

Chien-Kuang Cornelia Ding, M.D., Ph.D.

Assistant Professor, Department of Pathology, University of California, San Francisco (UCSF)

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EDUCATION

MD, National Yang Ming University (NYMU), Taipei, Taiwan 2004 - 2012
Department of Medicine, School of Medicine

PhD in Genetics and Genomics, Duke University, Durham, NC, USA 2012 - 2019
Department of Molecular Genetics and Microbiology (MGM); Advisor: Jen-Tsan Ashley Chi
Thesis: Regulation of ferroptosis by a novel NADPH phosphatase MESH1

CLINICAL TRAINING

Medical Intern, Taipei Veterans General Hospital, Taipei, Taiwan 2011 - 2012

Resident, Anatomic Pathology (AP), UCSF, CA, USA 2019 - 2022

Acting fellow, Surgical Pathology, UCSF, CA, USA 2021 - 2022

Fellow, Uro pathology, Johns Hopkins University, MD, USA 2022 - 2023

AWARDS AND HONORS

Silver Awards, 14th IBO (International Biology Olympiad) 2003
Awarded to the top 10-30% competitors in the global contest for comprehensive knowledge, thoughtful experimental design and excellent laboratory skills in biology.

Presidential Award, National Yang-Ming University 2004
Awarded to top 2% students from each class with the best academic performances

Best Medical Intern of the Year, Taipei Veterans General Hospital 2011 - 2012
Awarded to top 5% interns based on the clinical skills and the quality of patient care

Chancellor's Scholars, Duke University 2012 - 2014
Awarded to outstanding biomedical graduate students and provided an one-time stipend on top of full financial support for the first two years of graduate study

2nd Place Award, IACP Best Abstract Award 2021
Awarded to outstanding USCAP 2021 abstracts each year by International Association of Chinese Pathologists

Jonathan I. Epstein Fellow, Johns Hopkins University 2022 - 2023
Awarded to one fellow each year in the Division of Genitourinary Pathology to pursue a career involving genitourinary research

Diversity, Equity and Inclusion (DEI) Research Award, ICC-ASC joint scientific annual meeting 2022
Inaugural awarded to excellence in research abstract by American Society of Cytopathology

PUBLICATIONS

Peer reviewed primary research articles

1. LaMonte G, Tang X, Chen JL, Wu J, **Ding CK**, Keenan MM, Sangokoya C, Kung HN, Ilkayeva O, Boros LG, Newgard CB, Chi JT. Acidosis induces reprogramming of cellular metabolism to mitigate oxidative stress. *Cancer & Metabolism*. 2013 Dec 23;1(1):23. PMID: 24359630

