Curriculum Vitae

Xinlai Cheng

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Pharmaceutical Chemistry
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Personal information

Date of birth:	22.Januar.1978
Place of birth:	Suzhou, China

Education

09/1996-07/2000	Bachelor Engineering, Nanjin University of chemical Technologies, Nanjin China
09/2000-07/2001	Deutsches Kollege, University of Tongji, Shanghai China
09/2001-02/2002	Deutsch-Kurs, University of Kaiserslautern
03/2002-06/2007	Diplom-Chemiker, Department of Chemistry, University of Kaiserslautern, Germany
07/2007-07/2009	Dr. rer. nat. Department of Chemistry, Division of Food Chemistry and Toxicology, University of Kaiserslautern, Germany Supervised by Prof. Gerhard Eisenbrand
23/07/2019	Habilitation (Biochemistry/Chemical Biology), Faculty of Bioscience, Heidelberg University

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Current position

12/2019-	Principal Investigator Buchmann Institute for Molecular Life Sciences Pharmaceutical Chemistry, Frankfurt University

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Previous positions

12/2016-11.2019	Principal Investigator (Eigene Stelle; **funded by DFG**) Institute of Pharmacy and Molecular Biotechnology (IPMB), Heidelberg University, Germany
09/2014-11/2016	Project leader (**BMBF-SysToxChip**) IPMB, Heidelberg University
01/2010-08/2014	Postdoctoral Position IPMB, Heidelberg University, Germany
10/2009-12/2009	Postdoctoral Position Department of Chemistry, Division of Inorganic Chemistry, University of Kaiserslautern, Germany

Invited Speech (Selected)

2011	BMBF project meeting, Berlin, Germany
2014	'Frontiers in Molecular Biotechnology' Universität Heidelberg, Germany
2016	Frontiers in Medicinal Chemistry 2016, Bonn, Germany
2016	EMBL-Conferences: Microfluidics 2016
2016	4th annual Conference of German Stem Cell Network (GSCN), Hannover, Germany
2016	Guest presentation at the Life & Brain Center in Bonn invited by Dr. Oliver Brüsle)
2017	Annual Meeting of the German Pharmaceutical Society (DPhG), Saarbrücken, Germany
2018	Chemiedozententagung 2018, Jena
2019	Chemiedozententagung 2019, Koblenz
2019	28th Symposium on Bioorganic Chemistry 2019, Essen
2019	DPhG Annual Meeting
2020	Biochemistry, Münster
2020	Chemiedozententagung 2020, Dresden

Patent application

Cheng, X. & Wölfl, S. (2019) Small molecules as OCT4 substitutes for reprogramming, regenerative medicine and rejuvenation**.**

Cheng, X. & Wölfl, S. (2019) gold-complexes as immunosuppressants

Eisenbrand, G., Merz, K.-H., and **Cheng, X.** (2008). 7-Azaindirubins, 7'-azaindirubins, 7,7'-diazaindirubin and the corresponding -3'-oxime ether derivatives: production thereof and use as a medicament thereof. WO2010072399

Wolfl, S., **Cheng, X.,** Alborzinia, H., Eisenbrand, G., Merz, K.-H., Mrowka, R. (2012) Use of indirubin derivatives for producing pluripotent stem cells. PCT/EP2012/001804

Mrowka, R., Wolfl, S., **Cheng, X.** (2012) Method for activating oct4 for induction of pluripotent stem cells. PCT/EP2012/062725

Cheng, X, Wölfl, S., Mrowka, R. (2017) Novel pluripotency inhibitors in vitro and in vivo EP17199161

Funding

DFG (2016, Reference number: ***Ch 1690/2-1***): *'Identification, characterization and optimization of Oct3/4 inducing molecules';* Sum of project: ca. 550 000 Euro

Publikationen

2020

X. Cheng;* S. Haeberle; I.L. Shytaj; R.A. Gama-Brambila; J. Theobald; S. Ghaffory; J. Wölker; K. Taškova; A.S. Bauer; J. Hoheisel; N. Tsopoulidis; O.T. Fackler; A. Savarino; M.A. Andrade-Navarro; I. Ott; M. Lusic; E.N. Hadaschik; S. Wölfl. Gold Compounds Induce Immune Suppression via AHR-TGFß1 Signaling. *Communications Biology,* Accepted (***Corresponding author).**

2019

Dabiri, Y.; Abu El Maaty, M. A.; Chan, H. Y.; Wolker, J.; Ott, I.; Wolfl, S.; **Cheng, X.,** p53-Dependent Anti-Proliferative and Pro-Apoptotic Effects of a Gold(I) N-Heterocyclic Carbene (NHC) Complex in Colorectal Cancer Cells. *Front Oncol* **2019,** *9*, 438 (***Corresponding author).**

Dabiri, Y.; Song, G.; **Cheng, X.,*** Indirubins as Multi-target Anti-Tumor Agents Herbal Medicine: Back to the Future. Editor: The Nobel Laureate Prof. Ferid Murad. *Bentham Science Publishers* 2019, (**Accepted, *Corresponding author**).

