Christoph Winkler

Associate Professor, Dr. rer. nat. habil.
Dept. of Biological Sciences
National University of Singapore
14 Science Drive 4, S1A-06-07
Singapore 117543
phone: +65-6516 7376 www.dbs.nus.edu.sg/staff/christoph.htm
dbswcw@nus.edu.sg www.cbis.nus.edu.sg/our-team/christoph-winkler/

PERSONAL DETAILS:

Born: 12 March 1964
Birth Place: Kaufbeuren, Germany Nationality: German
Marital Status: Married, two children

PRESENT APPOINTMENT:

Associate Professor, Department of Biological Sciences, National University of Singapore (NUS)

ACADEMIC QUALIFICATIONS:

1989 Diplom in Biology, Ludwig-Maximilians-University Munich, Germany
1989 Diploma thesis at Max-Planck-Institute for Biochemistry, Martinsried, Germany
1994 Dr. rer. nat., University of Wuerzburg, Germany (‘*summa cum laude’*; with M. Schartl)
2005 ‘*Habilitation’* (Developmental Biology), University of Wuerzburg, Germany
2006 *'Privatdozent'* (PD, Member of Faculty of Biology), Univ. of Wuerzburg, Germany
2007 Associate Professor, National University of Singapore

PAST EMPLOYMENT HISTORY:

1994-1996 Postdoctoral fellow, Biocenter, University of Wuerzburg, Germany (with M. Schartl)
1996-1998 HFSP postdoctoral fellow, HHMI, Univ. of Washington, Seattle, USA (with R.T. Moon)
1998-2007 Group Leader, Physiological Chemistry I, Biocenter, Univ. of Wuerzburg, Germany
2002-2007 Senior Lecturer (with tenure), Biocenter, University of Wuerzburg
2007-now Associate Professor (since 2013 with tenure), National University of Singapore

AWARDS:

1996-1998 Human Frontier Science Program (HFSP) Long-term Postdoctoral Fellowship
2010 NUS-Japanese Society for the Promotion of Science (JSPS) Exchange Scholarship
2011 Teaching Excellence Award, Faculty of Science, National University of Singapore
2015 Presidential Visiting Professorship, University of Wuerzburg, Germany

UNIVERSITY SERVICE:

2006-2008 Steering Committee, Graduate College 1048 “Organogenesis”, University of Wuerzburg
2008-now Member at NUS Graduate School for Integrative Sciences and Engineering (NGS)
2010-now Member, Centre for BioImaging Sciences (CBIS) at DBS, NUS
2010-2015 Member, Department Teaching Committee (DTC), DBS, NUS
2012-2015 Chairman, Department Teaching Committee (DTC), DBS, NUS
2013-2023 Member, Department Executive Committee (EXCO), DBS, NUS
2015-2017 Deputy Head of Department, Chairman of the Department Graduate Committee
2017-2023 Assistant Head of Department (Management and Development)
2020-now Member of IACUC Committee
2023-now Member of Department Research Committee
2024-now Director (Scientific), AquaPolis

LIST OF PUBLICATIONS **(total: 117; h-index: 35; 4678 citations in Scopus)**

I. Peer-reviewed publications

1. Tan, W.H., Ruecklin, M., Larionova, D., Tran, B.N., van Heuven, B.J., Marone, F., Matsudaira, P., Winkler, C. (**2024**). A Collagen10a1 mutation disrupts cell polarity in a medaka model for Metaphyseal Chondrodysplasia type Schmid. ***iScience*** 27(4):109405***.***
2. Tan, W.H., Winkler, C. (**2024**). Lineage Tracing of Bone Cells in the Regenerating Fin and During Repair of Bone Lesions. ***Methods Mol Biol*** 2707:99-110.
3. Tzung, K.W., Lalonde, R.L., Prummel, K.D., Mahabaleshwar, H., Moran, H.R., Stundl, J., Cass, A.N., Le, Y., Lea, R., Dorey, K., Tomecka, M.J., Zhang, C., Brombacher, E.C., White, W.T., Roehl, H.H., Tulenko, F.J., Winkler, C., Currie, P.D., Amaya, E., Davis, M.C., Bronner, M.E., Mosimann, C., Carney, T.J. (**2023**). A median fin derived from the lateral plate mesoderm and the origin of paired fins. ***Nature*** 618(7965):543-549.
4. Trumpp, M., Tan, W.H., Burdzinski, W., Basler, Y., Jatzlau, J.*, Knaus, P.*, Winkler, C.* (**2023**). Characterization of Acvr1/Acvr2 Activin receptors in medaka (*Oryzias latipes*): Towards establishing a novel animal model for Fibrodysplasia Ossificans Progessiva. ***PLoS One*** 18(9):e0291379. * co-corresponding authors
5. Imangali, N., Sokolova, V., Kostka, K., Epple M., Winkler, C. (**2023**). Functionalized calcium phosphate nanoparticles to direct osteoprotegerin to bone lesion sites in a medaka (*Oryzias latipes*) osteoporosis model. ***Frontiers Endocrinology*** 14:1101758.
6. Mo, J., Wan, M.T., Au, D.W., Shi, J., Tam, N., Qin, X., Cheung, N.K.M., Lai, K.P., Winkler, C., Kong, R.Y., Seemann, F. (**2023**). Transgenerational bone toxicity in F3 medaka (*Oryzias latipes*) induced by ancestral benzo[a]pyrene exposure: Cellular and transcriptomic insights. ***J Environ Sci*** 127, 336-348.
7. Phan, Q.T., Chua, Y.K., Jin, A., Winkler, C.*, Koh, W.P.* (**2022**). CXCL9 predicts the risk of osteoporotic hip fracture in a prospective cohort of Chinese men – a matched case-control study. ***Journal Bone Mineral Research*** 37, 1843-1849. * co-corresponding authors
8. Tan, W.H., Winkler, C. (**2022**). A novel non-disruptive and efficient knock-in allows fate tracing of resident osteoblast progenitors during repair of vertebral lesions in medaka. ***Development*** 149(12):dev200238***.***
9. Liu, R., Imangali, N., Ethiraj, L.P, Carney, T.J., Winkler, C. (**2022**). Transcriptome profiling of osteoblasts in a medaka (*Oryzias latipes*) osteoporosis model identifies Mmp13b as crucial for osteoclast activation. ***Frontiers in Cell and Developmental Biology*** 10:775512.
10. Ethiraj, L.P., Fong E.L.S., Liu, R., Winkler, C., Carney, T.J. (**2022**). Colorimetric and fluorescent TRAP assays for visualising and quantifying fish osteoclast activity. ***Europ Journal of Histochemistry*** 66, 3369ff.
11. Tay, S.H., Ellieyana, E.N., Le, Y., Sarusie, M.V., Grimm, C., Ohmer, J., Mathuru, A., Fischer, U., Winkler, C. (**2021**). A novel zebrafish model for intermediate type spinal muscular atrophy demonstrates importance of Smn for maintenance of mature motor neurons. ***Hum Mol Genet*** 30(24):2488-2502***.***
12. Koh, A., Sarusie, M.V., Ohmer, J., Fischer, U., Winkler, C.[#], Wohland, T.[#] (**2021**). Fluorescence Correlation Spectroscopy Reveals Survival Motor Neuron Oligomerization but no Active Transport in Motor Axons of a Zebrafish Model for Spinal Muscular Atrophy. ***Frontiers in Cell and Developmental Biology*** 9:639904***.***

