Curriculum Vitae

NAME/DATE OF BIRTH	POSITION TITLE
Westhoff, Peter Dr. rer. nat. (01.01.1951)	Professor and Chair in Plant Molecular Biology
AFFILIATION/ADDRESS Dept. of Biology/Heinrich-Heine-University Düsseldorf Universitätsstraße 1 40225 Düsseldorf, Germany	E-MAIL west@uni-duesseldorf.de PHONE Office: (++49) 211 811 2338; Home: (++49) 2131 35434 Mobile: (++49) 151 11281560

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE	YEAR(s)	FIELD OF STUDY
University of Gießen, Germany	State examination	1971-1977	Biology &Chemistry
University of Gießen, Germany	Dr. rer. nat.	1977-1980	Botany
University of Düsseldorf, Germany	Habilitation	1980-1985	Botany

A. Positions and Honors

Positions and Employment

1980-1985 Research associate, University of Düsseldorf, Germany
1985-1987 Senior research associate, University of Munich, Germany
1988-present Professor and Chair, Plant Molecular Biology, Heinrich-Heine-University, Düsseldorf

Administrative academic activities

2001-2004 Head, Department of Biology, Faculty of Mathematics and Sciences, University of Düsseldorf, Germany
2004-2007 Dean, Faculty of Mathematics and Sciences, University of Düsseldorf, Germany
2014-present Vice-President for Research and Technology Transfer, University of Düsseldorf, Germany

Other Academic Experience and Community Service

1996-2000 Member, Reviewing Panel Plant Biology, Deutsche Forschungsgemeinschaft (DFG)
2000-2004 Chair, Reviewing Panel Plant Biology, Deutsche Forschungsgemeinschaft (DFG)
1999-present Member, Scientific Advisory Board, German Plant Genome Programme GABI/Plant Biotechnology Programme
2004-2007 Member, Scientific Advisory Board, French Plant Genome Programme Génoplante
2008-2010 Chair, Scientific Advisory Board, French Plant Genome Programme Génoplante
2006-2012 Member, Senate, Deutsche Forschungsgemeinschaft (DFG)
2012-present Member and Chair, Scientific Advisory Board of French Programme "Biotechnologies vertes"

Honors

1981 Heinz-Maier-Leibnitz Award in Photosynthesis Research (German Ministry for Science and Technology)
2010 Corresponding member of the Académie d´Agriculture de France
2013 Member of the German National Academy Leopoldina

B. Research Interests

(1) Molecular evolution of C4 photosynthesis;
(2) Genetic improvement of crop photosynthesis;
(3) Molecular characterization of quantitative trait loci (QTL) for chilling tolerance in maize.

C. Research grants (2000 - present)

Total sum of research grants received from 2000 to 2019: 9.5 Mio EURO

Present research grants

Funding period	Funding organization/programme	Project
2015-2018	Bill & Melinda Gates Foundation	C4 Rice, Phase III
2015-2018	Bioeconomy Science Center NRW	Evaluation and development of energy plant *Silphium perfoliatum* L. as a source of renewable raw materials
2016-2019	BMBF/ Plant Breeding Research for Bioeconomy	Accessing the genomic and functional diversity of maize to improve quantitative traits (MAZE)
2016-2019	BMBF/ Plant Breeding Research for Bioeconomy	Enhancing crop photosynthesis (EnCroPho)

D. List of publications

Original publications (since 2010):

