

## Curriculum vitae: Prof. Dr. Michael Kühl

### Personal data

<i>Name, Academic title</i>	Michael Kühl, Prof. Dr. rer. nat.
<i>Nationality</i>	German
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<i>Present position</i>	Full professor in Biochemistry, tenured Director of Institute Chairman International Graduate School in Molecular Medicine
<i>www</i>	<a href="http://www.uni-ulm.de/med/med-biomolbio.html">http://www.uni-ulm.de/med/med-biomolbio.html</a>

### University education

1987-1992	Study of Biochemistry, Free University Berlin
1992-1995	PhD thesis work (Dr. rer. nat.) at Free University Berlin & Ulm University

### Scientific training/Positions

1995 - 1998	Postdoc at Ulm University with Prof. Dr. D. Wedlich, working on Wnt/ $\beta$ -catenin signaling pathway
1998 - 1999	Postdoc with Prof. Dr. R. T. Moon, University of Washington, Dept. of Pharmacology, HHMI, Seattle, USA, working on non-canonical Wnt pathways with <i>DFG postdoctoral fellowship</i>
2000 - 2002	Independent junior group leader, Dept. of Biochemistry, University of Göttingen, Funded by the DFG as part of the collaborative research centre SFB 271
2002	Venia legendi for Biochemistry, Göttingen (German higher teaching allowance)
2002-2006	Associate professor in Biochemistry, Ulm University
Since 2006	Full professor in Biochemistry, Ulm University

### Organisation/Management

2002	International Symposium: „Molecular mechanisms of development: From stem cells to complex cellular networks“, Göttingen
2004	5th GfE School, Society for Developmental Biology (Germany): „Molecular control of organ development“, Reischensburg
2004	International Symposium: „Signalling pathways in cellular differentiation“, Ulm
2004-2006	Coordinator of collaborative research network, State of Baden-Württemberg: „Molecular mechanisms of stemness“

Since 9/2004	Coordinator of „International PhD Programme in Molecular Medicine“ at Ulm University
Since 2/2006	Chairman “International Graduate School in Molecular Medicine Ulm”, GSC 270, funded within the frame work of the German Excellence Initiative
Since 2007	Summer School in Molecular Medicine in Wuhan, China, 2 Weeks, Each year since 2007

## Prizes/Awards

2003	Prize for best Habilitation, Göttingen
2003	Merckle Research Prize, Ulm
2014	Best teaching award, preclinical studies, Ulm University
2015	Best teaching award, preclinical studies, Ulm University

## University Obligations

2002-2006	Board member of MD thesis committee
since 2003	Elected member Faculty Board (Fakultätsrat), Medical Faculty
since 2004	Head of PhD Committee International PhD Programme in Molecular Medicine
since 2006	Chairman of International Graduate School in Molecular Medicine Ulm
since 2006	Member Study Committee BSc/MSc Molecular Medicine
2009-2012	Member Study Committee BSc/MSc Biochemistry
since 2009	Member PhD committee, Dr. rer. nat., Faculty of Natural Sciences
2011-2015	Member Ethics Committee, Ulm University
since 2011	Member Research Committee, Medical Faculty, Ulm University
since 2014	Member of Senate Ulm University

## Funding

Total amount	Past and current funding in total of app. 2.5 Mio. Euros since 1998 by DFG, BMBF, State of Baden-Württemberg, Ulm University in addition app. 12 Mio. Euros as Chairman of GSC270 (2007-2017)
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## Reviewer

### Scientific funding agencies

Deutsche Forschungsgemeinschaft (German Research Foundation), Boehringer Ingelheim Fonds, Deutsche Krebshilfe (German Cancer Aid), National Science Foundation (USA), NIH (USA), German-Israeli Foundation for Scientific Research and Development (Israel), Israeli Science Foundation (Israel), The Wellcome Trust, (England), Biomedical Research Council (Singapore), Dutch National Science Foundation, NWO (Netherlands), Comision National de Investigacion Cientifica and Tecnologica CONICYT (Chile)

### International peer reviewed journals

Science, Nature Cell Biology, Genes and Development, PNAS, Journal of Cell Biology, Journal of Biological Chemistry, Circulation, Circulation Research, Cardiovascular Research, Journal of Clinical Investigations, Oncogene, Development, Developmental Biology, Mechanisms of Development, Developmental Dynamics, PlosONE, BioEssays,

Experimental Cell Research, Trend in Endocrinology and Metabolism, Gene, European Journal of Clinical Chemistry and Clinical Biochemistry, Differentiation, Biotechniques, Cellular and Molecular Life Sciences, British Journal of Cancer

