

## Curriculum Vitae

### Name & Address

**Karl Kuchler** – Professor of Molecular Genetics – Coordinator TissueHome

Current Position: Group Leader Max F Perutz Laboratories

Medical University Vienna, Department of Medical Biochemistry, Max F. Perutz Laboratories

Campus Vienna Biocenter, Dr. Bohr-Gasse 9/2; A-1030 - Vienna, Austria

Phone: +43-1-4277-61807; FAX: +43-1-4277-9618

e-mail: [karl.kuchler@meduniwien.ac.at](mailto:karl.kuchler@meduniwien.ac.at)

ORCID: 0000-0003-2719-5955

Web: <http://www.mfpl.ac.at/index.php?cid=77> & <http://www.cdpl.univie.ac.at/>



### Main Research Interests

We study fundamental problems in infection biology using a combination of molecular as well as genome-wide and systems biology approaches. We are particularly interested in a better understanding of the dynamic gene regulation during host-pathogen interplay, with a focus on fungal pathogens such as *Candida* spp. On the pathogen side, we use reverse genetics, systems biology and functional genomics strategies (gene deletions, RNA-Seq / Chip-Seq) to (i) identify virulence and antifungal drug resistance genes, (ii) decipher the role of histone modifications and chromatin alterations in morphogenetic switching or cell fate determination, and (iii) study signaling mechanisms during fungal morphogenesis and host colonization. On the host immune side, we exploit transcriptomics and proteomics of primary phagocytes (macrophages, dendritic cells, neutrophils) and T cells to study (i) the mechanisms of gene regulation underlying fungal immunity, (ii) the interplay of adaptive (T cells) and innate (dendritic cells) immunity in fungal surveillance, and (iii) type I interferon signaling (i.e. IFN- $\eta$  and inflammation controlling the function and activity of inflammatory phagocytes (monocytes, neutrophils and T cell polarization), and, (iv), the critical role of Th17 inflammation on pathogen elimination and invasive fungal diseases.

### Scientific Education & Career History

1994 - date	Associate Professor of Molecular Genetics, Medical University Vienna
2008 - 2012	Academic Director Christian Doppler Laboratory Infection Biology
2000 - 2001	Cluster Manager " <i>Biotechnology &amp; Molecular Medicine</i> ", City of Vienna Coordination of the Vienna Region Biotechnology Cluster
1994	<i>Venia docendi</i> (Habilitation) in Molecular Genetics, University of Vienna
1996	Fulbright Sabbatical Fellow, City of Hope National Cancer Center, USA
1992 - 1994	Faculty position Department of Molecular Genetics, Vienna Biocenter
1991 - 1992	Senior Research Associate (with Wolfgang Schneider) Lipid & Lipoprotein Research Group, University of Alberta Edmonton, Canada
1998 - 2001	Postdoctoral Fellow (with Jeremy Thorner); Department Molecular Cell Biology, University of California Berkeley, USA
1986 - 1988	Postdoctoral Fellow (with Günther Kreil); Institute of Molecular Biology Austrian Academy of Sciences, Salzburg
1986	PhD in Biochemistry (with Fritz Paltauf) Thesis " <i>Phospholipid Biosynthesis in Yeast</i> ", Technical University of Graz
1982	Masters Thesis - "Dipl.-Ing." (M.Sc.), Technical University of Graz
1977 - 1982	"Biochemistry & Food Biotechnology", Technical University of Graz

### Experience in Scientific Management and Organization & Student Supervision

Since 1992	Supervision & training of <b>33 Diploma/Masters (M.Sc.) &amp; 23 PhD students</b>
1997 - 1998	Planning and organization of the Austrian-wide exhibit " <i>gentechnik pro &amp; contra</i> " for the broad public on risks of DNA technologies (>250.000 visitors)
2000 –2002	Cluster Manager for " <i>Biotechnology</i> " at the Vienna Business Agency to

