Agrobacterium infection : translocation of virulence proteins and role of VirF in host cells

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List of Abbreviations

3-AT	3-amino-1,2,4-triazole
ADE	Adenine
AFR	Attenuated far-red response F-box protein
AhSLF-S_2	Self-incompatibility (*S*) locus-encoded F-box (SLF) protein
APCC	Anaphase-promoting ubiquitin ligase complex
Arg	Arginine
AS	Acetosyringone
ASK	*Arabidopsis thaliana* SKP1 homologues
ATP	Adenosine-5'-triphosphate
BCAT4	Branched-chain amino-transferase
bp	Base pair(s)
BMH1	Brain modulosignalin homologue 1 (*Saccharomyces cerevisiae* 14-3-3 protein)
BRE	Brain and reproductive organ expressed domain
CASH	Carbohydrate-interacting domain
Cb	Carbenicillin
Cdc20	Cell division cycle protein 20
Cdh1	Cdc20-homologue-1
cDNA	Complementary deoxyribonucleic acid
CDS	Coding sequence
CH	Calponin homology domain
Chv	Chromosomally encoded virulence genes
CHX	Cycloheximide
CIM	Callus induction media
COI1	Coronatine insensitive1
CRAfT	Cre Reporter Assay for Translocation
CUL	Cullin
DAHP	3-deoxy-7-phosphoheptulonate 7-phosphate
DAPI	4',6-diamidino-2-phenylindole
DCD	development and cell death domain
DHS2	DAHP synthase 2
DTT	Dithiothreitol
EBF1 and EBF2	EIN3 binding F-box1 and 2
EF2	Elongation factor
EID	Empfindlicher im dunkelroten Licht, which means hypersensitive in far-red light
EIN3	Ethylene-insensitive3
ELM	Eukaryotic linear motif
ESP	Epithiospecifier protein
FBLs	F-box proteins containing LRR repeats
FBP	F-box protein
Fbw7	F-box and WD-40 domain protein 7
FBWs	F-box proteins harboring WD-40 repeats
FBXs	F-box proteins with different protein-protein interaction domains
FHA	Forkhead associated domains
FKF1	Flavin-binding, Kelch repeat, F-box 1
Gal	Galactose
GAL4AD	Galactose4-DNA activation domain
GAL4BD	Galactose4-DNA binding domain
GFP	Green fluorescence protein
Grr1	Growth and reproductive region 1
GST	Glutathione S-transferase
HA	Hemagglutinine
HCl	Hydrochloric acid
HECT	Homologous to E6-AP C-Terminus
HEPES	4-(2-hydroxyethyl)-1-piperazineethanesulfonic acid
His	Histidine
HRP	Horseradish peroxidase
IEC	Ion Exchange Chromatography
IM	Induction medium

IPTG	isopropyl β-D-1-thiogalactopyranoside
JAIP	Jasmonic acid inducible protein
kb	Kilo base pairs
kDa	Kilo Dalton
Leu	Leucine
LRR	Leucine reach repeats
LYS	Lysine
MAX2	More axillary branches 2 F-box protein ORE9
Mb	Mega base pairs
MEL1	alpha-galactosidase, melibiase
MES	2-(N-morpholino)ethanesulfonic acid
Met	Methionine
MM	Minimal medium
mRNA	Messenger ribonucleic acid
NEDD8	Neural precursor cell expressed, developmentally down-regulated 8
NLS	Nuclear localization signal
NPK5	Tobacco protein kinase
Ore9	Oresara9 mutant of *Arabidopsis*
PEG	Polyethylene glycol
PEX20	Plant extraction buffer 20% glycerol
PIC	Protease inhibitor cocktail
PIF	Protein interactors of VirF
PIKK	Phosphoinositide-3-OH-kinase related kinases
PMSF	Phenylmethylsulfonyl fluoride
Pro	Proline
pSDM	Plasmid site directed mutagenesis
PVDF	Polyvinylidine fluoride
RBX1	RING-BOX1 protein
RING	Really Interesting New Gene protein
ROC1	Regulator of Cullins protein
Rub1	Homologue of NEDD8 in *S. cerevisiae* protein
SCF	SKP1-Cullin-F-box protein complex
SD	Synthetic Dropout medium
SDS-PAGE	Sodium dodecyl sulfate polyacrylamide gel electrophoresis
SKP	S-phase-kinase associated protein/suppressor of kinethochore protein
Snf1/AMPK	Sucrose non fermenting1/AMP-activated protein kinase
SnfRK	Sucrose non-fermenting related kinase
ssDNA	Single stranded DNA
SV40	Simian Virus 40
T4SS	Type IV secretion system
TDL	Traf-domain-like domain
T-DNA	Transfer DNA
Ti-plasmid	Tumor-inducing plasmid
TIR1	Transport inhibitor response 1 protein
TMV	Tobacco mosaic virus
T-region	Transfer region
TRP	Tryptophan
Ub	Ubiquitin
UFO/FIM	Unusual floral organs/fimbriata protein
UPS	Ubiquitin-26S proteasome system
Ura	Uracil
VBPs	VirD2-binding proteins
VHA-B3	Vacuolar H+ ATPase subunit B3
VIP1	VirE2 interacting protein
Vir	Virulence
vs.	Versus
Viz.	Namely
YPD	Yeast-peptone-dextrose medium
ZTL	ZEITLUPE