## Publications

### Numeric overview

55	Original publications
22	Reviews
11	Book chapters
1	Book Editor
8	Text Books and contributions
35	H Index
54	i10 Index
9414	Total Citations (all as of July 19, 2015, Google Scholar)

### Original papers

55. Hein K, Mittler G, Cizelsky W, **Kühl M**, Ferrante F, Liefke R, Berger I, Just S, Sträng JE, Kestler HA, Oswald F, Borggreffe T (2015) Site-specific methylation of Notch1 controls the amplitude and duration of the Notch1 response, **Sci Signal**, 8, ra30
54. Pfister AS, Keil M, **Kühl M** (2015) The Wnt target genes Peter Pan defines a novel p53-independent nucleolar stress response pathway, **J. Biol. Chem.**, 290, 10905-10918
53. Tao S, Tang D, Morita Y, Sperka T, Omrani O, Lechel A, Sakk V, Kraus J, Kestler HA, **Kühl M<sup>+</sup>**, Rudolph KL<sup>+</sup> (2015) Wnt activity and basal niche position sensitize intestinal stem and progenitor cells to DNA damage. **EMBO J**, 34, 624-640, <sup>+</sup>corresponding authors,
52. Dorn T, Goedel A, Lam JT, Haas J, Tian Q, Herrmann F, Bundschu K, Dobrova G, Schiemann M, Dirschinger R, Guo Y, Kühl SJ, Sinnecker D, Lipp P, Laugwitz K, **Kühl M<sup>+</sup>**, Moretti A<sup>+</sup> (2015) Direct Nkx2-5 transcriptional repression of Isl1 controls cardiomyocyte subtype identity, **Stem Cells**, 33, 1113-1129, <sup>+</sup>corresponding authors,
51. Cizelsky W\*, Tata A\*, **Kühl M<sup>+</sup>**, Kühl SJ<sup>+</sup> (2014) The Wnt/JNK target gene *alcam* is required for embryonic kidney development, **Development**, 141, 2064-74, \*equal first authors, <sup>+</sup>corresponding authors
50. Guo Y\*, Kühl SJ\*, Pfister AS, Cizelsky W, Denk S, Beer-Molz K, **Kühl M** (2014) Comparative analysis reveals distinct and overlapping functions of Mef2c and Mef2d during cardiogenesis in *Xenopus leavis*, **Plos One**, 9(1):e87294, \* equal contribution
49. Wehner D, Cizelsky W, Vasudevaro MD, Ozhan H, Haase C, Kagermeier-Schenk, Röder A, Dorsky RI, Moro E, Argenton F, **Kühl M**, Weidinger G (2014) Wnt/ $\beta$ -Catenin signaling defines organizing centers that orchestrate growth and differentiation of the regenerating zebrafish caudal fin, **Cell Rep**, 6, 467-81
48. Schmeisser JM, Kühl SJ, Schön M, Beth NH, Weis TM, Grabrucker AM, **Kühl M**, Böckers T (2013) The Nedd4 binding protein 3 (N4BP3) is crucial for axonal and dendritic

