Representation:

Array of genes:

Virus

|  |  |  |  |
| --- | --- | --- | --- |
| Index | Implemented | # bits | Meaning |
| 0 | no | 1 | Interaction model |
| 1 | No | 1 | Mutator |
| 2 |  |  |  |
| 3 |  |  |  |
| 4 |  |  |  |

Other variables:

Cost of virulence

Host

|  |  |  |  |
| --- | --- | --- | --- |
| Index | Implemented | # bits | Meaning |
| 0 | no | 1 | Interaction model |
| 1 | No | 1 | Mutator |
| 2 | No | 1 | Viability |
| 3 | No | 1 | Viability |
| 4 | no | 1 | Viability |
| 5 | no | 1 | Viability |
| 6 | no | 1 | Viability |

Other variables:

Cost of resistance

Mutation rate

* Interaction model: Parasite must exactly match host genotype to avoid detection and successfully infect the host. In other words, if the genes match, the host can’t tell the difference between itself and the virus, and thus can’t defend itself (matching allele model). Possibly implement gene for gene model, the host will have a resistance gene for a virus’ virulence gene. A virulence gene is required for the virus to infect a host, but if the host has resistance to that, the infection will be unsuccessful. Many genes can build up, but there is a tradeoff for a large number of genes.
* Mutator: Rate of mutation. If 1, multiply mutation rate by 100
* Viability: Affect host fitness only, has no effect on virus. Wild type /deleterious (initialize at all wild type)