## Transcriptome analysis reveals mechanisms of organismal response in Exopalaemon carinicauda with "Zombie Disease"



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The ridgetail white prawn, *Exopalaemon carinicauda*, one of the important commercial shrimp species naturally distributed in the coasts of the Yellow Sea and the Bohai Sea, China.

In recent years, an epidemic disease called "Zombie Disease" by local farmers has appeared in the *E. carinicauda* breeding area of Jiangsu Province, and the pathogen was found to be *Metschnikowia bicuspidata* after isolation and identification. However, the organismal response mechanism of *E. carinicauda* after infection has not been reported.



## 2. Materials and methods



## 4. Conclusion

- E. carinicauda infected with M.bicuspidate upregulated CTL to enhance pathogen recognition and activate the immune system, and upregulated CTSB, Arsb to promote lysosome degrade pathogens.
- In addition, the expression of GST, LPSAT, Plg and other genes was suppressed after infection, disrupting the antioxidant system, glycerophospholipid metabolism and protein digestion and absorption pathways in E. carinicauda.

## 3. Results

Tab. 1 Quality control of the RNA-seq data obtained from different samples.

Sample	Raw Reads	Clean Reads	Clean Bases	Q30(%)	GC Content (%)
C-1	73264638	72853978	10875846060	93.11%	43.69%
C-2	69762456	69449584	10367317033	93.63%	43.91%
C-3	72742586	72387824	10804261763	93.90%	43.42%
T-1	69891130	69590130	10380228574	93.75%	43.70%
T-2	65801936	65524978	9779274278	93.57%	43.93%
T-3	68803894	68501780	10219018610	93.34%	43.90%
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Permanus varinations expression 1 Annotation of 100 75 E	opens and a settle of the sett	Nr database F	ig. 2 Annotation of	o c a e F H   F c of unigenes to	<ul> <li>A S</li> <li>COG/KOG databa</li> <li>qRT-PCR</li> <li>Illumina HiSeq</li> </ul>
. <b>3</b> Volcano mar	bos of differentia	ally expressed	-6- -6- -6- -6- -6- -6- -6- -6- -6- -6-		GSTING THE SOL
genes in C	Group vs T-G	roup	Fig. + Vanua	Level2 GO term	ns of CK-vs-T
Lysosom Glycerophospholipid metabolism Metabolic pathway Glycerolipid metabolism Platelet activatior Apoptosi Tryptophan metabolism Ascorbate and aldarate metabolism Insect hormone biosynthesi Autophagy - animu Autophagy - other eukaryotes Spinocerebellar ataxi AMPK signaling pathway		Gene number 6 54.5 103 151.5 200 -log <sub>10</sub> (Qvalue) 3.5 2.5 2.5 1	Protect of Groups		
e, serine and threonine metabolisn	1		/ //		