

eeid 2009 - midterm.pdf

RED QUEEN dynamics

coevolutionary dynamics

"all the running you can do stay in the same place"

cyclic

new alleles or genotypes are arising frequently

(mutation, standing variation)

{
FREQUENCY - DEPENDENT
selection}

hosts have alleles for resistance against particular paras genotypes

paras " " for overcoming resistance of particular host genot

paras		
1	2	3
host 1	*	
host 2		*
host 3		*

Matching alleles

hosts are all 2
paras are all 1

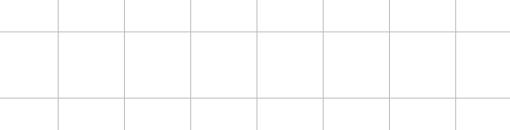
↳ mut 1 → 2

paras allele 2 spreads

↳ host 2 → 3

cycling

DILUTION effect



Self - non self recognition

local adaptation

parasite

host 1	*	*
host 2	*	*
host 3	*	*

INVERSE
matching alleles

vertebrate immune system - (antibodies vs antigen)

RQ dynamics

- RECOGNITION systems

EFFECTOR systems

arms race/trench warfare

resistance builds up until benefits are balanced by costs.

resistance alleles polymorphic.

short-term stabilizing selection

long-term - cycling again

in freq/strength of resistance