

Curriculum Vitae

Name: Xavier Cheng-Hong Tsai

Current Working Institute: National Taiwan University Hospital, No. 7, Chung-Shan South Road, Taipei, Taiwan, 10002

Education:

1. National Taiwan University and Academia Sinica, Genome and Systems Biology Degree Program, PhD (2016-2021) *Thesis: Applying Next-generation Sequencing to Explore the Risk Stratification in Acute Myeloid Leukemia Patients*
2. National Taiwan University, College of Medicine, Graduate Institute of Clinical Medicine, M.Sc. (2014-2016) *Thesis: The Clinical Implication and Prognostic Impact of Dynamic Genetic Evolution in Myelodysplastic Syndrome*
3. National Taiwan University, College of Medicine, Medicine, M.D. (2004-2010)

Licensure and Board Certification:

1. Physician of blood and marrow transplantation, Taiwan
2. Physician of hematology, Taiwan
3. Physician of general Internal Medicine, Taiwan
4. Physician certificate, Taiwan

Current Position and Professional Experiences:

1. Attending physician, National Taiwan University Hospital, Department of Internal Medicine (2019 May-)
2. Attending physician, National Taiwan University, Tai-Chen Stem Cell Therapy Center and Adjunctive attending physician, National Taiwan University Hospital (2015 July-2019 April)
3. Assistant professor, National Taiwan University, College of Medicine, Internal Medicine Department (2022 Feb-)
4. Lecturer, National Taiwan University, College of Medicine, Internal Medicine Department (2017 Aug-2022 Jan)
5. Secretary general, Taiwan Society of Blood and Marrow Transplantation (2022 Aug-)
6. Deputy secretary general, Taiwan Society of Blood and Marrow Transplantation (2019 May-2022 Aug)
7. Fellowship training in hematology at National Taiwan University Hospital (2013 July-2015 June)
8. Residency training in general internal medicine at National Taiwan University Hospital (2010 July-2013 June)

Honors and Awards:

1. 2023- Invited speaker, Annal meeting of Asia Pacific Blood and Marrow Transplantation
2. 2022- Award for Distinguished Scientific Paper (SCI) for Young Researcher (Annual Meeting of Taiwan Society of Hematology)
3. 2022- Invited speaker, Highlight of ASH international program, Asia-Pacific region
4. 2020- Award for Distinguished Scientific Paper (SCI) for Young Researcher (Annual Meeting of Taiwan Society of Hematology)
5. 2020- Award for Distinguished Oral Presentation (Annual Meeting of Taiwan Society of Hematology)
6. 2020- Award of Physician Scientist: Yuanta Cultural and Educational Foundation

7. 2019- ASH Abstract Achievement Award, 61st Congress of American Society of Hematology
8. 2019- Travel Award, Asia-Pacific BMT 2019 and International Congress of BMT 2019
9. 2019- Travel Award, 81st Annual Meeting of Japanese Society of Hematology
10. 2019- Invited speaker, the Hematology society of Taiwan-European Hematology Association joint symposium (Annual Meeting of Taiwan Society of Hematology)
11. 2018- Travel Award, International Congress of BMT 2018
12. 2018- Award for Sysmex Precision Medicine (Annual Meeting of Taiwan Society of Hematology)
13. 2017- Award for Distinguished Scientific Paper (SCI) for Young Researcher (Annual Meeting of Taiwan Society of Hematology)
14. 2016- Travel Award, 78th Annual Meeting of Japanese Society of Hematology
15. 2016- Award for Distinguished Scientific Research (Master Program, National Taiwan University, College of Medicine)
16. 2015- Travel Award, 77th Annual Meeting of Japanese Society of Hematology
17. 2015- Award for Distinguished Oral Presentation (Annual Meeting of Taiwan Society of Hematology)
18. 2014- ASH Abstract Achievement Award, 56th Congress of American Society of Hematology
19. 2014- Award for Distinguished Oral Presentation (Annual Meeting of Taiwan Society of Hematology)
20. 2014- Award for Best Abstract, 5th International Hematologic Malignancies Conference: Bridging the Gap
21. 2014- Award for Annual Outstanding Resident Representative (Department of Internal Medicine, NTUH)
22. 2013- Award for Annual Outstanding Resident Representative (Department of Internal Medicine, NTUH)
23. 2012- Award for Annual Outstanding Resident Representative (Department of Internal Medicine, NTUH)
24. 2011- Award for Best Resident, 林和惠醫師紀念基金會
25. 2010- University Presidential Award, top 5% in class of 120

