

## Curriculum Vitae

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Date of birth 6<sup>th</sup> of November, 1973

### Summary

Redox signaling is an exciting upcoming field in cellular signal transduction. This form of signal transduction is being mediated through the (reversible) oxidation of cysteine residues within proteins by reactive oxygen species and thus translates the cellular redox state into an appropriate cellular (transcriptional) response. The maintenance of a balanced cellular redox state is often disturbed in tumor cells due to for instance metabolic alterations like the Warburg effect. It is my aim to study how altered redox signaling contributes to cellular dysfunction and uncontrolled proliferation. My lab uses a wide range of techniques including live fluorescence microscopy, FRAP, flow-cytometry, quantitative mass-spectrometry and 'classical' biochemistry. Model systems include tissue culture, mouse models and the roundworm *Caenorhabditis elegans*.

### Work experience:

As of 2008 Assistant Professor (permanent position) at Molecular Cancer Research (formerly dept. of Physiological Chemistry), University Medical Center, Utrecht, The Netherlands.

Research topic:  
-Redox Signaling in Cancer Biology.

2005-2008 Post-Doc in the lab of Prof. Dr. Boudewijn Burgering, Department of Physiological Chemistry, UMC Utrecht.

Research Topics:  
-Redox control of FOXO transcription factors  
-Interplay between c-Myc and PI3K signaling in the control of cell cycle and apoptosis.

2002-2005 Visiting Post-Doc (EMBO Long-term fellowship) in the lab of Prof. Dr. Gerard Evan at the Cancer Research Institute, University of California at San Francisco, USA.

Research Topics:  
-Exploring the Warburg effect as a target for cancer treatment in glioblastoma multiforme  
-Molecular mechanisms of c-Myc induced cancer and apoptosis in advanced mouse models.

1997-2001 Ph.D. student in the lab of Prof. Dr. Karel Wirtz, Biochemistry of Lipids, Faculty of Chemistry, UU. Graduated (cum laude). Thesis: "The role of peroxisomes in oxidative stress" ([available online](#))

### Pre-doctoral education:

1997 Graduated in Chemistry (Drs/M.Sc) with majors in Biochemistry and Cell Biology.  
 1992 Started studying Chemistry at Utrecht University (UU), The Netherlands.  
 1986-1992 VWO, Nederrijn College (High school) Arnhem. Subjects: Physics, Chemistry, Maths (Wiskunde B), Statistics (Wiskunde A), Biology, English, German and Dutch.

### Certificates:

2015 Biomedical Sciences seminar 'Using Rubrics'  
 2015 Graduate School of Life Sciences Education Seminar '21<sup>st</sup> century skills in life sciences'  
 2012 UMC Utrecht Academy 'Activating forms of education'  
 2012 Utrecht University Center of Excellence in University Teaching 'Teaching in the international classroom'  
 2014 UMC Utrecht Academy 'Situational leadership & influence skills'  
 2009 EMBO Laboratory Management course and certificate  
 2006 Radiation safety level 4B  
 2005 "Artikel 9" (animal experiments) Veterinary Medicine, Utrecht University.  
 2004 Basic Regulatory and Ethical Requirement level II for Animal experiments, University of California, San Francisco.  
 2002 Basic Regulatory and Ethical Requirement level I for Animal experiments, University of California, San Francisco.

### Grants & Awards

2016 Dutch Cancer Society (KWF) Research Grant (with Onno Kranenburg as main applicant)  
 2014 Dutch Cancer Society (KWF) Personal Grant  
 2011 Netherlands Organisation for Scientific Research (NWO) ECHO grant  
 2011 Award for best Utrecht Graduate School of Life Sciences MSc course  
 2009 Dutch Cancer Society (KWF) Research grant  
 2007 Dutch Digestive Disorders Foundation research grant (Maag-Lever-Darm stichting)  
 2004 UCSF Liver Center Pilot and Feasibility Fund (with Gerard Evan)  
 2002 EMBO Long-term Fellowship  
 2000 Institute of Biomembranes (UU) Publication Prize.

