Restriction Fragment Length Polymorphisms between tomato lines sensitive or tolerant to bacterial wilt

Olivier, J., Thoquet, P., Sperisen, C., Rogowsky, P., Stephens, S., Bonnema, G., Lewis, C., Nazer, R. Tanksley, S., Gebhardt, C., and Grimsley, N.
Laboratoire de Biologie Moleculaire des Relations Plantes-Microorganismes, B.P. 27 Auzeviile, 31326 Castanet-Tolosan, France.

Using the detailed genetic map that is based on an interspecific *Lycopersicon* cross as a reference (Gebhardt et al., 1991, Tanksley et al., 1992), we have carried out a survey of enzyme-probe combinations on DNAs isolated from 3 lines using a set of probes that are dispersed throughout the genome. The results of this survey are shown in Table 1.

This study was conducted as a preliminary step in mapping the loci important for tolerance to bacterial wilt caused by *Pseudomonas solanacearum*. One tolerant, Hawaii7996, and two sensitive lines, Floradel and WVa700, were used. Although WVa700 has small fruits and may be classified as *L. pimpinellifolium*, our data indicate that it does not differ from the two varieties of *L. esculentum* tested in terms of the level of polymorphism found.

Polymorphisms giving weak signals on autoradiographs or with little difference in band mobility in our gel system (0.7% agarose for enzymes 1-7 and 1.0% agarose for enzymes 8-14) are not shown.

ENZYME/PROBE COMBINATIONS ON 3 LINES OF TOMATO.						RFLP probes showing polymorphisms													
RFLP probes not showing						Prob	Enzymes tested												
							1	2	3	4	5	6	7	8	9	1	1	1	1
						CD4	F					F							
						CD9	W										F	F	F
Probe	Probe	Probe	Prob	Probe	Probe	CD1												F	
CD1	CP11	CT44	GP24	TG16	TG30	CD1								W					W
CD3	CP13	CT54	GP25	TG20	TG31	CD4				W									
CD6	CP15	CT58	GP28	TG24	TG31	CD4		F	H		H			H					
CD8	CP20	CT63	GP28	TG28	TG31	CD6										H		H	H
CD10	CP31	CT64	GP36	TG30	TG32	CD7												F	
CD12	CP43	CT68	GP36	TG35	TG33	CP1	F	F											
CD14	CP44	CT72	GP38	TG43	TG34	CP1	F	F	F	F	F	F	F						
CD15	CP47	CT73	GP41	TG45	TG34	CP1		H	H		H	H							
CD17	CP49	CT75	GP68	TG46	TG35	CP1												F	
CD18	CP51	CT86	GP76	TG48	TG35	CP4						W			W	W		X	
CD20	CP52	CT88	GP78	TG54	TG35	CP6			H			F		W					
CD21	CP53	CT90	GP79	TG61	TG35	CP1								W				F	
CD21	CP54	CT91	GP94	TG71	TG36	CP1								H					H
CD24	CP55	CT10	GP98	TG97	TG36	CP1	W				F	W						F	
CD25	CP56	CT11	GP12	TG99	TG36	CT2					H								
CD27	CP64	CT11	GP12	TG10	TG37	CT2			W										
CD28	CP70	CT11	GP12	TG12	TG38	CT1			H										
CD30	CP10	CT11	GP13	TG13	TG38	CT1		W											
CD31	CP10	CT12	GP16	TG13	TG42	CT2			F	F									
CD36	CP10	CT13	GP16	TG14	TG43	CT2						F				F			
CD38	CP10	CT13	GP17	TG15	TG43	CT2			F	F									
CD41	CP11	CT14	GP17	TG15	TG44	CT2						W				F			
CD42	CP11	CT14	GP17	TG18	TG44	GP1	F	F	F	F	F	F	F				F		
CD43	CP11	CT16	GP17	TG18	TG44	GP2												F	
CD44	CP11	CT16	GP18	TG19	TG45	GP3		H									H		
CD45	CP13	CT17	GP18	TG19	TG47	GP7				W									
CD46	CP13	CT18	GP18	TG20	TG52	GP8		H	H			W					H		
CD47	CP15	CT19	GP19	TG22	TG53	GP8	W												
CD48	CP15	CT19	GP19	TG22	TG54	GP9												F	
CD50	CP50	CT20	GP19	TG22	TG57	GP1			H							H	H		
CD53		CT20	GP19	TG23	TG59	GP1					W		W					F	
CD57		CT21	GP22	TG23	TG62	GP1				X			W						
CD58		CT21	GP23	TG24	TG64	GP2							F						
CD59		CT21	GP26	TG25		GP2	X	X	X	X	F	X	X	W	W		X	F	
CD60		CT22	GP50	TG25		GP2													W
CD61		CT23		TG26		GP5	W	W	W	W		W		W				W	W

ENZYME/PROBE COMBINATIONS ON 3 LINES OF TOMATO.						RFLP probes showing polymorphisms
RFLP probes not showing						Prob	Enzymes tested
							1	2	3	4	5	6	7	8	9	1	1	1	1	1
CD62		CT24		TG27		GP5	W		W	W			W				W			
CD65		CT24		TG27		TG2		W												
CD66		CT24		TG28		TG2												W	F	
CD68		CT24		TG28		TG3						W								
CD69		CT25		TG29		TG4													F	
CD70		CT25				TG5													F	
CD71		CT26				TG5				W										
CD72		CT28				TG6													F	
CD74						TG6	H													
CD75						TG7	H	H		H										
CD75						TG1		H												
CD77						TG1				W						W			F	
CD78						TG1		H				H					H			
						TG1											W			
Enzymes tested:						TG1	W													
						TG1		H												
1	EcoRI	8	DraI			TG1												W		
2	EcoR	9	AluI			TG1													H	
3	HindII	10	Sau3			TG2	F				F	F	F				F	F		
4	Asp70	11	TaqI			TG2							H							
5	BamH	12	RsaI			TG2	H						H		1					
6	BglII	13	HinfI			TG2													F	
7	ScaI	14	NdeII (or HaeIII.			TG3				F										
						TG3			H	H										
						TG3													F	
Symbols:						TG3													F	
						TG4	W				W	W	W	W		W	W			
H: Hawaii7996						TG4													F	
W: W Va 700 polymorphic						TG5	W												F	
F: Floradel						TG6													F	
X: polymorphisms between all 3						TG6													F	

Literature cited:

Gebhardt, C., Ritter, E., Barone, A., Debener, T., Walkemeier, B., Schachtschabel, U., Kaufmann, H., Thompson, R.D., Bonierbale, M.W., Ganal, M.W., Tanksley, S.D., and Salamini, F., 1991. Theor. Appl. Genet 83, 49-57.

Tanksley, S.D., Ganal, M.W., Prince, J.P., Devicente, M.C., Bonierbale, M.W., Broun, P., Fulton, T.M., Giovannoni, J.J., Grandillo, S., Martin, G.B., Messeguer, R., Miller, J.C., Miller, L., Paterson, A.H., Pineda, 0., Roder, M.S., Wing, R.A., Wu, W., and Young, N.D., 1992. High Density Molecular Linkage Maps of the Tomato and Potato Genomes. Genetics 132, 1141-1160.