

G2P-Sol – Linking genetic resources, genomes and phenotypes of major Solanaceous crops



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Introduction: G2P-SOL aims to uncover the genetic and phenotypic diversity of tens of thousands of Solanaceous crop accessions (potato, tomato, pepper, eggplant) stored in germplasm banks worldwide. Making these information accessible to scientists and breeders significant improvements are feasible facing the changing environment and the rise of new pests and diseases. The Project Unity platform provides wide-spreaded tools for genetic and phenotypic data analysis.

Crop	Production (M tons)		Gross production value (Bn €)	
	World	Europe	World	Europe
Potato	365	116	72	20
Tomato	162	21	70	14
Eggplant	48	0,9	22	0,4
Pepper	31	2,8	22	2
G2P-SOL crops	606	156	186	39
All horticultural crops	1.928	211	477	59

Tab. 1: Production values of the four major Solanaceous crops amounts to 66% of the European horticultural crop production value. Source: Faostat 2012



Fig 1: G2P-SOL partnerships - Red: Full partners (19); light red: full partners outstations; blue: external cooperating institutes (20)

Objectives (IPK):

- Provision of passport & descriptor data of all four crops
- Provision of genetic material of tomato and eggplant
- High throughput-genotyping of all pepper accessions

Partner	Country	Tomato	Of which wild	Potato	Of which wild	Pepper	Of which wild	Egg plant	Of which wild	All four crops	Of which wild
AVRDC	TW	8.260	812.	---	---	8.235	464	3.713	1.499	20.208	2.775
IPK	DE	3.840	26	6.020	2.845	1.530	63	110	---	11.500	2.934
HUJI	IL	8.100	100	---	---	---	---	---	---	8.100	100
INRA	FR	1.600	200	1.500	500	1.460	46	2.015	1.120	6.575	1.866
CIP	PE	---	---	6.000	1.800	---	---	---	---	6.000	1.800
WUR-DLO	NL	1.332	108	1.446	1.243	1.010	783	510	373	4.298	2.507
UPV	ES	2.220	220	---	---	1.400	80	260	70	3.880	370
JHI	UK	---	---	2.300	1.400	---	---	---	---	2.300	1.400
All other		390	50	390	300	850	56	280	40	1.910	446
Total		25.742	1.516	17.656	8.088	14.485	1.492	6.888	3.102	64.771	14.198

Tab 2: Solanaceous accessions contributed by G2P-Sol partners.

red – IPK Solanaceous accessions participating in G2P-SOL; blue – Genotyping responsibilities of IPK

