

CURRICULUM VITAE

Jörg Kudla

Date of Birth: 14th September, 1963
 Place of Birth: Crivitz, Germany
 Marital Status: Married with 3 children

Address:

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Academic Qualifications

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| 1989 | Diploma in Biology (grade: excellent), Diploma title: "Molecular genetic characterization of the plastid DNA of the genus <i>Antirrhinum</i> ", Martin-Luther University Halle, advisor: Prof. R. Hagemann |
| 1992 | Ph.D. in Genetics (grade: summa cum laude), Dissertation title "Molecular genetic characterization and sequence analysis of the plastid DNA of <i>Antirrhinum majus</i> L., Martin-Luther University Halle, advisor: Prof. R. Hagemann |
| 2002 | Habilitation in Genetics and Botany, University Ulm |

Employment

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| 1993 - 1994 | Postdoctoral fellow in the Laboratory of Prof. H. Kössel, University Freiburg |
| 1994 - 1997 | Postdoctoral fellow in the Laboratory of Prof. W. Gruissem, UC Berkeley |
| 1997 - 2003 | Independent Group leader at the Department of Botany, University Ulm |
| 2003 | Full Professor (C3) for "Molecular Developmental Biology of Plants" at the University Münster |
| 2010 | Offer, Professorship as Chair of Biosciences, University of Birmingham, declined |
| 2011 | Since 03/2011, Full Professor (W3) for "Molecular Genetics and Cell biology of Plants" at the University Münster |
| 2011 | Since 09/2011, Adjunct Professor for Plant Biology, China Agricultural University (CAU), Beijing |

Selected Awards and Honours

1988 -1990	Research fellowship of the Martin-Luther-University Halle
1990	Research fellowship of the German Academic Exchange Organization (DAAD)
1991	Research fellowship of the Fund of the German Chemical Industry
1992	Research fellowship of the state Baden-Württemberg
1994 - 1995	Research fellowship of the German Science Foundation (DFG)
1996	Research fellowship of the German Academic Exchange Organization (DAAD)
2000	Research prize of the "Ulmer Universitätsgesellschaft"
2011	Visiting professorial fellowship of the German Academic Exchange Organization (DAAD) and Fellow of the San Diego Systems Biology Center (SDSBC)

Selected present scientific research projects:

Focus of Research

2010 Arabidopsis - AFGN Collaborative Project: "An exemplary calcium signaling network in plant abiotic stress responses" within the framework of the AFGN (Arabidopsis Functional Genomics Network): Here we explore the role of CBL/CIPK complexes in abiotic stress responses in plants.

Research Unit FOR964: "Calcium signaling via protein phosphorylation during environmental stress adaptation": Here we focus on investigating the convergence point of calcium and plant hormonal signaling with emphasis on early responses to abscisic acid.

Collaborative Research Center 629: "Calcium-regulated vesicle trafficking and membrane transport during salt stress and pollen tube growth": Here we investigate the role of calcium signaling in polar growth processes and the regulation of cellular vesicle transport.

ADYSARC: "Advancing yield stability and resource efficiency of crop plants": Here we improve drought and heat tolerance of rice plants.

CAPSITRAP: "Calcium- and protein kinase-mediated signal transduction in plants - a biochemical-based functional genomics approach as novel strategy for improving environmental stress performance of crop plants": Here we improve salt and cold tolerance of maize plants.

CROPTIMISE: "Improving drought tolerance and nitrogen use efficiency by combinatorial genetic transformation and multiple gene stacking": Here we improve drought and nitrogen use efficiency of maize plants.

INCASO: "Interrelation between calcium and auxin signaling in plant development": Here we investigate how calcium signalling by CBL/CIPK complexes and other calcium sensor proteins regulates auxin distribution and root growth.

Publications List (last 5 years)

