

CURRICULUM VITAE

Assoc. Prof. Dr. Ales Pecinka

Group leader

Centre of Plant Structural and Functional Genomics

Institute of Experimental Botany (IEB), the Czech Academy of Sciences

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Professional experience and education

- 2017 – present **Group leader**, Centre of Plant Structural and Functional Genomics, Institute of Experimental Botany, Olomouc, Czechia.
- 2017 Privat Dozent (**habilitation**, an equivalent of Associated Professor), Faculty of Biology and Biotechnology, Ruhr University Bochum (**RUB**), Bochum, Germany.
- 2015 – 2017 **Research group leader**, Max Planck Institute for Plant Breeding Research (**MPIPZ**), an Independent research group associated with the Department of Plant Developmental Biology, Cologne, Germany.
- 2014 – 2017 **Guest lecturer**, Ruhr University Bochum (**RUB**), Dept. of Plant Physiology, head Prof. Dr. Ute Krämer, Bochum, Germany.
- 2010 – 2015 **Project leader**, **MPIPZ**, Dept. of Plant Breeding and Genetics, Cologne, Germany.
- 2006 – 2010 **Post-doc**, Gregor Mendel Institute of Molecular Plant Biology (**GMI**), Vienna, Austria.
- 2005 **Ph.D.** - University of Halle-Wittenberg, Halle (Saale), Germany
- 2001 – 2005 **Ph.D. studies**, Leibnitz Institute of Plant Genetics and Crop Plant Research (**IPK**), Gatersleben, Germany.
- 1996 – 2001 **M.Sc.**, **Palacky University**, Dept. of Botany, Olomouc, Czech Republic.

Grants and Awards

- 2021 – 2023 **Research grant** from the Czech grant agency **GAČR** “Identification and characterization of imprinted genes during barley seed development”
- 2019 – 2021 **Research grant** from the Czech grant agency **GAČR** “Analyzing repair of toxic DNA-protein crosslinks in Arabidopsis”
- 2018 – 2021 **Inter-COST grant** from the **Czech Ministry of Science and Education** “Analysis of the 3D organization of the nuclear genome in plants with contrasting amount of DNA”
- 2018 – 2021 **Core group member and national representative** of the **COST action** 16212 “Impact of Nuclear Domains On Gene Expression and Plant Traits”.

- 2018 – present **Editorial board** member of **Cytologia** – Journal of the Japan Mendel Society.
- 2018 – 2022 **Purkyně Fellowship** from the Czech Academy of Sciences.
- 2018 – 2020 **Research grant** from the Czech grant agency **GAČR** “Analysis of nuclear organization and dynamics in endosperm tissues of barley”
- 2015 – 2018 **Research grant** from the German grant agency **DFG** “Comparative transposable element silencing and chromatin analysis of *Arabidopsis lyrata* and *Arabidopsis thaliana*”.
- 2011 – 2014 **Research grant** from the German grant agency **DFG** “Epigenetic control of repetitive DNA in the genome of *Arabidopsis lyrata*”.

Third-party funding acquired as the host

- 2017 – 2020 **Fisher fellowship** to Fen Yang from the Palacky University, Olomouc
- 2017 – 2019 **Post-doc fellow** position for Dr. Pranav Sahu from the **Marie Curie Actions**.
- 2016 – 2019 **Ph.D. student** position for Fen Yang from China Scholarship Council (CSC).
- 2015 – 2016 **Post-doc fellowship** to Dr. Anna Nowicka from the German Academic Exchange Service (DAAD).
- 2013 – 2017 **Ph.D. fellowship** to Mariana Díaz from the German Academic Exchange Service (DAAD).