Publications

B. Schrammeijer, A. den Dulk-Ras, A.C. Vergunst, **E. Jurado Jácome** and P. J. J. Hooykaas. 2003. Analysis of Vir protein translocation from *Agrobacterium tumefaciens* using *Saccharomyces cerevisiae* as a model: evidence for transport of a novel effector protein VirE3. *Nucleic Acids Res*, 31: 860-868.

A. Sadeghi, G. Smagghe, **E. Jurado-Jácome,** W.J. Peumans, E.J.M. Van Damme. 2009. Effects of leek lectin (APA) delivered via transgenic plants on the development of cotton leafworm (*Spodoptera littoralis*) in laboratory trials. *Eur J Entomol,* 106: 21-28.

Curriculum Vitae

Esmeralda Jurado Jácome was born in Bogotá DC (Colombia) on 26th November 1968. She obtained her high school degree in 1986 from *Colegio El Carmelo* and her university B. Sc. title in Bacteriology from the *Pontificia Universidad Javeriana* (Bogotá DC, Colombia) in 1993. She worked for one year as a research assistant in the Department of Plant Biotechnology at the *Instituto Colombiano Agropecuario-ICA* in garlic and potato virology. From 1994 to 1997 she worked at the National Plant Biotechnology Program of the Colombian Corporation for Farming Investigation-CORPOICA, under the direction of Dr. J. Narváez Vasquez and Dr. M.L. Orozco Cárdenas, in plant cell/tissue culture for viral eradication and technology transfer for seed production programs of Colombian tropical crops. During 1995 she followed a two-months training in tissue culture applications for virus-free potato seed production and plant virus purification at the International Potato Center-CIP in Lima (Peru) under the supervision of Dr. Luis Salazar and Dr. M. Santa Cruz Cruzado. In September 1997 the Belgian government granted her with a scholarship to follow the Interuniversity Programme Molecular Biology (IPMB), obtaining her MSc. from the *Katholieke Universiteit Leuven (KUL*) in 1999. Within this, she performed research for one year under the direction of Prof. Dr. W. Peumans and Prof. Dr. E. van Damme (Laboratory of Phytopathology and Plant Protection, KUL) in the field of plant lectin expression via *Agrobacterium tumefaciens* leaf disc transformation. From January 2000 to June 2005 she worked as a PhD student at the Institute of Molecular Plant Sciences (IMP) and Institute of Biology (IBL) of Leiden University in the group of Prof. Dr. P.J.J. Hooykaas under the supervision of Dr. A. C. Vergunst. During 2004 she worked for three months as guest of the group of Prof. Dr. C. Koncz at the Max Planck Institute for Plant Breeding Research in Cologne (Germany). In 2006 she took back her job position at CORPOICA (Colombia) for half a year, after which she returned to the Netherlands to complete the present PhD thesis as a guest-researcher of the institute. From 2008 to 2011 she worked as a Pharmacovigilance Associate in the Drug Safety and Pharmacovigilance Department of Astellas Pharma Europe B.V. in the Netherlands.