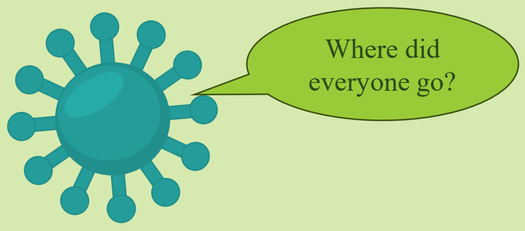
Competing with your mistakes

Interplay between defective interfering particles and viruses in marine algae

Erling Skåre Vik-Mo – Marin mikrobiologi

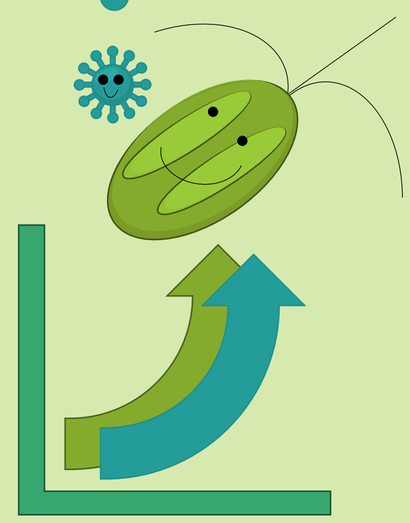
1. Killing your livelihood

Viruses are important players in the marine environment. In some instance viruses account for almost 100% of mortality during algae blooms. In theory a successful virus kills it host to propagate. Maximizing the resource extraction of its host, resulting in cell death and production of new viruses. But killing all your host leaves you without new gracing grounds.



2. Coexistence?

On secondary infection between the haptophyte *Prymnesium kappa 034* (Pk034) and its virus, PkVRF02, a chronic infection pattern appears. **Both host and virus populations show exponential growth together.**

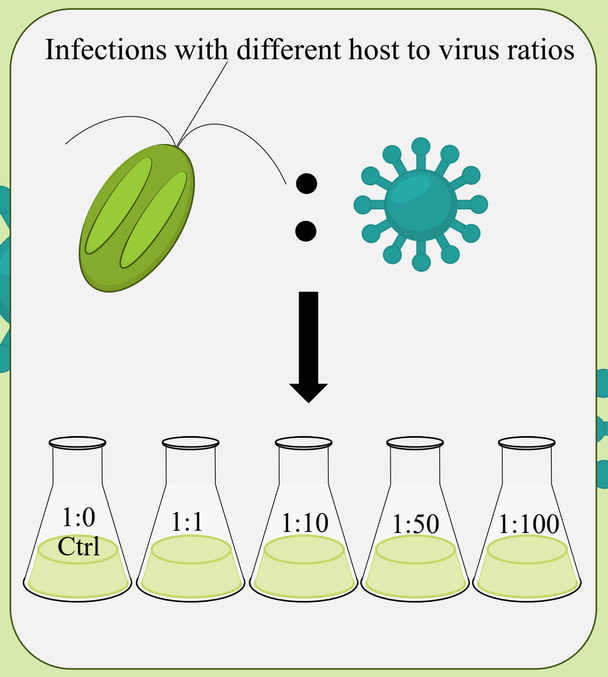


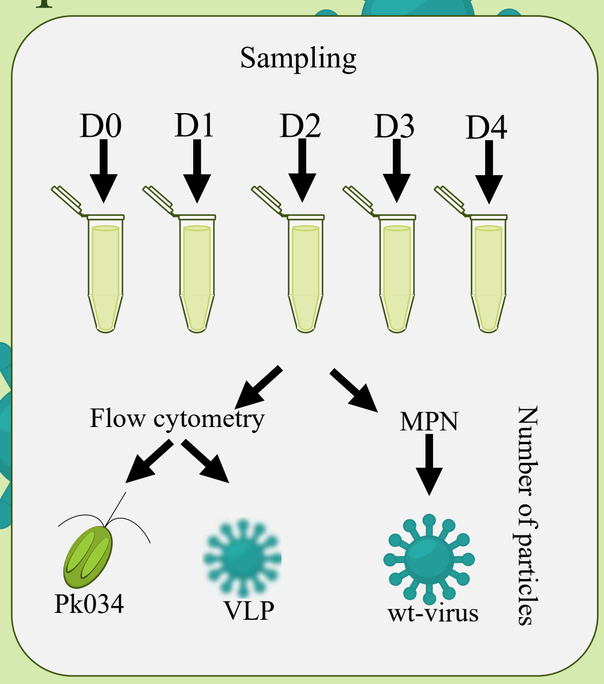
3. DIPs regulate infections

Defective Interfering particles (DIP) appear spontaneously under infection because of mistakes in the genome replication. DIPs cannot infect cells on their own but are dependent on coinfection with the wildtype (wt) virus. Here they hijack the wt's infection machinery. This competition for proteins reduces virality. DIPs are therefore likely a key controller in chronic infections. If DIP hinder eradication of host and promotes chronic infection.