Selected oral presentations at conferences, universities, institutes, and companies

- Impact of Chromatin Domains on Plant Phenotypes, El Escorial, Spain (2019)
- Eureka, Ph.D. Student Symposium, Wuerzburg University, Wuerzburg, Germany (2017)
- European Workshop on Plant Chromatin (2013, 2017)
- Tri-National Meeting, Vienna, Austria (2016)
- Plant Genome Stability and Change (2014, 2016, 2018)
- Institute of Experimental Botany (IEB), Olomouc, Czech Republic (2016)
- Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany (2015)
- Central European Institute of Technology (CEITEC), Brno, Czech Republic (2015, 2017)
- Stress biology and Crop Fertility, INT Conference, Sorrento, Italy (2015)
- Bridging Ecology and Molecular Biology: Organismic Responses to Recurring Stress, Collaborative Research Centre 973 International Symposium, Berlin, Germany (2015)
- Phytotron Symposium, Helmholtz Zentrum München, Germany (2014)
- 2nd Plant Genomics Congress, London, UK (2013)
- Gregor Mendel Institute of Molecular Plant Biology, Vienna, Austria (2013)
- Triangle meeting of the Max Planck Institute for Developmental Biology (Tübingen, DE), Sainsbury Lab (Cambridge, UK) and MPIPZ, Cologne, Germany (2013)
- 23rd International Conference on Arabidopsis Research, Vienna, Austria (2012)
- 11th Gatersleben Research Conference, Gatersleben, Germany (2012)
- Science and Innovation Dialogue, Bayer AG, Leverkusen, Germany (2011)

Ph.D. students

- Kateřina Lahnerová (2019-)
- Jovanka Vlodejić (jointly with Dolezel group; 2018-)
- Martin Kovačik (2018-)
- Klara Prochazkova (2018-)
- Fen Yang (2016-)

- Kashif Nawaz (2015–2018); next: post-doc, KAUST, SA).
- Dr. Mariana Diaz (2013–2018; next: post-doc, Tokyo Univ of Science, Matsunaga lab, JP)
- Dr. Catarine Markus (2013–2017; next: Assistant prof., Univ Rio Grande do Sul, Brazil)
- Dr. Ahmed Abdelsamad (2012–2016; next: Lecturer, Cairo University, Egypt)
- Dr. Bjoern Pietzenuk (2012–2015; next: post-doc, Ruhr Uni Bochum, Kraemer lab, DE)
- Dr. Chun-Hsin Liu (2012–2015; next: Biotech company, Taiwan)
- Dr. Thomas Piofczyk (2011–2014; next: BioGazelle company, Belgium)

Post-docs

- Dr. E. Dvořák-Tomašíková (2019–now)
- Dr. Hana Jeřábková (2017–2019, currently on maternity leave)
- Dr. Pranav Pankaj Sahu (2017–now)
- Dr. A. Nowicka (2015–2016; 2018–now)
- Dr. Beata Petrovská (2017–2019, next: consultant, Medical company, Olomouc, CZ)
- Dr. A. Finke (2013–2017, next: robot programmer; Hamilton, DE).
- Dr. G.T.H. Vu (2011–2012, next: post-doc, IPK Gatersleben, DE)
- Dr. T. Harrop (2013–2014, next: post-doc, IRD Montpellier, FR).

Editorial work

- International Journal of Molecular Sciences (IJMS), Editor of the Section Board for 'Molecular Plant Sciences', since 2020.

Ad hoc manuscript reviewer

Ann Bot	IJMS	Plant Cell Physiol
Chromosoma	Mol Plant	Plant J
Epigenetics	Nature Biotech	Plant Methods
eLIFE	Nature Commun	Plant Mol Biol
Genetics	Physiol Plantarum	Plant Mol Biol Rep
Genome Biol	Plant Cell	PLoS Genetics
Genome Res	Plant Cell Environ	PNAS

Ad hoc grant reviewers

Agriculture and Agri-Food Canada (AAFC)	German Research Foundation (DFG)
Czech Grant Agency (GACR)	National Science Foundation (NSF)
European Commission - ERA-CAPS	Research Foundation – Flanders (FWO)
Agence Nationale de la Recherche (ANR), France	Polish Grant Agency

Languages

English: fluent; German: good; Czech: mother tongue

PUBLICATIONS

Total publications: 49

Lifetime citations (Web of Science): 2349 (without self-citations: 2232); 01/2021

H-index: 23 (Web of Knowledge)

* – Corresponding author

JIF – Journal impact factor (Thomson ISI) from the year of publication, unless stated otherwise.

CIT – Total citations (Thomson ISI, Web of Knowledge), from publication until now.

