

Curriculum Vitae

Biographical details

Full name and title(s) Prof. Dr. Paul Jan Jacob Hooykaas
Date of birth February 27, 1951
University and Faculty Leiden University, Faculty of Mathematics and Natural Sciences
Work address and telephone number Clusius Laboratory, Wassenaarseweg 64, 2333AL Leiden (071-5274933)

Training

Particulars of doctorate: 1979, "The role of plasmid determined functions in the interactions of Rhizobiaceae with plant cells", supervisors Prof. Dr. A Rorsch and Prof. Dr. R.A. Schilperoort, Universiteit Leiden.

Career

Past and present positions

- 1973 Appointed at Leiden University as "assistant"
- 1975 "wetenschappelijk assistent"
- 1979 "wetenschappelijk medewerker" (onmisbaarheidsverklaring, waardoor vrijstelling van militaire dienst)
- 1983 "wetenschappelijk medewerker 1^e klas" (permanent position, comparable to assistant professor)
- 1985 "universitair hoofddocent (associate professor)
- 1993 hoogleraar (full professor);
chair of genetics at Leiden University, Faculty Math. and Nat. Sciences
- 1994 buitengewoon hoogleraar moleculaire genetica (adjunct professor)
Delft University of Technology

Administrative and management activities

Director (from 2005 on, overall end responsibility) and Vice Director (2003-2004) of the Institute of Biology, Leiden; Member Council for Earth and Life Sciences of the Royal Netherlands Academy of Sciences (Raad voor Aard- en Levenswetenschappen KNAW); Member of the Board of the Research School Experimental Plant Sciences; Member Projectcommissie Trendanalyse Biotechnologie 2009; Member of the Board of the Top Institute Green Genetics; Member of the Science Board of the Institute Para Limes; Member of the subcommittee for Earth and Life Sciences (BOA) of the Erkenningscommissie Onderzoeksscholen (ECOS) of the KNAW; Member of the Advisory Board of the Leiden Institute of Chemistry; Director (2001-2003) and Vice director (1999-2001) of the Institute of Molecular Plant Sciences, Leiden; Advisor of the Dutch Committee overseeing recombinant DNA application in plants (buitenlid COGEM commissie Landbouw(1993-2008); Member, Secretary and Chairman of the Board of the NWO Working Party Molecular Genetics (1988-1994). Advisory Committee (Beleidsadviescommissie) NWO Council for Earth and Life Sciences (ALW); Organizing Committee of the yearly Lunteren Lectures on Molecular Genetics; Founder of the biotech company Add2X biosciences

Awards and Honours

C.J. Kok Prize 1980; AKZO Science Award 1987; Member of Academia Europaea 1992; Member of the Royal Netherlands Academy of Arts and Sciences 2003.

Invited lectures at international conferences and workshops (selection)

World Congress on In Vitro Biology, Tucson, USA (2008); EMBO Workshop Plant DNA Repair and Recombination, Giens, France (2007); Symposium 25 years of Netherlands Society for Plant Biotechnology and Tissue Culture, Wageningen (2006); Eurofung Symposium on filamentous fungi, Wageningen (2005); 25th Crown Gall Conference, Urbana, USA (2004); Euresco Conference on Biology of Type4 Secretion Processes, Giens, France (2003); FWO Symposium on Molecular Plant-Microbe Interactions, Ghent, Belgium (2003); 7th International Congress of Plant Molecular Biology, Barcelona, Spain (2003); Symposium Agrobacterium and the molecular basis of crop improvement to honor Franklin award winner dr. M.-D. Chilton, Philadelphia, USA (2002); FWO Symposium on Plant-Microbe Interactions, Spa, Belgium (2002); Euresco Conference on Biology of Type4 Secretion Processes, Castelvecchio Pascoli, Italy (2001); NATO Advanced Study Institute Plant responses to biotic and abiotic stress: molecular mechanisms and implications for agriculture, Roscoff, France (2000); World Congress on In Vitro Biology, New Orleans, USA (1999); European Phytochemical Society Meeting, Noordwijkerhout (1997); 5th International Congress on Plant Molecular Biology, Singapore (1997); Workshop ESF Network on Molecular Biology and Ecology of Plasmid-mediated Gene Spread, Berlin (1996); Fundacion Juan March Symposium "Enzymology of DNA-strand transfer mechanisms", Madrid (1996); 7th European Congress on Biotechnology, Nice, France (1995); 4th International Congress of Plant Molecular Biology, Amsterdam (1994); International Symposium on Plant Hormone Signal Perception and Transduction, Moskou, Russia (1994); Genetical Society Symposium "Prospects for reverse genetics in plants using recombination", Londen (1993); International Botanical Congress, Yokohama, Japan (1993); 6th International Symposium on Molecular Plant-Microbe Interactions, Seattle, USA (1992); International Conference on Pathology and Molecular Biology of Crown Gall. Gif sur Yvette, Frankrijk, (1991); 3rd International Congress of Plant Molecular Biology, Tucson, Arizona, USA (1991).