2. Markunas CA, Lock E, Soldano K, Cope H, **Ding CK**, Enterline DS, Grant G, Fuchs H, Ashley-Koch AE, Gregory SG. Identification of Chiari Type I Malformation subtypes using whole genome expression profiles and cranial base morphometrics. *BMC Medical Genomics*. 2014 Jun 25;7:39. PMID: 24962150
3. LaGory EL, Wu C, Taniguchi CM, **Ding CC**, Chi JT, von Eyben R, Scott DA, Richardson AD, Giaccia AJ. Suppression of PGC-1 α Is Critical for Reprogramming Oxidative Metabolism in Renal Cell Carcinoma. *Cell Reports*. 2015 Jul 7;12(1):116-127. PMID: 26119730
4. Tang X, Wu J, **Ding CK**, Lu M, Keenan MM, Lin CC, Lin CA, Wang CC, George D, Hsu DS, Chi JT. Cystine Deprivation Triggers Programmed Necrosis in VHL-Deficient Renal Cell Carcinomas. *Cancer Research*. 2016 Apr 1;76(7):1892-903. PMID: 26833124
5. Tang X, **Ding CK**, Wu J, Sjol J, Wardell S, Spasojevic I, George D, McDonnell DP, Hsu DS, Chang JT, Chi JT. Cystine addiction of triple-negative breast cancer associated with EMT augmented death signaling. *Oncogene*, 2017 Jul 27;36(30): 4235-4242
6. Yang WH, **Ding CC**, Sun T, Rupprecht G, Lin CC, Hsu D, Chi JT. The Hippo Pathway Effector TAZ Regulates Ferroptosis in Renal Cell Carcinoma. *Cell Reports* 2019 Sep 3;28(10):2501-2508.e4. PMID: 31484063
7. Yang WH, Huang Z, Wu J, **Ding CC**, Murphy SK, Chi JT. A TAZ-ANGPTL4-NOX2 Axis Regulates Ferroptotic Cell Death and Chemoresistance in Epithelial Ovarian Cancer. *Molecular Cancer Research*. 2020 Jan; 18(1):79-90. PMID: 31641008; e-publication in 2019 and won “The Best of the AACR Journals” as one of the most-cited research articles published in 2019.
8. Chen PH, Wu J, **Ding CC**, Lin CC, Pan S, Bossa N, Xu Y, Yang WH, Mathey-Prevot B, Chi JT. Kinome screen of ferroptosis reveals a novel role of ATM in regulating iron metabolism. *Cell Death and Differentiation*. 2020 Mar; 27(3):1008-1022. PMID: 31320750
9. **Ding CC***, Rose J*, Sun T, Wu J, Chen PH, Lin CC, Yang WH, Chen KY, Lee H, Xu E, Tian S, Akinwuntan J, Zhao J, Guan Z, Zhou P, Chi JT. MESH1 is a Cytosolic NADPH Phosphatase that Regulates Ferroptosis. *Nature Metabolism*. 2020 Mar; 2(3) 270-277. PMID: 32462112 *These authors contributed equally to this work.
10. Huang TK, Huang CY, **Ding CC**, Hsu YC, and Giles CL. CODA-19: Using a Non-Expert Crowd to Annotate Research Aspect on 10,000+ Abstracts in the COVID-19 Open Research Dataset. Manuscript available at ACL Anthology, 2020 July. With oral presentation at NLP COVID-19 workshop at ACL (Association for Computational Linguistics) 2020 annual meeting.
11. Chang WC, Yeh BM, Chu K, Kim SY, Wen KW, Chiu SH, **Ding CC**, Wu EH, Roberts JP, Huang GS, and Hsu HH. Post-operative Assessment in Patients after Liver Transplantation: Imaging Parameters Associated with 1-year Graft Failure. *European Radiology*. 2021 Feb; 31(2):764-774. PMID: 32862291
12. Lin CC, Yang WH, Lin LY, Tang X, Chen PH, **Ding CC**, Qu DC, Alvarez JV, Chi JT. DDR2 upregulation confers ferroptosis susceptibility of recurrent breast tumors through the Hippo pathway. *Oncogene*. 2021 Mar; 40(11): 2018-2034 PMID: 33603168.
13. Chen PH*, Wu J*, Xu Y, **Ding CC**, Mestre A, Lin CC, Yang WH, Chi JT. Zinc transporter ZIP7 is a novel determinant of ferroptosis. *Cell Death & Disease* 2021 Feb 19; 12(2):198; PMID 33608508
14. Lin CC*, **Ding CC***, Sun T, Wu J, Chen KY, Zhou P, Chi JT. The Regulation of Ferroptosis by MESH1 through the activation of the integrative stress response. *Cell Death & Diseases*. 2021 Jul 22;12(8):727. PMID: 34294679 *These authors contributed equally to this work.
15. Sun T, **Ding CC**, Zhang Y, Zhang Y, Lin CC, Wu J, Setayeshpour Y, Coggins S, Shepard C, Macias E, Kim B, Zhou P, Gordân R, Chi JT. MESH1 knockdown triggers proliferation arrest through TAZ repression. *Cell Death Dis*. 2022 Mar 10;13(3):221. PMID: 35273140
16. **Ding CC**, Chan S, Mak J, Umetsu SE, Simko JP, Ruiz-Cordero R, Saunders T, Chan E. An exploration in pitfalls in interpreting SDHB immunohistochemistry. *Histopathology*. 2022 Aug; 81(2):264-269. PMID: 35546442.

