

Jane THOMSEN, Ph.D.
Research Scientist
thomsenj@gis.a-star.edu.sg



GIS MENTORING SCIENTIST

Our research is focused on applying genomic approaches toward understanding the molecular mechanisms of transcriptional regulation by the nuclear receptor, estrogen receptor alpha (ERα). Using the microarray technology platform we have previously uncovered the estrogen responsive transcriptional network in the MCF-7 human mammary carcinoma cell line and have obtained a genome-wide map of ERα binding sites by applying a chromatin immunoprecipitation technique coupled to a cloning and sequencing strategy. We are now in the process of identifying the transcriptome following antiestrogenic administration and associate regulated genes with ER binding sites. We are also investigating the role of cofactor involvement in ER gene regulation, and use surface plasmon resonance (SPR) spectroscopy to comprehensively characterize specific ER binding sites with respect to affinity, kinetics and sequence specificity.

EDUCATION

1992-1996	Ph.D. Veterinary Physiology and Pharmacology, Texas A&M University, Texas/ Genetic Institute, Copenhagen University, Denmark. Advisors: Stephen S. Safe/Leif Sondergaard
1990	M.Sc. Molecular Biology, Genetic Institute, Copenhagen University, Denmark. Advisors: Herman Autrup and Leif Sondergaard

PROFESSIONAL APPOINTMENTS

2004(Sep)	Research Scientist, Genome Institute of Singapore, Singapore
2002	Visiting scientist, Genome Institute of Singapore, Singapore
2001-2004	Research Associate, Department of Biosciences, NOVUM, Karolinska Institute, Huddinge, Sweden
1996-2000	Postdoctoral Fellow, Department of Biosciences, NOVUM, Karolinska Institute, Huddinge, Sweden. Advisor: Jan-Ake Gustafsson
1992-1996	

1990-1991 Graduate student, Department of Veterinary Physiology and Pharmacology, Texas A&M University, TX, USA/ Genetic Institute, Copenhagen University, Denmark
Research Assistant, Laboratory of Environmental Carcinogenesis, Fibiger Institute, Danish Cancer Society, Copenhagen, Denmark

HONORS AND AWARDS

2008 Principal investigator. A STAR Cross Council Office (CCO) grant
2003 First Prize. Platform presentation at FEBS international summer school
2003 Travel grant (Karolinska Institute) FEBS conference in Greece
2002 Travel grant (Erik and Edith Fernstroms Foundation) Singapore
2001 Travel grant (Karolinska Institute) Conference in France
1999 Travel grant (Karolinska Institute) Conference in Israel
1997 1-Year Fellowship (Karolinska Institute)
1996 First Prize. Poster Presentation at Gulf Coast Chapter-Society of Toxicology
1994 Quintessence nomination:
1994 Honorable Mention. Poster Presentation at Gulf Coast Chapter-Society of Toxicology
1992 1-Year Fellowship (D.& N.Ydes Foundation)
1988 1-Year Scholarship (Danish Cancer Society)

EXTERNAL GRANT

NOV_2009-Oct_2012 Toward a systems biology framework for estrogen signaling integrating technology, biology and computation by ASTAR JCO (741,000)
AUG_2008 -July_2010 Nanosensors for hormone receptor biology by ASTAR CCO (750,090)