Publications:

1. **Tsai CH**, Yang FJ, Huang CC, Kuo CC, Chen YM. Bubbles in the urinary bladder. **Neth J Med**. 2012 Jan;70(1):42, 46-7.
2. Hou HA, Liu CY, Kuo YY, Chou WC, **Tsai CH**, Lin CC, Lin LI, Tseng MH, Chiang YC, Liu MC, Liu CW, Tang JL, Yao M, Li CC, Huang SY, Ko BS, Hsu SC, Chen CY, Lin CT, Wu SJ, Tsay W, Tien HF. Splicing factor mutations predict poor prognosis in patients with de novo acute myeloid leukemia. **Oncotarget**. 2016 Feb 23;7(8):9084-101.
3. **Tsai CH**, Hou HA, Tang JL, Liu CY, Lin CC, Chou WC, Tseng MH, Chiang YC, Kuo YY, Liu MC, Liu CW, Lin LI, Tsay W, Yao M, Li CC, Huang SY, Ko BS, Hsu SC, Chen CY, Lin CT, Wu SJ, Tien HF. Genetic alterations and their clinical implications in older patients with acute myeloid leukemia. **Leukemia**. 2016 Jul;30(7):1485-92.
4. Chiang Y*, **Tsai CH* (co-first author)**, Kuo SH, Yao M, Li CC, Huang SY, Ko BS, Lin CT, Hou HA, Chou WC, Liu JH, Lin CC, Wu SJ, Hsu SC, Chen YC, Lin KH, Lin DT, Tien HF, Tang JL, Chen YH. Reduced incidence of interstitial pneumonitis after allogeneic hematopoietic stem cell transplantation using a modified technique of total body irradiation. **Scientific Reports**. 2016 Nov 10;6:36730
5. Hou HA, Lu JW, Lin TY, **Tsai CH**, Chou WC, Lin CC, Kuo YY, Liu CY, Tseng MH, Chiang YC, Peng

