

## Hee Sang Hwang

Assistant professor

University of Ulsan College of Medicine

Asan Medical Center

88 Olympic-ro, 43-gil

Songpa-gu, Seoul, Republic of Korea 05505

[hshwang0908@gmail.com](mailto:hshwang0908@gmail.com); [hshwang0908@amc.seoul.kr](mailto:hshwang0908@amc.seoul.kr); [eldersage@empas.com](mailto:eldersage@empas.com)

+82-10-3010-1869 (Office)

+82-10-7210-4365 (Cell phone)

+82-2-472-7898 (Fax)

### **RESEARCH INTERESTS**

Lung pathology; Lung cancer; Genomic pathology; Lymphoid malignancies

### **EDUCATION**

**Ph.D. in Medicine**, February 2019 – University of Ulsan College of Medicine. Dissertation: *Mutational and Immunomolecular Profile as Determinants of Clinical Outcome of Hepatocellular Carcinoma*.

**M.S. in Biostatistics**, August 2016 – Korea National Open University.

**M.S. in Medicine**, August 2012 – University of Ulsan College of Medicine. Dissertation: *Evaluation of Prognostic Significance of Immunohistochemical Algorithm in Diffuse Large B-cell Lymphoma*.

**M.D. in Medicine**, February 2008 – Korea University College of Medicine.

### **CERTIFICATION AND LICENSE**

Board-certified in Pathology, The Korean Society of Pathologist, 2013 (License ID: 946)

Licensed physician in Republic of Korea, 2008 (License ID: 97775)

### **MEDICAL TRAINING**

- **Clinical fellowship:** Pathology, Asan Medical Center, Seoul, Korea, 2016-2018.
- **Residency:** Pathology, Asan Medical Center, Seoul, Korea, 2009-2013.
- **Internship:** Asan Medical Center, Seoul, Republic of Korea, 2008-2009.

## **PROFESSIONAL EXPERIENCE**

**Assistant professor:** Department of Pathology, University of Ulsan College of Medicine, Asan Medical Center, 2020 to Present.

**Non-regular clinical assistant professor:** Department of Pathology, Asan Medical Center, 2018 to 2020.

- Assigned in daily routine diagnosis of surgical pathology specimens of lung, cardiovascular, lymphoid malignancies, and gastrointestinal systems at high-volume tertiary medical center.
- Assigned as a first-level reviewer of clinical next-generation sequencing tests.

## **TEACHING EXPERIENCE**

- **Teaching assistant:** University of Ulsan College of Medicine, Seoul, Korea, 2016-2017.
- **Teaching of basic pathology for second-grade pre-medical students**  
University of Ulsan College of Medicine, Seoul, Korea, 2019-Present.
- **Teaching of lung and cardiovascular pathology for first-grade medical students**  
University of Ulsan College of Medicine, Seoul, Korea, 2019-Present.

## **PUBLICATIONS**

Yeseul Kim and Bokyoung Ahn *et al* (2023). "An oncogenic *CTNNB1* mutation is predictive of post-operative recurrence-free survival in an EGFR-mutant lung adenocarcinoma." *PLoS One* 2023;18(6):e0287256.

Hee Sang Hwang *et al* (2022). "Extra copy number of *BCL2* is correlated with increased BCL-2 protein expression and poor survival in diffuse large B-cell lymphoma treated with chemoimmunotherapy." *Leuk Lymphoma* 2022;63(13):3072-3081.

Bokyoung Ahn *et al* (2022). "Clinicopathologic and genomic features of high-grade pattern and their subclasses in lung adenocarcinoma." *Lung Cancer* 2022;170:176-184.

Hee Sang Hwang *et al* (2021). "Distinct mutational profile and immune microenvironment in microsatellite-unstable and *POLE*-mutated tumors." *J Immunother Cancer* 2021;9(10):e002797.

Goeun Lee *et al* (2021). "Blood Vessel Invasion Predicts Postoperative Survival Outcomes and Systemic Recurrence Regardless of Location or Blood Vessel Type in Patients with Lung Adenocarcinoma." *Ann Surg Oncol* 2021;28(12):7279-7290.

Hee Sang Hwang *et al* (2021). "Vascular Ehlers-Danlos syndrome with distinct histopathologic features." *J Pathol Transl Med* 2021 May 11.