13. Foo, Y.Y., Motakis, E., Tiang, Z., Shen, S., Lai, J.K.H., Chan, W.X., Wiputra, H., Chen, N., Chen, C.K., Winkler, C., Foo, R.S.Y., Yap, C.H. **(2021)**. Effects of Extended Pharmacological Disruption of Zebrafish Embryonic Heart Biomechanical Environment on Cardiac Function, Morphology and Gene Expression. ***Dis Model Mech*** 250(12):1759-1777***.***
14. Mo, J., Au, D.W.T, Guo, J., Winkler, C., Kong, R.Y.C., Seemann, F. **(2021)**. Benzo[a]pyrene osteotoxicity and the regulatory roles of genetic and epigenetic factors: A review. ***Critical Reviews in Environmental Science and Technology. In press.***
15. Fraher, D., Mann, R.J., Dubuisson, M.J., Ellis, M.K., Yu, T., Walder, K., Ward, A., Winkler, C., Gibert, Y. (**2021**). The endocannabinoid system and retinoic acid signaling combine to influence bone growth. ***Mol Cell Endocrinology*** 529:111267***.***
16. Koh, A., Tao, S., Ang, S.T., See, K., Kathiresan, P., Orbán, L., Wohland, T., and Winkler, C. **(2021)**. A Neurexin2aa deficiency results in axon pathfinding defects and social impairment in zebrafish. ***Human Molecular Genetics*** 29, 3765-3780***.***
17. Schartl, M., Kneitz, S., Ormanns, J., Schmidt, C., Anderson, J., Amores, A., Catchen, J., Wilson, C., Geiger, D., Du, K., Garcia, M., Sundaram, S., Winkler, C., Hedrich, R., Warren, W., Walter, R., Meyer, A., Postlethwait, J.H. (**2021**). The developmental and genetic architecture of the sexually selected male ornament of swordtails. ***Current Biology*** 31, 911-922***.***
18. Witten, P.E., Huysseune, A., Maisey, J.G., Winkler, C., Gong, Z. (**2021**). A Boost for Fish Skeletal Research. ***J Fish Biol*** 98, 903-905.
19. Imangali N, Phan QT, Mahady G, Winkler C. (**2021**). The dietary anthocyanin delphinidin prevents bone resorption by inhibiting Rankl-induced differentiation of osteoclasts in a medaka (Oryzias latipes) model of osteoporosis. ***J Fish Biol*** 98, 1018-1030***.***
20. Pham, C.V., Pham, T.T., Lai, T.T., Trinh, D.C., Nguyen, H.V.M., Ha, T.T.M., Phuong, T.T., Tran, L.D., Winkler, C., To, T.T. (**2021**). Icariin reduces bone loss in a Rankl-induced transgenic medaka (Oryzias latipes) model for osteoporosis. ***J Fish Biol*** 98, 1039-1048.
21. Phan, Q.T., Tan, W.H., Liu, R.R., Sundaram, S., Buettner, A., Kneitz, S., Cheong, B., Vyas, H., Mathavan, S., Schartl, M., Winkler, C. (**2020**). Cxcl9l and Cxcr3.2 regulate recruitment of osteoclast progenitors to bone matrix in a medaka osteoporosis model. ***Proc Natl Acad Sci USA*** 117, 19286-19286.
22. Phan, Q.T., Liu, R., Tan, W.H., Imangali, I, Cheong, B., Winkler, C. (**2020**). Macrophages switch from an immune to an osteo-modulatory profile upon Rankl induction in a medaka (*Oryzias latipes*) osteoporosis model. ***JBMRPlus*** 4(11):e10409.
23. Mo, J., Au, D.W.T, Wan, M.T., Shi, J., Zhang, G., Winkler, C., Kong, R.Y.C, Seemann, F. (**2020**). Multigenerational impacts of benzo[a]pyrene on bone modeling and remodeling in medaka (*Oryzias latipes*). ***Env Sci Tech*** 54, 12271-12284.
24. Lleras-Forero, L., Winkler, C. and Schulte-Merker, S. (**2020**). Zebrafish and medaka as models for biomedical research of bone diseases. ***Developmental Biology*** 457, 191-205.
25. Dasyani, M., Tan, W.H., Sundaram, S., Imangali, N., Centanin, L., Wittbrodt, J., and Winkler, C. **(2019)**. Lineage tracing of *col10a1* cells identifies distinct progenitor populations for osteoblasts and joint cells in the regenerating fin of medaka (*Oryzias latipes*). ***Developmental Biology*** 455, 85-99.
26. Foo, Y.Y., Pant, S., Tay, S., Imangali, N, Chen, N., Winkler, C., Yap, C.H. **(2019)**. 4D modelling of fluid mechanics in the zebrafish embryonic heart. ***Biomechanics and Modeling in Mechanobiology*** 19, 221-232.

27. Buettner, A., Sundaram, S., Vyas, H., Yu, T., Mathavan, S., and Winkler, C. **(2018)**. Fluorescence-activated cell sorting (FACS) of osteoblasts and osteoclasts for RNA sequencing in a medaka (Oryzias latipes) osteoporosis model. ***Journal of Applied Ichthyology*** 34, 481-488.
28. Yu, T., Graf, M., Renn, J., Schartl, M., Larionova, D., Huysseune, A., Witten, P.E., Winkler, C. **(2017)**. A vertebrate specific and essential role for *sp7/osterix* in osteogenesis revealed by gene knock-out in the teleost medaka. ***Development*** 144:265-271.
29. Witten, P.E., Harris, M.P., Huysseune, A., Winkler C. **(2017).** Small Teleost Fish Provide New Insights into Human Skeletal Diseases. ***Methods Cell Biol*** 138, 321-346.
30. Tan, W.H., Witten, P.E., Winkler C., Au, D.W.T., Huysseune, A. **(2017)**. Telomerase expression in medaka (Oryzias melastigma) pharyngeal teeth. ***Journal of Dental Research*** 96, 678-684.
31. Watson, A.T.D., Planchart, A., Mattingly, C.J., Winkler, C., Reif, D.M., Kullman, S.W. **(2017)**. Embryonic exposure to TCDD impacts osteogenesis of the axial skeleton in Japanese medaka, *Oryzias latipes*. ***Toxicological Sciences*** 155, 485-496.
32. Yu, T., and Winkler, C. (**2017**). Drug treatment and in vivo imaging of osteoblast-osteoclast interactions in a medaka fish osteoporosis model. ***Journal of Visualized Experiments*** 1:119.
33. Spiró, Z., Koh, A., Tay, S., See, K., Winkler, C. (**2016**). Transcriptional enhancement of Smn levels in motoneurons is crucial for proper axon morphology in zebrafish. ***Scientific Reports*** 6:27470.
34. Yu, T., Buettner, A., To, T.T., Witten, P.E., Huysseune, A., Winkler, C. (**2016**). Live imaging of osteoclast inhibition by bisphosphonates in a medaka osteoporosis model. ***Disease Models & Mechanisms*** 9(2), 155-163.
35. To, T.T., Witten, P.E., Huysseune, A., Winkler, C. (**2015**). An adult osteopetrosis model in medaka reveals importance of osteoclast function for bone remodeling in teleost fish. ***Comp Biochem Physiol C Toxicol Pharmacol*** 178:68-75.
36. Willems, B., Tao, S., Yu, T., Huysseune, A., Witten, P.E., Winkler, C. (**2015**). The Wnt co-receptor Lrp5 is required for cranial neural crest cell migration in zebrafish. ***PLoS ONE*** 10(6):e0131768.
37. Quach, H.N.B., Tao, S., Vrljicak, P., Joshi, A., Ruan, H., Sukumaran, R., Varshney, G., LaFave, M., The Ds screen team, Burgess, S., Winkler, C., Emelyanov, A., Parinov, S., Sampath, K. (**2015**). A Multifunctional Mutagenesis System for Analysis of Gene Function in Zebrafish. ***G3: Genes, Genomes, Genetics*** 5(6), 1283-1299.
38. Graf, M., Teo Qi-Wen, E.R., Sarusie, M.V., Rajaei, F., Winkler, C. (**2015**). Dmrt5 controls corticotrope and gonadotrope differentiation in the zebrafish pituitary. ***Mol Endocrinol*** 29, 187-99.
39. Linder, B., Hirmer, A., Gal, A., Rüther, K., Bolz, H.J., Meitinger, T., Winkler, C., Laggerbauer, B., Fischer, U. (**2014**). Identification of a PRPF4 loss-of-function variant that abrogates U4/U6.U5 tri-snRNP integration and is associated with Retinitis pigmentosa. ***PLoS ONE*** 9(11): e111754.
40. Renn, J., Winkler C. (**2014**). Osterix/Sp7 regulates biomineralization of otoliths and bone in medaka (*Oryzias latipes*). ***Matrix Biology*** 34, 193-204.
41. See, K., Yadav, P., Giegerich, M., Cheong, P.S., Graf, M., Vyas, H., Lee, S.G.P, Mathavan, S., Fischer, U., Sendtner, M., Winkler, C. (**2014**). SMN-deficiency alters *Nrxn2* expression and splicing in zebrafish and mouse models of spinal muscular atrophy. ***Human Molecular Genetics*** 23, 1754-1770.
42. Winkler, C. and Yao, S. (**2014**). The midkine family of growth factors: Diverse roles in nervous system formation and maintenance. ***British Journal of Pharmacology*** 171, 905-912.

