Tan Ern Yu

Senior Consultant, Department of General Surgery, TTSH
Assistant Chairman Medical Board (Research)
Associate Professor, LKCMedicine, NTU
Clinician Scientist, Institute of Molecular and Cell Biology, A*STAR

Research Interests:

- Breasts Cancer Biomarker Discovery
- Novel Therapeutics
- Breast Image Analysis

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Biography

A/P Tan graduated from NUS Medicine in 1999. In 2005, she was awarded an NMRC training fellowship for DPhil studies at the University of Oxford where she worked on heat shock protein 75, a molecular chaperone of the tumour suppressor retinoblastoma. She obtained the FRCSEd (Gen) in 2008 and is currently Senior Consultant Surgeon and Head of Breast Service at Tan Tock Seng Hospital. She also holds the appointment of Assistant Chairman Medical Board (Research) and co-lead of Platform 2 (Cancer Databases and Tissue Banks).

AP Tan set up The Prospective Breast Diseases Database and the TTSH Tissue Repository that maintains well-characterized high-quality clinical samples collected from a variety of solid cancers. These have supported several clinical and translational research and are strategized to facilitate collaborations with other research institutes and industry partners.

Her research interests are primarily in the areas of biomarker discovery for novel strategies in breast diseases and the application of Artificial Models to breast cancer diagnosis and treatment. An ongoing project looks at how AI model can improve decision making and streamline the surgical treatment of women with abnormal breast lesions. One of her closest collaborations is with the Institute of Molecular and Cell Biology, where she holds a joint appointment. One of big ongoing projects is a joint study to establish the first Asian centric multi-omics oncology database. She is deeply involved in multi-center collaborations, believing that large cohorts across different institutions will increase the robustness of the data and ensure that new strategies are generalizable.

Selected Publications

- **Advancing breast cancer and lung cancer screening: Expert perspectives to advance programmes in Singapore.** Tan C, **Tan EY**, Tan GP, Kanesvaran R. Ann Acad Med Singap. 2025 Aug 14;54(8):498-504. doi: 10.47102/annals-acadmedsg.202567. PMID: 40928862. (IF: 8.7)

- **Trends in cancer incidence in Singapore over the last two decades.** Miao Hui, Wong E, Ng K, Tan KB, Leong F, Chang K, Seow WJ, Seow A, Tan EY, Ow S, Tan I, Chee C, Chong D. (2025). Journal of Clinical Oncology. 43. 10554-10554. 10.1200/JCO.2025.43.16_suppl.10554. (IF: 43.4)

- **Local recurrence and residual tumour rates following cryoablation for small early-stage breast cancers: systemic review and meta-analysis.** Tan E, Chong J, Pua U, **Tan EY**, Mok WY. Breast Cancer. 2025 Jan;32(1):69-78. doi: 10.1007/s12282-024-01643-w. Epub 2024 Oct 19. PMID: 39425821 (IF: 5.9)

- **Evaluating treatment outcomes in women with node-negative T1 breast cancers.** Chan, P.M.Y.; Ong, K.H.; Kuah, S.; Sim, E.J.; Chen, J.; Goh, M.H.; Ang, W.-W.; **Tan, E.Y**. Breast Cancers. Cancers 2024, 16(24), 4228. doi.org/10.3390/cancers16244228. (IF: 5.2)

- **Local recurrence and residual tumor rates following cryoablation for small early-stage breast cancers: systemic review and meta-analysis.** E. Tan, J. Chong, U. Pua, **EY Tan**, WY Mok. Breast Cancer. 10.1007/s12282-024-01643-w. (IF: 5.9)

- **Genomic Insights into Idiopathic Granulomatous Mastitis through Whole Exome Sequencing: A Case Report of Eight Patients.** S. Ong, PJ Ho, AJ Khng, BKT Tan, QT Tan, **EY Tan,** S-M Tan, TC Putti, SH Lim, ELS Tang, JM Li, M Hartman. Int. J. Mol. Sci. 2024, 25, 9058; 10.3390/ijms25169058 (IF: 5.6)

- **Post-Operative Radiation in Early Breast Cancer with N1 Disease: 10-Year Follow-Up.** SEL Tang, Sim EJ, WW Ang, Su Jun, JJC Chen, Chan MYP, Bok AC, **EY Tan**. Diseases. 2024; 10.3390/diseases12070145 (IF: 3.7)

- **Characterizing the relationship between expression quantitative trait loci (eQTL), DNA-methylation quantitative trait loci (mQTL), and breast cancer risk variants.** Peh Joo Ho, Alexis Khng, Benita Kiat-Tee Tan, Chiea Chuen Khor, **Ern Yu Tan**, Geok Hoon Lim, Jian-Min Yuan, Su-Ming Tan, Xuling Chang, Veronique Kiak Mien Tan, Xueling Sim, Rajkumar Dorajoo, Woon-Puay Koh, Mikael Hartman, Jingmei Li. Cancers. 2024; 10.3390/cancers16112072 (IF: 5.2)

Notable Research Awards & Grants from Past 5 Years

Name of Awards & Grants	Year Obtained
A*STAR: AI-based Digital Pathology (AIDP) Programme: Large-scale Annotated Digital Pathology Database and Computational AI-Based Pathology Diagnosis Platform	2025
Ng Teng Fong Healthcare Innovation Programme (NTF HIP) for “Developing a survival prediction model for more informed decision making in breast cancer treatment”	2024

Ng Teng Fong Healthcare Innovation Programme (NTF HIP) for "Exploratory Study of the Clinical Usefulness of a Novel Breast Cancer Gene Signature"	2024
National Medical Research Council (NMRC) Clinician Scientist Award (CSA) for "Evaluation of An Artificial Intelligence Model For The Combined Diagnosis And Treatment Of High-Risk B3 Lesions Detected On Breast Ultrasound"	2023
Ng Teng Fong Strategic Research Programme Grant for "Precision in Cancer Prevention"	2023
Ng Teng Fong Healthcare Innovation Programme (NTF HIP) for "An approach to improve the clinical relevance of Artificial Intelligence (AI) for breast ultrasound"	2022
Ng Teng Fong Healthcare Innovation Programme (NTF HIP) for "Developing a clinical score to predict the probability of invasive upstage in breast carcinoma in situ (DCIS)"	2021

Translating Research Into Healthcare

- Revolution in Cancer Care: Liquid Biopsies are less invasive, cheaper and can yield results in a short time. *The Straits Times*. Published 7 Oct 2017. https://www.straitstimes.com/singapore/health/revolution-in-cancer-care