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1/21/93

- Extracellular matrix in Nicotiana styles
- Self-incompatibility

Self-Incompatibility

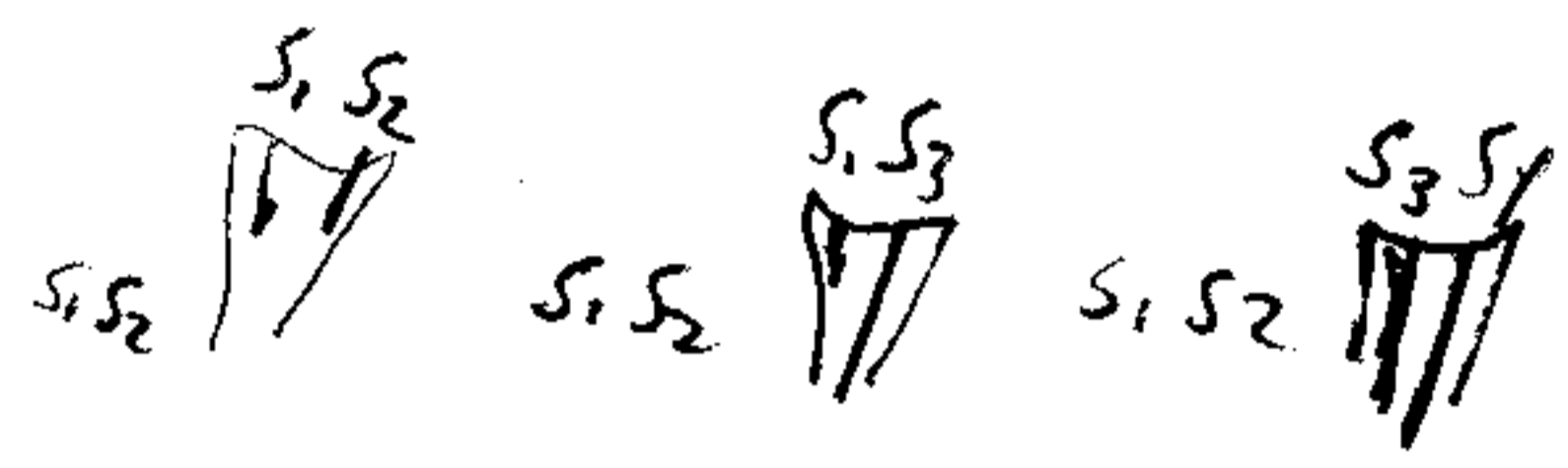
- present in ~ 1/2 of all angiosperms

When Incompat. Occurs

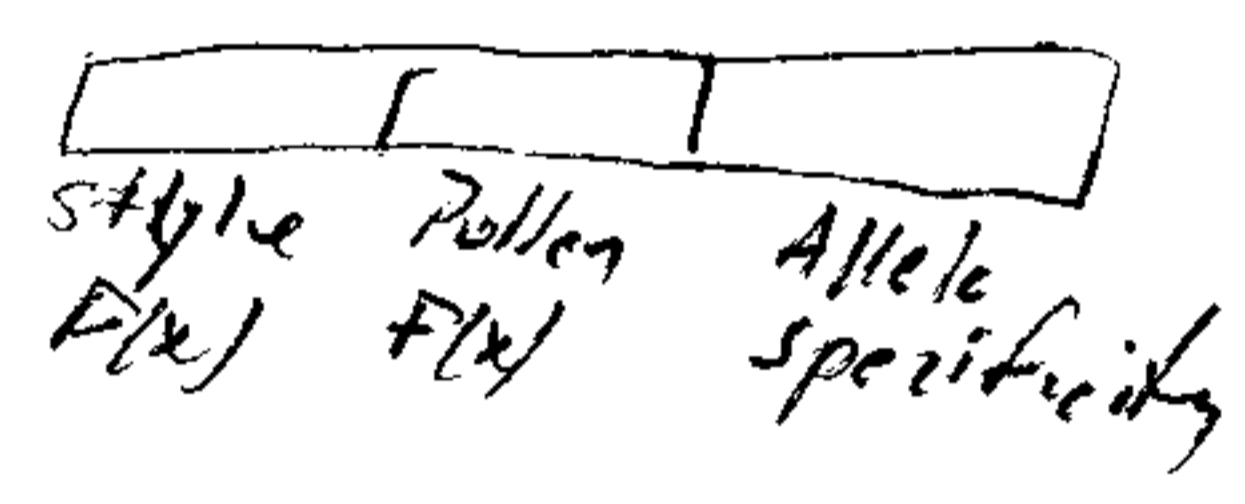
o Pollen tubes affected

Mechanism ---

S allele recognition

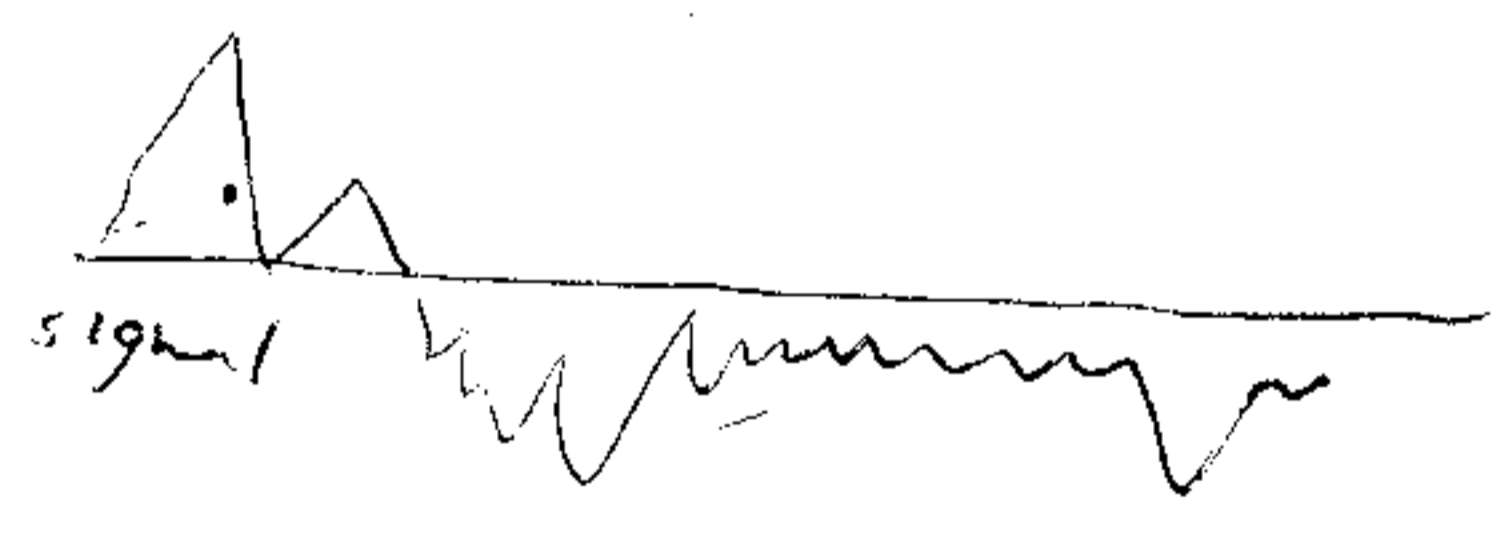


Lewis 1950's ---



Experiments

- o can make homozygotes by pollinating at bud stage
- o cloned S2 --- + then others



- some conserved regions
- some variable regions
- some glycosylation sites

- No apparent homology w/ anything.
- Until Sakayama sequenced Fungal RNase, & they are homologous
  - most homologous at regions conserved w/in S2 alleles
- Detected RNase activity in matrix extracts
  - In vitro assays didn't work
  - So tried In vivo
- o Radioactively labelled pollen RNA
