

林芷如 Chih-Ru Lin, MS, PhD

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Education

- **Ph.D.** in Biochemical Sciences 09/2010 – 01/2015
National Taiwan University, Taiwan
Advisor: Dr. Shui-Tein Chen
- **Master of Science** in Biomedicine and Biomedical Technology 09/2008 – 06/2010
National Chi-Nan University, Taiwan
Advisor: Dr. Shih-Lan Hsu
- **Bachelor of Science** in Fragrance and Cosmetic Science 09/2004 – 06/2008
Kaohsiung Medical University, Taiwan

Research Experience

Assistant Professor

Department of Biochemistry, School of Medicine, Kaohsiung Medical University
08/2024 – Present, Full-time

- **Research interest:** The mechanism of immunosenescence and the development of its prevention and therapeutic strategies.

Drug Discovery Scientist

Antengene Biotech LLC, Doylestown, PA, USA

03/2022 – 07/2023, Full-time

Director: Dr. Linjie Tian

- **Projects:** Discovered therapeutic antibodies for cancer, including a bifunctional antibody and an immune checkpoint inhibitor, and conducted drug combination tests.
- **Accomplishments:**
 1. Collaborated with an NK cell therapy company for drug combination tests.
 2. Prepared a patent application for a cancer-specific bifunctional antibody (pending).

Postdoctoral Fellow

Lewis Katz School of Medicine, Temple University, Philadelphia, PA, USA

11/2016 – 03/2022, Full-time

Advisors: Dr. Beata Kosmider and Dr. Karim Bahmed

- **Projects:** Investigated the functional and molecular regulation of oxidative stress-induced lung injury and emphysema/COPD in alveolar epithelial stem cells using human and mouse samples. The studies focused on cell apoptosis, DNA damage, mitochondrial dysfunction, cellular senescence, and decreased proliferation.
- **Accomplishments:**
 1. Published 10 research articles (3 first-authored), 2 reviews, and 3 conference posters.
 2. Awarded American Heart Association Postdoctoral Fellowship (20POST35210318) for research on lung epithelium regeneration (2020 – 2021).
 3. Secured second place in two poster presentation contests.
 4. Mentored undergraduate students, resulting in a poster presentation.

Postdoctoral Fellow

APRINOIA Therapeutics and Academia Sinica, Taiwan

03/2015 – 12/2015, Full-time

Advisor: Dr. Ming-Kuei Jang

- **Project:** Small molecule drug discovery for neurodegenerative diseases.
- **Duties:**
 1. Assisted in establishing a startup research lab.
 2. Optimized an automated workflow for compound screening and screened over 1000 compounds in a cell-based assay for hit identification.
 3. Developed a primary human neural stem cell model for the selection of drug candidates.

Ph.D. Student

National Taiwan University and Academia Sinica, Taiwan

09/2010 – 02/2015, Full-time

Advisor: Dr. Shui-Tein Chen

- **Projects:**
 1. Molecular regulation of regulatory T (Treg) cell differentiation/immune tolerance.
 2. Immunomodulatory effects and mechanisms of natural products.
 3. Transport efficiency of galactosamine-modified compounds in HepG2 cancer cells.
- **Accomplishments:**
 1. Published 3 articles (2 first-authored), presented 2 posters, and received NT\$6000 for Excellent Academic Performance from National Taiwan University.
 2. Trained as an independent researcher, passing the doctoral qualifying exam and Ph.D. dissertation defense.
 3. Doctoral Dissertation: Identification of Target Molecules for Immune Proteins and their Biological Functions. (Jan. 2015)

Master's Student

National Chi-Nan University and Taichung Veterans General Hospital, Taiwan

09/2008 – 08/2010, Full-time

Advisor: Dr. Shih-Lan Hsu

- **Project:** Investigated the anti-cancer effects and mechanisms of the flavonoid luteolin in inhibiting the epithelial-mesenchymal transition (EMT) in lung cancer cells.
- **Accomplishments:**
 1. Published 1 article and presented 2 posters.
 2. Secured second place in the Graduate Student Oral Presentation Contest at National Chi-Nan University.
 3. Master's Thesis: The Effects of Luteolin on TGF- β 1-mediated E-cadherin Downregulation and Cell Invasion. (July 2010)

