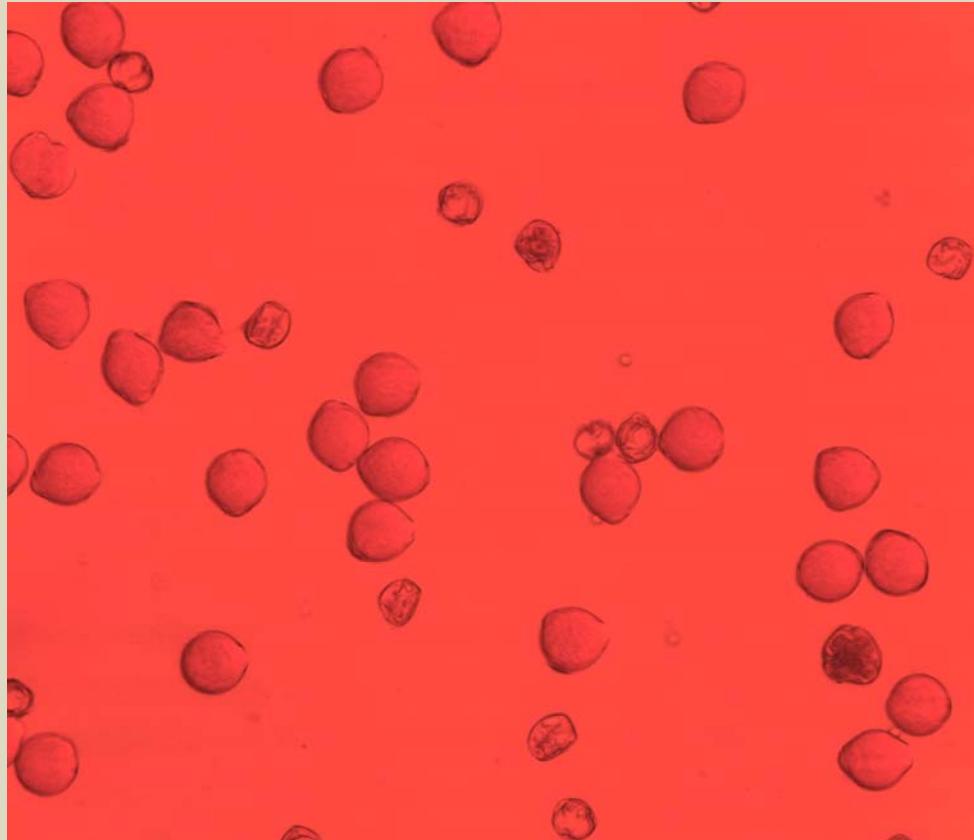


Generation of Sterile Litchi Tomato

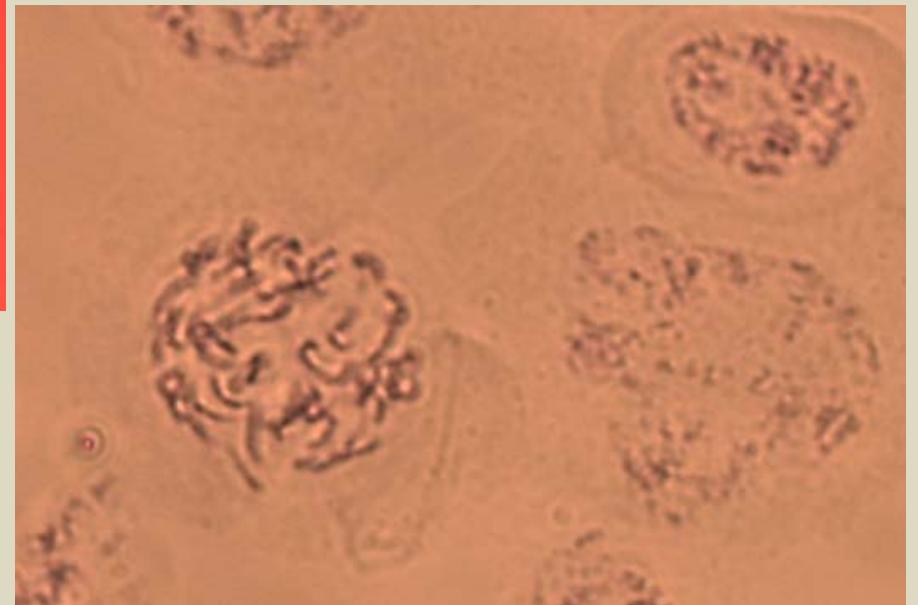


Litchi tomato
(Solanum sisymbriifolium)

