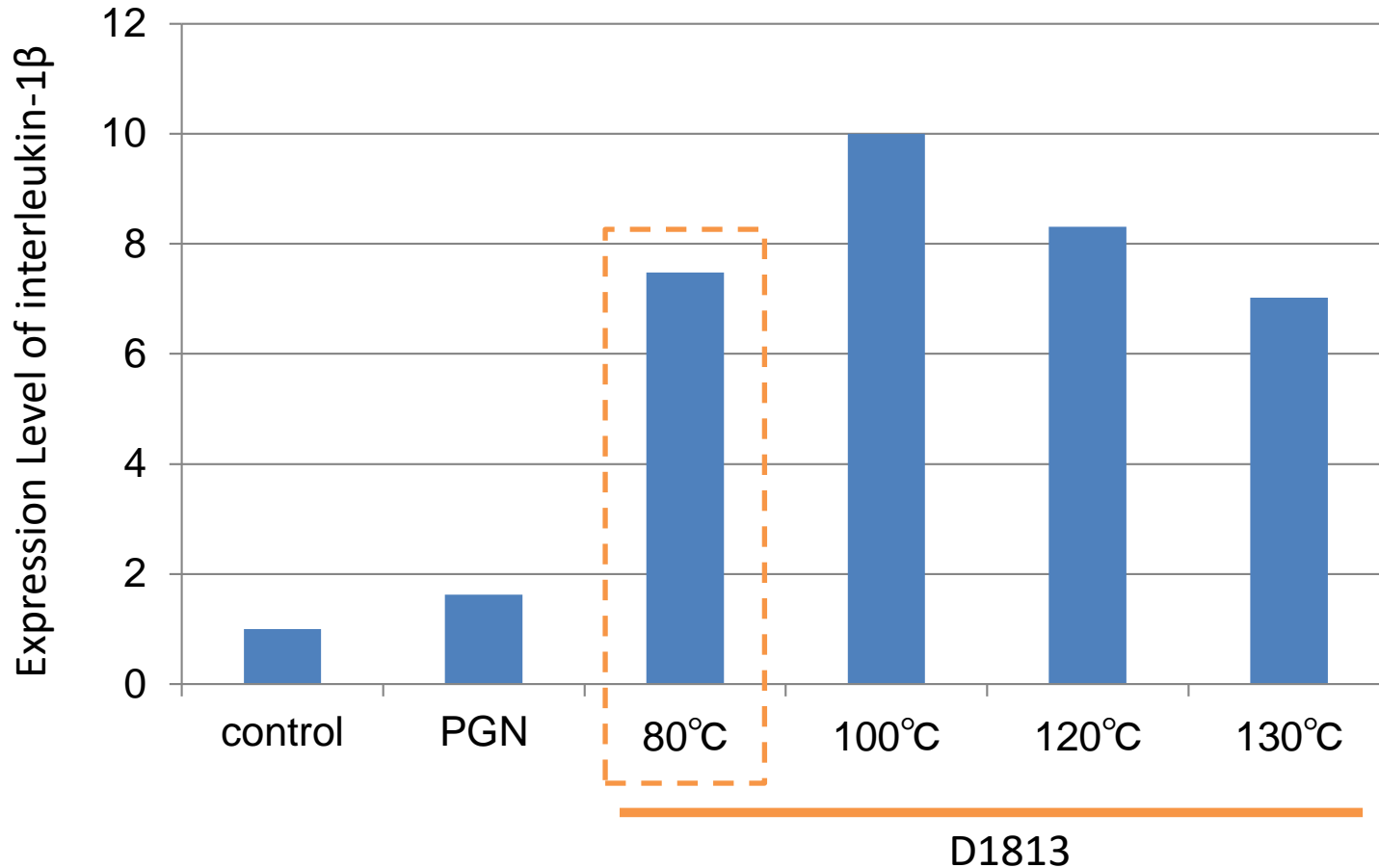


# Gene-expression of interleukin-1 $\beta$ of head kidney cells from carp *Cyprinus carpio* after stimulating with heat-treatment of *Lactococcus lactis* strain D1813



Kidney cells from carp were stimulated with heated-D1813 bacteria and then evaluated the gene expression level with RT-PCR. Heat-treatments were performed for 10 min at each temperature. D1813 is heat-killed at 80°C for 10 min under manufacturing process of PowerLac. The data shows that heat-treatment at 130°C for 10 min is almost the same expression level as 80°C for 10 min, which means that the activity of PowerLac is maintained between the tested temperatures.