Dabiri, Y.; Gama-Brambila, R. A.; Taskova, K.; Herold, K.; Reuter, S.; Adjaye, J.; Utikal, J.; Mrowka, R.; Wang, J.; Andrade-Navarro, M. A.; Cheng, X.,* Imidazopyridines as Potent KDM5 Demethylase Inhibitors Promoting Reprogramming Efficiency of Human iPSCs. *iScience* **2019,** *12*, 168-181 (***Corresponding author**).

Li, H.; Roxo, M.; Cheng, X.; Zhang, S.; Cheng, H.; Wink, M., Pro-oxidant and lifespan extension effects of caffeine and related methylxanthines in Caenorhabditis elegans. *Food Chemistry: X* **2019,** *1*, 100005.

Theobald, J.; Abu el Maaty, M.; Kusterer, N.; Wetterauer, B.; Wink, M.; Cheng, X.; Wölfl, S., In vitro metabolic activation of vitamin D3 by using a multi-compartment microfluidic liver-kidney organ on chip platform, *Scientific Reports,* 9, **2019**.

2018

Dabiri, Y.; Schmid, A.; Theobald, J.; Blagojevic, B.; Streciwilk, W.; Ott, I.; Wolfl, S.; Cheng, X.*, A Ruthenium(II) N-Heterocyclic Carbene (NHC) Complex with Naphthalimide Ligand Triggers Apoptosis in Colorectal Cancer Cells via Activating the ROS-p38 MAPK Pathway. *Int J Mol Sci* **2018,** *19* (12). (*** Corresponding author)**

Theobald, J.; Ghanem, A.; Wallisch, P.; Banaeiyan, A. A.; Andrade-Navarro, M. A.; Taškova, K.; Haltmeier, M.; Kurtz, A.; Becker, H.; Reuter, S.; Mrowka, R.; **Cheng, X.**; Wölfl, S., Liver-Kidney-on-Chip To Study Toxicity of Drug Metabolites. *ACS Biomaterials Science & Engineering* **2018,** *4* (1), 78-89.

Streciwilk, W.; Terenzi, A.; Cheng, X. L.; Hager, L.; Dabiri, Y.; Prochnow, P.; Bandow, J. E.; Wolfl, S.; Keppler, B. K.; Ott, I., Fluorescent organometallic rhodium(I) and ruthenium(II) metallodrugs with 4-ethylthio-1,8-naphthalimide ligands: Antiproliferative effects, cellular uptake and DNA-interaction. *European journal of medicinal chemistry* **2018,** *156*, 148-161.

2017

Theobald, J.*; **Cheng, X**.*; Ghanem, A.; Gaitantzi, H.; Klipp, A.; Wodke, J.; Becker, H.; Mrowka, R.; Breitkopf-Heinlein, K.; Dooley, S.; Wölfl, S. Monitoring cytochrome P450 activity in living hepatocytes by chromogenic substrates in response to drug treatment or during cell maturation. *Archives of Toxicology, **2017*** (***equal**)

Cheng, X.;* Peuckert, C.; Wölfl, S. Enhanced apoptotic effect in Stat3-deficient cells under oxidative stress through ASK1/p38^{MAPK} signaling: the role of ASK1/p38^{MAPK} in Stat3-deficient cell apoptosis. *Sci Rep,* **2017** (***Corresponding author).**

Tegethoff, J.; Bischoff, R.; Saleh, S.; Blagojevic, B.; Merz, K.-H.; **Cheng, X*,** Methylisoindigo and Its Bromo-Derivatives Are Selective Tyrosine Kinase Inhibitors, Repressing Cellular Stat3 Activity, and Target CD133+ Cancer Stem Cells in PDAC *Molecules*, **2017** (Invited Manuscript, ***Corresponding author)**

Dabiri, Y.; Kalman, S.; Gürth, C.-M.; Kim, J. Y.; Mayer, V.; **Cheng, X*,** The essential role of TAp73 in bortezomib-induced apoptosis in p53-deficient colorectal cancer cells. *Sci Rep.* **2017,** *7* (1), 5423 (**Corresponding author).**

Cheng, X.*; Merz, K. H.; Vatter, S.; Zeller, J.; Muehlbeyer, S.; Thommet, A.; Christ, J.; Wolfl, S.; Eisenbrand, G., Identification of a Water-Soluble Indirubin Derivative as Potent Inhibitor of Insulin-like Growth Factor 1 Receptor through Structural Modification of the Parent Natural Molecule. *J Med Chem* **2017,** *60* (12), 4949-4962. (**Corresponding author**)

Gohring, A. R.; Reuter, S.; Clement, J. H.; **Cheng, X.;** Theobald, J.; Wolfl, S.; Mrowka, R., Human microRNA-299-3p decreases invasive behavior of cancer cells by downregulation of Oct4 expression and causes apoptosis. *Plos One* **2017,** *12* (4), e0174912.

