

## Carotenoid synthesis related gene transfer into the genome of *Haematococcus pluvialis*

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A unicellular green microalga, *Haematococcus pluvialis*, has been focused as a microbial source of astaxanthin production. *Haematococcus pluvialis* accumulates the highest level of astaxanthin (up to 4%/g [dry weight]) and seems to be a very promising source of natural astaxanthin. A beneficial role of astaxanthin as a food supplement for humans has been suggested. A promising strategy for further improving the astaxanthin yield of *Haematococcus pluvialis* is genetic engineering of the carotenoid biosynthesis pathway. The *crtW*, *crtZ* genes are related carotenoid synthesis. In this study, gene transfer into the genome of *Haematococcus pluvialis* and optimum culture for transformed *Haematococcus pluvialis* astaxanthin.