	coordinate the development of the Vienna Region Biotechnology Cluster
2001 – 2002	Initiator & Co-Organizer of the international business plan competition "Best of Biotech - BOB" at Vienna Business Agency & Innovation Agency
2004 – date	Co-Chair & Co-Organizer of 1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> , 4 <sup>th</sup> & 5 <sup>th</sup> FEBS Advanced Lecture Courses on Systems Biology ("Systems Biology: From Molecules to Life") with each >200 participants, 2005, 2007, 2009, 2011, 2013 & 2016
2005	Co-Founder CIBIV - "Center Integrative Bioinformatics Vienna", Vienna
1997- date	Main Organizer & Chair of the biannual international 1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> & 4 <sup>th</sup> FEBS Advanced Lecture Courses, and the 1 <sup>st</sup> -7 <sup>th</sup> Special Meetings on ABC Proteins ("ABC Transporters, From Multidrug Resistance to Genetic Disease"), each with >250 participants; ABC2006-ABC2018
2005 - 2007	Chair & main organizer of the 32 <sup>nd</sup> Annual FEBS Congress FEBS2007 "Molecular Machines" 2400 participants, July 7-12, 2007 in Vienna, Austria
2005 - 2010	Chair of the "FEBS Advanced Courses Committee"
2005 - 2010	Executive & FEBS Trustee "Federation of European Biochemical Societies"
2003 – 2011	Vice-President Max Kade Section of the Academy of Sciences Alumni Club
2012 – 2013	President of the Alumni Association of the Austrian Academy of Sciences
2013 – 2014	Vice-President of the Austrian Society for Medical Mycology

### Supervision of Doctoral (PhD) Thesis Students (past five years – 25 since 1994)

**Olivia Majer** – OeAW DOCff PhD Student 2008-2012

"Innate inflammatory immune response to fungal pathogens"

**Lanay Tierney** - VBC PhD Student – 2009 – 2012

"Molecular basis of fungal commensalism"

**Michael Tscherner** – VBC PhD Student – 2008 – 2012

"Chromatin in fungal virulence of *Candida*"

**Florian Zwolanek** – MFPL PhD Student - 2012 – 2016

"Tec kinase signaling in fungal immune response"

**Fabian Istel** – MFPL PhD Student - 2011 – 2016

"Functional genomics of antifungal drug resistance"

**Sabrina Jenull** – MFPL PhD Student – 2014 - ongoing

"Chromatin modification in virulence of *Candida* fungal pathogens"

**Raju Shivarathri** – Marie-Curie ITN-ESR PhD – 2013 - ongoing

"MAPK signaling in host-pathogen interplay an virulence"

**Michael Riedlberger** - MFPL PhD Student – 2016 - ongoing

"Type I interferons in antifungal immune signaling"

### Invited Conference Lectures (5 recent selected)

- 2017 - Invited Speaker GRC on Multidrug Efflux Transporters, Galveston, Texas, USA
- 2016 - Plenary speaker 2016 Chromosome Stability, Thiruvananthapuram, India
- 2015 - Plenary speaker at the GRC on Fungal Immunology, Galveston, USA
- 2015 - Plenary speaker HFP2015 on Human Fungal Pathogens, Nice, France
- 2014 - Plenary speaker PCM2014 Meeting of Paracoccidioides & Mycoses, Brasilia, Brazil

### Honors & Awards (5 most relevant)

- 1986 - Fellow of the Max Kade Foundation Inc., University of California at Berkeley
- 1990 - Erwin Schrödinger Fellow of the Austrian Science Foundation FWF
- 1996 - Fulbright Fellow at the City of Hope National Cancer Center, USA
- 1996 - Novartis Prize for Biology, Novartis (Sandoz) Austria
- 2013 – German Wolfgang Seeliger Prize for Medical Mycology, Germany

### Member of Reviewing Panels, Editorial Boards, Scientific Organizations (5 selected)

- Regular reviewing for journals *Nature*, *Immunity*, *JCI*, *PLoS* & *Cell Press*, *PNAS*, *mBio*
- Editorial Board member of *J. Biological Chemistry*
- Assoc. Editor and Editorial Board member for *Virulence*
- Panel member FWO Funding Agency Grant Panel Bio2
- Jury member of the German Biotechnica Award in Biotechnology