PhD-students

Beatrice Lindhout, Regulatory DNA binding peptides as novel tools for plant functional genomics. PhD Thesis, Leiden University, 1 October 2008 (130 pages) Promotor: Prof.Dr.P.J.J.Hooykaas; co-promotor: Dr.E.J. van der Zaal. Currently at Leiden University.

Helene Robert-Boisivon (French nationality) Calcium- and BTB domain protein-modulated PINOID kinase directs polar auxin transport. PhD Thesis, Leiden University, 21 May 2008 (161 pages) Promotor: Prof.Dr.P.J.J.Hooykaas; co-promotor: Dr.R.Offringa. Currently at University of Ghent, Belgium.

Ishtar Snoek, Identification and regulation of genes involved in anaerobic growth of *Saccharomyces cerevisiae*. PhD Thesis, Leiden University, 1 March 2007 (149 pages) Promotor: Prof.Dr. P.J.J. Hooykaas; co-promotor: Dr. H.Y. Steensma. Currently at Technical University of Delft.

Gwenael Gaussand (French nationality), Programmed cell death in plants and caspase-like activities, PhD Thesis, Leiden University, 25 April 2007 (175 pages). Promotor: Prof.Dr. P.J.J. Hooykaas; co-promotor: Dr. Mei Wang. Currently at Wageningen University and Research Centre.

Judith Dietvorst, Maltotriose utilization of lager yeast strains in high-gravity brewing. PhD Thesis, Leiden University, 9 May 2006 (137 pages). Promotor: Prof.Dr. P.J.J. Hooykaas; co-promotor Dr. H.Y. Steensma. Currently at Carlsberg Laboratory, Copenhagen, Denmark.

Marcelo Kemel Zago (Brazilian nationality), Components and targets of the PINOID signaling complex in *Arabidopsis thaliana*. PhD Thesis, Leiden University, 15 June 2006 (141 pages). Promotor: Prof.Dr.P.J.J.Hooykaas; co-promotor Dr. R.Offringa. Currently at UNIPACS, Taquara, Brasil.

Luz Veth-Tello (Colombian nationality), Analysis of gene expression in the outer cell layers of *Arabidopsis* roots during lateral root development. PhD Thesis, Leiden University, 2 March 2005 (131 pages). Promotor: Prof.Dr. P.J.J. Hooykaas, co-promotor: Dr. E.J. van der Zaal. Currently at College ter Beoordeling van Genesmiddelen, Den Haag.

Rene Benjamins, Functional analysis of the PINOID protein kinase in *Arabidopsis thaliana*. PhD Thesis, Leiden University, 7 January 2004 (133 pages). Promotor: Prof.Dr. P.J.J. Hooykaas, co-promotor: Dr. R. Offringa. Currently at University of Utrecht (VENI).

Caroline Michielse, Exploring *Agrobacterium*-mediated transformation for genetic modification of filamentous fungi. PhD Thesis, Leiden University, 11 November 2004 (143 pages). Promotors: Prof.Dr. P.J.J. Hooykaas, Prof.Dr.C.A.M.J.J. van den Hondel; co-promotor: Dr. A.Ram. Currently at University of Amsterdam.

José ter Linde, Transcriptional regulation of oxygen-responsive genes in *Saccharomyces cerevisiae*. PhD Thesis, Leiden University, 22 January 2003 (131 pages). Promotor: Prof.Dr. P.J.J. Hooykaas; co-promotor: Dr. H.Y. Steensma. Currently at Utrecht University Medical Centre.

Haico van Attikum, Genetic requirements for the integration of *Agrobacterium* T-DNA in the eukaryotic genome. PhD Thesis, Leiden University, 24 September 2003 (123 pages). Promotor: Prof.Dr. P.J.J. Hooykaas; co-promotor: Dr. P. Bundock. Currently at Leiden University Medical Centre (VIDI).