Research question: How does the wt-DIP competition change at different virus concentrations?

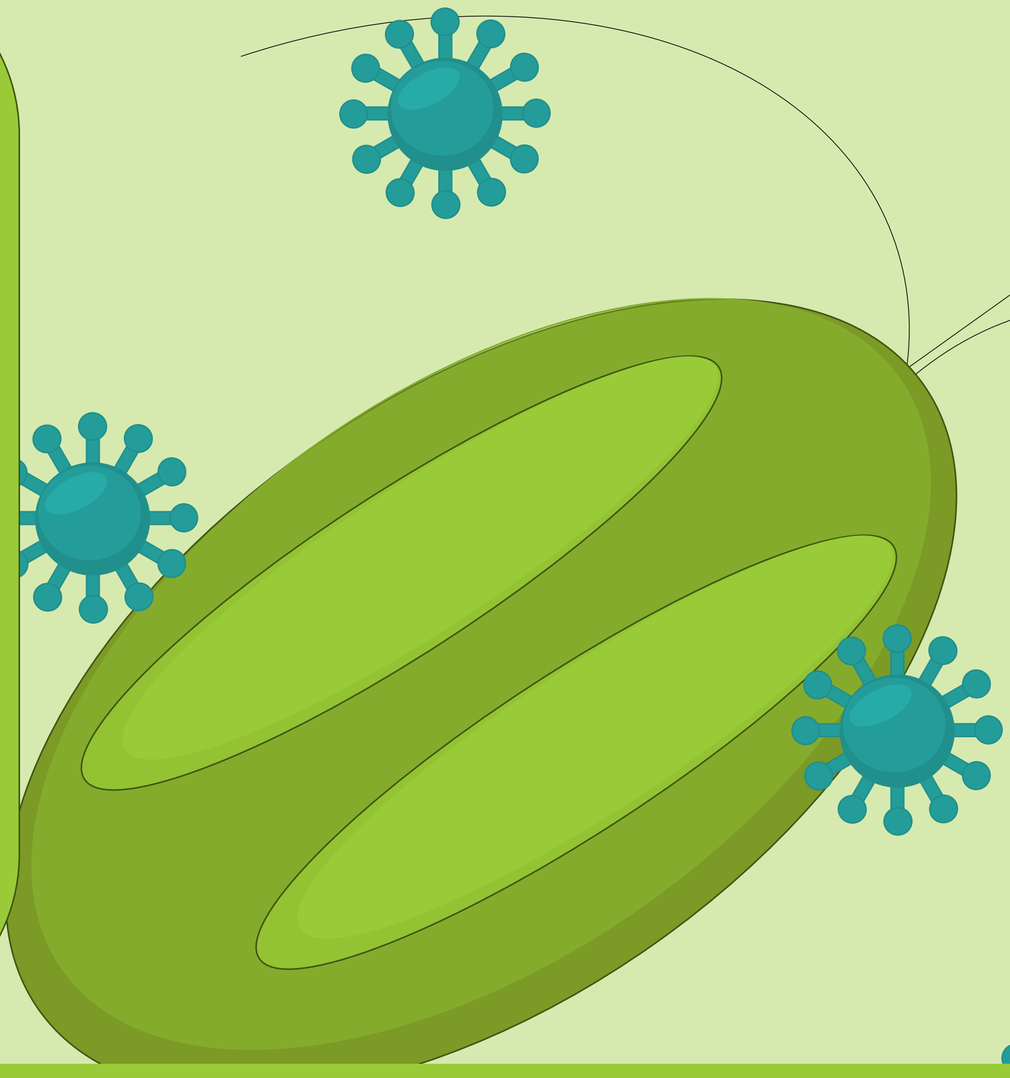
4. Infection experiment





Pk034 was infected with PkVRF02 in different ratios, The same amount of VLP and host, 10x as many VLP, 50x and 100x. Start abundance of Pk034 was $5 * 10^4$ cells/ml. Flow cytometry was used to count virus like particles (VLP) stained with cyber green (side scatter and green fluorescence) and chlorophyll in Pk034 (Red and orange fluorescence) abundance each day. Most probable number assay was used to estimate number of wt virus on D0, D1, D3 and D4

5. Hot of the press



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Sources:
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