- YL, Tang JL, Gong ZY, Lin LI, Tien HF. Clinico-Biological Significance of Suppressor of cytokine signaling 1 (SOCS1) Expression in Acute Myeloid Leukemia. **Blood Cancer J.** 2017 Jul 28;7(7):e588
6. **Tsai CH**, Hou HA, Tang JL, Kuo YY, Chiu YC, Lin CC, Liu CY, Tseng MH, Lin TY, Liu MC, Liu CW, Lin LI, Yao M, Li CC, Huang SY, Ko BS, Hsu SC, Lin CT, Wu SJ, Chen CY, Tsay W, Chuang EY, Chou WC, Tien HF. Prognostic impacts and dynamic changes of cohesin complex gene mutations in de novo acute myeloid leukemia. **Blood Cancer J.** 2017 Dec 29;7(12):663
 7. Hou HA, **Tsai CH**, Lin CC, Chou WC, Kuo YY, Liu CY, Tseng MH, Peng YL, Liu MC, Liu CW, Liao XW, Lin LI, Yao M, Tang JL, Tien HF. Incorporation of mutations in five genes in the revised International Prognostic Scoring System can improve risk stratification in the patients with myelodysplastic syndrome. **Blood Cancer J.** 2018 Apr 4;8(4):39
 8. Lin ME, Hou HA, **Tsai CH**, Wu SJ, Kuo YY, Tseng MH, Liu MC, Liu CW, Chou WC, Chen CY, Tang JL, Yao M, Li CC, Huang SY, Ko BS, Hsu SC, Lin CT, Tien HF. Dynamics of DNMT3A mutation and prognostic relevance in patients with primary myelodysplastic syndrome. **Clin Epigenetics.** 2018 Apr 2;10:42.
 9. Tien FM, Hou HA, **Tsai CH**, Tang JL, Chen CY, Kuo YY, Li CC, Lin CT, Yao M, Huang SY, Ko BS, Hsu SC, Wu SJ, Tsay W, Tseng MH, Liu MC, Liu CW, Lin LI, Chou WC, Tien HF. Hyperleukocytosis is associated with distinct genetic alterations and is an independent poor-risk factor in de novo acute myeloid leukemia patients. **Eur J Haematol.** 2018 Jul;101(1):86-94
 10. Tien FM, Hou HA, Tang JL, Kuo YY, Chen CY, **Tsai CH**, Yao M, Lin CT, Li CC, Huang SY, Ko BS, Hsu SC, Wu SJ, Liu JH, Chou SC, Tsay W, Tseng MH, Liu MC, Liu CW, Lin LI, Chou WC, Tien HF. Concomitant WT1 mutations predict poor prognosis in acute myeloid leukemia patients with double mutant CEBPA. **Haematologica.** 2018 Nov;103(11):e510-e513
 11. Tefferi A, Gangat N, Mudireddy M, Lasho TL, Finke C, Begna KH, Elliott MA, Al-Kali A, Litzow MR, Hook CC, Wolanskyj AP, Hogan WJ, Patnaik MM, Pardananani A, Zblewski DL, He R, Viswanatha D, Hanson CA, Ketterling RP, Tang JL, Chou WC, Lin CC, **Tsai CH**, Tien HF, Hou HA. Mayo Alliance Prognostic Model for Myelodysplastic Syndromes: Integration of Genetic and Clinical Information. **Mayo Clin Proc.** 2018 Oct;93(10):1363-1374
 12. Kuo WH, Chen YH, **Tsai CH**, Liao XW, Kuo SH, Tang JL. Outcome of acute leukemia patients with central nervous system (CNS) involvement treated with total body or CNS irradiation before transplantation. **Therapeutic Radiology and Oncology.** 2018 July.
 13. Yang YT, Chiu YC, Kao CJ, Hou HA, Lin CC, **Tsai CH**, Tseng MH, Chou WC, Tien HF. The prognostic significance of global aberrant alternative splicing in patients with myelodysplastic syndrome. **Blood Cancer J.** 2018 Aug 13;8(8):78.
 14. Tien FM, Hou HA, **Tsai CH**, Tang JL, Chiu YC, Chen CY, Kuo YY, Tseng MH, Peng YL, Liu MC, Liu CW, Liao XW, Lin LI, Lin CT, Wu SJ, Ko BS, Hsu SC, Huang SY, Yao M, Chou WC, Tien HF. GATA2 zinc finger 1 mutations are associated with distinct clinico-biological features and outcomes different from GATA2 zinc finger 2 mutations in adult acute myeloid leukemia. **Blood Cancer J.** 2018 Aug 31;8(9):87.
 15. Ko BS, Wang YF, Li JL, Li CC, Weng PF, Hsu SC, Hou HA, Huang HH, Yao M, Lin CT, Liu JH, **Tsai CH**, Huang TC, Wu SJ, Huang SY, Chou WC, Tien HF, Lee CC, Tang JL. Clinically validated machine learning algorithm for detecting residual diseases with multicolor flow cytometry analysis in acute myeloid leukemia and myelodysplastic syndrome. **EBioMedicine.** 2018 Nov;37:91-100
 16. **Tsai CH**, Yao CY, Tien FM, Tang JL, Kuo YY, Chiu YC, Lin CC, Tseng MH, Peng YL, Liu MC, Liu CW, Yao M, Lin LI, Chou WC, Chen CY, Hou HA, Tien HF. Incorporation of long non-coding RNA expression profile in the 2017 ELN risk classification can improve prognostic prediction of

