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Hypothesis driven gene expression profiling in breast cancer

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List of Publications, Rewards and Presentations

Publications

- Robustness, scalability, and integration of a wound-response gene expression signature in predicting breast cancer survival.
Chang HY*, Nuyten DS*, Sneddon JB, Hastie T, Tibshirani R, Sorlie T, Dai H, He YD, van't Veer LJ, Bartelink H, van de Rijn M, Brown PO, van de Vijver MJ. (*Shared first authorship), Proc Natl Acad Sci U S A. 2005 Mar 8;102(10):3738-43. Epub 2005 Feb 8.
- Determination of Stromal Signatures in Breast Carcinoma.
West RB, Nuyten DS, Subramanian S, Nielsen TO, Corless CL, Rubin BP, Montgomery K, Zhu S, Patel R, Hernandez-Boussard T, Goldblum JR, Brown PO, Van de Vijver MJ, Van de Rijn M. PloS Biol. 2005 June 3 6 e187.
- No common denominator for breast cancer lymph node metastasis.
Weigelt B, Wessels LF, Bosma AJ, Glas AM, Nuyten DS, He YD, Dai H, Peterse JL, van't Veer LJ. Br J Cancer. 2005 Oct 17;93(8):924-32
- Gene expression programs in response to hypoxia; cell type specificity and prognostic significance in human cancers.
Chi JT, Wang Z, Nuyten DS, Rodriguez EH, Schaner ME, Salim A, Wang Y, Kristensen GB, Helland A, Børresen-Dale AL, Giaccia A, Longaker MT, Hastie T, Yang GP, Van de Vijver MJ and Brown PO. PLoS Med. 2006 March; 3(3): e47.
- Gene expression profiling in breast cancer: understanding the molecular basis of histologic grade to improve prognosis.
Sotiriou C, Wirapati P, Loi S, Harris A, Fox S, Smeds J, Nordgren H, Farmer P, Praz V, Haibe-Kains B, Desmedt C, Larsimont D, Cardoso F, Peterse H, Nuyten D, Buyse M, Van de Vijver MJ, Bergh J, Piccart M, Delorenzi M. J Natl Cancer Inst. 2006 Feb 15;98(4):262-72.
- Genetic regulators of large-scale transcriptional signatures in cancer.
Adler AS, Lin M, Horlings H, Nuyten DS, van de Vijver MJ, Chang HY. Nat Genet. 2006 Apr;38(4):421-430. Epub 2006 Mar 5.
- Concordance among gene-expression-based predictors for breast cancer.
Fan C, Oh DS, Wessels L, Weigelt B, Nuyten DS, Nobel AB, van't Veer LJ, Perou CM. N Engl J Med. 2006 Aug 10;355(6):560-9.
- Predicting a local recurrence after breast-conserving therapy by gene expression profiling.
Nuyten DS, Kreike B, Hart AA, Chi JT, Sneddon JB, Wessels LF, Peterse HJ, Bartelink H, Brown PO, Chang HY, van de Vijver MJ. Breast Cancer Res. 2006 Oct 30;8(5):R62.
- Lung metastasis genes couple breast tumor size and metastatic spread.
Minn AJ, Gupta GP, Padua D, Bos P, Nguyen DX, Nuyten D, Kreike B, Zhang Y, Wang Y, Ishwaran H, Foekens JA, van de Vijver M, Massague J. Proc Natl Acad Sci U S A. 2007 Apr 17;104(16):6740-5. Epub 2007 Apr 9.
- The macrophage-stimulating protein pathway promotes metastasis in a mouse model for breast cancer and predicts poor prognosis in humans
Welm AL, Sneddon JB, Taylor C, Nuyten DS, van de Vijver MJ, Hasegawa BH, Bishop JM. Proc Natl Acad Sci U S A. 2007 May 1 104 18 7570-75 Epub 2007 Apr 24
- Impact of supervised gene signatures of early hypoxia on patient survival.
Seigneuric R, Starmans MH, Fung G, Krishnapuram B, Nuyten DS, van Erk A, Magagnin MG, Rouschop KM, Krishnan S, Rao RB, Evelo CT, Begg AC, Wouters BG, Lambin P. Radiother Oncol. 2007 Jun;83(3):374-82. Epub 2007 May 25.