43. Renn, J., Chua, E.P.S., Tay, F.S., Featherstone, M., Winkler, C. (**2014**). Characterization of regulatory elements in the medaka osterix promoter required for osteoblast expression. ***Journal of Applied Ichthyology*** 30, 652–660.
44. Renn, J., Buettner, A., To, T.T., Chan, S.J.H., Winkler, C. (**2013**). A novel col10a1:nlGFP transgenic reporter line displays putative osteoblast precursors at the medaka notochordal sheath prior to mineralization. ***Developmental Biology*** 381, 134-143.
45. Yao, S., Cheng, M.G., Zhang, Q., Wasik, M., Kelsh, R., Winkler, C. (**2013**). Anaplastic lymphoma kinase is required for neurogenesis in the developing central nervous system of zebrafish. ***PLoS ONE*** 8(5): e63757.
46. Lim, J.W., Yao, S., Graf, M., Winkler, C., Yang, D.W. (**2013**). Structure-function analysis of full-length midkine reveals novel residues important for heparin-binding and zebrafish embryogenesis. ***Biochemical Journal*** 451, 407-415.
47. Amali, A.A., Sie, L., Winkler, C., Featherstone, M. (**2013**). Zebrafish hoxd4a acts upstream of meis1.1 to direct vasculogenesis, angiogenesis and hematopoiesis. ***PLoS ONE*** 8(3):e58857.
48. Haendeler, J., Mlynek, A., Büchner, N., Lukosz, M., Graf, M., Güttler, C., Jakob, S., Farrokh, S., Kunze, K., Goy, C., Guardiola-Serrano, F., Schaal, H., Cortese-Krott, M, Deenen, R., Köhrer, K., Winkler, C., Altschmied, J. (**2013**). Two isoforms of Sister-of-Mammalian Grainyhead have opposing functions in endothelial cells and *in vivo*. ***Arteriosclerosis, Thrombosis and Vascular Biology*** 33, 1639-1646.
49. To, T.T., Witten, P.E., Renn, J., Bhattacharya, D., Huysseune, A., Winkler, C. (**2012**). RANKL induced osteoclastogenesis leads to loss of mineralization in a Medaka osteoporosis model. ***Development*** 139, 141-150.
50. Willems, B., Buettner, A., Huysseune, A., Renn, J., Witten, P.E., Winkler, C. (**2012**). Conditional ablation of osteoblasts in Medaka. ***Developmental Biology*** 364, 128-137.
51. Tran, L.D., Hino, H., Quach, H., Lim, S., Shindo, A., Mimori-Kiyosue, Y., Mione, M., Ueno, N., Winkler, C., Hibi, M., Sampath, K. (**2012**). Dynamic Microtubules at the Vegetal Cortex Predict the Embryonic Axis in Zebrafish. ***Development*** 139, 3644-3652**.**
52. Yin, J., Brocher, J., Linder, B., Hirner, A., Fischer, U., Winkler, C. (**2012**). The 1D4 antibody labels outer segments of double cone but not rod photoreceptors in zebrafish. ***Invest Ophtal Vis Sci*** 53, 4943-51.
53. Kirchmaier, B.C., Poon, K.L., Schwerte, T., Huisken, J., Winkler, C., Jungblut, B., Stainier, D.Y., Brand, T. (**2012**). The Popeye domain containing 2 (popdc2) gene in zebrafish is required for heart and skeletal muscle development. ***Developmental Biology*** 363, 438-450.
54. Renn, J., Winkler, C. (**2012**). Osterix:nlGFP transgenic medaka identify regulatory roles for retinoic acid signaling during osteoblast differentiation in vivo. ***J. Appl. Ichthyology*** 28, 360–363.
55. Azevedo, T.P., Witten, P.E., Huysseune, A., Bensimon-Brito, A., Winkler, C., To, T.T., Palmeirim, I. (2012). Interrelationship and modularity of notochord and somites: A comparative view on zebrafish and chicken vertebral body development. ***J. Appl. Ichthyology*** 28, 316–319.
56. Yin, J., Brocher, J., Fischer, U., Winkler, C. (**2011**). Mutant Prpf31 causes pre-mRNA splicing defects and rod photoreceptor cell degeneration in a zebrafish model for Retinitis pigmentosa. ***Molecular Neurodegeneration*** 6:56.
57. Linder, B., Dill, H., Hirmer, A., Brocher, J., Lee G.K., Mathavan, S., Bolz, H.J., Winkler, C., Laggerbauer, B., Fischer, U. (**2011**). Systemic splice factor deficiency causes tissue-specific defects: A zebrafish model for Retinitis pigmentosa. ***Human Molecular Genetics*** 20, 368-377.

58. Li, Z.H., Alex, D., Siu, S.O., Chu, I.K., Renn, J., Winkler, C., Zhao, H.Y., Yan, W.R., Mahady, G.B., Hui, L.G., Kwan, Y.W., Wang, Y.T., Lee, S.M.Y. (**2011**). Combined *in vivo* imaging and *omic* approaches reveal metabolism of icaritin and its glycosides in zebrafish larvae. ***Molecular BioSystems*** 7, 2128-2138.

59. Glinka, M., Herrmann, T., Funk, N., Havlicek, S., Rossoll, W., Winkler, C., Sendtner, M. (**2010**). The Heterogeneous Nuclear Ribonucleoprotein R is Necessary for Axonal β-actin mRNA Translocation in Spinal Motoneurons. ***Human Molecular Genetics*** 19, 1951-1966.

60. Cheah, F., Winkler, C., Jabs, E.W., Chong S.S. (**2010**). *Tgfβ3* regulation of chondrogenesis and osteogenesis in zebrafish is mediated through formation and survival of a subpopulation of the cranial neural crest. ***Mech Dev*** 127, 329-344.

61. Hong, N., Li, M., Zeng, Z., Yi, M., Deng, J., Gui, F., Winkler, C., Schartl, M., Hong, Y. (**2010**). Accessibility of host cell lineages to medaka stem cells depends on genetic background and irradiation of recipient embryos. ***Cellular and Molecular Life Sciences*** 67, 1189-1202.

62. Renn, J., Winkler, C. (**2010**). Characterization of collagen type 10a1 and osteocalcin in early and mature osteoblasts during skeleton formation in medaka. ***J. Appl. Ichthyology*** 26, 196–201.

63. Yeo, G.H., Cheah, F.S., Winkler, C., Jabs, E.W., Venkatesh, B., Chong, S.S. (**2009**). Phylogenetic and evolutionary relationships and developmental expression patterns of the zebrafish twist gene family. ***Dev Genes Evol*** 219, 289-300.

64. Renn, J., Winkler, C. (**2009**). Osterix-mCherry transgenic medaka for in vivo imaging of bone formation. ***Dev Dyn*** 238, 241-248.

65. Spoorendonk, K.M., Peterson-Maduro, J., Renn, J., Trowe, T., Kranenbarg, S., Winkler, C., Schulte-Merker, S. (**2008**). Retinoic acid and Cyp26b1 are critical regulators of osteogenesis in the axial skeleton. ***Development*** 135, 3765-3774. **(cover page)**

66. Liedtke, D., Winkler, C. (**2008**). Midkine-b regulates cell specification at the neural plate border in zebrafish. ***Dev Dyn*** 237, 62-74.