17. Neumann, NM, **Ding CC**, Borgen A, Corvera CU, North JP, Qorbani A, Horvai AE. Primary Cutaneous Malignant Perivascular Epithelioid Cell Tumor Mimicking Undifferentiated Pleomorphic Sarcoma: A Report of a Rare Entity, *Am J Dermatopathol*. 2022 Oct 1;44(10):768-773. PMID: 36122336.
18. Baraban E, **Ding CC**, White M, Vohra P, Simko J, Boyle K, Guo C, Zhang M, Dobs A, Ketheeswaran S, Liang F, Epstein JI. Prostate Cancer in Male-to-Female Transgender Individuals: Histopathologic Findings and Association With Gender-affirming Hormonal Therapy. *Am J Surg Pathol*. 2022 Dec 1;46(12):1650-1658 PMID: 36006769.
19. Sun T, **Ding CC**, Chi JT. Data on the transcriptional response to MESH1 knockdown and mammalian stringent response. *Data Brief*. 2023 Jan 28;47:108938. doi: 10.1016/j.dib.2023.108938. PMID: 36761407
20. Nguyen ED, **Ding CC**, Umetsu SE, Choi WT, Ferrell LD, Wen KW. Use of orcein as an adjunct stain in the evaluation of advanced fibrosis. *Histopathology*. 2023 May 24. doi: 10.1111/his.14962. Epub ahead of print. PMID: 37222207.
21. Khorsandi N, **Ding CC**, VandenBussche CJ, Verduzco CS, Greenland N, Vohra P. Urine cytology in patients with gender confirmation surgery and hormone therapy: evaluation of urine cytology performance in an underserved patient population. *J Am Soc Cytopathol*. 2023 Jul-Aug;12(4):267-274. PMID: 37150707.

Peer-reviewed abstracts

1. **Ding CC**, Lin HH, Yao F, Yeh BM, and Wen KW. Chronic Viral Hepatitis and Hepatocellular Carcinoma are Enriched in Pathology-Radiology Discordant in the Diagnosis of Cirrhosis. Abstracts from USCAP 2021: Liver Pathology (795-827). *Mod Pathol* 34, 1096–1136 (2021). <https://doi.org/10.1038/s41379-021-00766-1>
2. **Ding CC**, Richer L, Devine WP, Rabban JT. ARHGAP35 loss in Endometrial Cancer: A Potential Candidate Driver of MELF-Pattern Myoinvasion and Lymphovascular Space Invasion. Abstracts from USCAP 2021: Gynecologic and Obstetric Pathology (532-634). *Mod Pathol* 34, 767–888 (2021). <https://doi.org/10.1038/s41379-021-00761-6>
3. Lee H, Greenland N, Tabatabai L, **Ding CC**, Vohra P. Upper Urinary Tract Cytology Performance Before and After the Implementation of the Paris System for Reporting Urinary Cytology (TPS). Abstracts from USCAP 2021: Cytopathology (158-237). *Mod Pathol* 34, 301–399 (2021). <https://doi.org/10.1038/s41379-021-00754-5>
4. **Ding CC**, Samghabadi P, and Gasper C. Condyloma Acuminatum can Harbor Co-Existing High-Grade Squamous Intraepithelial Lesion (HSIL) or Invasive Squamous Cell Carcinoma and Show Mixed p16 Immunostaining. USCAP 2022 Abstracts: General Surgical Pathology (508-521). *Mod Pathol* 35, 640–656 (2022). <https://doi.org/10.1038/s41379-022-01037-3>
5. Baraban E, **Ding CC**, White M, Vohra P, Simko J, and Epstein J. Prostate Cancer in Patients on Gender Affirming Hormonal Therapy: Highlighting Diagnostic Issues in an Underserved Patient Population. USCAP 2022 Abstracts: Genitourinary Pathology (including renal tumors) (522-659). *Mod Pathol* 35, 657–806 (2022). <https://doi.org/10.1038/s41379-022-01038-2>
6. Nguyen ED, **Ding CC***, Umetsu SE, Ferrell LD, and Wen KW. Utility of Comparing Orcein and Trichrome Staining to Aid Evaluation of Cirrhosis Dynamics. USCAP 2022 Abstracts: Liver Pathology (1018-1075). *Mod Pathol* 35, 1211–1275 (2022). <https://doi.org/10.1038/s41379-022-01044-4> *These authors contributed equally to this work.