### Most Important Research Funding (selection of most relevant in past 5 years)

- 2017 – 2021, NIH-RO1 – Lysyl acetyl transferase targets in fungal infections - 330 k
- 2017 – 2020, Infect-ERA – Stimulating innate immunity to treat fungal infections – 260 k
- 2012 – 2016, FWF - Chromatin - Chromatin modification in fungal virulence - 348 k€
- 2014 – 2017, FP7 - Coordinator MC-ITN Training Network “ImResFun” – 840 k€
- 2014 – 2018, FP7 - Partner FP7 FUNGITECT Diagnosis of fungal pathogens - 1130 k€

### Key International Collaborators (selection of 5 with joint publications since 2012)

- **Neeraj Chauhan** Rutgers University, USA - [chauhan1@njms.rutgers.edu](mailto:chauhan1@njms.rutgers.edu)
- **Charlie Boone** University of Toronto, CDN - [charlie.boone@utoronto.ca](mailto:charlie.boone@utoronto.ca)
- **Christophe d'Enfert** Pasteur Institute Paris, FRA - [christophe.denfert@pasteur.fr](mailto:christophe.denfert@pasteur.fr)
- **Bernhard Hube** HKI Infektionsbiologie Jena, GER - [Bernhard.Hube@hki-jena.de](mailto:Bernhard.Hube@hki-jena.de)
- **Steffen Rupp** IGB Fraunhofer Stuttgart - [steffen.rupp@igb.fraunhofer.de](mailto:steffen.rupp@igb.fraunhofer.de)

### Public Understanding of Science – Activities Related to Science in & for Society

Long-standing experience and track record in interaction with journalists and media, and public perception of science, outreach to high schools, as well as to political decision-makers. Moreover, I was one of the **co-founders**, and then until 2006 vice-speaker, of **dialog<>gentechnik** (DGT – now *Open Science* - <http://www.openscience.or.at>), a non-profit public body devoted to fostering public understanding of science.

Numerous interviews, commentaries in the **daily / weekly print media**, including interviews on TV and radio on public perception of science and biotechnology.

Current DGT highlight projects (biology teacher education, journalist biology education, “*Genkoffer for Rent*“, gene technology exhibits for the public, etc.) were based on concepts and visions I have developed with DGT leaders.

Initiator and co-founder of the **Vienna Open Lab** (<http://www.viennaopenlab.at/>) to train and educate pupils and teachers basic methods in modern molecular biology through hands-on activities.

Numerous **lectures** for the **public** and **high schools**, as well as in primary schools on basic biology, science, gene technology, and on the role of today's biotechnology in day-to-day life in a modern society. Moreover, I regularly participate in annual educational programmes offering teaching for the public and schools (“**University Meets Public**“). Basic scientific lectures in public school facilities covering *Infection Biology & Drug Resistance* for the interested broad public audience.

Initiator and Organizer of the „**Kids Congress**“ in collaboration with the *Childrens University Vienna* with some 800 school children aged 7-12 attending two scientific lectures at the Vienna FEBS2007 Congress

2011 - Winner of the *ScienceSlam* Contest during the Open Day of the Medical University of Vienna – Oral presentation to the public – „*Immune cells - our eating and cleaning machines*“

## List of Publications (2012 - 2016)

Overall, more than **140 publications** listed in *ISI Web of Knowledge*, including papers in peer-reviewed journals, reviews, book chapters; editor of several books or special journal issues. More than **130 invited talks** at international meetings, conferences and university institutions. The cumulative impact factor of all publications is currently exceeding **800**. Based on *Google Scholar*, publications received more than **9100** citations, with a current life-time Hirsch **h Index** of **53**

Since 2012, **33 original peer-reviewed** papers, including reviews and **1** book chapter without peer-review.