67. Herpin, A., Schindler, D., Kraiss, A., Hornung, U., Winkler, C., Schartl M. (**2007**). Inhibition of primordial germ cell proliferation by the medaka male determining gene Dmrt I bY. ***BMC Dev Biol*** 30, 7:99.

68. To, T.T., Hahner, S., Nica, G., Rohr, K., Hammerschmidt, M., Winkler, C., and Allolio, B. (**2007**). Pituitary-interrenal interaction in zebrafish interrenal organ development. ***Mol. Endocrin*.** 21, 472-485.

69. Schafer, M., Kinzel, D., and Winkler, C. (**2007**). Discontinuous organization and specification of the lateral floor plate in zebrafish. ***Dev Biol*** 301, 117-129.

70. Renn, J., Seibt, D., Goerlich, R., Schartl, M., and Winkler, C. (**2006**). Simulated microgravity upregulates gene expression of the skeletal regulator Core-binding factor a1/Runx2 in Medaka fish larvae in vivo. ***Advances in Space Research*** 38, 1025-1031.

71. Schild-Prufert, K., Giegerich, M., Schafer, M., Winkler, C. and Krohne, G. (**2006**). Structural and functional characterization of the zebrafish lamin B receptor. ***Europ. J. Cell Biol*.** 85, 813-824.

72. Veith, A.M., Schafer, M., Kluver, N., Schmidt, C., Schultheis, C., Schartl, M., Winkler, C. and Volff, J.N. (**2006**). Tissue-specific expression of dmrt genes in embryos and adults of the platyfish Xiphophorus maculates. ***Zebrafish*** 3, 325-337.

73. Sieger, D., Ackermann, B., Winkler, C., Tautz, D., and Gajewski, M. (**2006**). her1 and her13.2 are jointly required for somitic border specification along the entire axis of the fish embryo. ***Dev Biol*** 293, 242-251.

74. Gajewski, M., Elmasri, H., Girschick, M., Sieger, D., and Winkler, C. (**2006**). Comparative analysis of her genes during fish somitogenesis reveals a mouse/chick-like mode of oscillation in medaka. ***Dev Genes Evol*** 216, 315-332. **(cover page)**

75. Renn, J., Schaedel, M., Volff, J.N., Goerlich, R., Schartl, M., and Winkler, C. (**2006**). Dynamic expression of Sparc precedes formation of skeletal elements in the Medaka (*Oryzias latipes*). ***Gene*** 372, 208-218.

76. Bollig, F., Mehringer, R., Perner, B., Hartung, C., Schafer, M., Schartl, M., Volff, J.N., Winkler, C., and Englert, C. (**2005**). Identification and comparative expression analysis of a second wt1 gene in zebrafish. ***Developmental Dynamics*** 235, 554-561.

77. Winkler, C., Eggert, C., Gradl, D., Meister, G., Giegerich, M., Wedlich, D., Laggerbauer, B. and Fischer, U. (**2005**). Reduced RNP assembly causes motor axon degeneration in an animal model for spinal muscular atrophy. ***Genes & Development*** 19, 2320-2330. ***(recommended in Faculty of 1000)***

78. Schafer, M., Rembold, M., Wittbrodt, J., Schartl, M., and Winkler, C. (**2005**). Medial floor plate formation in zebrafish consists of two phases and requires trunk-derived Midkine-a. ***Genes & Development*** 19, 897-902.

79. Schafer, M., Kinzel, D., Neuner, C., Schartl, M., Volff, J.N., and Winkler, C. (**2005**). Hedgehog and retinoid signalling confines nkx2.2b expression to the lateral floor plate of the zebrafish trunk. ***Mech Dev*** 122, 43-56.

80. Pruefert, K., Winkler, C., Paulin-Levasseur, M., and Krohne, G. (**2004**). The lamina-associated polypeptide 2 (LAP2) gene of zebrafish and chicken: indications on the evolution of the LAP2a isoform. ***Europ Journal of Cell Biology*** 83, 403-411.

81. Hong, Y., Winkler, C., Liu, T., Chai, G., Schartl, M. (**2004**). Activation of the mouse Oct4 promoter in Medaka embryonic stem cells and its use for ablation of spontaneous differentiation. ***Mech Dev*** 121, 933-943.

82. Furutani-Seiki, M., Sasado, T., Morinaga, C., Suwa, H., Niwa, K., Yoda, H., Deguchi, T., Hirose, Y., Yasuoka, A., Henrich, T., Watanabe, T., Iwanami, N., Kitagawa, D., Saito, K., Asaka, S., Osakada, M., Kunimatsu, S., Elmasri, H., Winkler, C., Ramialison, M., Loosli, F., Quiring, R., Carl, M., Grabher, C., Winkler, S., Del Bene, F., Shinomiya, A., Kota, Y., Yamanaka, T., Okamot, Y., Takahashi, K., Todo, T., Abe, K., Takahama, Y., Tanaka, M., Mitani, H., Katada, T, Nishina, H., Nakajima, N., Wittbrodt, J., Kondoh, H. (**2004**). A systematic genome-wide screen for mutations affecting organogenesis in Medaka, *Oryzias latipes*. ***Mech Dev*** 121, 647-658. ***(recommended by Faculty of 1000)***

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S., Del Bene, F., Katada, T., Nishina, H., Kondoh, H., Furutani-Seiki, M. (**2004**). Genetic dissection of the formation of the forebrain in Medaka, *Oryzias latipes*. ***Mech Dev*** 121, 673-685.

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91. Winkler, C., Schafer, M., Duschl, J., Schartl, M., and Volff, J.-N. (**2003**). Functional divergence of two zebrafish midkine growth factors following fish-specific gene duplication. ***Genome Res*** 13, 1067-1081. **(cover page)**

92. Wagner, T.U., Renn, J., Riemensperger, T., Volff, J.-N., Koster, R.W., Goerlich, R., Schartl, M., and Winkler, C. (**2003**). The teleost fish Medaka (*Oryzias latipes*) as genetic model to study gravity dependent bone homeostasis in vivo. ***Adv Space Res*** 32, 1459-1465.

93. Nanda, I., Kondo, M., Hornung, U., Asakawa, S., Winkler, C., Shimizu, A., Shan, Z., Haaf, T., Shimizu, N., Shima, A., Schmid, M., and Schartl, M. (**2002**). A duplicated copy of DMRT1 in the sex-determining region of the Y chromosome of the Medaka, *Oryzias latipes*. ***Proc Natl Acad Sci*** 99, 11778-11783.

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95. Winkler, C. and Moon, R.T. (**2001**). Zebrafish mdk2, a novel secreted midkine, participates in posterior neurogenesis. ***Dev Biol*** 229, 102-118.

96. Altschmied, J., Volff, J.N., Winkler, C., Gutbrod, H., Korting, C., Pagany, M. and Schartl, M. (**2000**). Primary structure and expression of the *Xiphophorus* DNA-(cytosine-5)-methyltransferase XDNMT-1. ***Gene*** 249, 75-82.

97. Hong, Y., Winkler, C. and Schartl, M. (**1998**). Production of Medakafish chimeras from a stable embryonic stem cell line. ***Proc Natl Acad Sci*** 95, 3679-3684.

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99. Hong, Y., Winkler, C. and Schartl, M. (**1998**). Efficiency of cell culture derivation from blastula embryos and of chimera formation in the Medaka (*Oryzias latipes*) depends on donor genotype and passage number. ***Dev Genes Evol*** 208, 595-602.

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101. Hyodo-Taguchi, Y., Winkler, C., Kurihara, Y., Schartl, A. and Schartl, M. (**1997**). Phenotypic rescue of the albino mutation in the Medakafish (*Oryzias latipes*) by a mouse tyrosinase transgene. ***Mech Dev*** 68, 27-35.

102. Hong, Y., Winkler, C. and Schartl, M. (**1996**). Pluripotency and differentiation of embryonic stem cell lines from the Medakafish (*Oryzias latipes*). ***Mech Dev*** 60, 33-44.

