

# OGT and O-GlcNAc, old and new story

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Zebrafish OGT (zOGT) sequence was identified in zebrafish (*Danio rerio*) genome and six different transcriptional variants of zOGT, designated var1 to var6 were isolated. Here we describe the developmental regulation of zOGT variants at transcriptional level and their OGT activity of protein O-GlcNAcylation. OGT transcriptional variants in zebrafish were differentially generated by alternative splicing and in particular, var1 and var2 were contained by 48 bp intron as a novel exon sequence, demonstrating that this form of OGT was not found in mammals. Transcript analysis revealed that var1 and var2 were highly expressed at early phase of development including unfertilized egg until dome stage whereas var3 and var4 were begins to be expressed at sphere stage until late phase of development. Our data indicate that var1 and var2 are likely to be maternal transcripts. The protein expression assay in *E. coli*-p62 system showed that OGT activities of var3 and var4 were found to be only active whereas those of all other variants were inactive.

## **Recent Publication**

1. OGT functions as a catalytic chaperone under heat stress response : a unique defense role of OGT in hyperthermia. BBRC (2004) 322, 1045-1051.
2. Transcriptional regulation and O-GlcNAcylation activity of zebrafish OGT during embryogenesis. BBRC (2005) 337, 256-263