Dolf Weijers, Hormonal regulation of pattern formation in the *Arabidopsis* embryo. PhD Thesis, Leiden University. 7 November 2002. Promotor: Prof.Dr. P.J.J. Hooykaas; co-promotor: Dr. R. Offringa. Currently at Wageningen University (VIDI).

Barbara Schrammeijer, Functional analysis of the virulence protein VirF from *Agrobacterium tumefaciens*. PhD Thesis, Leiden University, 1 November 2001, (115 pages). Promotor: Prof.Dr. P.J.J. Hooykaas.

Martijn van Hemert, Characterization of the *Saccharomyces cerevisiae* Fin1 protein: a binding partner of the 14-3-3 proteins. PhD Thesis, Leiden University, 6 November 2001 (140 pages). Promotor: Prof.Dr. P.J.J. Hooykaas; co-promotors: Dr. G.P.H. van Heusden, Dr.Ir. H.Y. Steensma. Currently at: Leiden University Medical Centre.

Jacob Bade, *Agrobacterium tumefaciens*-mediated transformation of *Brassica napus*. PhD Thesis, Leiden University. 18 October 2001. (143 pages). Promotor: Prof.Dr. P.J.J. Hooykaas; co-promotor: Dr. A.S. Ponstein. Currently at: De Ruiter Seeds.

Leon Neuteboom, Gene expression during lateral root development. PhD Thesis, Leiden University, 6 June 2000. (138 pages). Promotor: Prof.Dr. P.J.J. Hooykaas; co-Promotor: Dr.Ir. E.J. van der Zaal. Currently at BASF Plant Science, USA.

Annemarie Zeeman, Pyruvate metabolism in the yeast *Kluyveromyces lactis*. PhD Thesis, TU Delft 30 Mei 2000 (136 pages). Promotors: Prof.Dr. J.G. Kuenen, Prof.Dr. P.J.J. Hooykaas. Currently at TNO, Rijswijk Paul Bundock, (English nationality). PhD Thesis Leiden University, 27 January 1999. (119 pages). Promotor: Prof.Dr. P.J.J. Hooykaas. Currently at Keygene, Wageningen.

Annette Vergunst, Targeted integration of *Agrobacterium* T-DNA in *Arabidopsis thaliana* by Cre recombinase. PhD Thesis, Leiden University, 14 Oktober 1998. (165 pages). Promotor: Prof.Dr. P.J.J. Hooykaas. Currently at French National Institute for Health and Medical Research, Nimes, France.

Ron Winkler, Proteins involved in chromosome segregation in *Kluyveromyces lactis*. PhD Thesis, Leiden University, 13 January 1998 (105 pages). Promotor: Prof.Dr. P.J.J. Hooykaas; co-promotors: Dr. H.Y. Steensma, Dr. B.J.M. Zonneveld. Currently at BIRD engineering, Delft.

Marco van den Berg, Function and regulation of acetyl-coenzyme A synthetase in the yeast *Saccharomyces cerevisiae*. TU Delft, 3 juni 1997. (91 pages). Promotor: Prof.Dr. J.G. Kuenen, Prof.Dr. P.J.J. Hooykaas; co-promotor: Dr.Ir. H.Y. Steensma. Currently at DSM, Delft.

Eric van der Graaff, Developmental mutants of *Arabidopsis thaliana* obtained after T-DNA transformation. PhD Thesis, Leiden University, 3 september 1997. (179 pages). Promotor: Prof.Dr. P.J.J. Hooykaas. Currently at University of Freiburg, Germany.

Dianne van der Kop, Auxin signal transduction in *Arabidopsis thaliana*: a novel molecular genetic approach. PhD Thesis, Leiden University, 26 October 1995. (139 pages) Promotor: Prof.Dr. P.J.J. Hooykaas. Founder and director of Genetwister Technologies, Wageningen.

Eddy Risseeuw, Targeted recombination of Agrobacterium T-DNA in plant and yeast cells. PhD Thesis, Leiden University, 5 Juni 1996. (119 pages). Promotor: Prof.Dr. P.J.J. Hooykaas. Currently at: Plant Biotechnology Institute, Saskatoon, Canada.