103. Winkler, C., Wittbrodt, J., Lammers, R., Ullrich, A. and Schartl, M. (**1994**). Ligand-dependent tumor induction in Medakafish by a *Xmrk* receptor tyrosine kinase transgene. ***Oncogene*** 9, 1517- 1525.

104. Goetz, R., Koester, R., Winkler, C., Raulf, F., Lottspeich, F. Schartl, M. and Thoenen, H. (**1994**). Neurotrophin-6 is a new member of the nerve growth factor family. ***Nature*** 372, 266-269.

105. Hong, Y., Winkler, C., Brem, G. and Schartl, M. (**1993**). Development of a heavy metal-inducible fish-specific expression vector for gene transfer in vitro and in vivo. ***Aquaculture*** 111, 215-226.

106. Winkler, C., Hong, Y., Wittbrodt, J. and Schartl, M. (**1992**). Analysis of heterologous and homologous promoters and enhancers in vitro and in vivo by gene transfer into Japanese Medaka (*Oryzias latipes*) and *Xiphophorus*. ***Mol Mar Biol Biotech*** 1, 326-337.

107. Winkler, C., Vielkind, J.R. and Schartl, M. (**1991**). Transient expression of foreign DNA during embryonic and larval development of the Medaka fish (*Oryzias latipes*). ***Mol Gen Genet*** 226, 129- 140.

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II. Book chapters and conference proceedings

1. Hong, Y., Winkler, C., Schonland, S. & Schartl, M. (1996). Function of the Xmrk gene in Medaka analyzed by dominant-negative receptor mutants and gene targeting. Proceedings of FOID '96, Vol. 5, p. 79-95.
2. Winkler, C. & Schartl, M. (1997). Gene transfer in laboratory fish: Model organisms for the analysis of gene function. In: L.M. Houdebine (ed.), Transgenic animals: Generation and use. Harwood Academic Publisher, Chur, Switzerland, p. 387-395.
3. Hong, Y., Chen, S., Winkler, C. & Schartl, M. (1998). Medakafish embryonic stem cells as a model for genetic improvement of aquaculture livestocks. In: Y. Le Gal and H. Halvorson (eds.), New Developments in Marine Biotechnology, Plenum, New York, p. 129-134.
4. Hong, Y., Winkler, C., Xiang, C., Chen, S., and Schartl, M. (2001). Current status of embryonic stem cells and gene knockout technology in fishes. In: H. J. T. Goos, R. K. Rastogi, H. Vaudry and R. Pierantoni (Eds.), Perspective in Comparative Endocrinology: Unity and Diversity. Monduzzi Editore, Sorrento (Napoli), Italy, 23-43.
5. R. Goerlich, J. Renn, P. Alestrom, R. M. Muller, M. Schartl, C. Winkler, P.J. Midtlyng, M. Eberius, K. Slenzka. (2005). Fish as Osteoporosis Research Models. In: SP-1290 'Microgravity Application Programme: Successful Teaming of Science and Industry', ISBN 92-9092-971-5, edited by A. Wilson, ESA Publications Division, pp 316-324.

6. Goerlich, R., Renn, J., Alestrom, P., Nourizadeh-Lillabadi, R., Schartl, M., Winkler , C., Muller, M., Midtlyng, P.J., Eberius, M., and Slenzka, K. (2005). European Network Using Fish as Osteoporosis Research Model (ENFORM). J. Grav. Physiol. 12(1):P279-P280.

7. Renn, J., Winkler, C., Schartl, M., Fischer, R. and Goerlich, R. (2006). Zebrafish and Medaka as models for bone research including implications regarding space-related issues. Protoplasma 229, 209-214.

8. Schafer, M. and Winkler, C. (2006). Neuronale Musterbildung im embryonalen Ruckenmark - Midkine-a kontrolliert die Bildung der medialen Bodenplatte. BIOforum 2, 2-4.

9. Winkler, C. and Elmasri, H. (2008). Somitogenesis in laboratory fish models. In: Somitogenesis. Eds: Miguel Maroto and Neil V. Whittock; Landes Bioscience/Springer Science, Georgetown, Texas (USA).

10. Aceto, J., Muller, M., Nourizadeh-Lillabadi, R., Alestrom, P., Van Loon, J., Schiller, R., Renn, J., Winkler, C. (2008). Small fish species as powerful model systems to study vertebrate physiology in space. European Space Agency, (Special Publication) ESA SP 663 SP

11. Yao, S. and Winkler, C. (2012). The role of Midkine in neural development and patterning. In: Midkine: From Embryogenesis to Pathogenesis and Medication. Eds: Mine Erguven, Ayhan Bilir and Takashi Muramatsu. Springer Science.

AWARDED EXTERNAL FUNDING:

2001-2004 BMBF 50WB0152: 'The role of osteoprotegerin during osteoclast differentiation at altered gravity conditions: In vivo analysis in the zebrafish (Danio rerio) and medaka model (Oryzias latipes)'. (**Co-PI**, together with M. Schartl)

2004-2007 European Space Agency ESA, CCN 15452/01/NL/SH: 'Investigations of developmental pathways leading to bone formation and homeostasis by genetic dissection and functional analysis of osteoprotegerin (OPG) in a transgenic fish model on earth and in microgravity environment'. (**Co-PI**, together with M. Schartl)

2004-2008 German Research Council (DFG), Graduate School GRK1048 'Molecular basis of organ development in vertebrates'; Project C3: 'Functional characterization of midkine-b (mdkb) during cell specification in the dorsal neural tube of zebrafish'. (**PI**)

2006-2007 Collaborative Research Center SFB 581 'Molecular models for diseases of the nervous system', Project B20: 'Deficiencies in RNA metabolism as cause of neurodegenerative diseases: Molecular Analysis of Retinitis Pigmentosa'. (**Co-PI**, together with Utz Fischer)

2007-2009 NUS Academic Research fund (AcRF) Tier 1 start-up fund, R-154-000-329-133: 'The role of microRNAs during cell specification and differentiation in the zebrafish spinal cord'. S$ 180,000 SGD. (**PI**)

2007-2010 Ministry of Education/AcRF Tier2, T207B3107: 'Defects in RNA metabolism as cause for neuronal degeneration: A zebrafish model for Retinitis Pigmentosa'. S$ 582,000 SGD. (**PI**)

2007-2010 A-STAR/BMRC, 07/1/21/19/544: 'Medakafish as a model for human bone disorders: The role of Osterix and SOST in controlling bone homeostasis". S$ 687,121 SGD. (**PI**)

2010-2012 Center for Life Sciences/VISA: 'Ageing induced changes in bone homeostasis visualized in vivo by transgenic reporter fish'. S$ 20,000 SGD. (**PI**)

2010-2013 Ministry of Education/AcRF Tier 1: 'Anaplastic lymphoma kinase (Alk): Elucidating its proto-oncogenic function during neurogenesis in zebrafish'. S$ 110,670 SGD. (**PI**)

2011-2014 A-STAR/BMRC: 'Understanding regulatory networks in healthy and diseased bone cells using a medaka osteoporosis model'. S$ 568,500 SGD. (**PI**)

2013-2016 Ministry of Health/NMRC: 'In vivo models for Spinal Muscular Atrophy: Insight into the molecular mechanisms of motor neuron degeneration'. S$ 835,000 SGD. (**PI**)

2014-2017 Ministry of Education/AcRF Tier 2: 'Osteoblast-osteoclast interaction during bone degeneration and repair'. S$ 713,831 SGD. (**PI**)

2015-2017 National Institute of Health (NIH), USA: 'Osteogenic effects of dietary anthocyanins in transgenic medaka'. S$ 243,105 USD. (**Co-PI**)

2016-2019 Ministry of Education/AcRF Tier 1: 'The role of VAPB in a novel zebrafish model for ALS8'. S$ 179,920.00 SGD. (**PI**)

2017-2020 Ministry of Education/AcRF Tier 2: 'Control of osteoblast plasticity in a medaka osteoporosis model'. S$ 858.087 SGD. **(PI)**

2017-2022 Ministry of Education/AcRF Tier 3: 'Solving the Conundrum of Morphogen Dynamics during Tissue Patterning'. S$ 1,110,270 SGD. **(PI)**