branching in developing neurons, **Neural Dev.**, 8, 18

47. Weidgang CE, Russel R, Tata PR, Kühl SJ, Illing A, Müller M, Lin Q, Brunner C, Böckers TM, Bauer K, Kartikasari AER, Guo Y, Radenz M, Bernemann C, Weiß M, Seufferlein T, Zinke M, Iacovino M, Kyba M, Schöler HR, **Kühl M**, Liebau S, Kleger A (2013) Tbx3 directs cell-fate decision towards mesendoderm, **Stem Cell Reports**, 1, 248-265
46. Özan G, Sezgin E, Wehner D, Pfister AS, Kühl SJ, Kagermeier-Schenk B, **Kühl M**, Schwille P and Weidinger G (2013) Lypd6 enhances Wnt/ $\beta$ -catenin signaling by promoting Lrp6 phosphorylation in raft plasma membrane domains, **Dev. Cell**, 26, 331-45
45. Cizelsky W\*, Hempel A\*, Tao S, Metzger M, Hollemann T, **Kühl M**, Kühl SJ (2013) Sox4 and Sox11 function during *Xenopus laevis* eye development, **PlosONE**, 8(7):e69372,, \*equal contribution
44. Herrmann F\*, Groß A\*, Zhou D, Kestler HA, **Kühl M** (2012) A boolean model of the cardiac regulatory network determining first and second heart field identity, **PLOS one**, 7, e46798, 1-10, \*equal contribution
43. Hopfensitz M, Müssel C, Wawra C, Maucher M, **Kühl M**, Neumann H, Kestler HA (2012) Multiscale binarization of gene expression data for reconstructing Boolean networks, **IEEE/ACM**, in press
42. Murugan S, Shan J, Kühl SJ, Tata A, Pietulä I, **Kühl M**, Vainio SJ (2012) WT1 and Sox11 regulate synergistically the promotor of Wnt4 gene that encodes a critical signal for nephrogenesis, **Exp. Cell Res.**, 318, 1134-45
41. Herrmann F\*, Bundschu K\*, Kühl SJ, **Kühl M** (2011) Tbx5 overexpression favours a first heart field lineage in murine embryonic stem cells and in *Xenopus laevis* embryos, **Dev. Dyn.**, 240, 2634-2645, \* both contributed equally
40. Tao S, **Kühl M**, Kühl SJ (2011) Expression of periostin during *Xenopus laevis* embryogenesis, **Dev. Genes Evol.**, 221, 247-254
39. Tecza A, Bugner V, **Kühl M**, Kühl SJ (2011) Pes1 and ppan function during *Xenopus laevis* pronephros development, **Biol. Cell**, 103, 483-498,
38. Bugner V, Aurhammer T, **Kühl M** (2011) *Xenopus laevis* insulin receptor substrate IRS-1 is important for eye development, **Dev. Dyn.**, 240, 17-15
37. Guo Y, Christine KS, Conlon F, Gessert S, **Kühl M** (2011) Expression analysis of epb41l4a during *Xenopus laevis* embryogenesis, **Dev. Genes Evol.**, 221, 118-9
36. Maucher M\*, Kracher B\*, **Kühl M**, Kestler H (2011) Inferring Boolean network structure via correlation, **Bioinformatics**, 27, 1529-36, \* both contributed equally
35. Bugner V, Tecza A, Gessert S, **Kühl M** (2011) Peter Pan functions independent of its role in ribosome biogenesis during early eye and craniofacial cartilage development in *Xenopus laevis*, **Development**, 138, 2369-78
34. Gessert S, Schmeisser MJ, Tao S, Böckers TM, **Kühl M** (2011) The spatio-temporal expression of ProSAP/Shank family members and their interaction partner LAPSER1 during *Xenopus laevis* development, **Dev. Dyn.**, 240, 1528-36

33. Tata RP, Tata NR, **Kühl M**, Sirbu IO (2011) Identification of a novel epigenetic regulatory region within the pluripotency associated microRNA cluster, EEmiRC, **Nucleic Acids Res.**, 39, 3574-81
32. Gessert S, Bugner V, Tecza A, Pinker M, **Kühl M** (2010) FMR1/FXR1 and the miRNA pathway are required for eye and neural crest development, **Dev. Biol.**, 341, 222-35
31. Gessert S and **Kühl M** (2009) Comparative gene expression analysis and fate mapping studies suggest an early segregation of cardiogenic lineages in *Xenopus laevis*, **Dev. Biol.** 334, 395-408
30. Gessert S, Maurus D, Brade T, Walther P, Pandur P, **Kühl M** (2008) DM-GRASP/ALCAM/CD166 is required for cardiac morphogenesis and maintenance of cardiac identity in first heart field derived cells, **Dev. Biol.** 321, 150-61
29. Gessert S, Maurus D, **Kühl M** (2008) Repulsive guidance molecule A (RGM A) and its receptor Neogenin during neural and neural crest development of *Xenopus laevis*, **Biol. Cell**, 100, 659-73
28. Anton R, Kestler HA, **Kühl M** (2007)  $\beta$ -catenin signalling contributes to stemness and regulates differentiation in murine embryonic stem cells, **FEBS Letters** 581, 5247-5254,
27. Gessert S\*, Maurus D\*, Rössner A, **Kühl M** (2007) Pescadillo is required for *Xenopus laevis* eye and neural crest development, **Dev. Biol.** 310, 99-112, \* both contributed equally,
26. Brade T, Gessert S, **Kühl M**, Pandur P (2007) The amphibian second heart field: *Xenopus* islet-1 is required for cardiovascular development, **Dev. Biol.** 311, 297-310,
25. Wawra C, **Kühl M**, Kestler HA (2007) Extended analyses of the Wnt/beta-catenin pathway: robustness and oscillatory behavior, **FEBS Lett**, 581, 4043-8
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19. Schwarz-Romond T, Asbrand C, Bakkers J, **Kühl M**, Schaeffer HJ, Huelsken J, Behrens J, Hammerschmidt M, Birchmeier W (2002) The ankyrin repeat protein Diversin recruits Casein kinase I epsilon to the beta-catenin degradation complex and acts in both