Journal publications

49. Makowski W, Królicka A, Nowicka A, Zwyrtková J, Tokarz B, **Pecinka A**, Banasiuk R, Tokarz KM (2021): Transformed tissue of *Dionaëa muscipula* J. Ellis as a source of biologically active phenolic compounds with bactericidal properties. *Appl Microbiol Biotechnol* <https://doi.org/10.1007/s00253-021-11101-8>.
48. Nowicka A, Kovacik M, Tokarz B, Vrana J, Zhang Y, Weigt D, Doležel J, ***Pecinka A** (2020): Dynamics of endoreduplication in developing barley seeds. *J Exp Bot* eraa453.
47. Kovačik M, Nowicka A, ***Pecinka, A.** (2020): Isolation of high purity tissues from developing barley seeds. *J Visual Exp* 164: e61681.
46. Strejčková B, Čegan R, **Pecinka A**, Milec Z, Šafář J (2020): Identification of polycomb repressive complex 1 and 2 core components in hexaploid bread wheat. *BMC Plant Biol* 20:175.
45. Nowicka A, Tokarz B, Zwyrtková J, Dvořák Tomašítková E, Procházková K, Ercan U, Finke A, Rozhon W, Poppenberger B, Otmar M, Niezgodzki I, Krečmerová M, Schubert I, ***Pecinka A** (2020): Comparative analysis of epigenetic inhibitors reveals different degrees of interference with transcriptional gene silencing and induction of DNA damage. *Plant J* 102:68-84.
44. ***Pecinka A**, Chevalier C, Colas I, Kalantidis K, Varotto S, Krugman T, Michailidis C, Vallés M-P, Muñoz A, Pradillo M (2019): Chromatin dynamics during interphase and cell division: similarities and differences between model and crop plants. *J Exp Bot* 71: 5205–5222.
- 43 Boudichevskaia A, Houben A, Fiebig A, Prochazkova K, **Pecinka A**, Lermontova I (2019): Depletion of KNL2 results in altered expression of genes involved in regulation of the cell cycle, transcription, and development in Arabidopsis. *Int J Mol Sci* 20:5726; doi:10.3390/ijms20225726.
42. Díaz M, Pecinkova P, Nowicka A, Baroux C, Sakamoto T, Gandha PY, Jeřábková H, Matsunaga S, Grossniklaus U, ***Pecinka A** (2019): SMC5/6 complex subunit NSE4A is involved in DNA damage repair and seed development in Arabidopsis. *Plant Cell* 31:1579-1597 (JIF 2018/2019: 8.63).
41. Finke A, Mandáková T, Nawaz K, Vu G.T.H., Novák P., Macas J., Lysak M.A., ***Pecinka A** (2019): Genome invasion by a hypomethylated satellite repeat in Australian crucifer *Ballantinia antipoda*. *Plant J* 99:1066-1079. (JIF 2018/2019: 5.72).
40. Lazaro A, Zhou Y, Giesguth M, Nawaz K, Bergonzi S, **Pecinka A**, Coupland G, Albani MC (2019): *PERPETUAL FLOWERING2* coordinates the vernalization response and perennial flowering in *Arabis alpina*. *J Exp Bot* 70:949-961. doi: 10.1093/jxb/ery423 (JIF 2017/2018: 5.35).