### Selected Lectures & Seminars

2015 Oxygen Club of California World congress, Valencia, Spain June 2015 (Invited speaker)  
 2015 Society for Free Radical Research Meeting "Redox Biology meets nutrition", Heidelberg, Germany, September 2015 (Invited speaker)  
 2015 National Key Laboratory of Biotherapy, West China Hospital, Sichuan University, Chengdu, China (Invited Seminar/lab visit)  
 2014 Gordon Research Conference "Thiol-based redox signaling", Girona, Spain (Selected short talk)  
 2014 Klinikum Rechts der Isar, Technische Universität München, Munich, Germany (Invited Seminar)  
 2014 Biochemical Society Conference "Redox Regulation in Health and Disease" (Selected short talk)

2013 Oslo University Hospital, Oslo, Norway (Invited Seminar)  
2012 Technische Universität München, Munich, Germany (Invited Seminar)  
2012 National Institute on Aging, Baltimore, MD, USA (Invited Seminar)  
2011 MRC Laboratory of Molecular Biology, Cambridge, UK (Invited Seminar)  
2011 Helsinki Biomedical Graduate School Symposium, Helsinki, Finland (Invited speaker)  
2009 Biozentrum, University of Wuerzburg, Germany (Invited Seminar)  
2009 Meeting on Signal Transduction & Disease, Aachen, Germany (Selected short talk)  
2006 EMBO Workshop on Redox Signaling, Rome, Italy (Invited Speaker)  
2002 Oncogene Meeting, La Jolla, CA USA (Invited Speaker)  
2000 International Conference on Histochemistry and Cytochemistry, York, Great Britain (Invited Speaker).

### **Current Teaching**

1<sup>st</sup> years biomedical sciences (BMW). Deelcoordinator 'Eiwitten & Enzymen', blok Moleculen  
3<sup>rd</sup> year biomedical sciences (BMW), 'Moleculaire Mechanismen van Kanker'  
- develop, organize and teach the annual MSc/PhD course "Digital Images: data integrity & display". This course received the Utrecht Graduate School of Life Sciences award for best MSc course of the year in 2011.  
-develop, organize and teach the annual MSc/PhD course "Molecular Mechanism in Csncer", together with Boudewijn Burgering.  
-Conceived the educational game "Divide & Conquer" for the Utrecht Summerschool on Molecular Mechanisms of Cancer.

### **Supervision**

-Supervised 2 Ph.D. students to finish their degree (dr. Marrit Putker, dr. Marieke Visscher)  
-Currently daily supervisor ("co-promotor") of 2 Ph.D. students and a postdoc.  
-member of the Graduate Student Committee (AiO commissie) of several PhD students in the labs of Jeroen den Hertog, Susanne Lens, Boudewijn Burgering.  
-Supervised several technicians, M.Sc. and B.Sc students since my Ph.D.

### **Committees**

Member of the NWO Chemical Sciences study section 'Proteins'  
Associate member of the Faculty of 1000 Cell Biology section.

### **Other activities**

Free-lance nature photographer for the Buiten-beeld image stock bureau.

### **References**

Prof. Dr. Ir. Boudewijn Burgering, Molecular Cancer Research, University Medical Center Utrecht.  
[b.m.t.burgering@umcutrecht.nl](mailto:b.m.t.burgering@umcutrecht.nl)  
Prof. Dr. Hans Bos, Molecular Cancer Research, University Medical Center Utrecht.  
[j.l.bos@umcutrecht.nl](mailto:j.l.bos@umcutrecht.nl)  
Prof. Dr. Gerard Evan, UCSF Comprehensive Cancer Center / University of Cambridge.  
[gie20@cam.ac.uk](mailto:gie20@cam.ac.uk)  
Prof. Dr. René Medema, Netherlands Cancer Institute.  
[rh.medema@nki.nl](mailto:rh.medema@nki.nl)  
Prof. Dr. Geert Kops, Experimental Oncology, University Medical Center Utrecht.  
[G.J.P.L.Kops@umcutrecht.nl](mailto:G.J.P.L.Kops@umcutrecht.nl)