- Characterization of heterotypic interaction effects in vitro to deconvolute global gene expression profiles in cancer.
Buess M, Nuyten DS, Hastie T, Nielsen T, Pesich R, Brown PO. *Genome Biol.* 2007 Sep 14;8(9):R191 [Epub ahead of print].
- Gene expression programs of human smooth muscle cells: tissue-specific differentiation and prognostic significance in human cancers.
Chi JT, Rodriguez EH, Wang Z, Nuyten DS, Mukherjee S, Van de Rijn M, Van de Vijver MJ, Hastie T and Brown PO. *PLoS Genet.* 2007 Sep; 3 (9): e164
- Gene expression profiling to predict outcome after chemoradiation in head and neck cancer.
Pramana J, Van den Brekel MW, van Velthuysen ML, Wessels LF, Nuyten DS, Hofland I, Atsma D, Pimentel N, Hoebbers FJ, Rasch CR, Begg AC. *Int J Radiat Oncol Biol Phys.* 2007 Dec 1;69(5):1544-52. Epub 2007 Oct 10.
- Revealing targeted therapy for human cancer by gene module maps.
Wong DJ*, Nuyten DS*, Regev A, Lin M, Adler AS, Segal E, van de Vijver MJ, Chang HY. (*Shared first authorship) *Cancer Res.* 2008 Jan 15;68(2):369-78.
- Molecular profiles of progesterone receptor loss in human breast tumors.
Creighton CJ, Kent Osborne C, van de Vijver MJ, Foekens JA, Klijn JG, Horlings HM, Nuyten D, Wang Y, Zhang Y, Chamness GC, Hilsenbeck SG, Lee AV, Schiff R. *Breast Cancer Res Treat.* 2008 Apr 19. [Epub ahead of print].
- The chemokine receptor CXCR6 and its ligand CXCL16 are expressed in carcinomas and inhibit proliferation.
Meijer J, Ogink J, Kreike B, Nuyten D, de Visser KE, Roos E. *Cancer Res.* 2008 Jun 15;68(12):4701-8.
- Combining biological gene expression signatures in predicting outcome in breast cancer: An alternative to supervised classification.
Nuyten DS, Hastie T, Chi JT, Chang HY, van de Vijver MJ. *Eur J Cancer.* 2008 Oct;44(15):2319-29. Epub 2008 Aug 18.
- Validation of 70-gene prognosis signature in node-negative breast cancer.
Bueno-de-Mesquita JM, Linn SC, Keijzer R, Wesseling J, Nuyten DS, van Krimpen C, Meijers C, de Graaf PW, Bos MM, Hart AA, Rutgers EJ, Peterse JL, Halfwerk H, de Groot R, Pronk A, Floore AN, Glas AM, Van't Veer LJ, van de Vijver MJ. *Breast Cancer Res Treat.* 2008 Sep 26. [Epub ahead of print].
- Robust prognostic value of a knowledge-based proliferation signature across large patient microarray studies spanning different cancer types.
Starmans MH, Krishnapuram B, Steck H, Horlings H, Nuyten DS, van de Vijver MJ, Seigneuric R, Buffa FM, Harris AL, Wouters BG, Lambin P. *Br J Cancer.* 2008 Dec 2;99(11):1884-90. Epub 2008 Nov 4.
- An interferon-related gene signature for DNA damage resistance is a predictive marker for chemotherapy and radiation for breast cancer.
Weichselbaum RR, Ishwaran H, Yoon T, Nuyten DS, Baker SW, Khodarev N, Su AW, Shaikh AY, Roach P, Kreike B, Roizman B, Bergh J, Pawitan Y, van de Vijver MJ, Minn AJ. *Proc Natl Acad Sci U S A.* 2008 Nov 25;105(47):18490-5. Epub 2008 Nov 10.
- A mouse mammary gland involution mRNA signature identifies biological pathways potentially associated with breast cancer metastasis.
Stein T, Salomonis N, Nuyten DS, van de Vijver MJ, Gusterson BA. *J Mammary Gland Biol Neoplasia.* 2009 Jun;14(2):99-116. Epub 2009 Apr 30
- Local Recurrence after Breast-Conserving Therapy in Relation to Gene Expression Patterns in a Large Series of Patients.
Kreike B, Halfwerk H, Armstrong N, Bult P, Foekens JA, Veltkamp SC, Nuyten DS, Bartelink H, van de Vijver MJ. *Clin Cancer Res.* 2009 May 26. [Epub ahead of print]

- The impact of inter-observer variation in pathological assessment of node-negative breast cancer on clinical risk assessment and patient selection for adjuvant systemic treatment.
Bueno-de-Mesquita JM, Nuyten DS, Wesseling J, van Tinteren H, Linn SC, van de Vijver MJ. Ann Oncol. 2009 Jul 21. [Epub ahead of print]
- Integration of DNA copy number alterations and prognostic gene expression signatures in breast cancer patients.
Horlings HM, Lai C, Nuyten DS, Halfwerk H, Kristel P, van Beers E, Joosse SA, Klijn C, Nederlof PM, Reinders MJ, Wessels LF, van de Vijver MJ. Clin Cancer Res. 2010 Jan 15;16(2):651-63. Epub 2010 Jan 12.