2018-2021 National Research Foundation (NRF) Singapore: 'A functional genomics approach to teleost musculoskeletal homeostasis'. S$ 424,632 SGD. **(PI)**

2019-2021 NUSMed-FoS Initiative 'Healthy Brain Ageing' – 'Analyzing mRNA editing and Fez1 function in the zebrafish nervous system'. S$ 454,000 SGD. **(PI)**

2019-2020 NUS/BER Strategic Partnership 'Chemokine control of bone health'. S$ 18,400 SGD. **(PI)**

2021-2022 Ministry of Education/AcRF Tier 1: 'A molecular analysis of selective motor neuron vulnerability in a mutant zebrafish model for spinal muscular atrophy'. S$ 100,000 SGD. **(PI)**

2022-2025 Ministry of Education/AcRF Tier 2: 'Chemokine control of osteoclast recruitment – new insights into bone remodelling'. S$ 1,172,975.00. **(PI)**

EDITORIAL BOARDS:

- PLoS ONE (2009-2022)
- Journal of Applied Ichthyology, Guest Editor (2011-2017)
- Journal of Fish Biology, Guest Editor (since 2018)
- Frontiers in Cell and Developmental Biology - Morphogenesis and Patterning; Review Editor, 2021 – present
- Frontiers in Endocrinology – Bone Research; Guest Associate Editor, 2021 – present
- Journal of Gerontology: Small Fish Models in Gerontology Research; Guest Editor, 2022 - present

SUPERVISORY BOARD MEMBER:

- Member of the Supervisory Board of the EU Marie Sklodowska-Curie International Innovative Training Network "BioMedaqu" (2018-2022)

AD-HOC REVIEWER FOR FUNDING ORGANIZATIONS:

- Agence Nationale de la Recherche (ANR), France
- Biotechnology and Biological Sciences Research Council (BBSRC), UK
- CNRS, Atip-Avenir Programme, France
- Deutsche Forschungsgemeinschaft (DFG), Germany
- European Science Foundation (ESF)
- Fonds de la Recherche Scientifique (FNRS), Belgium
- German/Israeli Foundation (GIF)
- Horizon Programme, Netherlands Genomics Initiative (NGI), Netherlands
- Human Frontier Science Program (HFSP)
- Alexander-von-Humboldt Foundation, Germany
- Medical Research Council (MRC), UK
- MINERVA, Germany/Israel
- National Medical Research Council (NMRC), A-STAR, Singapore
- National Science Foundation (NSF), USA
- National University of Singapore Academic Research Fund, Singapore
- Netherlands Organization for Scientific Research (NWO), Netherlands
- Orphan Disease Center, Perelman School of Medicine, University of Pennsylvania, USA
- Yale-NUS Research Grant Administration

MEMBER OF GRANT EVALUATION PANEL:

- Member of the University Research Council (URC) Expert Panel: Biomedical Engineering & Life Sciences; National University of Singapore

AD-HOC REVIEWER FOR JOURNALS:

Advances in Space Research; Biochimica et Biophysica Acta – Gene Structure and Expression; BioTechniques; BMC Biotech; BMC Developmental Biology; Comparative Biochemistry and Physiology; Development, Genes and Evolution; Development; Developmental Biology;

Developmental Dynamics; Developmental Brain Research; Differentiation; Ecotoxicology and Environmental Safety; FEBS Journal; Fish Physiology and Biochemistry; Gene; Genome Dynamics; Genome Research; Genomics; Journal of Bone and Mineral Metabolism; Journal of Fish Biology; Journal of Neuroscience Methods; Mammalian Genome; Mechanisms of Development; Nature Communications; Nature Protocols; Nucleic Acids Research; Osteoarthritis and Cartilage; Osteoporosis International; PLoS ONE; Zebrafish, and others.

ORGANIZER AND INSTRUCTOR AT WORKSHOPS/CONFERENCES:

1993 Co-organizer and instructor at the EC/BRIDGE workshop "Gene expression and regulation in laboratory fish. 1st Medaka course: In vivo analysis of gene expression". Biocenter, Wuerzburg, Germany.
1996 Organizer and instructor at the EMBO practical course "Medaka and Zebrafish Development". Biocenter, Wuerzburg.
1998 Instructor at the EMBO practical course "Zebrafish and Medaka: Development, Genetics and Genomics". University of Freiburg, Germany.
2002 Instructor at the EMBO practical course "Molecular and Genetic Tools for the Analysis of Medaka and Zebrafish Development". EMBL, Heidelberg, Germany.
2009 Co-organizer at "The 5th NIBB Practical Workshop on Developmental Genetics of Zebrafish and Medaka". National Institute for Basic Biology, Okazaki, Japan, Feb 2010.
2010 Organizer at "The First Singapore Zebrafish Symposium", Singapore, Nov 8th, 2010
2011 Co-organizer at "The 1st NIBB -TLL Joint International Practical Course: Developmental Genetics of Medaka IV", Okazaki, Japan, 14-21 Nov, 2011.
2012 Organizer at the first NUS/TLL/NIBB workshop on "Genetics, Genomics and Imaging in Medaka and Zebrafish", Singapore, 22-31 July, 2012.
2014 Co-organizer at "The 8th NIBB International Practical Course, The 3rd NIBB-TLL-DBS/NUS Joint International Practical Course: Experimental Techniques using Medaka and Xenopus – The Merits of using both ", Okazaki, Japan, 22 Sept – 01 Oct, 2014.
2016 Co-organizer at the "9th Zebrafish Disease Models Conference ZDM9", Singapore, 4-7 Oct, 2016.
2018 Co-organizer and instructor at NUS/DBS workshop on "Zebrafish/Medaka Models for Human Diseases", Singapore, 10 – 14 December 2018.

INVITATIONS TO SPEAK (since 2015):

- 6th Strategic Conference of Zebrafish Investigators, Pacific Grove, **USA**, 17-21 Jan, 2015: 'Osteoblast-osteoclast coupling in a medaka osteoporosis model' (workshop chair and speaker).
- Justice Basheer Ahmed Sayeed (JBAS) College for Women, Chennai, **India**, 4-5 Feb, 2015: 'Organ Development, Degeneration and Repair: How small fish models can help to understand complex human diseases' (invited plenary lecture).
- Zheijang Science and Technology University, Hangzhou, **China**, 23 Mar, 2015: 'Bioimaging, genetics and genomics: Zebrafish provide novel insight into complex human disease mechanisms' (invited speaker).
- Zheijang University, Hangzhou, **China**, 24 Mar, 2015: 'Bioimaging, genetics and genomics: Zebrafish provide novel insight into complex human disease mechanisms' (invited speaker).
- Interdisciplinary Approaches in Fish Skeletal Biology, Tavira, **Portugal**, April 28th, 2015: "Osterix/Sp7 is required for osteoblast maturation and bone formation in medaka (*Oryzias latipes*)" (session chairperson; scientific committee member).
- Joint Waseda-Mechanobiology Institute conference, **Singapore**, Sept 9th, 2015: 'Bone cells in action: Live imaging of osteoblast-osteoclast coupling during bone remodeling in medaka' (invited speaker).