39. Vuolo F, Kierzkowski D, Runions A, Hajheidari M, Mentink RA, Gupta MD, Zhang Z, Vlad D, Wang Y, **Pecinka A**, Gan X, Hay A, Huijser P, Tsiantis M (2018): LMI1 homeodomain protein regulates organ proportions by spatial modulation of endoreduplication. *Genes Dev* 32: 1361-1366. doi: 10.1101/gad.318212.118 (JIF 2016: 9.4).
38. Diaz M, ***Pecinka A** (2018): Scaffolding for repair: Understanding molecular functions of the structural maintenance of chromosomes SMC5/6 complex in plants. *Genes* 9: E36. doi: 10.3390/genes9010036. (JIF 2015: 3.6)
37. Markus C, **Pecinka A**, Karan R, Barney JN, Merotto A Jr. (2018): Epigenetic regulation – contribution to herbicide resistance in weeds? *Pest Management Science* 74: 275-281. DOI: 10.1002/ps.4727 (JIF 2016: 3.2).
36. Diaz M, ***Pecinka A** (2017): Seeds as emerging hotspot for maintenance of genome stability. *Cytologia* 82: 467-470. (JIF 2016/2017: 0.9)
35. van Esse GW, Walla A, Finke A, Koornneef M, **Pecinka A**, von Korff M (2017): Six-Rowed Spike3 (VRS3) Is a Histone Demethylase That Controls Lateral Spikelet Development in Barley. *Plant Physiology* 174: 2397-2408. doi: 10.1104/pp.17.00108. (JIF 2016/2017: 6.4)
34. Baroux C, **Pecinka A**, Fuchs J, Kreth G, Schubert I, Grossniklaus I (2017): Non-random chromosome arrangement in triploid endosperm nuclei. *Chromosoma* doi:10.1007/s00412-016-0578-5. (JIF 2014: 4.602; CIT: 0)
33. Willing E-M, Piofczyk T, Albert A, Winkler JB, ***Schneeberger K**, ***Pecinka A** (2016): UVR2 ensures trans-generational genome stability under simulated natural UV-B in *Arabidopsis thaliana*. *Nature Communications*, 7: e13522 (JIF 2014: 11.5)
32. Pietzenuk B, Markus C, Gaubert H, Bagwan B, Abdelsamad A, Merotto A, Bucher E, ***Pecinka A** (2016): Recurrent evolution of heat-responsiveness in *Brassicaceae* COPIA elements. *Genome Biology*, 17: e209 (JIF 2014: 10.8)
31. Vu GTH, Schmutzer T, Bull F, Cao HX, Fuchs J, Tran TD, Jovtchev G, Pistrick K, Stein N, **Pecinka A**, Neumann P, Novak P, Macas J, Deard PH, Blattner FR, Scholz U, Schubert I (2015): Comparative Genome Analysis Reveals Divergent Genome Size Evolution in a Carnivorous Plant Genus. *Plant Genome* doi:10.3835/plantgenome2015.04.0021. (JIF 2014: 3.933; CIT: 0)
30. Rawat V, Abdelsamad A, Pietzenuk B, Seymour DK, Koenig D, Weigel D, ***Pecinka A**, ***Schneeberger K** (2015): Improving the Annotation of *Arabidopsis lyrata* Using RNA-Seq Data. *PLoS One* 10(9):e0137391. (JIF 2014: 3.234; CIT: 1)
29. #Liu C-H, Finke A, Díaz A, Rozhon W, Poppenberger B, Baubec T, ***Pecinka A** (2015): ATR and ATM are required for repair of zebularine-induced DNA damage in *Arabidopsis thaliana*. *Plant Cell* 27: 1788-1800. (JIF 2014: 9.575; CIT: 2)
28. Cao HX, Schmutzer T, Scholz U, **Pecinka A**, Schubert I, Vu GTH (2015): Metatranscriptome analysis reveals host-microbiome interactions in traps of carnivorous *Genlisea* species. *Frontiers Microbiol* doi: 10.3389/fmicb.2015.00526. (JIF 2014: 3.941; CIT: 1)
27. Piofczyk T, Jeena G, ***Pecinka A** (2015): *Arabidopsis thaliana* natural variation reveals connections between UV radiation stress and plant pathogen-like defense responses. *Plant Physiol Biochem* 93: 34-43. (JIF 2014: 2.352; CIT: 1)