canonical Wnt and non-canonical Wnt/JNK signaling, **Genes Dev.** 15, 2073-84

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15. Pukrop T, Gradl D, Henningfeld K, Knöchel W, Wedlich D, **Kühl M** (2001) Identification of two regulatory elements within the HMG-box transcription factor XTCTF-4, **J. Biol. Chem.** 276, 8968-8978
14. Semenov M, Tamai K, Brott BK, **Kühl M**, Sokol S, He X (2001) Head inducer dickkopf-1 is a ligand for Wnt co-receptor LRP-6, **Curr. Biol.** 11, 951-961
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12. Etard C, Wedlich D, Bauer A, Huber O, **Kühl M** (2000) Expression of *Xenopus* homologs of the  $\beta$ -catenin binding protein Pontin52, **Mech. Dev.** 94, 219-222
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10. König A, Gradl D, **Kühl M**, Wedlich D (2000) The HMG box transcription factor XTCTF4 demarcates the forebrain-midbrain boundary. **Mech. Dev.** 93, 211-214
9. Gradl D\*, **Kühl M\***, Wedlich D (1999) The Wnt/Wg signal transducer  $\beta$ -catenin controls fibronectin expression, **Mol. Cell Biol.** 19: 5576-5587, \* both contributed equally
8. Geis G, Aberle H, **Kühl M**, Kemler R, Wedlich D (1998) Expression of murine p120cas1B in *Xenopus* embryos effects head differentiation but not axis formation. **Genes, Development and Evolution** 207, 471-481
7. Behrens J, Jerchow B, Würtele, M, Grimm J, Asbrand C, Wirtz R, **Kühl M**, Wedlich D, Birchmeier W (1998) Functional interaction of an axin homolog, conductin, with  $\beta$ -catenin, APC, and GSK3 $\beta$ . **Science** 280, 596-599
6. Mayr T, Deutsch U, **Kühl M**, Drexler H, Lottspeich F, Deutzmann R, Wedlich D, Risau W (1997) Fritz: A secreted frizzled related protein that inhibits Wnt activity. **Mech. Dev.** 63, 109-125
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4. **Kühl M**, Finnemann S, Binder O, Wedlich D (1996) Dominant negative expression of a cytoplasmically deleted mutant of XB/U-cadherin disturbs mesoderm migration during gastrulation in *Xenopus laevis*. **Mech. Dev.** 54, 76-88

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2. **Kühl M**, Wedlich D (1995) XB/U-cadherin mRNA contains cytoplasmic polyadenylation elements in its 3'UTR and is polyadenylated during oocyte maturation. **Biochim. Biophys. Acta** 1262, 95-98
1. Müller AH\*, **Kühl M\***, Finnemann S, Schneider S, van der Poel S, Hausen P, Wedlich D (1994) Xenopus cadherins: The maternal pool comprizes distinguishable members of the family. **Mech. Dev.** 47, 213-223, \* both contributed equally

## Reviews

22. Kühl SJ, **Kühl M** (2013) The role of Wnt/ $\beta$ -catenin signaling in stem cells, **BBA general subjects**, 1820, 2297-306
21. Pandur P, Sirbu IO, Kühl SJ, Philipp M, **Kühl M** (2013) Islet1 expressing cardiac progenitor cells: A comparison across species, **Dev. Genes Evol.**, 223, 117-29
20. Kühl SJ, **Kühl M** (2012) Nobelpreise 2012, Physiologie oder Medizin, **Naturwissenschaftliche Rundschau**, 12, 5-7
19. Kühl SJ, **Kühl M** (2011) Improving cardiac function after injury: are we a step closer? **BioEssays**, 33, 669-673
18. Kestler HA, **Kühl M** (2011) Generation a Wnt switch: It's all about the right dosage, **J Cell Biol**, 193, 431-3
17. Gessert S, **Kühl M** (2010) The multiple phases and faces of Wnt signaling during cardiac differentiation and development, **Circ. Res.**, 107, 186-99
16. Rao TP, **Kühl M** (2010) An updated overview of Wnt signaling pathways: a prelude for more, **Circ. Res.**, 106, 1798-806
15. Kestler HA, Wawra C, Kracher B, **Kühl M** (2008) Network modeling of signal transduction: establishing of a global view, **BioEssays**, 30, 1110-25
14. Kestler HA, **Kühl M** (2008) From individual Wnt pathways towards a Wnt signalling network, **Phil. Trans. R. Soc. B**, 363, 1333-47
13. Anton R, **Kühl M**, Pandur P (2007) A molecular signature of the master heart cell, **BioEssays**, 29,422-26
12. Brade T, Männer J, **Kühl M** (2006) Wnt signaling during cardiac development and remodelling. **Cardiovasc. Res.**, 72, 198-209
11. Quaiser T, Anton R, **Kühl M** (2006) Kinases and G proteins join the Wnt receptor complex. **BioEssays**, 128, 339-343
10. Maurus D, **Kühl M** (2004) Getting an embryo into shape. **BioEssays**, 26, 1272-1275

