

In order to identify host factors involved in Plant/PPV interactions, *Arabidopsis thaliana* accessions were challenged with five *Plum pox virus* isolates. A high level of variability was observed both in the behaviour of PPV isolates and in that of the various accessions tested, suggesting a high level of diversity of interactions within this naive *Arabidopsis*/potyvirus pathosystem. Several still-unknown factors controlling recessive resistance mechanisms have been identified, their genetic characterization is being undertaken as follows.

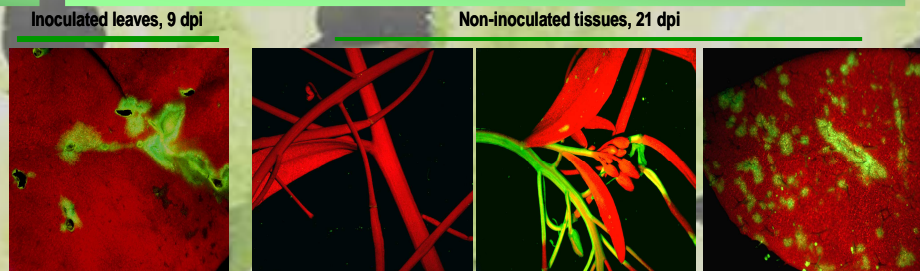
Various phenotypes of PPV infection observed in *Arabidopsis* accessions

Different mechanisms and genetic determinants of recessive resistance to PPV* in *Arabidopsis*

NASC	Accessions	R (D)	NAT (D)	EA	PS-14 (M)	Soc
N8581	Ler	S+	S+	Tol	Tol	Ri
N1092	Col	S+	S+	Rsys	Rsys	Ri
VNAT24	Accessions	R (D)	NAT (D)	EA	PS-14 (M)	Soc
8AV	Pyl-1	Rsys	Rsys	Rsys	Rsys	Ri
25AV	Jea	Rsys	Tol	Rsys	Rsys	Ri
42AV	Bl-1	S+	S+	S+	Tol	Rsys
62AV	St-0	Rsys	Rsys	Ri	Rsys	Ri
70AV	Kn-0	S+	Tol	nd	Rsys	Ri
83AV	Edi-0	S+	Tol	Rsys	Ri	Ri
91 AV	Tsu-0	Tol	Tol	Tol	Rsys	Ri
92AV	Stw-0	Tol	Tol	nd	Rsys	Ri
94AV	Mt-0	S+	S+	Tol	Rsys	Ri
101AV	Ge-0	Tol	Tol	Tol	Rsys	Ri
157AV	Ita-0	Tol	Tol	Tol	Rsys	Rsys
162AV	Ca-1	S+	S+	Sc	Tol	Ri
163AV	Can-0	Tol	Tol	nd	Rsys	Ri
166AV	Cvi-0	S+	S+	Rsys	Rsys	Ri
172AV	Bur-0	S+	S+	S+	Tol	Rsys
178AV	Alc-0	Tol	Tol	nd	Rsys	Ri
180AV	Blh-1	Tol	Tol	Tol	Tol	Ri
200AV	Gre-0	Rsys	Tol	Tol	Rsys	Ri
215AV	Mh-1	S+	Tol	nd	Rsys	Ri
224AV	Oy-0	S+	Tol	S+	Rsys	Ri
236AV	Shahdara	Tol	Tol	Rsys	Rsys	Ri
252AV	Akita	S+	S+	S+	Rsys	Ri
257AV	Sakata	Tol	Tol	Rsys	Rsys	Ri
266AV	N13	Tol	Tol	Rsys	Rsys	Ri

N°Weigel	Accessions	R (D)	NAT (D)	EA	PS-14 (M)
N22676	Bay-0	S+	S+	Rsys	Rsys
N22677	Bor-4	Tol	nd	nd	nd
N22678	Br-0	Tol	nd	nd	nd
N22680	C24	S+	nd	nd	nd
N22683	Est-1	Tol	nd	nd	nd
N22684	Fel-0	Rsys	Rsys	nd	nd
N22685	Got-7	Tol	nd	nd	nd
N22687	NFA-8	S+	nd	nd	nd
N22688	RRS-7	Rsys	Rsys	Rsys	Rsys
N22689	RRS-10	Tol	nd	nd	nd
N22691	Tamm-2	Rsys	nd	nd	nd
N22692	Ts-1	Rsys	Rsys	nd	nd
N22693	Tsu-1	Tol	Tol	nd	nd
N22694	Van-0	S+	nd	nd	nd
N22695	Lov-5	Tol	nd	nd	nd