80. Newell CA, Brown NJ, Liu Z, Pflug A, Gowik U, Westhoff P & Hibberd JM (2010): *Agrobacterium tumefaciens*-mediated transformation of *Cleome gynandra* L., a C(4) dicotyledon that is closely related to *Arabidopsis thaliana*. J Exp Bot 61: 1311-1319.
81. Bräutigam A, Kajala K, Wullenweber J, Sommer M, Gagneul D, Weber KL, Carr KM, Gowik U, Maß J, Lercher MJ, **Westhoff P**, Hibberd JM & Weber APM (2011): An mRNA blueprint for C4 photosynthesis derived from comparative transcriptomics of closely related C3 and C4 species. Plant Physiol 155: 142-156.
82. Catusse J, Meinhard J, Job C, Strub JM, Fischer U, Pestsova E, **Westhoff P**, Van Dorsselaer A & Job D (2011) Proteomics reveals potential biomarkers of seed vigor in sugarbeet. Proteomics 11: 1569-1580.
83. Gowik U, Bräutigam A, Weber KL, Weber APM & **Westhoff P** (2011): Evolution of C_4 photosynthesis in the genus *Flaveria* - how many and which genes does it take to make C_4? Plant Cell 23: 2087-2105.
84. Furumoto T, Yamaguchi T, Ohshima-Ichie Y, Nakamura M, Iwata Y, Shimamura M, Ohnishi J, Hata S, Gowik U, **Westhoff P**, Bräutigam A, Weber APM & Izui K (2011): Identification of a plastidial sodium-dependent pyruvate transporter. Nature 476: 472-475.
85. Stoppel R, Lezhneva L, Schwenkert S, Torabi S, Felder S, Meierhoff M, **Westhoff P** & Meurer J (2011): Recruitment of a ribosomal release factor for light- and stress-dependent regulation of petB transcript stability in Arabidopsis chloroplasts. Plant Cell 23: 2680-2695.
86. Wiludda C, Schulze S, Gowik U, Engelmann S, Koczor M, Streubel M, Bauwe H & **Westhoff P** (2012): Regulation of the photorespiratory *GLDPA* gene in C4 *Flaveria* - an intricate interplay of transcriptional and post-transcriptional processes. Plant Cell 24:137–151.
87. Link S, Meierhoff K & **Westhoff P** (2012): The atypical short-chain dehydrogenases HCF173 and HCF244 are jointly Involved in translational initiation of the *psbA* mRNA of *Arabidopsis thaliana*. Plant Physiol 160: 2202-2218
88. Lyska D, Engelmann K, Meierhoff K & **Westhoff P** (2013): pAUL: a gateway-based vector system for adaptive expression and flexible tagging of proteins in Arabidopsis. PLoS One 8: e53787
89. Wang P, Fouracre J, Kelly S, Karki S, Gowik U, Aubry S, Shaw MK, **Westhoff P**, Slamet-Loedin IH, Quick WP, Hibberd JM & Langdale JA (2013) Evolution of GOLDEN2-LIKE gene function in C3 and C4 plants. Planta 237: 481-495
90. Schulze S, Mallmann J, Burscheidt J, Koczor M, Streubel M, Bauwe H, Gowik U & **Westhoff P** (2013): Evolution of C4 photosynthesis in the genus Flaveria - establishment of a photorespiratory CO2 pump. Plant Cell 25: 2522-2535.
91. Heckmann D, Schulze S, Denton A, Gowik U, **Westhoff P**, Weber APM & Lercher MJ (2013): Predicting C4 photosynthesis evolution: modular, individually adaptive steps on a Mount Fuji fitness landscape. Cell 153: 1579–1588.
92. Gresset S, Westermeier P, Rademacher S, Ouzunova M, Presterl T, **Westhoff P** & Schön CC (2014): Stable carbon isotope discrimination is under genetic control in the C4 species maize with several genomic regions influencing trait expression. Plant Physiol 164: 131-143.