- acute myeloid leukemia patients. **EBioMedicine**. 2019 Feb;40:240-250
17. Liu JH, Liao XW, Chen CH, Yao M, Li CC, Lin CT, **Tsai CH**, Chou WC, Hou HA, Huang SY, Wu SJ, Chen YC, Tien HF, Tang JL, Ko BS. Adoptive donor immunity protects against resolved hepatitis B virus reactivation after allogeneic haematopoietic stem cell transplantation in the world's largest retrospective cohort study. **Br J Haematol**. 2019 Jul;186(1):72-85
 18. Tien FM, **Tsai CH***, Liu JH, Lin CT. Brentuximab vedotin as a salvage treatment for relapsed and refractory Hodgkin lymphoma patients in Taiwan. **J Formos Med Assoc**. 2019 Oct;118(10):1466-1470 (Corresponding author)
 19. Wang YH, Lin CC, Yao CY, Hsu CL, Hou HA, **Tsai CH**, Chou WC, Tien HF. A 4-gene leukemic stem cell score can independently predict the prognosis of myelodysplastic syndrome patients. **Blood Adv**. 2020 Feb 25;4(4):644-654.
 20. Wang YW, **Tsai CH**, Lin CC, Tien FM, Chen YW, Lin HY, Yao M, Lin YC, Lin CT, Cheng CL, Tang JL, Chou WC, Hou HA, Tien HF. Cytogenetics and mutations could predict outcome in relapsed and refractory acute myeloid leukemia patients receiving BCL-2 inhibitor venetoclax. **Ann Hematol**. 2020 Mar;99(3):501-511.
 21. Wang WH, Lu MY, **Tsai CH**, Wang SC, Chou SW, Jou ST. A child with juvenile myelomonocytic leukemia possessing a concurrent germline CBL mutation and a NF1 variant of uncertain significance: A rare case with a common problem in the era of high-throughput sequencing. **J Formos Med Assoc**. 2021 Apr;120(4):1148-1152.
 22. Wang YH, Lin CC, Lee SH, **Tsai CH**, Wu SJ, Hou HA, Huang TC, Kuo YY, Yao M, Chang KP, Lin CW, Lin YC, Tien FM, Chou WC, Tang JL, Tien HF. ASXL1 mutation confers poor prognosis in primary myelofibrosis patients with low JAK2V617F allele burden but not in those with high allele burden. **Blood Cancer J**. 2020 Oct 12;10(10):99.
 23. Hung SY, Lin CC, Hsu CL, Yao CY, Wang YH, **Tsai CH**, Hou HA, Chou WC, Tien HF. The expression levels of long non-coding RNA KIAA0125 are associated with distinct clinical and biological features in myelodysplastic syndromes. **Br J Haematol**. 2021 Feb;192(3):589-598.
 24. Wang YH, Lin CC, Hsu CL, Hung SY, Yao CY, Lee SH, **Tsai CH**, Hou HA, Chou WC, Tien HF. Distinct clinical and biological characteristics of acute myeloid leukemia with higher expression of long noncoding RNA KIAA0125. **Ann Hematol**. 2021 Feb;100(2):487-498
 25. **Tsai CH**, Tang JL, Tien FM, Kuo YY, Wu DC, Lin CC, Tseng MH, Peng YL, Hou MF, Chuang YK, Liu MC, Liu CW, Yao M, Lin LI, Chou WC, Chen CY, Hou HA, Tien HF. Clinical implications of sequential MRD monitoring by NGS at 2 time points after chemotherapy in patients with AML. **Blood Adv**. 2021 May 25;5(10):2456-2466.
 26. Wang YH, Hou HA, Lin CC, Kuo YY, Yao CY, Hsu CL, Tseng MH, **Tsai CH**, Peng YL, Kao CJ, Chou WC, Tien HF. A CIBERSORTx-based immune cell scoring system could independently predict the prognosis of patients with myelodysplastic syndromes. **Blood Adv**. 2021 Nov 23;5(22):4535-4548
 27. Lee SH, Lin CC, Wei CH, Chang KP, Yuan CT, **Tsai CH**, Liu JH, Hou HA, Tang JL, Chou WC, Tien HF. PD-L1 expression in megakaryocytes and its clinicopathological features in primary myelofibrosis patients. **J Pathol Clin Res**. 2022 Jan;8(1):78-87.
 28. Wang YH, Lin CC, Yao CY, Hsu CL, **Tsai CH**, Hou HA, Chou WC, Tien HF. Immune signatures of bone marrow cells can independently predict prognosis in patients with myelodysplastic syndrome. **Br J Haematol**. 2022 Jan;196(1):156-168.
 29. Tien FM, **Tsai CH**, Huang SC, Liu JH, Chen CY, Kuo YY, Chuang YK, Tseng MH, Peng YL, Liu MC, Liu CW, Liao XW, Lin LI, Wu YS, Hou MF, Wu SJ, Hsu SC, Ko BS, Chou WC, Yao M, Hou HA, Tang JL, Tien HF. Distinct clinico-biological features in AML patients with low allelic ratio FLT3-ITD: role of allogeneic stem cell transplantation in first remission. *Bone Marrow Transplant*. 2022