Original papers

1. Waadt R. and J. Kudla (2008): In Planta Visualization of Protein Interactions Using Bimolecular Fluorescence Complementation (BiFC). ***Cold Spring Harbor Protocols***, 2008, pdb.prot4995.
2. Batistic, O., S. Schültke, N. Sorek, S.Yalovsky, J. Kudla (2008): Dual lipid modification determines the localization and plasma membrane targeting of Ca²⁺-regulated CBL/CIPK complexes. ***Plant Cell***, 20: 1346-1362.
3. Weinl S., K. Held, K. Schlücking, L. Steinhorst, S. Kuhlger, M. Hippler, J. Kudla (2008): A plastid protein crucial for Ca²⁺-regulated stomatal responses. ***New Phytologist***, 179: 675-686.
4. Waadt R., Schmidt L., Lohse M., Hashimoto K., Bock R., J. Kudla (2008): Multicolor bimolecular fluorescence complementation (mcBiFC) reveals simultaneous formation of alternative CBL/CIPK complexes in planta. ***Plant J.***, 56, 505-16.
5. Gehl C., Waadt R., Kudla J., Mendel R., Hänsch R. (2009): New GATEWAY vectors for High Throughput Analyses of Protein–Protein Interactions by Bimolecular Fluorescence Complementation. ***Molecular Plant***, 2, 1051-58.
6. Geiger D., Becker D., Vosloh D., Gambale F., Palme K., Rehers M., Anschuetz U., Dreyer I., Kudla J., Hedrich R. (2009): Heteromeric AtKC1/AKT1 channels in *Arabidopsis* roots facilitate growth under K⁺ limiting conditions. ***Journal of Biological Chemistry***, 284:21288-95.
7. Batistic, O., R. Waadt, L. Steinhorst, K. Held, J. Kudla (2010): CBL-mediated targeting of CIPKs facilitates the decoding of calcium signals emanating from distinct cellular stores. ***Plant J.***, 61, 211-22.
8. Walter M., K. Piepenburg, M.A. Schöttler, K. Petersen K, S. Kahlau, N. Tiller, O. Drechsel, M. Weingartner, J. Kudla, R. Bock (2010): Knockout of the plastid RNase E leads to defective RNA processing and chloroplast ribosome deficiency. ***Plant J.***, 64, 851-863.
9. Grefen C., N. Donald, K. Hashimoto, J. Kudla, K. Schumacher, M.R. Blatt (2010): A ubiquitin-10 promoter-based vector set for fluorescent protein tagging facilitates temporal stability and native protein distribution in transient and stable expression studies. ***Plant J.***, 64, 355-365.
10. Gehl C., D. Kaufholdt, D. Hamisch, R. Bikker, J. Kudla, R.R. Mendel, R. Hänsch (2011): Quantitative analysis of dynamic protein-protein interactions in planta by a floated-leaf luciferase complementation imaging (FLuCI) assay using binary Gateway vectors. ***Plant J.***, 67, 542-553.
11. Held, K., F. Pascaud, C. Eckert, P. Gajdanowicz, K. Hashimoto, C. Corratge-Faillie, J.N. Offenborn, B. Lacombe, B. Dreyer, J.B. Thibaud, J. Kudla (2011): Calcium-dependent modulation and plasma membrane targeting of the AKT2 potassium channel by the CBL4/CIPK6 calcium sensor/protein kinase complex. ***Cell Res.***, 21, 1116-1130.

