gratefully acknowledged).

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