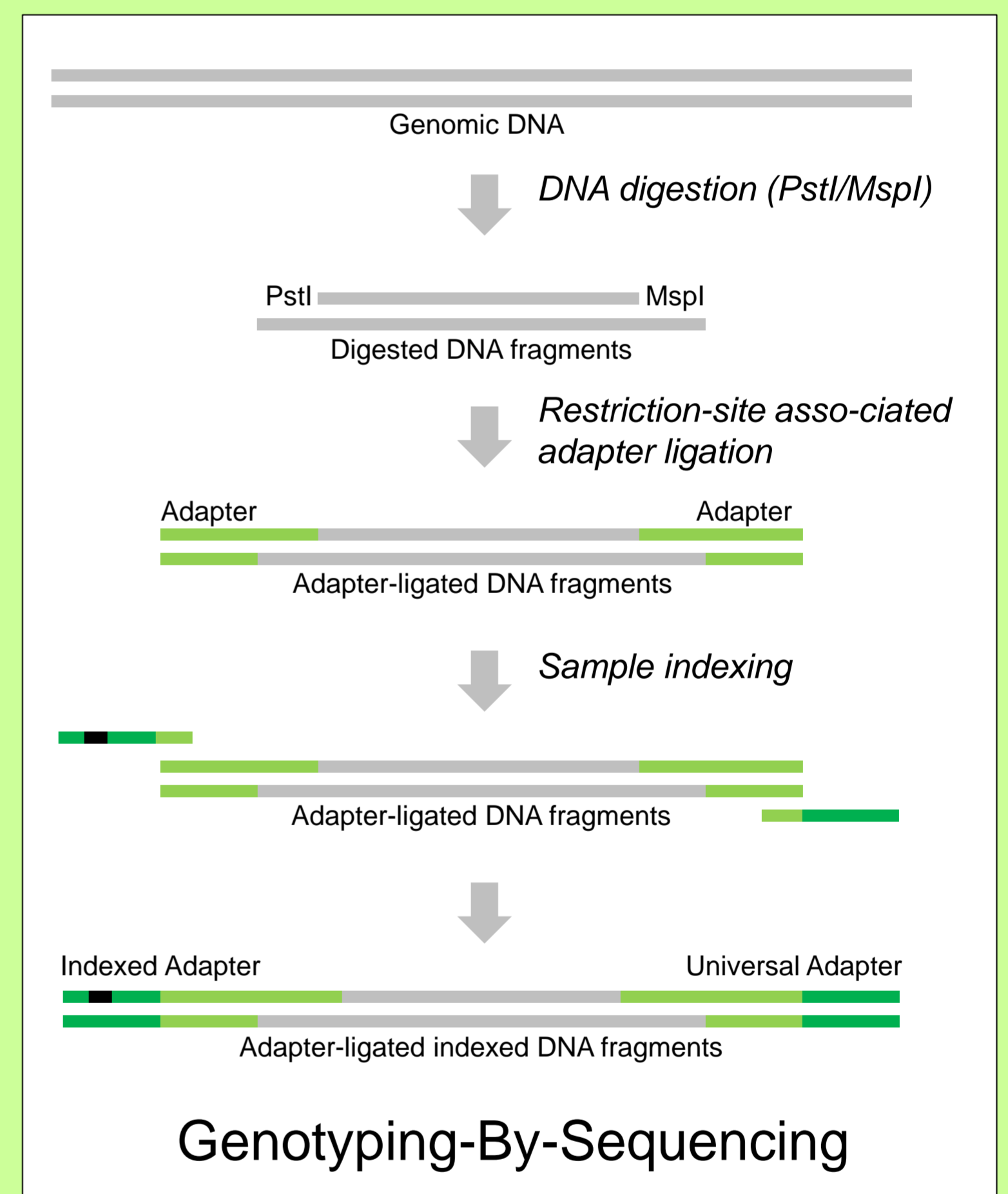


Fig 2: Genotyping-By-Sequencing GBS (PstI/MspI) library preparation for Illumina sequencing

PROJECT UNITY

Arabidopsis
Studies: 7, Variables: 14, Markers: 104

Barley
Studies: 4, Variables: 8, Markers: 2040

Lotus
Studies: 1, Variables: 1, Markers: 07

Maize
Studies: 2, Variables: 30, Markers: 1478

Rice
Studies: 21, Variables: 47, Markers: 3723

Rose
Studies: 4, Variables: 439, Markers: 453

Tomato
Studies: 54, Variables: 104, Markers: 15901

Wheat
Studies: 2, Variables: 24, Markers: 253

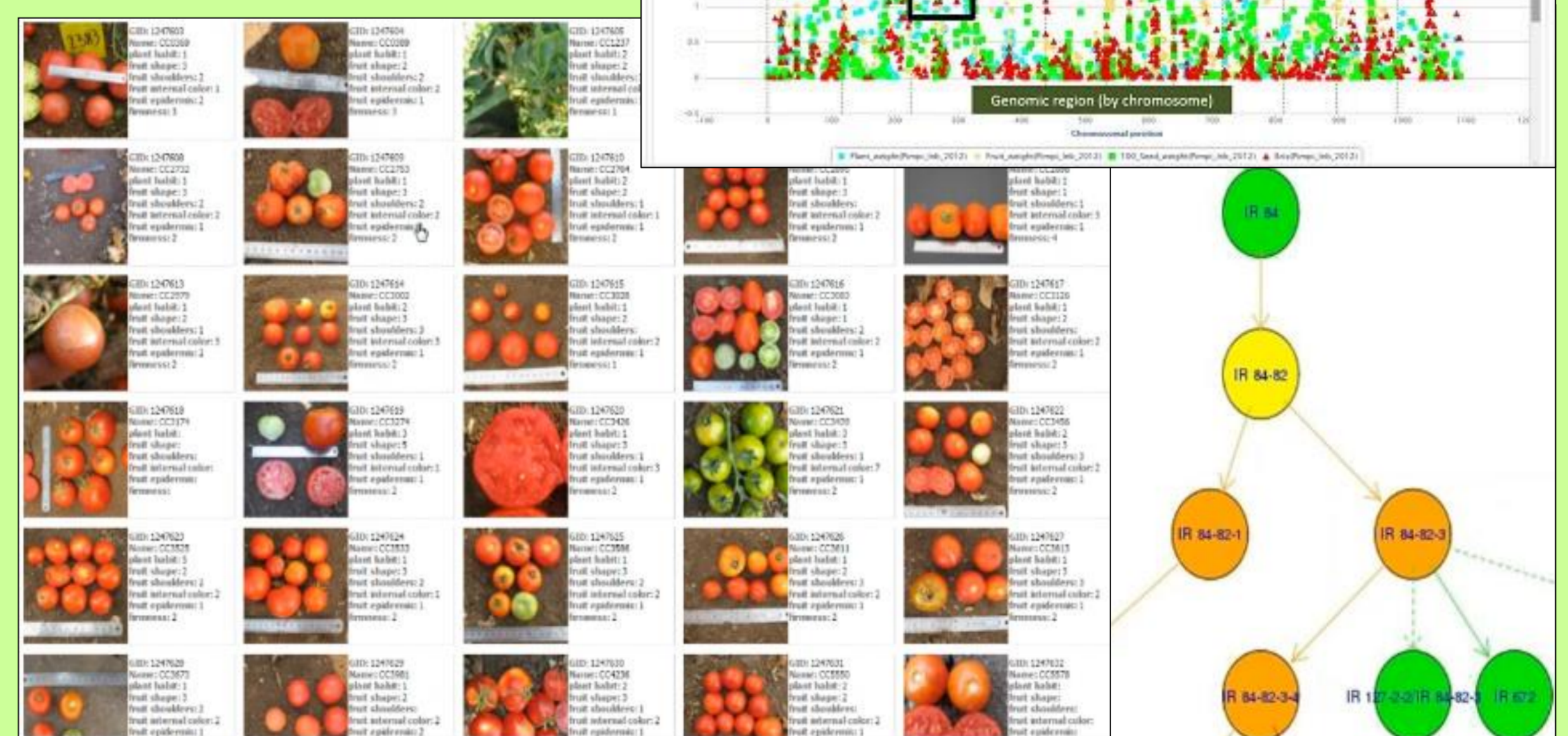
Phenome NETWORKS

WWW.G2P-SOL.EU

Project unity
Host, manage, analyze and share genotypic and phenotypic data

Provided by Phenome networks for free access

Data integration & Data analyses



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