1. Bourgeois & **K. Kuchler** (2012). Fungal pathogens - A sweet and sour diet for *toll-like* receptors. **Frontiers Cell. Infection Microbiol.** 2:142 doi: 10.3389/fcimb.2012.00142. Epub 2012 Nov 22.
2. Hnisz, D., A. Bardet, C. Nobile, U. Schoeck, A. Petryshin, W. Glaser, A. Stark, & **K. Kuchler** (2012). Histone deacetylation at coding sequences adjusts transcription kinetics during *C. albicans* morphogenesis. **PLoS Genetics** 12:e1003118 doi:10.1371/journal.pgen.1003118.
3. Tscherner, M., E. Stappler, D. Hnisz & **K. Kuchler** (2012). The histone acetyltransferase Hat1 facilitates DNA damage repair and morphogenesis in *C. albicans*. **Mol. Microbiol.** 86:1197-214. doi: 10.1111/mmi.12051. Epub 2012 Oct 17
4. Ryan, O., RS. Shapiro, CF. Kurat, D. Mayhew, A. Baryshnikova, B. Chin, Z-Y. Lin, M.J. Cox, F. Vizeacoumar, D. Cheung, S. Bahr, K. Tsui, F. Tebbji, A. Sellam, F. Istel, T. Schwarzmüller, T.B. Reynolds, **K. Kuchler**, D.K. Gifford, M. Whitway, G. Giaever, C. Nislow, M. Costanzo, A-C. Gingras, R.D. Mitra, B. Andrews, G.R. Fink, L.E. Cowen & C. Boone; (2012). Global gene deletion analysis exploring yeast filamentous growth. **Science** 337: 1353-1356 doi: 10.1126
5. Majer, O., Bourgeois, C., F. Zwolanek, M. Mack, C. Lassing, D. Kerjaschki, M. Müller & **K. Kuchler** (2012). Type I interferon signaling promotes fatal immunopathology through the recruitment of inflammatory monocytes and neutrophils. **PLoS Pathogens** 8: e1002811
6. Tierney, L., J. Linde, S. Müller, S. Brunke, B. Hube, R. Guthke & **K. Kuchler** (2012). Parallel RNA-Seq reveals novel interspecies gene regulatory networks of *C. albicans* invading innate immune cells. **Frontiers Microbiol** 3: 85, Epub 2012 Mar 12
7. Tierney, L., L. Rizzetto, D. Cavalieri\* & K. Kuchler\* (2012). Systems biology of host-fungus interactions: turning complexity into simplicity? **Curr Opin Microbiol.** 15: 440-446
8. Miguel Relloso, M., L. Aragonese-Fenoll, C. Bourgeois, G. Romera, **K. Kuchler**, A.L. Corbí, MA. Muñoz-Fernandez, J.L. Rodríguez-Fernández & Rosalia Diez-Orejas (2012). Estrus impairs the trigger of Th17 immune response by altering dendritic cell function. **J. Leukocyte Biol.** 91:159-165
9. Zavrel, M., O. Majer, **K. Kuchler** & S. Rupp (2012). The transcription factor Efg1 shows a significant haploinsufficiency phenotype in modulating cell wall architecture and immunogenicity of *Candida albicans*. **Eukaryotic Cell.** 11: 129-140
10. Köprülü, A.D, Kastner, R., Wienerroither, S., Lassnig, C., Putz, E-M, Majer, O., Reutterer, B., Sexl, V., **Kuchler, K.**, Müller, M., Decker, T., and W. Ellmeier (2013). Btk regulates the macrophage response to *Listeria monocytogenes* infection. **PLoS ONE** 8: e60476 doi: 10.1371
11. Lee, J., W. Reiter, I. Dohnal, C. Gregori, S. Beese-Sims, **K. Kuchler**, G. Ammerer, & D. Levin (2013). Hog1 MAPK closes the *S. cerevisiae* Fps1 glycerol channel by phosphorylating and displacing its positive regulators. **Genes & Dev** 27: 2590-2601
12. Tscherner, M. and **K. Kuchler** (2013). Immunoblot Analysis of Histone H4 Acetylation and Histone H2A Phosphorylation in *Candida albicans*. **Bio-Protocol** 3(20): e943. <http://www.bio-protocol.org/e943>
13. Lackner M., M. Tscherner, M. Schaller, **K. Kuchler**, C.Mair, B. Sartori, F. Istel, M. C. Arendrup and C. Lass-Flörl (2014). Position and numbers of *FKS* mutations in *C. albicans* selectively influence *in vitro* and *in vivo* susceptibility to echinocandin treatment. **Antimic. Agents Chemoth. E-publ.** PMID: 24733467
14. Seider K, Gerwien F, Kasper L, Allert S, Brunke S, Jablonowski N, Schwarzmüller T, Barz D, Rupp S, **Kuchler K.** & Hube B (2014). Immune evasion, stress resistance, and efficient nutrient