93. Aldous SH, Weise SE, Sharkey TD, Waldera-Lupa DM, Stühler K, Mallmann J, Groth G, Gowik U, Westhoff P & Arsova B (2014): Evolution of the phosphoenolpyruvate carboxylase protein kinase family in C3 and C4 Flaveria species. Plant Physiol 165: 1076-1091.
94. Mallmann J, Heckmann D, Bräutigam A, Lercher MJ, Weber APM, **Westhoff P** & Gowik U (2014): The role of photorespiration during the evolution of C4 photosynthesis in the genus Flaveria. eLife 3: e02478.
95. Levey T, **Westhoff P** & Meierhoff K (2014) Expression of a nuclear-encoded psbH gene complements the plastidic RNA processing defect in the PSII mutant hcf107 in Arabidopsis thaliana. Plant J 80: 292-304.
96. Lyu MJ, Gowik U, Kelly S, Covshoff S, Mallmann J, **Westhoff P**, Hibberd JM, Stata M, R.F. S, Lu H, Wei X, Wong GK & Zhu XG (2015) RNA-Seq based phylogeny recapitulates previous phylogeny of the genus Flaveria (Asteraceae) with some modifications. BMC Evol Bio**l** 15: 116.
97. Pestsova E, Lichtblau D, Wever C, Presterl T, Bolduan T, Ouzunova M & **Westhoff P** (2016) QTL mapping of seedling root traits associated with nitrogen and water use efficiency in maize. Euphytica 209: 585-602.
98. Lauterbach M, Billakurthi K, Kadereit G, Ludwig M, **Westhoff P** & Gowik U (2017) C3 cotyledons are followed by C4 leaves: intra-individual transcriptome analysis of Salsola soda (Chenopodiaceae). J Exp Bot 68: 161–176.
99. Gowik U, Schulze S, Saladié M, Rolland V, Tanz SK, **Westhoff P** & Ludwig M (2017) A MEM1-like motif directs mesophyll cell-specific expression of the gene encoding the C4 carbonic anhydrase in Flaveria. J Exp Bot 68: 311-320.
100. Hartings S, Paradies S, Karnuth B, Eisfeld S, Mehsing J, Wolff C, Levey T, **Westhoff P** & Meierhoff K (2017) The DnaJ-like zinc-finger protein HCF222 Is required for thylakoid membrane biogenesis in plants. Plant Physiol 174: 1807-1824.
101. Lauterbach M, Schmidt H, Billakurthi K, Hankeln T, **Westhoff P**, Gowik U & Kadereit G (2017) *De novo* transcriptome assembly and comparison of C3, C3-C4, and C4 species of tribe Salsoleae (Chenopodiaceae). Front Plant Sci 8:1939.
102. Schuler ML, Sedelnikova OV, Walker BJ, **Westhoff P** & Langdale JA (2018) SHORTROOT-mediated increase in stomatal density has no impact on photosynthetic efficiency. Plant Physiol 176:757-772.
103. Kirschner S, Woodfield H, Prusko K, Koczor M, Gowik U, Hibberd JM & **Westhoff P** (2018) Expression of SULTR2;2, encoding a low-affinity sulphur transporter, in the Arabidopsis bundle sheath and vein cells is mediated by a positive regulator. J Exp Bot 69: 4897-4906.
104. Döring F, Billakurthi K, Gowik U, Sultmanis S, Khoshravesh R, Das Gupta S, Sage TL & **Westhoff P** (2018) Reporter-based forward genetic screen to identify bundle sheath anatomy mutants in *A. thaliana*. Plant J, accepted for publication.

Reviews and book chapters (since 2010):

18. **Westhoff P** & Gowik U (2010): Evolution of C4 photosynthesis - looking for the master switch. Plant Physiol 154: 598-601.
19. Gowik U & **Westhoff P** (2011): The path from C3 to C4 photosynthesis. Plant Physiol. 155: 56-63.
20. Gowik U & **Westhoff P** (2011): C4 phosphoenolpyruvate carboxylase. In: C4 Photosynthesis and Related CO_2 Concentrating Mechanisms (AS Raghavendra & RF Sage, eds), Advances in Photosynthesis and Respiration, Vol 32. Springer, Dordrecht, The Netherlands, 257-275.
21. Meierhoff K, Lyska D, Schult K, Link S, Paradies S, **Westhoff P** (2012) High-chlorophyll fluorescence (hcf) mutants of Arabidopsis thaliana – a tool for the identification of factors involved in thylakoid membrane biogenesis. *Journal of Endocytobiosis and Cell Research* **23:** 32-40.
22. Lyska D, Meierhoff K & **Westhoff P** (2013): How to build functional thylakoid membranes: from plastid transcription to protein complex assembly. Planta 237: 413-428
23. Fernie AR, Bauwe H, Eisenhut M, Florian A, Hanson DT, Hagemann M, Keech O, Mielewczik M, Nikoloski Z, Peterhänsel C, Roje S, Sage R, Timm S, von Cammerer S, Weber AP, **Westhoff P** (2012): Perspectives on plant photorespiratory metabolism. Plant Biol 13: 748-753.
24. Schulze S, **Westhoff P** & Gowik U (2016): Glycine decarboxylase in C3, C4 and C3-C4 intermediate species. Curr Opin Plant Biol 31: 29-36.
25. Flügge UI, **Westhoff P** & Leister D (2016) Recent advances in understanding photosynthesis. F1000Res 5: 2890.