Frans Droog, Promoter and functional analysis of an auxin-regulated tobacco gene family. PhD Thesis, Leiden University, 12 April 1995. (165 pages). Promotor: Prof.Dr. P.J.J. Hooykaas; co-promotor: Dr.Ir. E.J. van der Zaal. Currently teacher high school, Waddinxveen.

Stefan Turk, Characterization of the VirA receptor protein from Agrobacterium tumefaciens. PhD Thesis, Leiden University, 9 Februari 1994. (111 pages). Promotors: Prof.Dr. R.A. Schilperoort, Prof.Dr. P.J.J. Hooykaas. Currently at DSM, Delft.

Alice Beijersbergen, Trans-kingdom promiscuity. Similarities between T-DNA transfer by Agrobacterium tumefaciens and bacterial conjugation. PhD Thesis, Leiden University, 29 September 1993 (111 pages). Promotor: Prof.Dr. R.A. Schilperoort; co-Promotor: Prof.Dr. P.J.J. Hooykaas. Currently at Unilever, Vlaardingem.

Kees Rodenburg, Plant Cell transformation as a result of signal transduction by Agrobacterium tumefaciens. PhD Thesis, Leiden University, 30 September 1992. (169 pages). Promotor: Prof.Dr. R.A. Schilperoort; co-promotor: Prof.Dr. P.J.J. Hooykaas. Currently at University of Utrecht.

Marcel de Groot, Studies on homologous recombination in Nicotiana tabacum. PhD Thesis, Leiden University, 18 November 1992. (159 pages). Promotor: Prof.Dr. R.A. Schilperoort; co-promotors: Prof.Dr. P.J.J. Hooykaas, Dr. P.J.M van den Elzen. Currently at Senter Novem, Den Haag.

Remko Offringa, Gene targeting in plants using the Agrobacterium vector systems. PhD Thesis, Leiden University, 3 June 1992. (151 pages). Promotor: Prof.Dr. R.A. Schilperoort; co-Promotors: Dr. P.J.J. Hooykaas, Dr. P.J.M. van den Elzen. Currently at Leiden University.

Leon Melchers, Plant tumour induction. Genetic and functional analysis of the Agrobacterium tumefaciens virulence genes. PhD Thesis, Leiden University, 31 May 1989. (175 pages). Promotor: Prof.Dr. R.A. Schilperoort; co-promotor: Dr. P.J.J. Hooykaas. Currently at Syngenta, NL.

Ron van Veen, Strategies of bacteria in their interaction with plants; analogies and specialization. PhD Thesis, Leiden University, 13 October 1988. (110 pages). Promotor: Prof.Dr. R.A. Schilperoort; co-promotor: Dr. P.J.J. Hooykaas. Currently at Leiden University.

Mark van Haaren, The role of border repeats and enhancer in T-region transfer from Agrobacterium tumefaciens to plant cells. PhD Thesis, Leiden University, 10 February 1988 (131 pages). Promotor: Prof.Dr. R.A. Schilperoort; co-Promotor: Dr. P.J.J. Hooykaas. Currently at Keygene, Wageningen.

Andre Hoekema, The binary plant vector system. A new approach to genetic engineering of plants via Agrobacterium tumefaciens. Promotor: Prof.Dr. R.A. Schilperoort; co-Promotor: Dr. P.J.J. Hooykaas. PhD Thesis, Leiden University, 16 January 1985 (96 pages). Currently at Molecular Probes, Leiden.

Postdoctoral fellows

Dr. Sylvia de Pater (NL) 2003-now,

Dr. Jeanine Louwerse (NL) 2002-2006 Currently at Enza Zaden,

Dr. Leon Neuteboom (NL) 2002-2005 Currently at BASF Plant Science, USA,

Dr. Annette Vergunst (NL) 1999-2004 Currently at French National Institute for Health and Medical Research, Nimes, France,

Dr. Paul Bundock (UK) 2000-2004 Currently at Keygene, Wageningen,

Dr. Fernando Garcia-Rodriguez (Spanish) 2001-2003 Currently at Estacion Experimental del Zaidin, Granada, Spain,

Dr. Eline Roine-Rantala (Finnish) 2001-2002 Currently at University of Helsinki, Finland,

Dr. Werner Pansegrau (German) 1997-1999 Currently at Chiron Vaccines, Italy,

Dr. Jesus Escudero (Spanish) 1994-1998 Currently at Cmara de Comercio de Madrid, Spain,

Dr. Eric van der Graaff (NL) 1997-1998 Currently at University of Freiburg, Germany.