- acquisition are crucial for intracellular survival of *Candida glabrata* within macrophages. **Eukaryotic Cell**. 13(1):170-83. doi: 10.1128/EC.00262-13
15. Kasper, L., Seider K, Gerwien F, Allert S, Brunke S, Schwarzmüller T, Ames L, Barrera CZ, Mansour MK, Becken U, Barz D, Vyas JM, Reiling N, Haas A, Haynes K, **Kuchler K**, & B. Hube (2014). Identification of *Candida glabrata* genes involved in pH modulation and modification of the phagosomal environment in macrophages. **PLoS ONE**. 9: e96015. doi: 10.1371/journal.pone.0096015; PMID: 24789333
16. Schwarzmüller, T., B. Ma, M. Tscherner, F. Istel, E.Hiller, S. Brunke, L. Ames, A. Firon, B. Green, V. Cabral, M. Marcet-Houben, I.D. Jacobsen, J. Quintin, K. Seider, I. Frohner, H. Jungwirth, W. Glaser, D. Ferrandon, S. Rupp, C. D'Enfert, B. Cormack, K. Haynes & **K. Kuchler** (2014). Systematic phenotyping of a genome-scale *C. glabrata* deletion collection reveals novel antifungal drug tolerance genes. **PLoS Pathogens**, 10: e1004211. doi: 10.1371/journal.ppat.1004211. eCollection 2014 Jun
17. Nobile, CJ, N. Hartooni, E. Fox, K. D. Hnisz, D. Andes, **K. Kuchler**, and A.D. Johnson (2014). A histone deacetylase complex mediates biofilm dispersal and drug resistance in *C. albicans*. **mBio**, 10;5(3). pii: e01201-14. doi: 10.1128/mBio.01201-14
18. Wirnsberger G., F. Zwolanek, J. Stadlmann, L. Tortola, S.Wan-Liu, P. Järvinen, G. Dürnberg, I. Kozieradzki, R. Sarao, AD Martino, K. Boztug, K. Mechtler, **K. Kuchler**, C. Klein, U. Elling, & JM. Penninger (2014). Jagunal-homolog 1 is a critical regulator of neutrophil function in fungal host defense. **Nature Genetics**, 46(9):1028-33. doi: 10.1038/ng.3070. Epub 2014 Aug 17
19. Zwolanek, F., M. Riedelberger, V. Stolz, W. Ellmeier & **K. Kuchler** (2015). The non-receptor tyrosine kinase Tec controls fungal virulence by activating the caspase-8 inflammasome. **PLoS Pathogens**. 10(12):e1004525. doi: 10.1371/journal.ppat.1004525
20. Lüttich A, Linde J, Schreiner M, Horn F, Jacobsen ID, Guthke R, **Kuchler K**, Forche A, d'Enfert C, Brunke S, & B. Hube (2015). Microevolution of *Candida albicans* in macrophages restores filamentation in a nonfilamentous mutant. **PLoS Genetics**, 0(12):e1004824. doi: 10.1371/journal.pgen.1004824
21. Brunke S, J Quintin, L Kasper, ID Jacobsen, ME Richter, E Hiller, T Schwarzmüller, C d'Enfert, **K Kuchler**, S Rupp, B Hube & D Ferrandon (2015) Of fungal pathogens in mice, flies – and men? Comparing infection models for large-scale screening efforts. **Dis Model Mechanism** 8(5):473-86. doi: 10.1242/dmm.019901. Epub 2015 Mar 18.
- Mota S, R Alves, C Carneiro, S Silva, Brown AJ, F Istel, **K Kuchler**, P Sampaio, M Casal, M Henriques, & S. Paiva *Candida glabrata* susceptibility to antifungals and phagocytosis is modulated by acetate. (2015). **Frontiers Microbiol**, 6:919. doi: 10.3389/fmicb.2015.00919. eCollection 2015.
22. Istel F, Schwarzmüller T, Tscherner M & **K Kuchler** (2015). Genetic Transformation of *Candida glabrata* by Electroporation. **Bio Protoc** 5(14). pii: e1528.
23. Istel F, Schwarzmüller T, Tscherner M & **K Kuchler** (2015). Large-scale Phenotypic Profiling of Gene Deletion Mutants in *Candida glabrata*. **Bio Protoc** 5(14). pii: e1530.
24. Istel F, Schwarzmüller T, Tscherner M & **K Kuchler** (2015). Genetic Transformation of *Candida glabrata* by Heat Shock. **Bio Protoc** 5(14). pii: e1529.
25. Tscherner M, F Zwolanek, S. Jenull, F Sedlazeck, A Petryschy, I Frohner, J Mavrianos, N Chauhan, A von Haeseler & **K. Kuchler** (2015). The *Candida albicans* histone acetyltransferase Hat1 regulates stress resistance and virulence via distinct chromatin assembly pathways. **PLoS Pathogens**, 11(10):e1005218. doi: 10.1371/journal.ppat.1005218. eCollection 2015 Oct.
26. Montanari F, Pinto M, Khunweeraphong N, Wlcek K, Sohail MI, Noeske T, Boyer S, Chiba P, Stieger B, **Kuchler K**, & GF Ecker (2016). Flagging drugs that inhibit the bile salt export pump. **Mol Pharm**. Dec 7. [Epub ahead of print]
27. Schwarz T, Montanari F, Cseke A, Wlcek K, Visvader L, Palme S, Chiba P, **Kuchler K**, Urban E, & GF Ecker (2016). Subtle Structural Differences Trigger Inhibitory Activity of Propafenone Analogues at the Two Polyspecific ABC Transporters: P-Glycoprotein (P-gp) and Breast Cancer Resistance Protein (BCRP). **Chem Med Chem**. 2016 Mar 10. doi: 10.1002/cmdc.201500592. [Epub ahead of print] PMID: 26970257

