

Immunization of common carp by duckweed biomass expressing recombinant koi herpesvirus (KHV) antigens induces the production of the neutralizing antibodies



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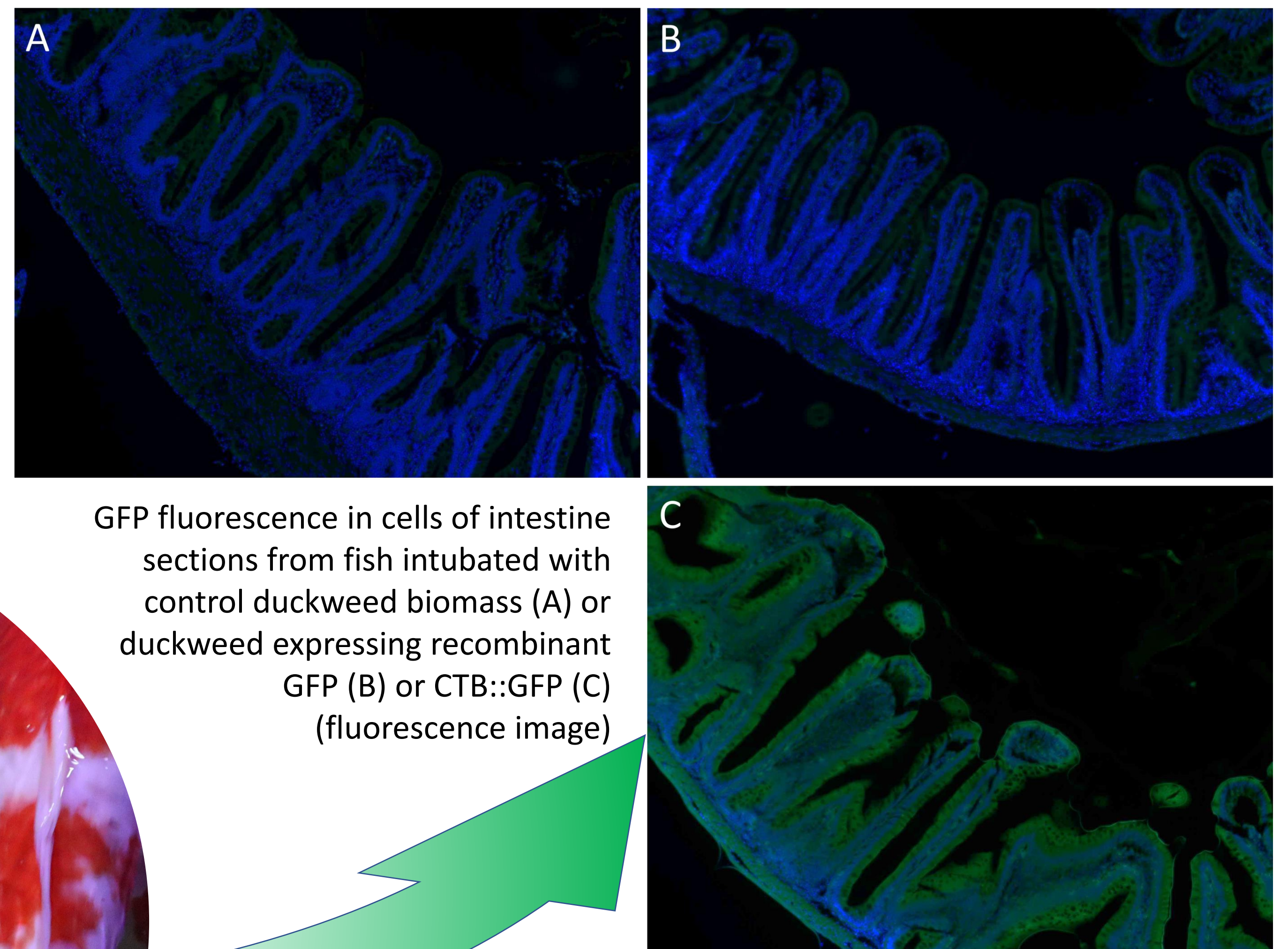
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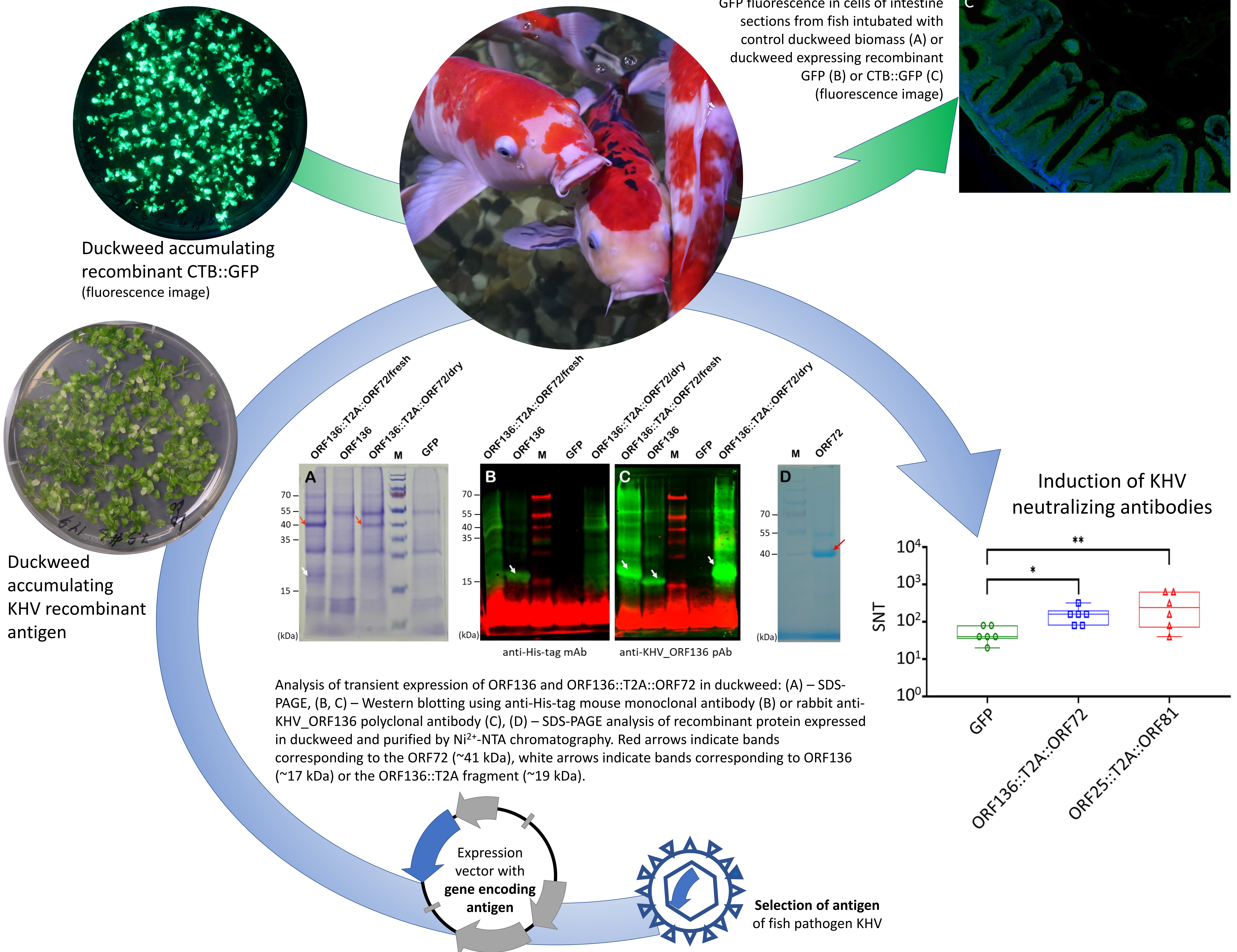
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Duckweed as platform for oral anti-viral vaccine for aquaculture

- High efficient for recombinant protein production and accumulation
- Antigens are protected by bioencapsulation in duckweed cells
- No purification step of recombinant antigens
- Natural feed for fish (carp, koi, tilapia)
- Simple, large-scale, and low-cost cultivation in full-contained conditions



GFP fluorescence in cells of intestine sections from fish intubated with control duckweed biomass (A) or duckweed expressing recombinant GFP (B) or CTB::GFP (C) (fluorescence image)



Conclusions

- Transient expression of recombinant viral protein in duckweed appears to be a promising tool for antigen production in bioencapsulated form
- The immunogenicity of the antigen-comprising duckweed has been preliminarily confirmed by injection experiments
- Agrobacterium-mediated transient gene expression in duckweed could facilitate the development of edible vaccines for common carp