Reviews

2. **Chih-Ru Lin***, Karim Bahmed, Beata Kosmider#. **Impaired Alveolar Re-Epithelialization in Pulmonary Emphysema.** Cells. 2022 Jun 28; 11(13): 2055. PMID: 35805139.
<https://doi.org/10.3390/cells11132055>
1. **Chih-Ru Lin***, Karim Bahmed, Beata Kosmider#. **Dysregulated cell signaling in pulmonary emphysema.** Frontiers in Medicine. 2022 Jan 3; 8:762878. PMID: 35047522.
<https://doi.org/10.3389/fmed.2021.762878>

Research Publications

14. Xiaoying Zhang*, Mir Ali, Morgan A. Pantuck, Xiaofeng Yang, **Chih-Ru Lin**, Karim Bahmed, Beata Kosmider, Ying Tian#. **CD8 T cell response and its released cytokine IFN- γ are necessary for lung alveolar epithelial repair during bacterial pneumonia.** Frontiers in Immunology, Sec. T Cell Biology. 2023 Oct 26;14:1268078. PMID: 37954603
<https://doi.org/10.3389/fimmu.2023.1268078>
13. Loukmane Karim*, **Chih-Ru Lin**, Beata Kosmider, Gerard Criner, Nathaniel Marchetti, Sudhir Bolla, Russell Bowler and Karim Bahmed#. **Mitochondrial Ribosome Dysfunction in Human Alveolar Type II Cells in Emphysema.** Biomedicines. 2022 Jun 24; 10(7): 1497. PMID: 35884802
<https://doi.org/10.3390/biomedicines10071497>
12. **Chih-Ru Lin***, Karim Bahmed, Hannah Simborio, Hassan Hayek, Sudhir Bolla, Nathaniel Marchetti, Gerard J. Criner, Beata Kosmider#. **Expression of SARS-CoV-2 Entry Factors in Human Alveolar Type II Cells in Aging and Emphysema.** Biomedicines. 2021 Jul 6; 9(7), 779. PMID: 34356843
<https://doi.org/10.3390/biomedicines9070779>