28. Agostinho DP, de Oliveira MA, Tavares AH, Derengowski L, Stolz V, Guilhelmelli F, Mortari MR, & **K Kuchler\***, I Silva-Pereira \* (2016). Dectin-1 is required for miR155 upregulation in murine macrophages in response to *Candida albicans*. **Virulence**. 13:1-12. (\*corresponding authors)
29. Nogueira F, Istel F, Pereira L, Tscherner M, & K Kuchler (2017). Immunological identification of fungal species. **Methods Mol Biol**. 1508:339-359.
30. Kuchler\* K, Jenull S, Shivarathri R, & N Chauhan\* (2016). Fungal KATs/KDACs: A New Highway to Better Antifungal Drugs? **PLoS Pathog**. 12(11):e1005938. doi: 10.1371/journal.ppat.1005938 (\*corresponding authors)
31. Wirnsberger\* G., F. Zwolanek\*, Asaoka T, Kozieradzki I, Tortola L, RA Wimmer, F Fresser, G Baier, WY Langdon, A Kavirayani, F Ikeda, **K. Kuchler\*** & JM. Penninger\* (2016). Inhibition of CBLB protects from lethal *Candida albicans* sepsis. **Nature Medicine** 22:915-23. doi: 10.1038/nm.4134. Epub 2016 Jul 18 (\*Equal first & equal corresponding authors)
32. Xie J, Jenull S, Tscherner M, & K Kuchler (2016). The paralogous histone deacetylases Rpd3 and Rpd31 play opposing roles in regulating the white-opaque switch in the fungal pathogen *Candida albicans*. **mBio** 7(6):e01807-16. doi:10.1128/mBio.01807-16

### Reviews, Book Chapters & Special Journal Issues (without peer-review)

33. Tierney, L., K. Tyc, E. Klipp & K. Kuchler (2013). Systems Biology to Understand Fungal Virulence. In *Mycota Vol. XII: Human Fungal Pathogens*, 2<sup>nd</sup>Ed. (O.Kurzai, Ed.)