  - Compatible wasn't degraded, incompatible was

But rRNA degradation could be due to death not cause of death.

So - immunofluorescence w/ antibodies specific for each allele  
... and in compat. interactions no RNase in cell  
incomp. " RNase in cell

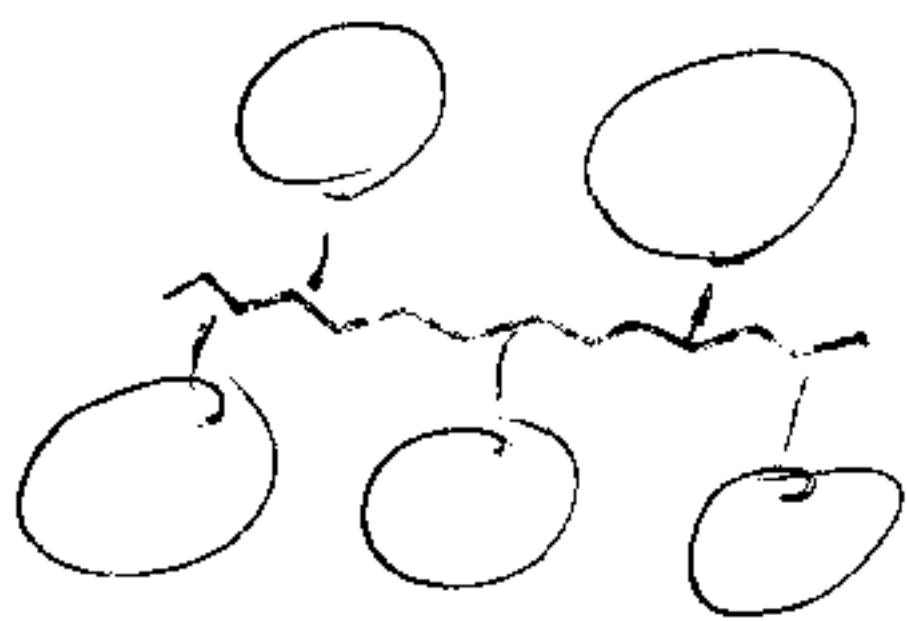
What else is in matrix & stigma?

① Proteinase inhibitors -- in stigma

- start as 42kd protein
- appears to get cleaved thru flower duct
- to 6kd protein

② AGPs - arabinoglycans

- diff. among AGPs in diff. tissues



≈ 10% of whole glycoprotein  
protein core; hydroxyprot } v. resist. to  
Ser } proteolysis  
Ala }  
Gly }

③ 120kd glycoprot.

④ 5 RNases

What do they do?

① protect moist, sweet substance from pathogens.

checked for inhibition by various pathogens

- Proteinase Inhibitors - somewhat effective
  - Nicot
  - Potato
- RNases
  - S2 - somewhat effective
  - A
  - Pistil Extract - v. effective