- Hee Sang Hwang *et al* (2021). "Prognostic Molecular Indices of Resectable Hepatocellular Carcinoma: Implications of S100P for Early Recurrence." *Ann Surg Oncol* 2021;28(11):6466-6478.
- Hee Sang Hwang *et al* (2021). "Prognostic Impact of Age at the Time of Diagnosis in Korean Patients with Diffuse Large B-cell Lymphoma in the Rituximab Era: A Single Institution Study." *Cancer Res Treat* 2021;53(1):270-278.
- Lee Hyun *et al* (2020). "A diagnostically challenging rare endobronchial glomus tumor." *Pathol Int* 2020;70(11):912-914.
- Hee Sang Hwang *et al* (2020). "Involvement of the TNF- $\alpha$  Pathway in TKI Resistance and Suggestion of TNFR1 as a Predictive Biomarker for TKI Responsiveness in Clear Cell Renal Cell Carcinoma." *J Korean Med Sci* 2020;35(5):e31.
- Hee Sang Hwang *et al* (2020). "Smooth Muscle Distribution Patterns of Choledochal Cysts and Their Implications for Pathogenesis and Postoperative Complications." *Am J Clin Pathol* 2020;153(6):760-771.
- Hee Sang Hwang *et al* (2019). "Epithelial-mesenchymal transition as a mechanism of resistance to tyrosine kinase inhibitors in clear cell renal cell carcinoma." *Lab Invest* 2019;99(5):659-670.
- Hee Sang Hwang *et al* (2018). "Grading by the Ki-67 Labeling Index of Endoscopic Ultrasound-Guided Fine Needle Aspiration Biopsy Specimens of Pancreatic Neuroendocrine Tumors Can Be Underestimated." *Pancreas* 47(10):1296-1303.
- Hee Sang Hwang and Dok Hyun Yoon *et al* (2018). "The cell-of-origin classification of diffuse large B cell lymphoma in a Korean population by the Lymph2Cx assay and its correlation with immunohistochemical algorithms." *Ann Hematol* 97(12):2363-2372.
- Hee Sang Hwang *et al* (2016). "A new extranodal scoring system based on the prognostically relevant extranodal sites in diffuse large B-cell lymphoma, not otherwise specified treated with chemoimmunotherapy." *Ann Hematol* 95(8):1249-1258.
- Hee Sang Hwang *et al* (2015). "Body mass index as a prognostic factor in Asian patients treated with chemoimmunotherapy for diffuse large B cell lymphoma, not otherwise specified." *Ann Hematol* 94(10):1655-1665.
- Hee Sang Hwang *et al* (2014). "High concordance of gene expression profiling-correlated immunohistochemistry algorithms in diffuse large B-cell lymphoma, not otherwise specified." *Am J Surg Pathol* 38(8):1046-1057.
- Ji Yong Ahn and Hee Sang Hwang *et al* (2014). "Endoscopic and pathologic findings associated with clinical outcomes of melanoma in the upper gastrointestinal tract." *Ann Surg Oncol* 21(8):2532-2539.
- Hee Sang Hwang *et al* (2014). "Intestinal diffuse large B-cell lymphoma: an evaluation of different staging systems." *J Korean Med Sci* 29(1):53-60.

Hee Sang Hwang *et al* (2011). "Intrapancreatic accessory spleen: clinicopathologic analysis of 12 cases." *Pancreas* 40(6):956-965.

## **CONFERENCE PRESENTATIONS**

### ***Oral presentation:***

Bokyung Ahn *et al* (2022). "CDKN2A homozygous deletion predicts poor outcome of immune checkpoint inhibitor monotherapy in lung adenocarcinoma." The 74th Annual Fall Meeting of the Korean Society of Pathologists

Bokyung Ahn *et al* (2021). "Clinicopathologic and genomic significances of the amount of high-grade histologic components in lung adenocarcinoma." 2021 World Conference on Lung Cancer.

Hee Sang Hwang *et al* (2019). "The comparison of mutational features between MSI-high and POLE-mutant tumors, and their association with the immune cell infiltration." The 71st Annual Fall Meeting of the Korean Society of Pathologists, Seoul, Republic of Korea.