26. Willing E-M, Rawat V, Mandáková T, Maumus F, James VG, Nordström KJV, Becker C, Warthmann N, Chica C, Szarzynska B, Zytnicki M, Albani MC, Kiefer C, Bergonzi S, Castaings L, Mateos JL, Berns MC, Bujdoso N, Piofczyk T, de Lorenzo L, Barrero-Sicilia C, Mateos I, Piednoël M, Hagmann J, Chen-Min-Tao R, Iglesias-Fernández R, Schuster SC, Alonso-Blanco C, Roudier F, Carbonero P, Javier Paz-Ares J, Davis SJ, **Pecinka A**, Quesneville H, Colot V, Lysak MA, Weigel D, Coupland G, Schneeberger K (2015): Lack of symmetric CG methylation and long-lasting retrotransposon activity have shaped the genome of *Arabidopsis thaliana*. *Nature Plants* DOI: 10.1038/NPLANTS.2014.23. (JIF: Not yet available; CIT: 12)
25. Abdelsamad A, ***Pecinka A** (2014): Pollen-specific activation of Arabidopsis retrogenes is associated with global transcriptional reprogramming. *Plant Cell* 26: 3299-313. (JIF: 9.575; CIT: 3)
24. ***Pecinka A**, Liu CH (2014): Drugs for Plant Chromosome and Chromatin Research. *Cytogenet Genome Res* 143: 51-59. (JIF: 1.905; CIT: 2)
23. #Baubec T, Finke A, Mittelsten Scheid O, ***Pecinka A** (2014): Meristem-specific expression of epigenetic regulators safeguards transposon silencing in Arabidopsis. *EMBO Rep* 15: 446-452. (26) *This is a Faculty of 1000 Prime highlighted publication.* (JIF: 7.858; CIT: 12)
22. ***Pecinka A**, Abdelsamad A, Vu GTH (2013): Hidden genetic nature of natural epigenetic variation in plants. *Trends Plant Sci* 18: 625-632. (JIF: 13.479; CIT: 10)
21. Alcázar R, **Pecinka A**, Aarts MGM, Fransz PF, Koornneef M (2012): Signals of speciation within Arabidopsis thaliana in comparison with its relatives. *Curr Opin Plant Biol* 15:205-211. (JIF: 9.385; CIT: 3)
20. ***Pecinka A**, Mittelsten Scheid O (2012): Stress-induced chromatin changes: A critical view on their heritability. *Plant Cell Physiol* 53: 801–808. (JIF: 4.702; CIT: 46)
19. **Pecinka A**, Fang W, Rehmsmeier M, Levy AA, Mittelsten Scheid O (2011): Polyploidization increases meiotic recombination frequency in Arabidopsis. *BMC Biol* 9:24. (JIF: 5.750; CIT: 20)
18. Baubec T, Dinh HQ, **Pecinka A**, Rakic B, Rozhon W, Wohlrab B, von Haeseler A, Mittelsten Scheid O (2010): Cooperation of Multiple Chromatin Modifications Can Generate Unanticipated Stability of Epigenetic States in Arabidopsis. *Plant Cell* 22: 34-47. (JIF: 9.396; CIT: 26)
17. #**Pecinka A**, Dinh HQ, Rosa M, Baubec T, Lettner N, Mittelsten Scheid O (2010): Epigenetic control of repetitive elements is attenuated by prolonged heat stress in Arabidopsis. *Plant Cell* 22: 3118–3129. (JIF: 9.396; CIT: 106)
16. **Pecinka A**, Rosa M, Schikora A, Berlinger M, Hirt H, Luschnig C, Mittelsten Scheid O (2009): Transgenerational stress memory is not a general response in Arabidopsis. *PLoS One* 4:e5202. (JIF: 4.351; CIT: 50)
15. Baubec T, **Pecinka A**, Rozhon W, Mittelsten Scheid O (2009): Effective, homogeneous and transient interference with cytosine methylation in plant genomic DNA by zebularine. *Plant J* 57:542-554. (JIF: 6.946; CIT: 21)
14. Jovtchev G, Watanabe K, **Pecinka A**, Rosin FM, Mette MF, Lam E, Schubert I (2008): Size and number of tandem repeat arrays can determine somatic homologous pairing of transgene loci mediated by epigenetic modifications in Arabidopsis thaliana nuclei. *Chromosoma* 117:267-276. (JIF: 5.111; CIT: 14)