- Indian Institute of Science Education and Research (IISER), Trivandrum, **India**, Sept 21st, 2015: 'Bone cells in action: Live imaging of osteoblast-osteoclast coupling during bone remodeling in medaka' (invited speaker).
- Institute of Hydrobiology, Chinese Academy of Sciences, Wuhan, **China**, Sept 24th, 2015: 'Deficiencies in RNA metabolism lead to motor neuron degeneration in a zebrafish model for Spinal Muscular Atrophy' (invited speaker).
- 1st conference on 'FishBone: Advancing the Use of Fish for Skeletal Research' (ASBMR satellite meeting), Seattle, **USA**, Oct 8th, 2015: 'Severe ossification defects in medaka mutants for osterix/sp7'.
- Biozentrums Kolloquium, University of Wuerzburg, Wuerzburg, **Germany**, Jan 13th, 2016: 'Small fish models for complex human diseases: New insight into mechanisms of neurodegeneration and osteoporosis' (invited speaker).
- LKC School of Medicine, Nanyang Technological University (NTU), **Singapore**, Mar 24th, 2016: 'Small fish models for neuromuscular and skeletal disorders' (invited speaker).
- 9th Zebrafish Disease Model Conference ZDM9, **Singapore**, Oct 6th, 2016: 'Pre-osteoblast activation in a medaka osteoporosis model' (invited speaker and session chair).
- 8th Aquatic Animal Models of Human Disease Conference, Birmingham, **USA**, 7-12 Jan, 2017: 'A medaka osteoporosis model for testing the activity of bone anabolic and anti-resorptive compounds' (plenary speaker).
- 7th Strategic Conference of Zebrafish Investigators, Pacific Grove, **USA**, 14-18 Jan, 2017: 'Identification of aberrantly spliced transcripts important for motoneuron function in a zebrafish model for spinal muscular atrophy' (session chair and speaker).
- 5th European Zebrafish PI Meeting, Trento, **Italy**, 20 – 23 Mar, 2018: 'Splicing analysis in a zebrafish model for Spinal Muscular Atrophy identifies transcripts important for motor neuron and Schwann cell function' (plenary speaker).
- 2nd International FishMed Conference on Zebrafish Research, Warsaw, **Poland**, 25 – 27 Mar, 2018: 'Medaka models for human skeletal disorders: Chondrodysplasia and osteoporosis' (plenary speaker).
- 4th Strategic Medaka PI Meeting, Heidelberg, **Germany**, 16 – 17, 2018: 'Transcriptome profiling of osteoblasts and osteoclasts in a medaka osteoporosis model identifies novel mediators of bone repair' (plenary speaker).
- 5th conference on "Interdisciplinary Approaches in Fish Skeletal Biology", Tavira, **Portugal**, April 16-19, 2018: 'Transcriptome profiling of osteoblasts and osteoclasts in a medaka osteoporosis model identifies novel mediators of bone repair' (plenary speaker, scientific committee member).
- 5th Midkine Symposium, Munich, **Germany**, 3-4 May, 2018: 'The structural basis for functional diversification of duplicated midkine genes in zebrafish' (plenary speaker).
- 1st ZJU-NUS Symposium on Mechanomedicine, Zhejiang University, Hangzhou, **China**, 24-27 March, 2019: "Understanding bone cell dynamics in a medaka osteoporosis model'. (invited speaker)
- The 12th Zebrafish Disease Models Conference, Harvard Medical School, Boston, **USA**, 15-18 July, 2019: 'Chemokine signaling is a driver of osteoclast recruitment in a medaka osteoporosis model' (speaker).
- BIOMEDAQU 2nd Summer School 'Monitoring of Fish Skeletal Anomalies', University of Rome, Rome, **Italy**, 24-27 Sept 2019: 'Chemokine signaling recruits osteoclast precursors to sites of bone resorption'. (invited speaker)
- Institute for Cell and Organismal Biology (IOCB), Academia Sinica, Taipeh, **Taiwan**, 14-15 Sept 2019: 'Chemokine signaling recruits osteoclast progenitors to bone resorption sites in a medaka fish osteoporosis model'. (invited speaker)
- Dept. of Biomedical Sciences and Medicine, Universidade do Algarve, Faro, **Portugal**, 16-17 Dec 2019: 'Chemokine signaling recruits osteoclast precursors to sites of bone resorption'. (invited speaker)

- Institute for Cellular and Molecular Neurobiology, Technical University of Braunschweig, **Germany**, 07 Jan 2020: 'Non-cell autonomous contributions to motor neuron degeneration in a zebrafish model for Spinal Muscular Atrophy'. (invited speaker)
- Inst. of Chemistry and Biochemistry, Free University of Berlin, **Germany**, 08 Jan 2020: 'Chemokine signaling recruits osteoclast precursors to sites of bone resorption'. (invited speaker)
- BIOMEDAQU 3rd Summer School 'Bone Visualisation, Imaging of Skeletal Development and Socio-economic Impacts', 16-20 Nov 2020, Liege, **Belgium**: 'The molecular basis of osteoclast formation in medaka'. (invited speaker; webinar)
- Bar-Ilan University, Faculty of Medicine, **Israel**: 'Online conference on Mathematics of the MusculoSkeleton'; 06 Dec 2020. (invited speaker; webinar)
- Zebrafish Disease Model Society (ZDMS), **USA**: '2021 ZDMS Virtual Seminar - On Building the Skeleton: Understanding Source of Variation and Disease Mechanisms', 03 Feb 2021. (invited speaker; webinar)
- National Basic Biology Institute, Okazaki, Japan: 'The NIBB-Academia Sinica International Webinar of Aquatic Model Organisms for Basic Biology to Human Disease Models', 05 Mar 2021. (invited speaker; webinar)
- European Calcified Tissue Society (ECTS) 2021 digital conference: 'Non-Mammalian Models', 19-20 May, 2021. (invited speaker; webinar)
- International Zebrafish Society Conference (IZFC), Montreal, **Canada**, 24 June 2022: 'Selective motorneuron vulnerability in a zebrafish model for spinal muscular atrophy'. (invited speaker and session chairperson).
- 9th Aquatic Animal Models of Human Disease Conference (AQMHD), Woods Hole, **USA**, 6-10 Oct, 2022: 'Novel osteoblast-derived factors control osteoclast activity in a medaka osteoporosis model' (plenary speaker and session chair).
- Leibniz-Institute of Freshwater Ecology and Inland Fisheries, Berlin, **Germany**, 05 July, 2023: 'The Japanese Medaka fish: A model for human bone disorders and skeletal deformities in aquaculture (invited seminar speaker).
- INTEC Workshop: 'Zebrafish tools for the study of ectopic calcification disorders', Faro, **Portugal**, 12-14 July, 2023: 'Using medaka as a model for abnormal calcification pathologies' (invited speaker).
- American Society for Bone and Mineral Research (ASBMR) Annual Meeting, Vancouver, **Canada**, 13-16 October, 2023: 'From bench to bedside: Transcriptome profiling in a medaka fish osteoporosis model identifies CXCL9 as a blood marker that predicts the risk for osteoporotic hip fractures in men' (plenary poster presentation).
- 10th Aquatic Animal Models of Human Disease Conference (AQMHD), San Antonio, **USA**, 05-09 Oct, 2024 (plenary speaker and session chair).

Scientific Outreach Talks and Moderations

- Moderator at Symposium "Sydney Brenner's 10-on-10: The Chronicles of Evolution", 18 April and 30 May 2017. 200 participants.
- The 2021 NUS Graduate Education Virtual Open House, September 22, 2021: "Small fish models for complex human diseases"; 80 participants.
- Masterclass – Life Sciences | CHS @ NUS Open House 2022, 08 Mar 2022: "Biology meets Medicine"; 150 participants.
- International Youth STEM Conference (IYSC) Singapore, 04 June 2022: "Workshop on Analyzing Papers"; 200 registered participants.
- Talk at St. Andrew's Junior College, Singapore, 23 Sept 2022: "Biology meets Medicine: Small fish models to discover new drugs for human osteoporosis"; 30 students
- Talk at National Library Singapore, 27 Nov 2023: "Discover a new strategy on osteoporosis prevention via small fish models!"; online, 200 attendees.