11. Beata Kosmider*[#], **Chih-Ru Lin**, Loukmane Karim, Dhanendra Tomar, Liudmila Vlasenko, Nathaniel Marchetti, Sudhir Bolla, Muniswamy Madesh, Gerard J. Criner, Karim Bahmed[#]. **Mitochondrial dysfunction in human primary alveolar type II cells in emphysema.** EBioMedicine 2019 Aug; 46:305-316. PMID: 31383554
<https://doi.org/10.1016/j.ebiom.2019.07.063>
10. Karim Bahmed*, Samia Boukhenouna*, Loukmane Karim, Tessa Andrews, Jiusheng Lin, Robert Powers, Mark Wilson, **Chih-Ru Lin**, Elise Messier, Nichole Reisdorph, Roger Powell, Hsin-Yao Tang, Robert Mason, Gerard Criner, Beata Kosmider[#]. **The effect of cysteine oxidation on DJ-1 cytoprotective function in human alveolar type II cells.** Cell Death & Disease. 2019 Sep 2;10(9):638. PMID: 31474749
<https://doi.org/10.1038/s41419-019-1833-5>
9. Karim Bahmed*, **Chih-Ru Lin**, Hannah Simborio, Loukmane Karim, Mark Aksoy, Steven Kelsen, Dhanendra Tomar, Muniswamy Madesh, John Elrod, Elise Messier, Robert Mason, Ellen M. Unterwald, Toby K. Eisenstein, Gerard J. Criner, Beata Kosmider[#]. **The role of DJ-1 in human primary alveolar type II cell injury induced by e-cigarette aerosol.** American Journal of Physiology-Lung Cellular and Molecular Physiology. 2019 Oct 1;317(4):L475-L485. PMID: 31313616
<https://doi.org/10.1152/ajplung.00567.2018>
8. **Chih-Ru Lin***, Karim Bahmed, Dhanendra Tomar, Nathaniel Marchetti, Gerard J. Criner, Sudhir Bolla, Mark A. Wilson, Muniswamy Madesh, Beata Kosmider[#]. **The relationship between DJ-1 and S100A8 in human primary alveolar type II cells in emphysema.** American Journal of Physiology-Lung Cellular and Molecular Physiology. 2019 Dec 1; 317(6):L791-L804. PMID: 31313618
<https://doi.org/10.1152/ajplung.00494.2018>
7. Beata Kosmider*[#], **Chih-Ru Lin**, Liudmila Vlasenko, Nathaniel Marchetti, Sudhir Bolla, Gerard J. Criner, Elise Messier, Nichole Reisdorph, Roger L. Powell, Muniswamy Madesh, Steven Kelsen, Nathaniel Xander, Kelly A. Correll, Robert J. Mason, Karim Bahmed[#]. **Impaired non-homologous end joining in human primary alveolar type II cells in emphysema.** Scientific reports. 2019 Jan 29; 9(1):920. PMID: 30696938
<https://doi.org/10.1038/s41598-018-37000-z>
6. **Chih-Ru Lin***, Karim Bahmed, Gerard J. Criner, Nathaniel Marchetti, Rubin M. Tuder, Steven Kelsen, Sudhir Bolla, Chenna Mandapati, Beata Kosmider[#]. **S100A8 protects human primary alveolar type II cells against injury and emphysema.** American Journal of Respiratory Cell and Molecular Biology. 2018 Oct 2 in press/2019 Mar; 60(3):299-307. PMID: 30277795
<https://doi.org/10.1165/rcmb.2018-0144OC>
5. Li Hui Tan*, Karim Bahmed, **Chih-Ru Lin**, Nathaniel Marchetti, Sudhir Bolla, Gerard J. Criner, Steven Kelsen, Muniswamy Madesh, Beata Kosmider[#]. **The cytoprotective role of DJ-1 and p45 NFE2 against human primary alveolar type II cell injury and emphysema.** Scientific reports. 2018 Feb 23; 23;8(1):3555. PMID: 29476075
<https://doi.org/10.1038/s41598-018-21790-3>

4. Tong-You Wade Wei*, Pei-Yu Wu*, Ting-Jung Wu[#], Hsin-An Hou[#], Wen-Chien Chou, Chieh-Lin Jerry Teng, **Chih-Ru Lin**, Jo-Mei Maureen Chen, Ting-Yang Lin, Hsiang-Chun Su, Chia-Chi Flora Huang, Chang-Tze Ricky Yu, Shih-Lan Hsu, Hwei-Fang Tien, Ming-Daw Tsai[#]. **Aurora A and NF- κ B Survival Pathway Drive Chemoresistance in Acute Myeloid Leukemia via the TRAF-Interacting Protein TIFA**. Cancer research. 2017 Jan15; 77(2):494-508. PMID: 28069801
<https://doi.org/10.1158/0008-5472.CAN-16-1004>
3. **Chih-Ru Lin***, Tong-You Wade Wei, Hsien-Yu Tsai, Ying-Ta Wu, Pei-Yu Wu[#], Shui-Tein Chen[#]. **Glycosylation-dependent interaction between CD69 and S100A8/S100A9 complex is required for regulatory T cell differentiation**. FASEB Journal 2015 Dec; 29(12):5006-17. PMID: 26296369
<https://doi.org/10.1096/fj.15-273987>
2. Chia-Che Tsai*, **Chih-Ru Lin***, Hsien-Yu Tsai, Chia-Jung Chen, Wen-Tai Li, Hui-Ming Yu, Yi-Yu Ke, Wei-Ying Hsieh, Cheng-Yen Chang, Chung-Yi Wu, Shui-Tein Chen[#], Chi-Huey Wong. **The immunologically active oligosaccharides isolated from wheatgrass modulate monocytes via Toll-like receptor-2 signaling**. Journal of Biological Chemistry. 2013 Jun 14; 288(24):17689-17697. PMID: 23629653
<https://doi.org/10.1074/jbc.M112.448381>
1. Kun-Chieh Chen*, Chiu-Yuan Chen, **Chih-Ru Lin**, Tsung-Ying Yang, Tzu-Hsiu Chen, Li-Chen Wu, Chun-Chi Wu[#]. **Luteolin attenuates TGF- β 1-induced epithelial-mesenchymal transition of lung cancer cells by interfering in the PI3K/Akt-NF- κ B-Snail pathway**. Life sciences. 2013 Dec 5; 93(24):924-933. PMID: 24140887
<https://doi.org/10.1016/j.lfs.2013.10.004>