13. Fischer U, Kuhlmann M, **Pecinka A**, Schmidt R, Mette MF (2008): Local DNA features affect RNA-directed transcriptional gene silencing and DNA methylation. *Plant J* 53:1-10. (JIF: 6.493; CIT: 25)
12. Baroux C, **Pecinka A**, Fuchs J, Schubert I, Grossniklaus U (2007): The triploid endosperm genome of *Arabidopsis* adopts a peculiar, parental-dosage-dependent chromatin organization. *Plant Cell* 19:1782-1794. (JIF: 9.653; CIT: 36)
11. Berr A, **Pecinka A**, Meister A, Kreth G, Fuchs J, Blattner FR, Lysak MA, Schubert I (2006): Chromosome arrangement and nuclear architecture but not centromeric sequences are conserved between *Arabidopsis thaliana* and *Arabidopsis lyrata*. *Plant J* 48:771-783. (JIF: 6.565; CIT: 34)
10. ***Pecinka A**, Suchankova P, Lysak MA, Travnicek B, Dolezel J (2006): Nuclear DNA content variation among central European *Koeleria* taxa. *Ann Bot* 98:117-122. (JIF: 2.448; CIT: 20)
9. Kirik A, **Pecinka A**, Wendeler E and Reiss B (2006): The chromatin assembly factor subunit *FASCIATA1* is involved in homologous recombination in plants. *Plant Cell* 18:2431-2442. (JIF: 9.868; CIT: 63)
8. Lysak MA, Berr A, **Pecinka A**, Schmidt R, McBreen K, Schubert I (2006): Mechanisms of chromosome number reduction in *Arabidopsis thaliana* and related Brassicaceae species. *Proc Natl Acad Sci USA* 103:5224-5229. (JIF: 9.643; CIT: 166)
7. Schubert V, Klatt M, **Pecinka A**, Meister A, Jasencakova Z, Schubert I (2006): Sister chromatids are often incompletely cohesed in meristematic and endopolyploid interphase nuclei of *Arabidopsis thaliana*. *Genetics* 172:467-475. (JIF: 4.242; CIT: 32)
6. Watanabe K[&], **Pecinka A**[&], Meister A, Schubert I, Lam E (2005): DNA hypomethylation reduces homologous pairing of inserted tandem repeat arrays in somatic nuclei of *Arabidopsis thaliana*. *Plant J* 44:531-540. [&]equal contribution (JIF: 6.969; CIT: 21)
5. Lysak MA, Koch M, **Pecinka A**, Schubert I (2005): Chromosome triplication found across the tribe *Brassicaceae*. *Genome Res* 15:516-525. (JIF: 10.139; CIT: 238)
4. **Pecinka A**[&], Kato N[&], Meister A, Probst AV, Schubert I, Lam E (2005): Tandem repetitive transgenes and fluorescent chromatin tags alter the local interphase chromosome arrangement in *Arabidopsis thaliana*. *J Cell Sci* 118:3751-3758. [&]equal contribution (JIF: 6.543; CIT: 37)
3. **Pecinka A**, Schubert V, Meister A, Kreth G, Klatt M, Lysak MA, Fuchs J, Schubert I (2004). Chromosome territory arrangement and homologous pairing in nuclei of *Arabidopsis thaliana* are predominantly random except for NOR-bearing chromosomes. *Chromosoma* 113:258-269. (JIF: 2.714; CIT: 91)
2. Schubert I, **Pecinka A**, Meister A, Schubert V, Klatt M, Jovtchev G (2004): DNA damage processing and aberration formation in plants. *Cytogenet Genome Res* 104:104-108. (JIF: 1.341; CIT: 14)
1. Lysak MA, **Pecinka A**, Schubert I (2003): Recent progress in chromosome painting of *Arabidopsis* and related species. *Chromosome Res* 11:195-20. (JIF: 2.038; CIT: 72)

Book chapters

Pecinka A (2019): *Vulpia* C. C. Gmel. – mrvka. In Květena České Republiky 9 [Flora of Czech Republic vol. 9], Edited by Štěpánková et al., Academia, Praha (*in press*)

- Pecinka A**, Trávníček B (2019): *Koeleria* Pers. – smělek. In Květena České Republiky 9 [**Flora of Czech Republic vol. 9**], Edited by Štěpánková et al., Academia, Praha (*in press*)
- Mozgova I, Mikulski P, **Pecinka A**, Farrona S (2019): Chapter 1 Epigenetic Mechanisms of Abiotic Stress Response and Memory in Plants. R. Alvarez-Venegas et al. (eds.), **Epigenetics in Plants of Agronomic Importance: Fundamentals and Applications**.
- Finke A, Rozhon W, **Pecinka A** (2017): Analysis of DNA Methylation Content and Patterns in Plants. In Polyamines, Methods and Protocols, Eds. Alcazar R et Tiburcio A, Springer.