Other publications

1. Keenan MM*, **Ding CK***, Chi JT. An unexpected alliance between stress responses to drive oncogenesis. *Breast Cancer Research* 2014 Nov 6;16(6):471. PMID: 25927911 *These authors contributed equally to this work.
2. **Ding CC**, Tsai LT. Encountering Professor Keller at the Gateway to a World of Gender and Science. *East Asian Science, Technology and Society: An International Journal*. 2017 Sep 11:441-444

3. **Ding CC**, Wen KW. Colon. Adenoma overview chapter. Pathology Outlines. 2021.
<https://www.pathologyoutlines.com/topic/colontumoradenoma.html>.
4. **Ding CC**, Wen KW. Well-differentiated neuroendocrine tumor chapter. Pathology Outlines. 2022.
<https://www.pathologyoutlines.com/topic/appendixwdneuroendocrine.html>.
5. **Ding CC**, Wen KW. Serrated lesions. Pathology Outlines. 2022.
<https://www.pathologyoutlines.com/topic/colonserratedlesions.html>.

PRESENTATION

Oral presentation

1. “Cystine-deprivation induces programmed necrosis in cancers”
Student seminar of Program in Genetics & Genomics, Duke University 2013/10
2. “Genome-wide RNAi screen identifies a human version of the bacterial stringent response”
Annual meeting of Molecular Genetics and Microbiology, Duke University 2014/9
3. “A human stringent response is mediated by MESH1 – a human homolog of bacterial ppGpp-ase”
The annual meeting of Program in Genetics & Genomics, Duke University 2015/5
4. “Cystine deprivation triggers regulated necrosis in VHL-deficient Renal Cell Carcinomas”
Women in Science and Engineering (WiSE) symposium, Duke University 2016/4
5. “Regulation of cell survival in oxidative stress by metazoan ortholog of SpoT (MESH1)”
Research meeting of Department of Molecular Genetics and Microbiology, Duke University 2017/1
Student seminar of Program in Genetics & Genomics, Duke University 2017/4
6. “Mammalian stringent-like response mediated by the cytosolic NADPH phosphatase MESH1”
Annual meeting of Molecular Genetics and Microbiology, Duke University 2018/9
7. “Regulation of ferroptosis by the cytosolic NADPH phosphatase MESH1”
Mechanism of disease series (Grand rounds), Department of Pathology, UCSF 2019/8
8. “Regression of liver fibrosis”
Mechanism of disease series (Grand rounds), Department of Pathology, UCSF 2020/5
9. “Retained SDHB staining in SDH-mutant renal cell carcinoma” (case presentation)
South Bay Pathology Society monthly meeting on Zoom, California 2020/8
10. “Ferroptosis: The Crossroad of Metabolism and Cell Death”
Mechanism of disease series (Grand rounds), Department of Pathology, UCSF 2020/12
11. “Validation of ALK antibody for immunohistochemical assay at Zuckerberg San Francisco General Hospital”
Quality Improvement Faculty meeting, Department of Pathology, UCSF 2021/2
12. “Chronic Viral Hepatitis and Hepatocellular Carcinoma are Enriched in Pathology-Radiology Discordance in the Diagnosis of Cirrhosis”
Liver pathology platform session, USCAP 2021 annual meeting, virtual. 2021/3
13. “ARHGAP35 Loss in Endometrial Cancer: A Potential Candidate Driver of MELF-pattern Myoinvasion and Lymphovascular Space Invasion”
International Association of Chinese Pathologists (IACP) annual meeting, virtual 2021/3
The abstract won the 2nd place for 2021 IACP best abstract award
14. “Molecular Pathology of Urothelial Carcinoma: Implications and Challenges”
Mechanism of disease series (Grand rounds), Department of Pathology, UCSF 2022/1
15. “An Exploration in Pitfalls in Interpreting SDHB Immunohistochemistry”
University of Minnesota, Department of Pathology 2022/09

- University of Texas Southwestern Medical Center, Department of Pathology 2022/09
 University of Colorado, Department of Pathology, Resident Didactic Conference 2022/09
 Stanford University, Department of Pathology 2022/11
16. “Urine Cytology in Patients with Gender Confirmation Surgery and Hormone Therapy: Highlighting the Performance of Urine Cytology in an Underserved Patient Population”
 Platform presentation at joint meeting of International Congress of Cytology and American Society of Cytopathology (ASC), Baltimore, Maryland 2022/11
 The abstract won the inaugural award of Excellence in Diversity, Equity and Inclusion (DEI) Research
 17. “Succinate Dehydrogenase (SDH) Deficient Tumors – The Role of Succinate in Neoplasm and Application of SDHB Immunohistochemistry”
 University of Washington, Department of Pathology 2022/12
 18. “ Guidelines for Sampling Large TURBT Specimens: an Evidence Based Approach”
 Quality and Patient Safety platform session, USCAP 2023 annual meeting, New Orleans, LA 2023/03