PAST AND PRESENT MEMBERS OF THE WINKLER LAB:

Postdoctoral Fellows (15):

Joerg Renn (2006 – 2011; then: Senior Scientist, GIGA Research Center, Liege, Belgium)
Jan Brocher (2007 – 2010; now: CEO at 'Biovoxxel', http://www.biovoxxel.de/)
Yin Jun (2007 - 2011; then: Postdoc at the UC Davis, USA; Hagerman lab)
To Thanh Thuy (2007 – 2012; now: Faculty position at University of Hanoi, Vietnam)
Anita Buettner (2011 – 2014; then: Staff scientist at University of Dresden, Germany)
Leslie Huber (2013 – 2014; then: Application Scientist at Perkin Elmer)
Martin Graf (2013 – 2014; now: Postdoc at Duke-NUS; George Augustine lab)
Zoltan Spiro (2014 – 2016; then: Postdoc at IST Austria; Carl-Philipp Heisenberg lab)
Tao Shijie (2014 – 2021)
Husvinee Sundaramurthi (2016 – 2017; then: Postdoc at University of Dublin; Breandan Kennedy lab)
Phan Quang Tien (2017 – present)
Serene Gwee (2018 – 2021)
Hannah Louis Smith (2019 – 2021; then: Postdoc in T. Gillingwater's lab, Univ of Edinburgh, UK)
Tan Wen Hui (2020 – 2023; then: Postdoc in Didier Stainer's lab, MPI Bad Nauheim, Germany)
Le Yao (2022 – present)

PhD students (24):

Harun Elmasri (2002 – 2005; then: Postdoc at Harvard Medical School, Sule Cataltepe lab;)
Matthias Schaefer (2002 – 2005; Boehringer Fellow; then: Postdoc at ETH Zurich; Sabine Werner lab)
Daniel Liedtke (2003 – 2007; then: Postdoc at Univ of Wuerzburg; Eva Klopocki lab)
Ram Vinod Roy (2008 – 2011; then: Postdoc at Univ of Michigan)
Bernd Willems (2007 – 2012; then: Qiagen, Germany)
Yao Sheng (2007 – 2013; then: Eli Lilly, Shanghai, China)
Flora Rajaei (2007 – 2012; then: Postdoc at University of Michigan; Dan Goldman lab)
Martin Graf (2008 – 2013; then: Postdoc at Duke-NUS, George Augustine lab)
See Zhenwei Kelvin (2008 – 2012; then: Postdoc at Univ of Pennsylvania, Jonathan Epstein lab)
Husvinee Sundaramurthi (2011 – 2016; then: Postdoc at University of Dublin; Breandan Kennedy lab)
Angela Koh (2012 – 2017)
Himanshu Vyas (2012 – 2016; then: Postdoc at UCSD; Farhad Imam lab)
Yu Tingsheng (2012 – 2016; then: Postdoc at UCSF; Ophir Klein lab)
Manish Dasyani (2012 – 2017; then: Postdoc at UCSD; Danial Chao lab)
Menachem Viktor Sarusie (2015 – 2019)
Tay Hui Ping Shermaine (2015 – 2019)
Tan Wen Hui (2016 – 2020)
Nurgul Imangali (2016 – 2021)
Vindhya Chaganty (2017 – 2021)
Yao Le (2017 – 2022)
Liu Ranran (2017 – 2022)
Goh Yun Jing (2020 – present)
Fan Xue (2021- 2023)
Erna Nur Ellieyana (2022 – present)

Diplom, Masters and Honour's students (37):

Matthias Schaefer (Diplom, 2001 – 2002)
Harun Elmasri (Diplom, 2001 – 2002)
Toni Wagner (Diplom, 2002 – 2003)
Kathrin Koeppen-Schomerus (Diplom, 2002 – 2003)
Daniel Liedtke (Diplom, 2003)
Marianne Schaedel (Diplom, 2003 – 2004)

Doris Kinzel (Diplom, 2004)
Marieke Giegerich (Diplom, 2004 – 2005)
Silke Clemens (Diplom, 2005)
Johannes Haydn (Diplom, 2006 – 2007)
Boris Fischer (Diplom, 2006 – 2007)
Holger Dill (Diplom, 2006 – 2007)
Michaela Statt (MSc, 2007 – 2008)
Muhammad Hilmi Johari (FYP, 2010 – 2011)
Chan Jin Hui Sherlynn (FYP, 2010 – 2011)
Yew Hong Meng (FYP, 2011 – 2012)
Cheong Simin Pearl (FYP, 2011 – 2012)
Sudha Sundaram (FYP, 2012 – 2013)
Neo Yen Seet (FYP, 2012 – 2013)
Lee Kai Xin (FYP, 2012 – 2013)
Tay Hui Ping Shermaine (FYP, 2013 – 2014)
Joey Lim Sze Yun (FYP, 2013 – 2014)
Tan Wen Hui (FYP, 2014 – 2015)
Joanne Koh (FYP, 2014 – 2015)
Haniffa Hasan (FYP, 2015 – 2016)
Taylor Ong (FYP, 2016 – 2017)
Benedict Cheong (FYP, 2016 – 2017)
Goh Yun Jing (FYP, 2017 - 2018)
Erna Nur Ellieyana (FYP; 2017 – 2018)
Ng Jun Yan (FYP: 2018 – 2019)
Min Yilin (FYP; 2020 -2021)
Tham Shi Ning (FYP; 2020 – 2021)
Erna Nur Ellieyana (MSc; 2020 – 2022)
Kathy Fan (MSc; 2021 – 2023)
Ang Xiang Yong (FYP, 2022 – 2023)
Gabriel May Moe Kyaw (FYP, 2022 – 2023)
Chen Guokai (MSc, 2022 – 2023)
Bei Yi Yang (2023 – present)
Tan Wee Leng (2023 – present)
Emilie Andrea Hardie (2023)

<u>Research Technicians and Assistants (13):</u>
Jutta Duschl (2000 – 2003)
Cordula Neuner (2003 – 2007)
Matthias Schad (2003 – 2005)
Lovella Ortega-Renn (2008 – 2011)
Sudha Sundaram (2013 – 2016)
Tay Hui Ping Shermaine (2014 – 2015)
Viktor Menachem Sarusie (2014 – 2015)
Tan Wen Hui (2015 – 2016)
Surya Kumarangu (2016 – 2017)
Goh Yun Jing (since 2018 - 2020)
Erna Nur Ellieyana (2018 - 2022)
Ng Jun Yan (2020)
Nadiah Afiqah Binte Ismail (2020 – 2021)

Awards received by supervised PhD students (2010-2023)

Flora Rajaei (**Best poster award** at 43rd Annual Meeting for the Japanese Society of Developmental Biologists, Kyoto, **Japan**; June 20-23, 2010)

Flora Rajaei (**Best poster award** at 1st International Singapore Zebrafish Symposium, **Singapore**, November 8, 2010)

Bernd Willems (**Best poster award** at 13th Biological Sciences Graduate Congress, National University of **Singapore**, December 2008)

Bernd Willems (**Best poster award** at 15th Biological Sciences Graduate Congress, University of Malaya, Kuala Lumpur, **Malaysia**, December 2010)

Kelvin See (**Feature** on Channel News Asia Dec 2013; **Highlight** in press release by Genetics Society of America (GSA) at 10th International Conference on Zebrafish Development and Genetics, Madison, **USA**, June 2012)

Manish Dasyani (**Best Oral Presentation** at 21st Biological Sciences Graduate Congress, University of Malaya, Kuala Lumpur, **Malaysia**, December 2016)

Tan Wen Hui (**Poster Award** at the 22nd Japanese Medaka and Zebrafish Meeting, Okazaki, Aichi, **Japan**, August 2016).

Tan Wen Hui (**Poster Award** at the 9th Zebrafish Disease Model (ZDM9) conference, **Singapore**, Oct 2016)

Yu Tingsheng (**Chua Toh Hua Memorial Gold Medal** 2016/2017 for the Best Doctor of Philosophy graduate with the most outstanding research work done in Life Sciences; awarded by National University of Singapore, May 2017)

Nurgul Imangali (**Best Oral Presentation** at 23st Biological Sciences Graduate Congress, Chulalongkorn University, Bangkok, **Thailand**, December 2018)

Vindhya Chaganty (**Best Oral Presentation** at Annual Meeting of Society for Neuroscience SFN, **Singapore**, December 2012)

Tan Wen Hui (**Best Oral Presentation** at 22nd International Zebrafish Society Conference (IZFC), Montreal, **Canada**, June 2022)

Goh Yunjing (Best Poster Award at 12th Singapore Fish Meeting, **Singapore**, January 2023)

Erna Nur Elliyana (Best Poster Award at Biological Science Graduate Congress, Kuala Lumpur, **Malaysia**, December 2023)