Joe Kuhl, UI

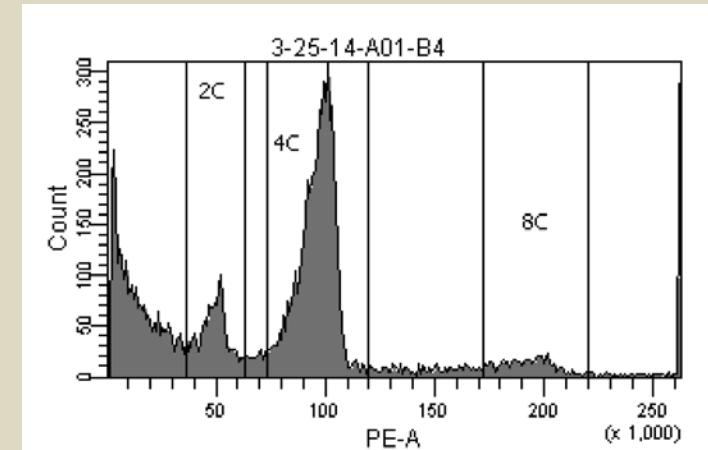
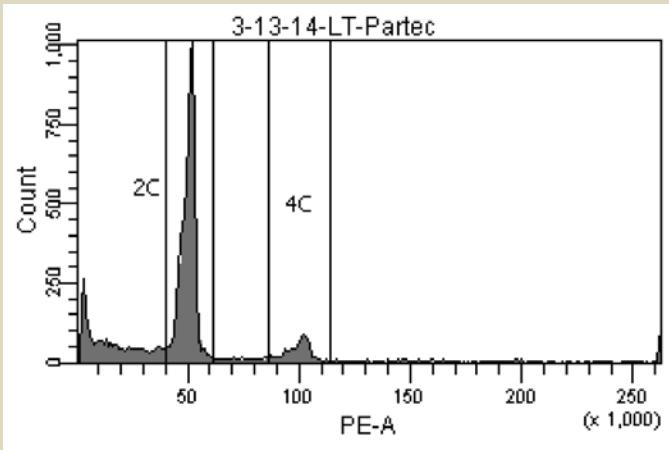
Bob Tripepi, UI