Ten most characteristic publications

- B.I. Lindhout, J.E. Pinas, P.J.J. Hooykaas and B.J. van der Zaal (2006) Employing libraries of zinc finger artificial transcription factors to screen for homologous recombination mutants in *Arabidopsis*. *Plant Journal* 48: 475- 483.
- F.M. Garcia-Rodriguez, B. Schrammeijer and P.J.J. Hooykaas (2006) The *Agrobacterium* VirE3 effector protein: a potential plant transcriptional activator. *Nucleic Acids Research* 34: 6496-6504.
- P. Bundock and Hooykaas, P. (2005) An *Arabidopsis* hAT-like transposase is essential for plant development. *Nature* 436: 282 -285.
- A.C. Vergunst, M.C.M. van Lier, A. den Dulk-Ras, T.A. Grosse Stüve, A. Ouwehand and P.J.J. Hooykaas (2005). Positive charge is an important feature of the C-terminal transport signal of the VirB/D4-translocated proteins of *Agrobacterium*. *Proc.Natl.Acad.Sci.USA* 102: 832-837.
- H. van Attikum and P.J.J. Hooykaas (2003). Genetic requirements for the targeted integration of *Agrobacterium* T-DNA in *Saccharomyces cerevisiae*. *Nucleic Acids Research* 31: 826-832.
- P.Bundock and P. Hooykaas (2002). Severe developmental defects, hypersensitivity to DNA damaging agents and lengthened telomeres in *Arabidopsis thaliana* *MRE11* mutants. *Plant Cell* 14: 2451-2462.
- H. van Attikum, P. Bundock and P.J.J. Hooykaas (2001). Non-homologous end-joining proteins are required for *Agrobacterium* T-DNA integration. *EMBO Journal* 20: 6550-6558.
- A.C. Vergunst, B. Schrammeijer, A. den Dulk-Ras, C.M.T. de Vlaam, T.J.G. Regensburg-Tuïnk and P.J.J. Hooykaas (2000). VirB/D4-Dependent protein translocation from *Agrobacterium* into plant cells. *Science* 290: 979-982.
- A.J.G. Regensburg-Tuïnk and P.J.J. Hooykaas (1993). Transgenic *N. glauca* plants expressing bacterial virulence gene *virF* are converted into hosts for nopaline strains of *A. tumefaciens*. *Nature* 363: 69-71.
- P. Bundock, A. den Dulk-Ras, A. Beijersbergen and P.J.J. Hooykaas (1995). Trans-kingdom T-DNA transfer from *Agrobacterium tumefaciens* to *Saccharomyces cerevisiae*. *EMBO J.* 14: 3206-3214.

Complete list of publications

Journal articles

in refereed journals

- P.H. van Knippenberg, P.J.J.Hooykaas, and J. van Duin (1974) The stoichiometry of E.coli 30S ribosomal protein S1 on in vivo and in vitro polyribosomes. *FEBS Letters* 41:323-326.
- P.M. Klapwijk, P.J.J. Hooykaas, H.C.M. Kester, R.A. Schilperoort, and A. Rörsch (1976). Isolation and characterization of *Agrobacterium tumefaciens* mutants affected in the utilization of octopine, octopinic acid and lysopine. *J. Gen. Microbiol.* 96:155-163.
- P.J.J.Hooykaas, P.M. Klapwijk, M.P. Nuti, R.A.Schilperoort, and A. Rörsch (1977). Transfer of the *Agrobacterium tumefaciens* Ti plasmid to avirulent agrobacteria and to *Rhizobium ex planta*. *J. Gen Microbiol.* 98:477-484.
- P.J.J. Hooykaas, C. Roobol, and R.A. Schilperoort (1979). Regulation of the transfer of Ti plasmids of *Agrobacterium tumefaciens*. *J. Gen Microbiol.* 110:99-109.
- P. Costantino, P.J.J. Hooykaas, H. den Dulk-Ras, and R.A. Schilperoort (1980). Expression of the phenotypic properties associated with Ti plasmids in *Agrobacterium rhizogenes*. *Gene* 11:79-87