Publication - Reviews

- Gene expression signatures to predict the development of metastasis in breast cancer.
Nuyten DS, van de Vijver MJ.
Breast Dis. 2006-2007;26:149-56
- Using microarray analysis as a prognostic and predictive tool in oncology: focus on breast cancer and normal tissue toxicity.
Nuyten DS, van de Vijver MJ.
Semin Radiat Oncol. 2008 Apr;18(2):105-14.
- Molecular Classification of Breast Cancer.
Nuyten DS.
Current Medical Literature - Breast Cancer 2009 93-102.

Honors and Awards

- Astra-Zeneca Scholarship 2004 for “Reproducibility of several gene expression signatures in predicting outcome in breast cancer” (27th San Antonio Breast Cancer Conference)
- ASCO (American Society of Clinical Oncology)-Merit Award 2005 for “Hypoxia gene expression signature predicts outcome in breast cancer patients” (ASCO Annual Meeting 2005).
- FECS – EJC Cancer Research Award 2005 (Federation of European Cancer Societies – European Journal of Cancer).
- Research Award 2005 – Medical Staff The Netherlands Cancer Institute
- Hans Wyder Fellowship 2006 – European School of Oncology
- ASCO Merit Award 2007 for “Revealing Targeted Therapy for Human Cancer by Gene Module Maps”. (ASCO Breast Meeting 2007)

Invited Lectures

- Dutch Society for Radiation Oncology, Utrecht, The Netherlands, November 19th 2004. "Relevance of Micro array in breast cancer".
- SUPREMO-trial meeting, Edinburgh, UK, 17th June 2005. "Molecular Signatures in selecting adjuvant treatment in breast cancer".
- 26th Annual conference of International society for Clinical Biostatistics, Szeged, Hungary, 25th August 2005. "Clinical applications of Micro array analysis in breast cancer: past, present, future".
- 25th ESTRO (European Society for Therapeutic Radiology and Oncology), Leipzig, Germany, 9th October 2006. Presidential symposium. "Genetic tumor response for radiation oncology"
- 13th ICRR (International Congress of Radiation Research), San Francisco, Ca, USA, July 11th 2007. "Expression Profiling to Predict Response in Breast Cancer"
- 6th EBBC (European Breast Cancer Conference), Berlin, April 17th 2008, Keynote Symposium, Tailoring Local-regional Therapy. "Array's - Are they helpful".

Presentations

- 23rd ESTRO, Amsterdam, The Netherlands, October 25th 2004. "Predicting local recurrence in breast conserving therapy by gene expression profiling".
- 27th San Antonio Breast Cancer Conference (General Session), San Antonio, TX, USA, December 11th 2004. "Reproducibility of several gene expression signatures in predicting outcome in breast cancer"
- ASCO 2005 annual meeting, Orlando, FL, USA, 16th May 2005. "Hypoxia gene expression signature predicts outcome in breast cancer patients"
- ECCO13 (European Cancer Conference), Paris, France. November 3rd 2005. "Combination of two biological gene expression signatures in predicting outcome in breast cancer as an alternative for supervised classification".
- CERRO 2007, Les Menuires, France. January 24th 2007. "Hypothesis Driven Gene Expression Profiling in Breast Cancer".
- ISAA 11 (International Symposium on Anti-Angiogenic Agents), La Jolla, CA, USA, February 7, 2009. "Changes in Plasma Pharmacodynamic (PD) Biomarkers, and Association of these Biomarkers and FGF2 Levels in Tumors with Response and PFS with Brivanib, an Orally Available Dual Inhibitor of VEGF and FGFR"

Poster Presentations

- Gordon Research Conference on Radiation Oncology, Ventura, CA, USA. February 1st 2005. "Hypoxia gene expression signature predicts outcome in breast cancer patients".
- The Molecular Biology of Breast Cancer, Molde, Norway, June 25 2005. "Reproducibility of molecular portraits in early stage breast cancer".
- 97th Annual Meeting American Association for Cancer Research, Washington DC, USA. April 5th 2006. "Finding Specific Drug Targets by Applying Gene Module Analysis in Patients Categorized by Previously Established Prognostic Gene Expression Signature in Early Stage Breast Cancer".
- The Breast Cancer Symposium 2007, San Francisco, CA, USA. September 8th 2007. "Revealing Targeted Therapy for Human Cancer by Gene Module Maps".
- The Gastro-Intestinal Cancer Symposium 2010, Orlando, FL, USA. January 24th 2010. "Response assessment by CT and [18F] FDG-PET in a phase I study of brivanib, an oral selective dual inhibitor of FGF and VEGF signaling, in combination with cetuximab in patients with advanced gastrointestinal malignancies (AGM)."

Patents

- WO/2007/049955: Prediction of Local Recurrence of Breast Cancer
- US Patent: 20090130096 Gene Signature of Early Hypoxia to Predict Patient Survival 05-21-2009
- US Patent: 20080286273 Knowledge-Based Proliferation Signatures and Methods of Use 11-20-2008