Louise-Marie Dandurand, UI

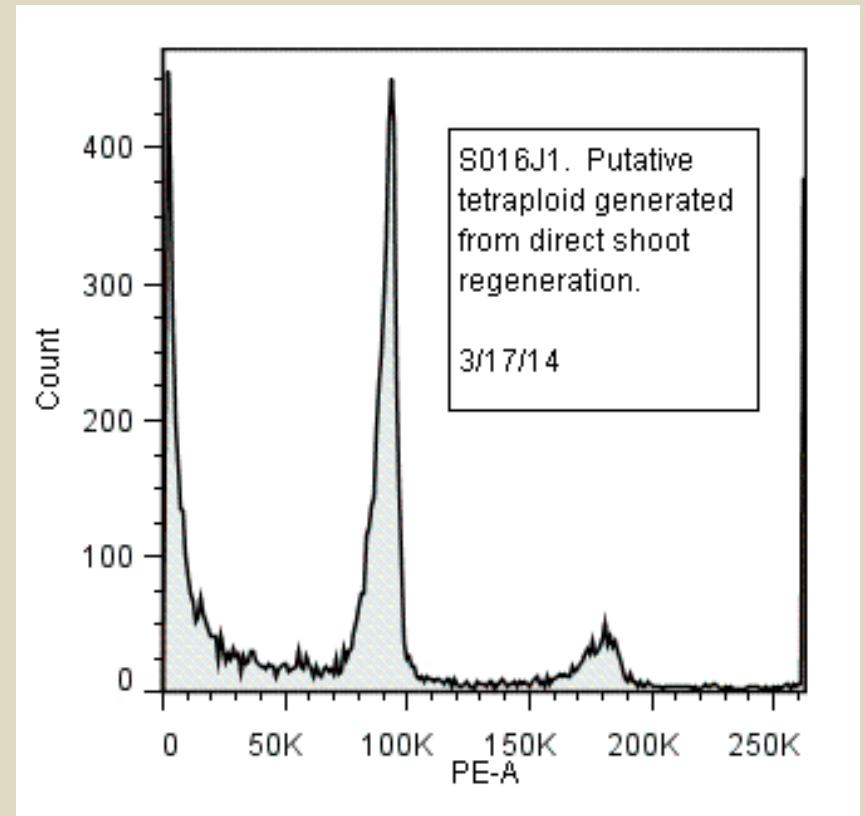
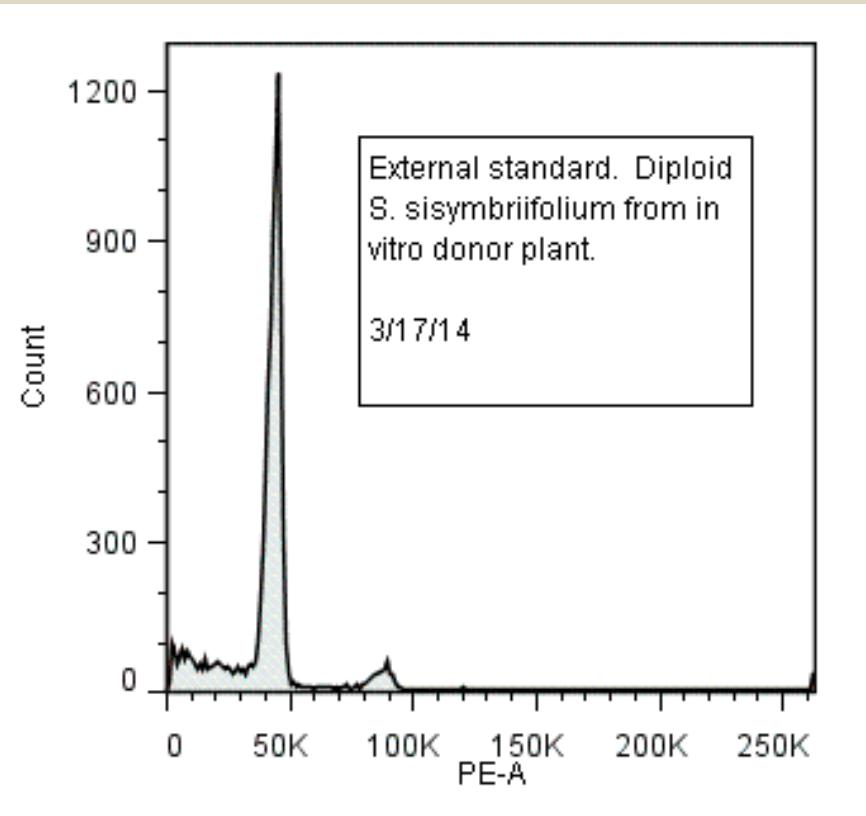


Sterile Litchi Tomato

- Sterile triploid plants
 - Generate fertile tetraploid (4x) plants
 - Cross with diploid (2x) plants:
4x by 2x crosses → to generate triploid (3x) seed
Triploid seed will generate sterile plants
- Mutagenesis of diploid plants
 - Maintain sterile diploid lines asexually