COMPLETE PUBLICATION LIST

1. Hamza Mohamed Sabry, Pott Sebastian, Vega Vinsensius B, Thomsen Jane S, Kandhadayar Gopalan Srinivasan, Ng Patrick Wei Pern, Chiu Kuo Ping, Pettersson Sven, Wei Chia Lin, Ruan Yijun, Liu Edison T "De-novo identification of PPARgamma/RXR binding sites and direct targets during adipogenesis." PLoS ONE 2009 ; 4(3) : e4907 Epub 2009 Mar 20
2. Neo SJ, Su XD and Thomsen JS. SPR study of cooperative interactions of estrogen receptor α and transcriptional factor Sp1 with composite DNA elements. Analytical Chemistry. In press
3. Fullwood Melissa J, Liu Mei Hui, Pan You Fu, Liu Jun, Xu Han, Mohamed Yusoff Bin, Orlov Yuriy L, Velkov Stoyan, Ho Andrea, Mei Poh Huay, Chew Elaine G Y, Huang Phillips Yao Hui, Welboren Willem-Jan, Han Yuyuan, Ooi Hong Sain, Ariyaratne Pramila N, Vega Vinsensius B, Luo Yanquan, Tan Peck Yean, Choy Pei Ye, Wansa K D Senali Abayratna, Zhao Bing, Lim Kar Sian, Leow Shi Chi, Yow Jit Sin, Joseph Roy, Li Haixia, Desai Kartiki V, Thomsen Jane S, Lee Yew Kok, Karuturi R Krishna Murthy, Herve Thoreau, Bourque Guillaume, Stunnenberg Hendrik G, Ruan Xiaoan, Cacheux-Rataboul Valere, Sung Wing-Kin, Liu Edison T, Wei Chia-Lin, Cheung Edwin, Ruan Yijun "An oestrogen-receptor- α -bound human chromatin interactome." Nature 2009 Nov 5 ; 462(7269) : 58-64
4. Su XD, Neo SJ, Peh YX, Thomsen JS, Two-step antibody approach for studying nuclear protein-DNA interactions using SPR spectroscopy. Anal Biochem. 2008, 376, 137
5. Peh WY, Reimhult E, Teh HF, Thomsen JS, Su X. Understanding Ligand Binding Effects on the Conformation of Estrogen Receptor α -DNA Complexes: A Combinational Quartz Crystal Microbalance with Dissipation and Surface Plasmon Resonance Study. Biophys J. 2007, 92(12): 4415-23
6. Lin CY, Vega VB, Thomsen JS, Zhang T, Kong SL, Xie M, Chiu KP, Lipovich L, Barnett DH, Stossi F, Yeo A, George J, Kuznetsov VA, Lee YK, Charn TH, Palanisamy N, Miller LD, Cheung E, Katzenellenbogen BS, Ruan Y, Bourque G, Wei CL, Liu ET. Whole-Genome Cartography of Estrogen Receptor α Binding Sites. PLoS Genet. 2007;3(6):e87
7. Lin CY, Strom A, Kong SL, Kietz S, Thomsen JS, Tee JB, Vega VB, Miller LD, Smeds J, Bergh J, Gustafsson JA, Liu ET. Inhibitory effects of estrogen receptor beta on specific hormone-responsive gene expression and association with disease outcome in primary breast cancer. Breast Cancer Res. 2007;9(2):R25.
8. Teh HF, Peh WY, Su X, Thomsen JS Characterization of protein-DNA interactions using surface plasmon resonance spectroscopy with various assay schemes. Biochemistry 2007, 46(8):2127-35
9. Vega VB, Lin CY, Lai KS, Kong SL, Xie M, Su X, Teh HF, Thomsen JS, Yeo AL, Sung WK, Bourque G, Liu ET. Multiplatform genome-wide identification and modeling of functional human estrogen receptor binding sites. Genome Biol. 2006, 7(9):R82
10. Su X, Lin CY, O Shea SJ, Teh HF, Peh WY, Thomsen JS. Combinational Application of Surface Plasmon Resonance

Spectroscopy and Quartz Crystal Microbalance for Studying Nuclear Hormone Receptor-Response Element Interactions Anal. Chem. 2006, 78, 5552-5558

11. Matthews J, WihlÃ©n B, Thomsen J, Gustafsson JA. Aryl hydrocarbon receptor-mediated transcription: ligand-dependent recruitment of estrogen receptor alpha to 2,3,7,8-tetrachlorodibenzo-p-dioxin-responsive promoters. Mol Cell Biol. 2005 ;25(13):5317-28.
12. Kietz S, Thomsen JS, Matthews J, Pettersson K, StrÃ¶m A, Gustafsson JA. The Ah receptor inhibits estrogen-induced estrogen receptor beta in breast cancer cells. Biochem Biophys Res Commun. 2004;320(1):76-82
13. Thomsen JS, Kietz S, StrÃ¶m A, Gustafsson JA. HES-1, a novel target gene for the aryl hydrocarbon receptor. Mol Pharmacol. 2004;65(1):165-71.
14. Tujague M, Thomsen JS, Mizuki K, Sadek CM, Gustafsson JA. The focal adhesion protein vinculin alpha regulates the phosphorylation and activity of estrogen receptor alpha. J Biol Chem. 2004 279(10):9255-63