Conference posters

9. **Chih-Ru Lin***, Karim Bahmed, Gerard Criner, Nathaniel Marchetti, Sudhir Bolla, Beata Kosmider[#]. **The Cytoprotective Function of S100A8 in Human Primary Alveolar Epithelial Cells**. American Heart Association Scientific Sessions 2020, virtual conference, USA. ePoster#P2182 (2020)
8. **Chih-Ru Lin***, Karim Bahmed, Gerard J. Criner, Nathaniel Marchetti, Rubin M. Tuder, Steven Kelsen, Sudhir Bolla, Chenna Mandapati, and Beata Kosmider[#]. **S100A8 Protects Human Primary Alveolar Type II Cells against Injury and Emphysema**. University of Pennsylvania Respiration Research Retreat. Philadelphia, PA, USA. #32 (2019) **2nd place award**
7. Beata Kosmider^{*.#}, **Chih-Ru Lin**, Liudmila Vlasenko, Nathaniel Marchetti, Sudhir Bolla, Gerard J. Criner, Elise Messier, Nichole Reisdorph, Roger L. Powell, Muniswamy Madesh, Steven Kelsen, Nathaniel Xander, Kelly A. Correll, Robert J. Mason, Karim Bahmed[#]. **Impaired non-homologous end joining in human primary alveolar type II cells in emphysema**. University of Pennsylvania Respiration Research Retreat. Philadelphia, PA, USA. #34 (2019)

6. Kevin Do*, Karim Bahmed, **Chih-Ru Lin**, Beata Kosmider#. **The Cytoprotective Role of DJ-1.** Biology Departments Spring 2019 Student Poster Session, Temple University, Philadelphia, PA, USA. (2019)
5. **Chih-Ru Lin***, Li Hui Tan, Karim Bahmed, Nathaniel Marchetti, Sudhir Bolla, Gerard J. Criner, Steven Kelsen, Muniswamy Madesh, Beata Kosmider#. **The cytoprotective role of DJ-1 and p45 NFE2 against human primary alveolar type II cell injury and emphysema.** University of Pennsylvania Respiration Research Retreat. Philadelphia, PA, USA. #29 (2018) **2nd place award**
4. Shui-Tein Chen**#, **Chih-Ru Lin**, Chia-Che Tsai. **Structure and biological functions of immuno-modulating molecules in wheatgrass.** Functional Foods in Health and Disease 11th International Conference, Functional Foods and Chronic Inflammation: Science and Practical Application. San Diego, USA. Abs. #45 (2012).
3. Chia-Che Tsai, Hsien-Yu Tsai, Chia-Jung Chen, Hui-Ming Yu, Yi-Yu Ke, Wei-Ying Hsieh, **Chih-Ru Lin***, Shui-Tein Chen#. **Characterization of Immunological Active Oligosaccharides Isolated from Wheatgrass.** Taiwan Proteomics Society Annual Conference: Disease Proteomics and Metabolomics. Kaohsiung, Taiwan. Abs. #9 (2012).
2. **Chih-Ru Lin***, Chiu-Yuan Chen, Li-Chen Wu, Shih-Lan Hsu#. **The Effects of Luteolin on TGF- β 1-mediated E-cadherin Downregulation and Cell Invasion.** The 25th Joint Annual Conference of Biomedical Sciences. Taipei, Taiwan. Abs. #279 (2010).
1. **Chih-Ru Lin***, Chiu-Yuan Chen, Li-Chen Wu, Shih-Lan Hsu#. **The Effects of Luteolin on TGF- β 1-mediated E-cadherin Downregulation and Cell Invasion.** Graduate Student Poster Presentation at National Chi-Nan University, Nantou County, Taiwan (2010). **2nd place award**