Hee Sang Hwang *et al* (2019). "Endocardial endothelialitis as a possible diagnostic clue of cardiac allograft vasculopathy." The 71st Annual Fall Meeting of the Korean Society of Pathologists, Seoul, Republic of Korea.

Hee Sang Hwang *et al* (2019). "Prognostic impact of BCL2 copy number aberration in diffuse large B-cell lymphoma of rituximab era" The 71st Annual Fall Meeting of the Korean Society of Pathologists, Seoul, Republic of Korea.

Hee Sang Hwang *et al* (2017). "Smooth muscle distribution pattern of choledochal cyst." The 69th Annual Fall Meeting of the Korean Society of Pathologists, Seoul, Republic of Korea.

Hee Sang Hwang *et al* (2016). "Grading of biopsy specimens with Ki67 labeling indexes is concordant with that of matched surgically resected specimens of pancreatic neuroendocrine tumors." The 68th Annual Fall Meeting of the Korean Society of Pathologists, Seoul, Republic of Korea.

Hee Sang Hwang *et al* (2016). "Epithelial-to-Mesenchymal Transition as a Mechanism of the Sunitinib Resistance in Clear Cell Renal Cell Carcinoma." The 68th Annual Fall Meeting of the Korean Society of Pathologists, Seoul, Republic of Korea.

### ***Poster presentation:***

Hee Sang Hwang *et al* (2022). "Diffuse and homozygous ROS-1 immunoreactivity better predicts ROS1 fusion-positive non-small cell lung cancer." The 74th Annual Fall Meeting of the Korean Society of Pathologists, Seoul, Republic of Korea.

Hee Sang Hwang *et al* (2020). "Lung adenocarcinoma with oncogenic SMARCA4 mutation: possible target of cancer immunotherapy." 2020 World Conference on Lung Cancer, Singapore.

Hee Sang Hwang *et al* (2018). "The cell-of-origin classification of Korean diffuse large B-cell lymphoma by the Lymph2Cx assay." The 80th Annual Meeting of the Japanese Society of Hematology, Osaka, Japan.

Hee Sang Hwang *et al* (2018). "Prognostic impact and response predictability of TNFR1 expression in metastatic clear cell renal cell carcinoma receiving tyrosine kinase inhibitor treatment." The 70th Annual Fall Meeting of the Korean Society of Pathologists, Seoul, Republic of Korea.

Hee Sang Hwang *et al* (2018). "Prognostic Impact of age at diagnosis in Korean diffuse large B-cell lymphoma in rituximab era: A single institution study" The 70th Annual Fall Meeting of the Korean Society of Pathologists, Seoul, Republic of Korea.

Hee Sang Hwang *et al* (2016). "A new extranodal scoring system based on the prognostically relevant extranodal sites in diffuse large B-cell lymphoma, not otherwise specified, treated with chemoimmunotherapy." The 57th Spring Meeting of the Korean Society of Hematology, Seoul, Republic of Korea.

## **RESEARCH SKILLS**

### ***Pathologic examination***

- Light microscopic examination of routine H&E and special stains
- Cytologic examination
- Immunohistochemistry

### ***Biostatistics***

- Basic statistical analysis (using R and SPSS)
- Survival analysis (using R and SPSS)

### ***Genomic data analysis***

- Gene expression profiling data analysis
- Next-generation sequencing data analysis

## **HONORS / AWARDS**

Best Poster Award, The 80th Annual Meeting of the Japanese Society of Hematology, Osaka, Japan, 2018

Best Oral Presentation Award, The 68th Annual Fall Meeting of the Korean Society of Pathologists, Seoul, Republic of Korea, 2016

Best Poster Award, The 57th Spring Meeting of the Korean Society of Hematology, Seoul, Republic of Korea, 2016

## **LANGUAGES**

Korean (native)

English (intermediate for speaking, reading and writing)

## **MEMBERSHIPS AND ASSOCIATIONS**

- Korean Medical Association
- Korean Society of Pathologist
- International Association for the Study of Lung Cancer

## **CLINICAL TRIAL EXPERIENCE**

NeoCOAST-2 (ongoing): regional pathologic investigator for the enrolled patients in Asan Medical Center

## **ICH-GCP TRAINING EXPERIENCE**

Completed ICG-GCP training course in November 13, 2018 (Clinical Trial Center, Asan Medical Center, Seoul, Korea) with annual renewal