### Patents

**2001 "Improved yeast strain"**. DSM (formerly Gist-Brocades), European Patent as *Inventor* with Peter Piper and Rutger van Rooijen filed by Gist-Brocades. European Patent Office No. 98201094.4-2105

**2005 "Method for detoxification of mycotoxins"**. European Patent as *Co-Inventor* with Gerhard Adam and Josef Glössl (BOKU Vienna) and others filed by AWS. European Patent Office No. 03450194.0- Poppenberger, B., Adam, G., Berthiller, F., Krska, R., Kuchler, K., Luschnig, C., Glössl, J., Lucyshyn, D., Schumacher, R., and Sieberer, T., (2005) Method for detoxification of mycotoxins. World wide patent *W02005021740-2005-03-1*

**2016 "Inhibitors of CBLB as Antifungal Agents"**. Inventors Gerald Wirnsberger, Josef Penninger, Florian Zwolanek, Karl Kuchler. Patent application #EP16173740

### 10 Most Important Career Publications (only as first or corresponding author)

1. **Kuchler, K.**, R. Sterne, & J. Thorner (1989). *Saccharomyces cerevisiae* STE6 gene product: A novel pathway for protein export in eukaryotic cells. **EMBO J** 8: 3973-3985
2. Piper, P., Y. Mahé, S. Thompson, R. Pandjaitan, C. Holyoak, R. Egner, M. Mühlbauer, P. Coote, & **K. Kuchler** (1998). The Pdr12 ABC transporter is required for the development of weak organic acid resistance in yeast. **EMBO J** 17: 4257-4265
3. Egner, R., F. E. Rosenthal, N. Kralli, D. Sanglard & **K. Kuchler** (1998). Genetic separation of FK506 susceptibility and drug transport in the Pdr5 ABC drug resistance transporter. **Mol Biol Cell** 9: 523-543
4. Kren, A., Y.M. Mamnun, B. Bauer, C. Schüller, H. Wolfger, C. Gregori, K Hatzixanthis, M. Mollapour, P. Piper & **K. Kuchler** (2003). War1p, a novel transcription factor controlling weak acid stress response in yeast. **Mol Cell Biol** 23: 1775-1785
5. Hnisz, D., O. Majer, I.E. Frohner, V. Komnenovic, & **K. Kuchler** (2010). The Set3/Hos2 histone deacetylase complex attenuates cAMP/PKA signaling to regulate morphogenesis and virulence of *C. albicans*. **PLoS Pathogens** 13: e1000889doi: 10.1371

6. Tierney, L., J. Linde, S. Müller, S. Brunke, B. Hube, R. Guthke & **K. Kuchler** (2012). Parallel RNA-Seq reveals novel interspecies gene regulatory networks of *C. albicans* invading innate immune cells. **Frontiers Microbiol** 3: 85, Epub 2012 Mar 12
7. Majer, O., Bourgeois, C., F. Zwolanek, M. Mack, C. Lassing, D. Kerjaschki, M. Müller & **K. Kuchler** (2012). Type I interferon signaling promotes fatal immunopathology through the recruitment of inflammatory monocytes and neutrophils. **PLoS Pathogens** 8: e1002811
8. Schwarzmüller, T., B. Ma, M. Tscherner, F. Istel, E. Hiller, S. Brunke, L. Ames, A. Firon, B. Green, V. Cabral, M. Marcet-Houben, I.D. Jacobsen, J. Quintin, K. Seider, I. Frohner, H. Jungwirth, W. Glaser, D. Ferrandon, S. Rupp, C. D'Enfert, B. Cormack, K. Haynes & **K. Kuchler** (2014). Systematic phenotyping of a genome-scale *C. glabrata* deletion collection reveals novel antifungal drug tolerance genes. **PLoS Pathogens**, 10: e1004211. doi: 10.1371/journal.ppat.1004211. eCollection 2014 Jun
9. Zwolanek, F., M. Riedelberger, V. Stolz, W. Ellmeier & **K. Kuchler** (2015). The non-receptor tyrosine kinase TEC controls fungal virulence by activating the caspase-8 inflammasome. **PLoS Pathogens**. 10:e1004525. doi: 10.1371/journal.ppat.1004525
10. Wirnsberger\* G., F. Zwolanek\*, Asaoka T, Koziaradzki I, Tortola L, RA Wimmer, F Fresser, G Baier, WY Langdon, A Kavirayani, F Ikeda, **K. Kuchler\*** & JM. Penninger\* (2016). Inhibition of CBLB protects from lethal *Candida albicans* sepsis. **Nature Medicine** 22:915-23. doi: 10.1038/nm.4134. Epub 2016 Jul 18 (\*Equal first & equal corresponding authors)