- P.J.J. Hooykaas, H. den Dulk-Ras, and R.A. Schilperoort (1980). Molecular mechanism of Ti plasmid mobilization by R plasmids. Isolation of Ti plasmids with transposon-insertions in *Agrobacterium tumefaciens*. *Plasmid* 4:64-75.
- B.P. Koekman, P.J.J. Hooykaas, and R.A. Schilperoort (1980). Localization of the replication control region on the physical map of the octopine Ti plasmid. *Plasmid* 4:184-195.
- P.J.J. Hooykaas (1980). Plasmid genes involved in the interactions between bacteria and plant cells. *Ant. van Leeuwenh. J. Microbiol. Serol.* 46:226-227.
- P.J.J. Hooykaas, H. den Dulk-Ras, G. Ooms, and R.A. Schilperoort (1980). Interactions between octopine and nopaline plasmids in *Agrobacterium tumefaciens*. *J. Bacteriol.* 143:1295-1306.
- P.J.J. Hooykaas, A.A.N. van Brussel, H. den Dulk-Ras, G.M.S. van Slogteren and R.A. Schilperoort (1981). Sym plasmid of *Rhizobium trifolii* expressed in different rhizobial species and *Agrobacterium tumefaciens*. *Nature* 291:351-353.
- G. Ooms, P.J.J. Hooykaas, G. Moolenaar, and R.A. Schilperoort (1981). Crown gall plant tumors of abnormal morphology, induced by *Agrobacterium tumefaciens* carrying mutated Ti plasmids; analysis of T-DNA functions. *Gene* 14:33-50.
- P. Costantino, M.L. Mauro, G. Micheli, G. Risuleo, P.J.J. Hooykaas, and R.A. Schilperoort (1981). Fingerprinting and sequence homology of plasmids from different virulent strains of *Agrobacterium rhizogenes*. *Plasmid* 5:170-182.
- G. Ooms, P.J.J. Hooykaas, R.J.M. van Veen, P. van Beelen, T.G.J. Regensburg-Tuink and R.A. Schilperoort (1982). Octopine Ti-plasmid deletion mutants of *Agrobacterium tumefaciens*; emphasis on the right side of the T-region. *Plasmid* 7:15-29.
- B.P. Koekman, P.J.J. Hooykaas and R.A. Schilperoort (1982). A functional map of the replicator region of the octopine Ti plasmid. *Plasmid* 7:119-132.