Jan;57(1):95

30. Wang YW, **Tsai CH***, Hou HA, Tien FM, Liu JH, Chou WC, Ko BS, Chen YW, Lin CC, Cheng CL, Lo MY, Lin YC, Lu LC, Wu SJ, Kuo SH, Hong RL, Huang TC, Yao M. Polatuzumab Vedotin-based Salvage Immunochemotherapy as Third-line or Beyond Treatment for Patients with Diffuse Large B-cell Lymphoma: a Real World Experience. **Ann Hematol.** 2022 Feb;101(2):349. (Corresponding author)
31. **Tsai CH**, Chen TT, Gau JP, Wang PN, Liu YC, Lien MY, Li CC, Yao M, Ko BS. Outcomes of Different Haploidentical Transplantation Strategies from the Taiwan Blood and Marrow Transplantation Registry. **Cancers (Basel).** 2022 Feb 21;14(4):1097
32. Wang YH, Tien FM, **Tsai CH**, Huang HH, Liu JH, Liao XW, Tang JL, Yao M, Ko BS. Busulfan-containing conditioning regimens in allogeneic hematopoietic stem cell transplantation for acute lymphoblastic leukemia: A Taiwan observational study. **Cancer Rep (Hoboken).** 2022 Mar;5(3):e1488.
33. Huang CW, **Tsai CH**, Lin CW. Optic neuropathy after chimeric antigen receptor T-cell therapy. **J Formos Med Assoc.** 2022 May;121(5):1012
34. Wang YH, Yao CY, Lin CC, Chen CL, Hsu CL, **Tsai CH**, Hou HA, Chou WC, Tien HF. Higher RUNX1 expression levels are associated with worse overall and leukaemia-free survival in myelodysplastic syndrome patients. **EJHaem.** 2022 Aug 19;3(4):1209
35. Lee WH, Lin CC, **Tsai CH**, Tseng MH, Kuo YY, Liu MC, Tang JL, Sun HI, Chuang YK, Chou WC, Hou HA, Tien HF. Effect of mutation allele frequency on the risk stratification of myelodysplastic syndrome patients. **Am J Hematol.** 2022 Dec;97(12):1589
36. **Tsai CH**, Sun KJ, Lo MY, Tien FM, Kuo YY, Tseng MH, Peng YL, Chuang YK, Ko BS, Tang JL, Sun HI, Liu MC, Liu CW, Lin CC, Yao M, Chou WC, Hou HA, Tien HF. Poor prognostic implications of myelodysplasia-related mutations in both older and younger patients with *de novo* AML. **Blood Cancer J.** 2023 Jan 4;13(1):4.
37. Lee WH, Lin CC, **Tsai CH**, Tien FM, Lo MY, Ni SC, Yao M, Tseng MH, Liu MC, Tang JL, Sun HI, Chuang YK, Chou WC, Hou HA, Tien HF. Clinico-genetic and prognostic analyses of 716 patients with primary MDS and MDS/AML based on the 2022 International Consensus Classification. **Am J Hematol.** 2023 Mar;98(3):398
38. Song YQ, Herve Tilly, Shinya Rai, Zhang HL, Jin Jie, Hideki Goto, Yasuhito Terui, Shin HJ, Kim WS, Cao JN, Feng JF, Hyeon-Seok Eom, Tae Min Kim, **Tsai CH**, Gau JP, Hideo Koh, Zhang LL, Song YP, Yang Y, Li W, Huang H, Kiyoshi Ando, Jeff P Sharman, Laurie H Sehn, Lilian Bu, Wang X, Jian YW, Jamie Hirata, Calvin Lee, Jun Zhu, Koji Izutsu. Polatuzumab vedotin in previously untreated DLBCL: an Asia subpopulation analysis from the Phase 3 POLARIX trial. **Blood.** 2023 Apr 20;141(16):1971
39. Cheng CL, Yao CY, Huang PH, Yu CW, Fang WQ, Chuang WH, Wu SJ, Lin YJ, Hung YC, **Tsai CH**, Yu SC, Chou WC, Tien HF. Cerebrospinal fluid soluble programmed death-ligand 1 is a useful prognostic biomarker in primary central nervous system lymphoma. **Br J Haematol.** 2023 Apr;201(1):75
40. Lo MY, **Tsai CH**, Lin CC, Tien FM, Kuo YY, Lee WH, Peng YL, Liu MC, Tseng MH, Hsu CA, Chen JE, Lin LI, Sun HI, Chuang YK, Ko BS, Tang JL, Yao M, Chou WC, Hou HA, Tien HF. Validation of the prognostic significance of the 2022 European LeukemiaNet risk stratification system in intensive chemotherapy treated aged 18 to 65 years patients with *de novo* acute myeloid leukemia. **Am J Hematol.** 2023 May;98(5):760
41. Cheng CL, Yeh PT, Fang WQ, Ma WL, Hou HA, **Tsai CH**, Lin CP, Tien HF. Long-term outcomes of combined intravitreal methotrexate and systemic high-dose methotrexate therapy in vitreoretinal lymphoma. **Cancer Med.** 2023 Jan 5