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8. **Kühl M** (2002) Non-canonical Wnt signaling in *Xenopus*: regulation of axis formation and gastrulation. **Sem. Cell Dev. Biol.**, 13, 243-249
7. Pandur P, Maurus D, **Kühl M** (2002) Increasingly complex: New players enter the Wnt signaling network. **BioEssays** 24, 881-885
6. Pandur P, **Kühl M** (2001) An arrow for wingless to take-off, **BioEssays** 23, 207-210
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4. **Kühl M**, Sheldahl L, Park M, Miller JR, Moon, RT (2000), The Wnt/Ca<sup>++</sup> pathway: A new vertebrate Wnt signalling pathway takes shape, **Trends Genet.** 16, 279-283
3. Gradl D, **Kühl M**, Wedlich D (1999) Keeping a close eye on Wnt signaling in *Xenopus* development, **Mech. Dev.**, 86, 3-15
2. **Kühl M**, Wedlich D (1997) Wnt signalling goes nuclear. **BioEssays** 19, 101-104
1. **Kühl M**, Wedlich D (1996) *Xenopus* Cadherins: Sorting out types and functions in embryogenesis. **Developmental Dynamics** 207, 121-134

### Book chapters

11. **Kühl M**, Kracher B, Groß A, Kestler HA (2014) Mathematical Models of Wnt signaling pathways, In: Hoppler S and Moon RT (eds), *Wnt Signaling in Development and Disease: Molecular Mechanisms and Biological Functions*. John Wiley & Sons, Ltd., Hoboken, New Jersey
10. Hoppler S, Mazotta S, **Kühl M** (2014) Wnt signaling in heart development, In: Hoppler S and Moon RT (eds), *Wnt Signaling in Development and Disease: Molecular Mechanisms and Biological Functions*. John Wiley & Sons, Ltd., Hoboken, New Jersey
9. Kühl S, **Kühl M** (2014) Introducing to  $\beta$ -catenin independent Wnt signaling pathways, In: Hoppler S and Moon RT (eds), *Wnt Signaling in Development and Disease: Molecular Mechanisms and Biological Functions*. John Wiley & Sons, Ltd., Hoboken, New Jersey
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5. Hollemann T, Chen Y, Sölter M, **Kühl M**, Pieler T (2003) Embryonic explants from *Xenopus laevis* as an assay system to study differentiation of multipotent precursor cells, in: Cell biology: A Laboratory handbook, 3rd Ed., Ed: J.E. Celis, Elsevier Science, San Diego, USA
4. Behrens J, **Kühl M** (2003) Wnt signal transduction pathways: An overview. In: Kühl M (Editor): Wnt signalling in development, Landes Bioscience, Georgetown (Texas, USA), pp 1-14
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#### Text Books and Text Book contributions

8. Brockmann D and **Kühl M** (2015) Erfolgreich promovieren in den Life Sciences, UTB, Eugen Ulmer Verlag, Stuttgart
7. **Kühl M** (2014) Reifung, Altern und Tod, in: Pape HC, Kurtz A, Silbernagl S (eds) Physiologie, Thieme Verlag Stuttgart
6. Kühl S und **Kühl M** (2012) Stammzellbiologie, UTB, Eugen Ulmer Verlag, Stuttgart
5. **Kühl M** und Gessert S (2010) Entwicklungsbiologie, UTB Basics, Eugen Ulmer Verlag, Stuttgart
4. **Kühl M** (2009) Altern und Tod, in Physiologie: Lehrbuch, Hrsg: Klinke, Pape, Kurtz, Silbernagl; Thieme Verlag Stuttgart
3. **Kühl M** (2003) Entwicklung und Altern, in: Lehrbuch Vorklinik (GK1), Hrsg: Unsicker, Schmidt, Fachhrsg: Birnbaumer, Kurtz, Scharl, Unsicker, Deutscher Ärzteverlag, C 575- 596
2. Linnemann M, **Kühl M** (2004) Biochemie für Mediziner, Springer Verlag Heidelberg, 7. Auflage (vorherige Auflagen: 2002, 1999, 1995, 1993, 1992, 1992)
1. Luduena RF, German translation by **Kühl M** (1997) Klinische Biochemie, 100 Fall orientierte Fragen mit Antworten, Vieweg Verlag, Wiesbaden