Poster presentation

1. “Kinome-wide RNAi screen to identify signaling of cystine-deprived necroptosis.”
 The annual meeting of Department of Molecular Genetics and Microbiology, Duke University 2013/9
2. “Functional genomics to investigate the genetic determinants of cell death induced by oxidative stresses”
 The annual retreat of Duke Cancer Institute 2015/10
 The annual meeting of American Association for Cancer Research, Philadelphia 2015/4
3. “Cystine deprivation triggers regulated necrosis in VHL-deficient Renal Cell Carcinomas”
 The Annual Boston Taiwanese Biotechnology Symposium, Harvard University 2016/6
4. “Regulation of stress survival in mammalian cells by the NADPH phosphatase MESH1”
 Basic Science Day, Duke University 2016/11
 Annual meeting of Department of Molecular Genetics and Microbiology, Duke University 2016/9
5. “ARHGAP35 Loss in Endometrial Cancer: A Potential Candidate Driver of MELF-pattern Myoinvasion and Lymphovascular Space Invasion”
 USCAP 2021 annual meeting. Virtual. 2021/3
6. "The Clinical Utility of a 17-Gene Molecular Classifier Score in Men with NCCN Intermediate Risk Prostate Cancer"
 College of American Pathologist (CAP) annual meeting, Chicago, IL 2021/9
7. “Performance of the Paris System for Reporting Urinary Cytology (TPS) in Upper Urinary Tract Cytology – An Institutional Experience at a General Hospital”
 American Society of Cytopathology (ASC) Annual Scientific Meeting, Las Vegas, NV 2021/11
8. “Condyloma Acuminatum can Harbor Co-Existing High-Grade Squamous Intraepithelial Lesion (HSIL) or Invasive Squamous Cell Carcinoma and Show Mixed p16 Immunostaining”
 USCAP 2022 annual meeting, Los Angeles, CA 2022/3
9. “Utility of Comparing Orcein and Trichrome Staining to Aid Evaluation of Cirrhosis Dynamics”
 USCAP 2022 annual meeting, Los Angeles, CA 2022/3
10. “Mesothelioma of Uncertain Malignant Potential of Tunica Vaginalis (MUMP) – Novel Morphologies & Additional Follow-up Supporting Indolent Behavior”
 USCAP 2023 annual meeting, New Orleans, LA 2023/3

LAB RESEARCH EXPERIENCE

Laboratory of Dr. Jei-Fu Shaw, Academia Sinica, Taiwan 2002 - 2003

Project: Biochemical analysis of lipases from thermophilic <i>Archaeoglobus fulgidus</i>	
Laboratory of Dr. Jen-Tsan Ashley Chi, Department of MGM, Duke University microRNA-mRNA interaction in human white blood cells	2009
Project: Acidosis induces reprogramming of glutamine metabolism in cancers A co-authored paper published in <i>Cancer & Metabolism</i> 1(1):23.	2011
Laboratory of Dr. Hiroaki Matsunami, Department of MGM, Duke University Rotation Project: Chemical receptor OR51E2 as a viability regulator of prostate cancer cells	2012
Laboratory of Dr. Allison Ashley-Koch, Center of Human Genetics, Duke University Rotation project: Non-coding genetic variations of Chiari malformation type I	2013
Laboratory of Dr. Jen-Tsan Ashley Chi, Department of MGM, Duke University PhD thesis project: Molecular and metabolic regulation of ferroptosis Two first-authored manuscripts and nine co-authored manuscripts are published.	2013 - 2019
Laboratory of Dr. Tamara Lotan, Department of Pathology, Johns Hopkins University	2022 - 2023