42. Lee WH, Lin CC, Wang YH, Yao CY, Kuo YY, Tseng MH, Peng YL, Hsu CA, Sun HI, Chuang YK, Hsu CL, Tien FM, **Tsai CH**, Chou WC, Hou HA, Tien HF. Distinct genetic landscapes and their clinical implications in younger and older patients with myelodysplastic syndromes. **Hematol Oncol.** 2022 Nov 24

Presentation:

1. Annal meeting of Asia Pacific Blood and Marrow Transplantation, Indonesia, 2023: Invited speaker
2. Highlight of ASH international program, Asia-Pacific region, 2022: Invited speaker
3. The Annual Meeting of Taiwan Society of Hematology, Taipei, Taiwan, 2020.: Oral presentation and Abstract award
4. The 81th Annual Meeting of Japanese Society of Hematology, Tokyo, Japan, 2019: Poster presentation and Travel award
5. The Asia-Pacific Blood and Marrow Transplantation & International Congress of on Blood and Marrow Transplantation 2019, Busan, Korea: Oral presentation and Travel award
6. The Hematology society of Taiwan-European Hematology Association joint symposium, Taipei, Taiwan, 2019: invited speaker
7. The 45th European Society for Blood and Marrow Transplantation, Frankfurt, Germany, 2019: Poster presentation
8. The International Congress of on Blood and Marrow Transplantation 2018, Busan, Korea.: Oral presentation and Travel award
9. 2018 Asia-Pacific Summit, Novartis, Taipei, Taiwan: Invited Speaker
10. The 59th Annual Meeting of the American Society of Hematology, Atlanta, USA, 2017.: Poster presentation
11. The 43th European Society for Blood and Marrow Transplantation, Marseille, France, 2017: Poster presentation
12. The 78th Annual Meeting of Japanese Society of Hematology, Yokohama, Japan, 2016: Oral presentation and Travel award
13. The Annual meeting of Taiwan Society of Hematology, Taipei, Taiwan, 2016.: Oral presentation
14. The 42th European Society for Blood and Marrow Transplantation, Valencia, Spain, 2016: Poster presentation
15. The 57th Annual Meeting of the American Society of Hematology, Orlando, USA, 2015.: E-poster presentation
16. The 77th Annual Meeting of Japanese Society of Hematology, Kanazawa, Japan, 2015.: Oral presentation and Travel award
17. The Annual meeting of Taiwan Society of Hematology, Taipei, Taiwan, 2015.: Oral presentation and Abstract award
18. The 56th Annual Meeting of the American Society of Hematology, San Francisco, USA, 2014.: Poster presentation and Abstract achievement award
19. The Annual Meeting of Taiwan Society of Hematology, Taipei, Taiwan, 2014.: Oral presentation and Abstract award
20. The 5th International Hematologic Malignancies Conference: Bridging the Gap, Taipei, Taiwan, 2014.: Oral presentation and Best abstract award