### **List of Publications (in chronological order)**

- [1] Visscher, M., Arkin, M. R., and Dansen, T. B. (2016) Covalent targeting of acquired cysteines in cancer, *Curr. Opin. Chem. Biol.* 30, 61-67.
- [2] Putker, M., Vos, H. R., van Dorenmalen, K., de Ruiter, H., Duran, A. G., Snel, B., Burgering, B. M., Vermeulen, M., and Dansen, T. B. (2015) Evolutionary acquisition of cysteines determines FOXO paralog-specific redox signaling, *Antioxid Redox Signal* 22, 15-28.
- [3] Dansen, T. B., and Kalkhoven, E. (2015) Targeting FOXO1 as an option to treat obesity?, *Cell Cycle* 14, 2558.
- [4] Putker, M., Vos, H. R., and Dansen, T. B. (2014) Intermolecular disulfide-dependent redox signalling, *Biochem. Soc. Trans.* 42, 971-978.
- [5] van den Berg, M. C., van Gogh, I. J., Smits, A. M., van Triest, M., Dansen, T. B., Visscher, M., Polderman, P. E., Vliem, M. J., Rehmann, H., and Burgering, B. M. (2013) The small GTPase RALA controls c-Jun N-terminal kinase-mediated FOXO activation by regulation of a JIP1 scaffold complex, *J. Biol. Chem.* 288, 21729-21741.
- [6] Putker, M., Madl, T., Vos, H. R., de Ruiter, H., Visscher, M., van den Berg, M. C., Kaplan, M., Korswagen, H. C., Boelens, R., Vermeulen, M., Burgering, B. M., and Dansen, T. B. (2013) Redox-dependent control of FOXO/DAF-16 by transportin-1, *Mol. Cell* 49, 730-742.
- [7] van der Vos, K. E., Eliasson, P., Proikas-Cezanne, T., Vervoort, S. J., van Boxtel, R., Putker, M., van Zutphen, I. J., Mauthe, M., Zellmer, S., Pals, C., Verhagen, L. P., Groot Koerkamp, M. J., Braat, A. K., Dansen, T. B., Holstege, F. C., Gebhardt, R., Burgering, B. M., and Coffey, P. J. (2012) Modulation of glutamine metabolism by the PI(3)K-PKB-FOXO network regulates autophagy, *Nat. Cell Biol.* 14, 829-837.
- [8] de Keizer, P. L., Burgering, B. M., and Dansen, T. B. (2011) Forkhead box o as a sensor, mediator, and regulator of redox signaling, *Antioxid Redox Signal* 14, 1093-1106.
- [9] Dansen, T. B. (2011) Forkhead Box O transcription factors: key players in redox signaling, *Antioxid Redox Signal* 14, 559-561.
- [10] Jelluma, N., Dansen, T. B., Sliedrecht, T., Kwiatkowski, N. P., and Kops, G. J. (2010) Release of Mps1 from kinetochores is crucial for timely anaphase onset, *J. Cell Biol.* 191, 281-290.
- [11] de Keizer, P. L., Packer, L. M., Szypowska, A. A., Riedl-Polderman, P. E., van den Broek, N. J., de Bruin, A., Dansen, T. B., Marais, R., Brenkman, A. B., and Burgering, B. M. (2010) Activation of forkhead box O transcription factors by oncogenic BRAF promotes p21cip1-dependent senescence, *Cancer Res.* 70, 8526-8536.
- [12] Dansen, T. B., Smits, L. M., van Triest, M. H., de Keizer, P. L., van Leenen, D., Koerkamp, M. G., Szypowska, A., Meppelink, A., Brenkman, A. B., Yodoi, J., Holstege, F. C., and Burgering, B. M. (2009) Redox-sensitive cysteines bridge p300/CBP-mediated acetylation and FoxO4 activity, *Nat. Chem. Biol.* 5, 664-672.
- [13] Dansen, T. B., and Burgering, B. M. (2008) Unravelling the tumor-suppressive functions of FOXO proteins, *Trends Cell Biol.* 18, 421-429.
- [14] Abayasiriwardana, K. S., Barbone, D., Kim, K. U., Vivo, C., Lee, K. K., Dansen, T. B., Hunt, A. E., Evan, G. I., and Broaddus, V. C. (2007) Malignant mesothelioma cells are rapidly sensitized to TRAIL-induced apoptosis by low-dose anisomycin via Bim, *Mol. Cancer Ther.* 6, 2766-2776.
- [15] Jelluma, N., Yang, X., Stokoe, D., Evan, G. I., Dansen, T. B., and Haas-Kogan, D. A. (2006) Glucose withdrawal induces oxidative stress followed by apoptosis in glioblastoma cells but not in normal human astrocytes, *Mol. Cancer Res.* 4, 319-330.
- [16] Finch, A., Prescott, J., Shchors, K., Hunt, A., Soucek, L., Dansen, T. B., Swigart, L. B., and Evan, G. I. (2006) Bcl-xL gain of function and p19 ARF loss of function cooperate oncogenically with Myc in vivo by distinct mechanisms, *Cancer Cell* 10, 113-120.
- [17] Dansen, T. B., Whitfield, J., Rostker, F., Brown-Swigart, L., and Evan, G. I. (2006) Specific requirement for Bax, not Bak, in Myc-induced apoptosis and tumor suppression in vivo, *J. Biol. Chem.* 281, 10890-10895.
- [18] Afshar, G., Jelluma, N., Yang, X., Basila, D., Arvold, N. D., Karlsson, A., Yount, G. L., Dansen, T. B., Koller, E., and Haas-Kogan, D. A. (2006) Radiation-induced caspase-8 mediates p53-independent apoptosis in glioma cells, *Cancer Res.* 66, 4223-4232.

