



## Tan Ern Yu

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### Research Interests:

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

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## Biography

Dr 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 returned to clinical work and obtained the FRCSEd (Gen) in 2008.

Dr Tan set up The Prospective Breast Diseases Database and the TTSH Tissue Repository that boasts of high quality blood and tissue samples collected from a variety of solid cancers. These have supported several clinical and translational research studies and have facilitated collaborations with other research institutes.

Her research interests are primarily in the areas of biomarker discovery and the development of novel therapeutics. One of her closest collaborations is with Dr Yu Qiang from the Genome Institute of Singapore and together they have published work on novel markers in triple negative breast cancers and have developed a proprietary liquid biopsy assay for treatment response monitoring and for surveillance in breast cancer. Dr Tan has also led several clinical trials and also works closely with radiologists to optimise breast imaging, encompassing also work on machine deep learning to increase the accuracy of mammogram and breast ultrasound assessments.

## Selected Publications

- Lee ST, Feng M, Wei Y, Li Z, Qiao Y, Guan P, Jiang X, Wong CH, Huynh K, Wang J, Li J, Karuturi KM, Tan EY, Hoon DS, Kang Y, Yu Q. Protein Tyrosine Phosphatase UBASH3B is Overexpressed in Triple-negative Breast Cancer and Promotes Invasion and Metastasis. *Proc Natl Acad Sci USA*. 2013; 110(27):11121-11126.
- Hu JT, Tan EY, Campo L, Leek R, Seman Z, Turley H, Delia D, Cesario A, Gatter K, Pezzella F. TRAP1 is Involved in Cell Cycle Regulated by Retinoblastoma Susceptibility Gene (RB1) in Early Hypoxia and Has Variable Expression Patterns in Human Tumours. *Journal of Cancer Research Updates*. 2013; 2(3):194-210.
- Feng M, Bao Y, Li Z, Li J, Gong M, Lam S, Wang J, Marzese DM, Donovan N, Tan EY, Hoon DS, Yu Q. RASAL2 Activates RAC1 to Promote Triple-negative Breast Cancer Progression. *J Clin Invest*. 2014; 124(12):5291-304.
- Wee ZN, Yatim SM, Kohlbauer VK, Feng M, Goh JY, Yi B, Lee PL, Zhang S, Wang PP, Lim E, Tam WL, Cai Y, Ditzel HJ, Hoon DS, Tan EY, Yu Q. IRAK1 is A Therapeutic Target that Drives Breast Cancer Metastasis and Resistance to Paclitaxel. *Nat Commun*. 2015; 6:8746.

- Khattar E, Kumar P, Liu CY, Akincilar SC, Raju A, Lakshmanan M, Maury JJ, Qiang Y, Li S, Tan EY, Hui KM, Shi M, Loh YH, Tergaonkar V. Telomerase Reverse Transcriptase Promotes Cancer Cell Proliferation by Augmenting tRNA Expression. *J Clin Invest*. 2016; 126(10):4045-4060.
- Goh JY, Feng M, Wang W, Oguz G, Yatim SM, Lee PL, Yi B, Lim TH, Wang P, Tam WL, Kodahl AR, Lyng MB, Sarma S, Lin SY, Lezhava A, Yap YS, Lim AST, Hoon DSB, Ditzel HJ, Lee SC, Tan EY, and Yu Q. Chromosome 1q21.3 Amplification is A Trackable Biomarker and Actionable Target for Breast Cancer Recurrence. *Nat Med*. 2017; 23(11):1319-1330.
- Zembutsu H, Nakamura S, ... Tan EY, Hartman M, Chan CW, Lee SC, Nakamura Y. Significant Effect of Polymorphisms in CYP2D6 on Response to Tamoxifen Therapy for Breast Cancer; A Prospective Multicenter Study. *Clin Cancer Res*. 2017; 23(8):2019-2026.
- Loke SY, Munusamy P, Koh GL, Chan CHT, Madhukumar P, Thing JL, Tan KTB, Ong KW, Yong WS, Sim Y, Oey CL, Lim SZ, Chan MYP, Ho TSJ, Khoo BKJ, Wong SLJ, Thng CH, Chong BK, Tan EY, Tan VK, Lee ASG. A Circulating miRNA Signature for Stratification of Breast Lesions among Women with Abnormal Screening Mammograms. *Cancers*. 2019; 11(12):1872.

### Notable Research Awards & Grants From Past 5 Years

Name of Awards & Grants	Year Obtained
National Medical Research Council (NMRC) Clinical Scientist Individual Research Grant (CS-IRG) for “Developing phosphorylated IRAK1 (p-IRAK1) as targeted treatment in triple negative breast cancer”	2016
NMRC Clinician Scientist Award - Investigator Category (CSA-INV) for “Clinical evaluation of a novel 20-gene signature as a biomarker and metabolic target in breast cancer stem cells”	2019

### 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>