Flow Cytometry



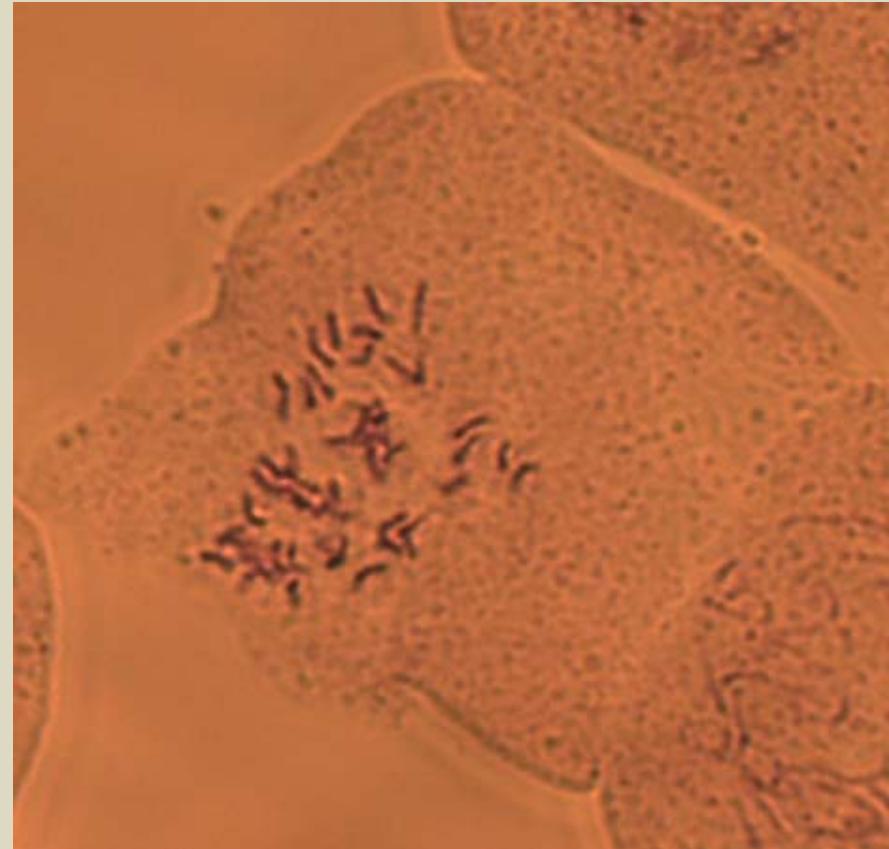


S016J1-E6

S016J1-C2

Chromosome Counts

Diploid Line



S016J1-C2 (n=7)
45-48, ave. 47.1



S016J1-E6 (n=9)
45-47, ave. 46.4

Pollen Viability and Crosses

- Pollen Viability:
 - Diploid plants (35) average 84% (range 65-97%)
 - S016J1-E6: 43%
 - S016J1-C2: 68%

Female	Male	Cross	# Flowers Pollinated	Fruit #	Seed #	Seed/Fruit	Germinated/Seedling
C-12	Bulk Pollen 2	Dipl. x Dipl.	15	14	432	30.9	Y
C-12	S016J1-E6	Dipl. x Tetra.	16	10	210	21.0	
C-12	S016J2-C2	Dipl. x Tetra.	9	7	139	19.9	
S016J1-E6	Bulk Pollen 3	Tetra. x Dipl.	21	11	12	1.1	
S016J2-C2	Bulk Pollen 3	Tetra. x Dipl.	18	14	20	1.4	
S016J2-C2	S016J1-E6	Tetra. x Tetra.	18	15	177	11.8	Y
S016J2-C2	S016J2-C2	Tetra. x Tetra.	29	21	231	11.0	Y

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Conclusions

- Irradiation work has been discontinued since pollen viability was too high (no sterile plants)
- Work with Oryzalin® has been put on hold due to generating mainly mixaploid plants that revert to diploid plants
- Two step protocol is generating tetraploid plants, and more tetraploid plants are needed to maximize triploid seed production

Questions

Tetraploid
(S016J1-C2) plant
used in crossing
experiments