S+ susceptible with symptoms; Tol: susceptible without symptom (tolerant); Rsys: resistance to long distance movement; Ri: local resistance; nd: not determined



Resistance to systemic infection in JEA



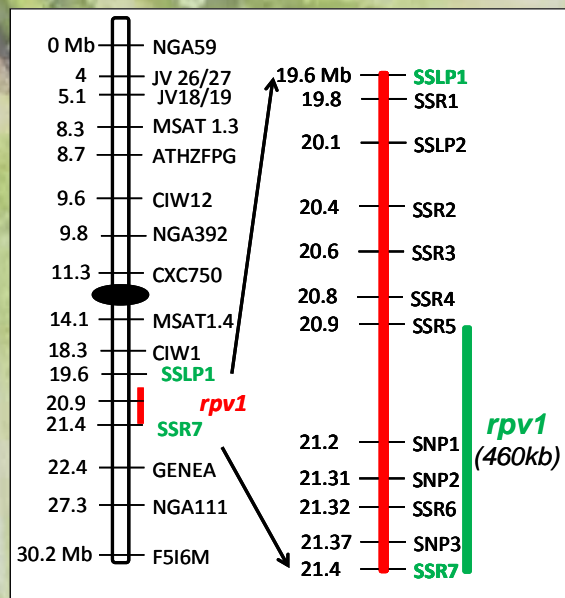
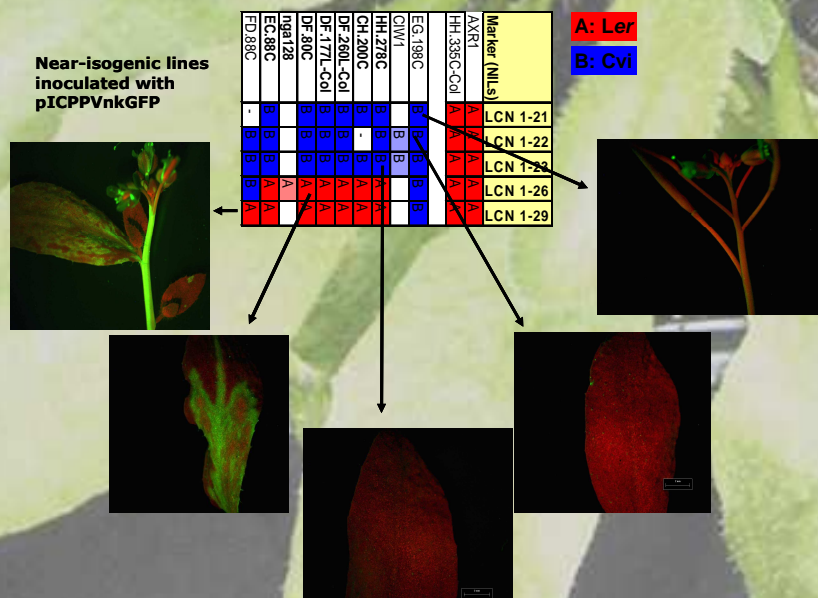
* Inoculation with pICPPVnGFP or pBINPPVnGFP (subclones of PPV-Rankovic)

Digenic resistance in Cvi (*rpv1* + *rpv2*) and JEA (*rpv1*) when infected mechanically with pICPPVnGFP.

Digenic resistance in RRS-7 and Ts-1 (*rpvLG1* and *rpvLG3*) when infected with pBIN-PPVnGFP (Agrobacterium).

Polygenic resistance in JEA (QTLs for « virus accumulation ») when infected with pBIN-PPVnGFP (Agrobacterium).

Fine mapping and cloning of *rpv1*, a recessive resistance gene controlling PPV infection in Cvi x Ler near-isogenic lines



Results and Perspectives: Several new mechanisms of resistance to PPV, distinct from the translation initiation factors, were identified in *Arabidopsis thaliana*. The positional cloning of several of them is ongoing. Once identified, they will be transferred to stone fruit trees (see communication Tricon et al.).