- [19] Evan, G. I., Christophorou, M., Lawlor, E. A., Ringshausen, I., Prescott, J., Dansen, T., Finch, A., Martins, C., and Murphy, D. (2005) Oncogene-dependent tumor suppression: using the dark side of the force for cancer therapy, *Cold Spring Harb. Symp. Quant. Biol.* 70, 263-273.
- [20] Broaddus, V. C., Dansen, T. B., Abayasiriwardana, K. S., Wilson, S. M., Finch, A. J., Swigart, L. B., Hunt, A. E., and Evan, G. I. (2005) Bid mediates apoptotic synergy between tumor necrosis factor-related apoptosis-inducing ligand (TRAIL) and DNA damage, *J. Biol. Chem.* 280, 12486-12493.
- [21] van Roermund, C. W., de Jong, M., L. I. J., van Marle, J., Dansen, T. B., Wanders, R. J., and Waterham, H. R. (2004) The peroxisomal lumen in *Saccharomyces cerevisiae* is alkaline, *J. Cell Sci.* 117, 4231-4237.
- [22] Dansen, T. B., Kops, G. J., Denis, S., Jelluma, N., Wanders, R. J., Bos, J. L., Burgering, B. M., and Wirtz, K. W. (2004) Regulation of sterol carrier protein gene expression by the forkhead transcription factor FOXO3a, *J. Lipid Res.* 45, 81-88.
- [23] Kops, G. J., Dansen, T. B., Polderman, P. E., Saarloos, I., Wirtz, K. W., Coffey, P. J., Huang, T. T., Bos, J. L., Medema, R. H., and Burgering, B. M. (2002) Forkhead transcription factor FOXO3a protects quiescent cells from oxidative stress, *Nature* 419, 316-321.
- [24] Pap, E. H., Dansen, T. B., and Wirtz, K. W. (2001) Peptide-based targeting of fluorophores to peroxisomes in living cells, *Trends Cell Biol.* 11, 10-12.
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- [30] Biermann, J., Gootjes, J., Humbel, B. M., Dansen, T. B., Wanders, R. J., and van den Bosch, H. (1999) Immunological analyses of alkyl-dihydroxyacetone-phosphate synthase in human peroxisomal disorders, *Eur. J. Cell Biol.* 78, 339-348.