LICENSES AND CERTIFICATION

Qualified Advanced Cardiac Life Support (ACLS) Provider in Taiwan	2011 - 2013
Qualified Medical Physician in Taiwan	2012 - present
ECFMG (Educational Commission for Foreign Medical Graduates) certification	2018 - present
Postgraduate Training License, PTL731, Medical Board of California	2020 - 2022
Diplomate of the American Board of Pathology (<u>Anatomic Pathology</u>)	2022
Physician, D95187, Maryland Board of Physicians	2022 - 2024
Physician and Surgeon, A178440, Medical Board of California	2022 - present

PROFESSIONAL AFFILIATIONS, COMMITTEES AND REPRESENTATIONS

National Yang-Ming University Chief Secretary of Student Association	2006 - 2007
Chair of Student Representative Council	2005 - 2006
Taipei Veterans General Hospital Intern Training Program Co-chair of intern representative committee for courses arrangement and working welfare	2011 - 2012
Treasurer of Duke Taiwanese Student Association	2013 - 2014
Duke University Program in Genetics and Genomics Committee member of Tuesday Seminar Series	2013 - 2015
American Association for Cancer Research (AACR), associate member	2014 - 2018
Sigma Xi, associate member	2014 - 2015
American Heart Association (AHA), student member	2015 - 2016
United States and Canadian Academy of Pathology (USCAP), trainee member	2020 - present
College of American Pathologists (CAP), member	2020 - present
University of California, San Francisco (UCSF), Department of Pathology and Lab Medicine Trainee organizers of departmental Mechanism of Disease (MOD) weekly conference	2020 - 2022
Lactation working group	2020 - 2021
Genitourinary Pathology Society (GUPS), member	2021 - present

Alliance for Clinical Trials in Oncology	2023 – current
Pathology committee, GU cadre leader	
GU committee member	

TEACHING EXPERIENCE

Committee member of Duke Outreach program in Genetics and Genomics (DOinGG)	2013 - 2016
Coordinate scientific lessons with experiments in elementary and middle school in the Durham area.	
Mentorship in Chi lab, Duke University	
Jasmine Y.H. Wang (NYMU, visiting medical student)	2013
Rachel T. Clark (Duke University, undergraduate student)	2014 - 2015
Chloe Fang (North Carolina School of Science and Math student)	2015
Alice T. Sun (Duke graduate student)	2015
Emily Xu (Raleigh Charter School student)	2015 - 2017
Jadesola Akinwuntan (Duke University, undergraduate student)	2016 - 2018
Yen-An Elizabeth Chang (visiting medical student from NYMU)	2017
Steven Wu (visiting medical student from NYMU)	2017
Sarah Tian (North Carolina School of Science and Math student)	2017 - 2018
Medical student small group teaching in Pathology, UCSF	2020 - current
Medical student small group teaching in Pathology, Johns Hopkins School of Medicine	2022 - 2023

CREATIVE ACTIVITIES AND COMMUNITY INVOLVEMENT

Choral experience as a soprano or alto:	
National Yang-Ming University Chorus, Taiwan (Tien-Ming Tang)	2004 - 2008
Heman choir of Taipei Hoping Presbyterian Church, Taiwan (En-Hui Fan)	2008 - 2011
Duke Chapel Choir, Durham, NC (Rodney Wynkoop / Philip Cave)	2012 - 2018
Duke Chapel Schola Cantorum, Durham, NC (Rodney Wynkoop / Philip Cave)	2012 - 2018
King's Singers Summer School, London, United Kingdom (The King's Singers)	2017
Meridian Ensemble, Seattle, WA (Yuly Kopkin)	2019
Ave Renaissance Women's Choir, Seattle, WA (Mary Sims)	2019
Ancora, Seattle, WA (Freddie Coleman)	2019
Parish choir of St. Clements of Rome Episcopal Church, Seattle, WA (Philip Tschopp)	2019
Sanctuary Choir of New Vision UMC, Millbrae, CA (Costas Dafnis)	2019 - 2020
Vocal training / coaching with:	
Julianna Tauschinger-Dempsey, soprano and dancer, Durham, NC	2015 - 2018
Solo performance:	
Soprano Soloist for selections from Handel's Messiah with Duke Chapel Choir	
in concert series "American Celebration of Music in Germany" (Rodney Wynkoop)	2015
Joint recital with Rossie Clark-Cotton, Durham, NC	2017