12. Petroustos D., A. Busch, I. Jansen, K. Trompelt, S.V. Bergner, S. Weinl, M. Holtkamp, U. Karst, J. Kudla, M. Hippler (2011): The chloroplast calcium sensor CAS is required for photoacclimation in *Chlamydomonas reinhardtii*. **Plant Cell**, 23, 2950-2963.
13. Krebs M., K. Held, A. Binder, K. Hashimoto, G. Den Herder, M. Parniske, J. Kudla, K. Schumacher (2012): FRET-based genetically encoded sensors allow high-resolution live cell imaging of Ca²⁺ dynamics. *Plant J.*, 69, 181-192.
14. Batistic O., M. Rehers, A. Akerman, L. Steinhorst, K. Schlücking, S. Yalovsky, J. Kudla (2012): S-acylation dependent association of the calcium sensor CBL2 with the vacuolar membrane is essential for proper abscisic acid responses. **Cell Res.**, 22:1155-1168. doi:10.1038/cr.2012.71.
15. Hashimoto, K., C. Eckert, U. Anschütz, M. Scholz, K. Held, R. Waadt, A. Reyer, M. Hippler, D. Becker, J. Kudla (2012): Phosphorylation of Calcineurin B-like (CBL) calcium sensor proteins by their CBL-interacting protein kinases (CIPKs) is required for full activity of CBL-CIPK complexes toward their target proteins. **J. Biol. Chem.**, 287, 7956-7968.
16. Terashima M., D. Petroustos, M. Hüdig, I. Tolstygina, K. Trompelt, P. Gäbelein, C. Fufezan, J. Kudla, S. Weinl, G. Finazzi, M. Hippler (2012): Calcium-dependent regulation of cyclic photosynthetic electron transfer by a CAS, ANR1, and PGRL1 complex. **Proc. Natl. Acad. Sci. U.S.A.** 109: 17717–17722.
17. Drerup M., K. Schlücking, K. Hashimoto, P. Manishankar, L. Steinhorst, K. Kuchitsu, J. Kudla (2013): The calcineurin B-like calcium sensors CBL1 and CBL9 together with their interacting protein kinase CIPK26 regulate the Arabidopsis NADPH oxidase RBOHF. **Molecular Plant**, 6, 559-569.
18. Schlücking K., KH. Edel, P. Köster, MM. Drerup, C. Eckert, L. Steinhorst, R. Waadt, O. Batistič, J. Kudla (2013): A new β -estradiol inducible vector set that facilitates easy construction and efficient expression of transgenes reveals CBL3-dependent cytoplasm to tonoplast translocation of CIPK5. **Molecular Plant**, 6, 1814-1829.
19. Mähls A., L. Steinhorst, JP. Han, LK. Shen, Y. Wang, J. Kudla (2013): The Calcineurin B-like Ca²⁺ sensors CBL1 and CBL9 function in pollen germination and pollen tube growth in Arabidopsis. **Molecular Plant**, 6, 1149-1162.
20. Behera S., J. Kudla (2013): Live cell imaging of cytoplasmic Ca²⁺ dynamics in Arabidopsis guard cells. *Cold Spring Harbor Protocols*, pdb.prot072983.
21. Behera S., J. Kudla (2013): High-resolution imaging of cytoplasmic Ca²⁺ dynamics in Arabidopsis roots. **Cold Spring Harbor Protocols**, pdb.prot073023.
22. Behera S., M. Krebs, G. Loro, K. Schumacher, A. Costa, J. Kudla (2013): Ca²⁺ imaging in plants using genetically encoded Yellow Cameleon Ca²⁺ indicators. *Cold Spring Harbor Protocols*, pdb.top066183.
23. Waadt R., K. Schlücking, JI. Schroeder, J. Kudla (2013): Protein Fragment Bimolecular Fluorescence Complementation Analyses for the In vivo Study of Protein-Protein Interactions and Cellular Protein Complex Localizations. **Methods in Molecular Biology**, 1062, 629-658.
24. Bonza MC., G. Loro, S. Behera, A. Wong, J. Kudla, A. Costa (2013): Analyses of Ca²⁺ accumulation and dynamics in the Endoplasmic Reticulum of Arabidopsis thaliana root cells using a genetically encoded Cameleon sensor. **Plant Physiology**, 163, 1230-1241.

25. Eckert C., Offenborn J., Heinz T., Armarego-Marriott T., Schültke S., Zhang C., Hillmer S., Heilmann M., Schumacher K., Bock R., Heilmann I., J. Kudla (2014): The vacuolar calcium sensors CBL2 and CBL3 affect seed size and embryonic development in *Arabidopsis thaliana*. *Plant J.*, doi: 10.1111 /tpj.12456.
26. Röschenbleck J., Albers F., Müller K., Weini S., J. Kudla. (2014): Phylogenetics, character evolution and a subgeneric revision of the genus *Pelargonium* (Geraniaceae) *Phytotaxa*, 159 (2): 31–130.

Review articles and book chapters

1. Batistic, O., J. Kudla (2009): Plant Calcineurin B-like proteins and their interacting protein kinases. *BBA - Molecular Cell Research*, 1793, 985-92.
2. Weini, S., J. Kudla (2009): The CBL/CIPK signaling network: functions and perspectives. *New Phytologist*, 184, 517-28.
3. Dodd A.N., J. Kudla Sanders D. (2010): The Language of Calcium Signalling. *Annu Rev Plant Biol.* 61:4.1–4.28.
4. Batistic, O., J. Kudla (2010): Calcium: Not just another ion. In: *Cell Biology of Metals and Nutrients*, Plant Cell Monographs 17, R. Hell and R. Mendel (eds.), Springer-Verlag Berlin Heidelberg, 17-54.
5. Kudla, J., Batistic, O., Hashimoto, K, (2010): Calcium Signals: The lead currency of plant information processing. *Plant Cell*, 22, 541–563.
6. Hashimoto, K., J. Kudla (2011): Calcium decoding mechanisms in plants. *Biochimie*, 93, 2054-2059.
7. Batistic, O., J. Kudla (2012): Analysis of calcium signaling pathways in plants. *BBA – General Subjects*, 1820, 1283-1293.
8. Steinhorst L., J. Kudla (2012) Calcium-a central regulator of pollen germination and tube growth. *Biochim. Biophys. Acta*, 1833, 1573-1581.
9. Steinhorst L., J. Kudla (2013) **Calcium and reactive oxygen species rule the waves of signalling.** *Plant Physiol.*, 163, 471-85