Kim, J. Y.; **Cheng, X.;** Wolfl, S., Acidic stress induced G1 cell cycle arrest and intrinsic apoptotic pathway in Jurkat T-lymphocytes. *Exp Cell Res* **2017,** *350* (1), 140-146.

2016

Kim, J. Y.; **Cheng, X.;** Alborzinia, H.; Wölfl, S. Modified STAP conditions facilitate bivalent fate decision between pluripotency and apoptosis in Jurkat T-lymphocytes. *Biochemical and Biophysical Research Communications* 2016

Cheng, X.* and Merz, K.-H. The role of indirubin in inflammation and associated tumorigenesis. In: Anti-inflammatory Nutraceuticals and Chronic Diseases. Editors: Gupta, S.; Prasad, S.; Aggarwal, B. Springer, *Adv Exp Med Biol* **2016,** *929*, 269-290 (***Corresponding author**).

Cheng, X.;* Kim, J. Y.; Ghafoory, S.; Duvaci, T.; Rafiee, R.; Theobald, J.; Alborzinia, H.; Holenya, P.; Fredebohm, J.; Merz, K.-H.; Mehrabi, A.; Hafezi, M.; Saffari, A.; Eisenbrand, G.; Hoheisel, J. D.; Wölfl, S.* Methylisoindigo preferentially kills cancer stem cells by interfering cell metabolism via inhibition of LKB1 and activation of AMPK in PDACs. *Mol Oncol* **2016.** 10.1016/j.molonc.2016.01.008 **(*Co-Corresponding author)**

Cheng, X.; Merz, K. H., The Role of Indirubins in Inflammation and Associated Tumorigenesis. *Adv Exp Med Biol* **2016,** *929*, 269-290

2015

Su, S.; **Cheng, X.**; Wink, M. Cytotoxicity of arctigenin and matairesinol against the T-cell lymphoma cell line CCRF-CEM. *J Pharm Pharmacol* **2015**.

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Ghafoory, S.; Mehrabi, A.; Hafezi, M.; **Cheng, X.**; Breitkopf-Heinlein, K.; Hick, M.; Huichalaf, M.; Herbel, V.; Saffari, A.; Wolfl, S. Nuclear accumulation of CDH1 mRNA in hepatocellular carcinoma cells. *Oncogenesis* **2015,** 4, e152 (**Open Access**).

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2014

Holenya, P.; Can, S.; Rubbiani, R.; Alborzinia, H.; Junger, A.; **Cheng, X.**; Ott, I.; Wolfl, S. Detailed analysis of pro-apoptotic signaling and metabolic adaptation triggered by a N-heterocyclic carbene-gold(I) complex. *Metallomics* **2014,** 6, 1591-601.

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Cheng, X.*; Merz, K. H.; Vatter, S.; Christ, J.; Wolfl, S.; Eisenbrand, G. 7,7'-Diazaindirubin--a small molecule inhibitor of casein kinase 2 in vitro and in cells. *Bioorg Med Chem* **2014,** 22, 247-55. (***Corresponding author**)

Cheng, X.; Holenya, P.; Can, S.; Alborzinia, H.; Rubbiani, R.; Ott, I.; Wolfl, S. A TrxR inhibiting gold(I) NHC complex induces apoptosis through ASK1-p38-MAPK signaling in pancreatic cancer cells. *Mol Cancer* **2014,** 13, 221 (**Open Access**).

2013

Nam, S.; Wen, W.; Schroeder, A.; Herrmann, A.; Yu, H.; **Cheng, X.**; Merz, K. H.; Eisenbrand, G.; Li, H.; Yuan, Y. C.; Jove, R. Dual inhibition of Janus and Src family kinases by novel indirubin derivative blocks constitutively-activated Stat3 signaling associated with apoptosis of human pancreatic cancer cells. *Mol Oncol* **2013,** 7, 369-78.

Heshmati, N.; Wagner, B.; **Cheng, X.**; Scholz, T.; Kansy, M.; Eisenbrand, G.; Fricker, G. Physicochemical characterization and in vitro permeation of an indirubin derivative. *Eur J Pharm Sci* **2013,** 50, 467-75.

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2012

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apoptosis of chronic myelogenous leukemia cells involving inhibition of Stat5 signaling. *Mol Oncol* **2012,** 6, 276-83.

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2010

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Cheng, X.; Rasque, P.; Vatter, S.; Merz, K. H.; Eisenbrand, G. Synthesis and cytotoxicity of novel indirubin-5-carboxamides. *Bioorg Med Chem* **2010,** 18, 4509-15.

2009

Eisenbrand, G.; **Cheng, X.**; Vatter, S.; Merz, K. H. Structure-activity of novel indirubins: Substitution patterns and their influence on solubility and cellular anticancer activity. *Proceedings of the American Association for Cancer Research Annual Meeting* **2009,** 50, 435-435.

Cheng, X. Synthese und in vitro Metabolisierung von Indirubinen mit verbesserter Wasserlöslichkeit und erhöhter metabolischer Stabilität. *Dissertation, TU Kaiserslautern* **2009**.