- P.J.J. Hooykaas, H. den Dulk-Ras and R.A. Schilperoort (1982). Phenotypic expression of mutations in a wide host R plasmid *Escherichia coli* and *Rhizobium meliloti*. *J. Bacteriol.* 150:395-397.
- P.J.J. Hooykaas, H. den Dulk-Ras and R.A. Schilperoort (1982). Method for the transfer of large cryptic, non-selftransmissible plasmids. Ex planta transfer of the virulence plasmid of *Agrobacterium rhizogenes*. *Plasmid* 8:94-96.
- P.J.J. Hooykaas, F.G.M. Snijdwint and R.A. Schilperoort (1982). Identification of the Sym plasmid of *Rhizobium leguminosarum* strain 1001 and its transfer to and expression in other rhizobia and *Agrobacterium tumefaciens*. *Plasmid* 8:73-82.
- G.M.S. van Slogteren, P.J.J. Hooykaas, K. Planqu and B. de Groot (1982). The lysopine dehydrogenase gene used as a marker for the selection of octopine crown gall cells. *Plant Mol. Biol.* 1:133-142.
- P.J.J. Hooykaas, R. Peerbolte, A.J.G. Regensburg-Tuink, P. de Vries, and R.A. Schilperoort (1982). A chromosomal linkage map of *Agrobacterium tumefaciens* and a comparison with the maps of *Rhizobium* spp. *Mol. Gen. Genet.* 188:12-17.
- G. Ooms, A.J.G. Regensburg-Tuink, M.H. Hofker, A. Hoekema, P.J.J. Hooykaas and R.A. Schilperoort (1982). Studies on the structure of cointegrates between octopine and nopaline Ti-plasmids and their tumor-inducing properties. *Plant Mol. Biol.* 1:265-276.
- C.A. Wijffelman, E. Pees, A.A.N. van Brussel and P.J.J. Hooykaas (1983). Repression of small bacteriocin excretion in *Rhizobium leguminosarum* and *Rhizobium trifolii* by transmissible plasmids. *Mol. Gen. Genet.* 192:171-176.
- A.Hoekema, P. Hirsch, P.J.J. Hooykaas and R.A. Schilperoort (1983). A binary plant vector strategy based on separation of vir- and T-region of the *Agrobacterium tumefaciens* Ti-plasmid. *Nature* 303:179-180.
- G.M.S. van Slogteren, J.H.C. Hoge, P.J.J. Hooykaas, and R.A. Schilperoort (1983). Clonal analysis of heterogeneous crown gall tumor tissues induced by wild-type and shooter mutant strains of *Agrobacterium tumefaciens*-expression of T-DNA genes. *Plant Mol. Biol.* 2:321-333.
- P.J.J. Hooykaas and R.A. Schilperoort (1984). The molecular genetic of crown gall tumorigenesis. *Advances in Genetics* 21: 209-283.
- A. Hoekema, P.J.J. Hooykaas, and R.A. Schilperoort (1984). Transfer of the octopine T-DNA segment to plant cells mediated by different types of *Agrobacterium* tumor- or root-inducing plasmids: generality of virulence systems. *J. Bacteriol.* 158: 383-385.
- P.J.J. Hooykaas, M. Hofker, H. den Dulk-Ras and R.A. Schilperoort (1984). A comparison of virulence determinants in an octopine Ti plasmid, a nopaline Ti plasmid, and an Ri plasmid by complementation analysis of *Agrobacterium tumefaciens* mutants. *Plasmid* 11: 195-205.
- L. Otten, H. de Greve, J. Leemans, R. Hain, P. Hooykaas, and J. Schell (1984). Restoration of virulence of vir region mutants *Agrobacterium tumefaciens* strain B6S3 by coinfection with normal and mutant *Agrobacterium* strains. *Mol. Gen. Genet.* 195: 159-163.
- G.M.S. Hooykaas-Van Slogteren, P.J.J. Hooykaas, and R.A. Schilperoort (1984). Expression of Ti plasmid genes in monocotyledonous plants infected with *Agrobacterium tumefaciens*. *Nature* 311: 763-764.
- G.M.S. van Slogteren, P.J.J. Hooykaas, and R.A. Schilperoort (1984). Silent T-DNA genes in plant lines transformed by *Agrobacterium tumefaciens* are activated by grafting and 5-azacytidine treatment. *Plant Mol. Biol.* 3: 333-336.
- G.M.S. van Slogteren, P.J.J. Hooykaas, and R.A. Schilperoort (1984). Tumor formation on plants by mixtures of attenuated *Agrobacterium tumefaciens* T-DNA mutants. *Plant Mol. Biol.* 3: 337-344.

- A. Hoekema, P.W. Roelvink, P.J.J. Hooykaas, and R.A. Schilperoort (1984). Delivery of T-DNA from the *Agrobacterium tumefaciens* chromosome into plant cells. *EMBO J.* 3: 2485-2490.
- A. Hoekema, B.S. de Pater, P.J.J. Hooykaas, and R.A. Schilperoort (1984). The limited host range of an *Agrobacterium tumefaciens* strain extended by a cytokinin gene from a wide host range T region. *EMBO J.* 3: 3043-3047.
- A. Hoekema, M.J.J. van Haaren, A.J. Fellingner, P.J.J. Hooykaas, and R.A. Schilperoort (1985). Non-oncogenic T-region derived plant vectors in the *Agrobacterium* binary system. *Plant Mol. Biol.* 5: 85-89.
- P.J.J. Hooykaas, H. den Dulk-Ras, A.J.G. Regensburg-Tuink, A.A.N. van Brussel, and R.A. Schilperoort (1985). Expression of a *Rhizobium phaseoli* Sym plasmid in *Rhizobium trifolii* and *Agrobacterium tumefaciens*. Incompatibility with a *Rhizobium trifolii* Sym plasmid. *Plasmid* 14: 47-52.
- L. Otten, G. Piotrowiak, P. Hooykaas, M. Dubois, E. Szegedi, and J. Schell (1985). Identification of an *Agrobacterium tumefaciens* pTiB6S3 vir region fragment which enhances the virulence of pTiC58. *Mol. Gen. Genet.* 199: 189-193.
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Method of effecting a change in a cell, and a vector: Protein translocation into plant cells

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Control of plant growth and developmental processes

PCT/NL2004/0083; EP03075366.9

P.J.J. Hooykaas and E.J. van der Zaal

Plant HR mutants

PCT/NL2007/00156