Dr Tarryn Willmer

Abbreviated Curriculum Vitae

Full name: Tarryn Willmer

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Current positions: Senior Scientist, SAMRC;

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Senior Extraordinary Lecturer, Stellenbosch University

https://www.researchgate.net/profile/Tarryn_Willmer

https://www.linkedin.com/in/tarryn-willmer-133b1b30/

QUALIFICATIONS

1. **PhD (2012 - 2015) Cell Biology, University of Cape Town**
   Title: "The role and regulation of the T-box Transcription factor 3 in soft tissue and bone sarcomas"
2. **MSc (2010 - 2011) Biochemistry, Rhodes University**
   Title: "The role of Hsp90/Hsp70 organising protein (Hop) in the proliferation, survival and migration of breast cancer cells"
3. **BSc (Hons) Biochemistry, Rhodes University**
   Title: "Purification optimization and the study of the role of enolase in the RNA degradosome"
4. **BSc (2006 – 2008) Biochemistry and Microbiology, Rhodes University**

ACADEMIC POSITIONS

1. **Biomedical Research and Innovation Platform, South African Medical Research Council**
   Position: Senior Scientist (August 2019 – present); Postdoctoral fellow (2017 – present)
   Research Areas: Epigenetics, Obesity, Type 2 diabetes, Cardiovascular Disease, Cancer
2. **Department of Human Biology, University of Cape Town**
   Position: Postdoctoral fellow (2016)
   Research Area: Cancer, biomarkers, targeted therapies

AWARDS AND RESEARCH GRANTS RECEIVED

2020 SAMRC- SHIP Pharmacogenomics in Precision Medicine funding (co-applicant with Dr Rabia Johnson)

2019 SAMRC baseline funding; NRF-DST Professional Development Programme (PDP) postdoctoral fellowship

2018 NRF-DST Professional Development Programme (PDP) postdoctoral fellowship

2017 NRF-DST Professional Development Programme (PDP) postdoctoral fellowship

2016: NRF and Harry Crossley postdoctoral fellowships; Honours student won prizes for top Cell Biology honours student and best honours presentation (2016)

2015: Struwig-Germeshuysen Cancer Research Trust Scholarship; DAAD-NRF Scholarship; Ernst & Ethel Erikson Trust Bursary; Marion Beatrice Waddel Bursary; First prize for oral presentation at UCT Department of Human Biology and Clinical Sciences Research Day

2014: Ernst & Ethel Erikson Trust Bursary; Marion Beatrice Waddel Bursary; DAAD-NRF Joint Scholarship

2013: Cancer Research Initiative of South Africa bursary; Marion Beatrice Waddel Bursary; DAAD-NRF Scholarship; NRF funding to attend Ziess Advanced Confocal Microscopy Imaging certificate for Live and Fixed Specimens

2012: Cancer Research Initiative of South Africa bursary; Marion Beatrice Waddel Bursary; DAAD-NRF Scholarship

2011: NRF scholarship; Medical Research Council bursary; Cancer Research Initiative of South Africa Bursary; Director of Research scholarship; Graduate assistant bursary

2010: NRF scholarship; Graduate assistant bursary

2009: NRF scholarship

2006-2008: Clare Townsend bursary; Ackerman Trust bursary; Albert Wessels Trust bursary; Rhodes Merit Award; Deans list

POSTGRADUATE STUDENTS

1. **Miss Shannon Smyly.** Targeting the TBX3:Nucleolin complex as an Anti-Cancer Therapy for Liposarcoma. BMedSc(Honours), University of Cape Town (2016). (*Degree with distinction*).
2. **Miss Asive Mayataza.** Epigenetic regulation and modulating effects by an aspalathin-enriched Rooibos extract in skeletal muscle of obese, insulin resistant Wistar rats. PhD candidate in Medical Physiology, Stellenbosch University.
3. **Miss Amsha Viraragavan.** DNA methylation and modulating effects by an aspalathin-enriched rooibos extract in the adipose tissue of obese Wistar rats. PhD candidate in Faculty of Science and Agriculture, University of Zululand.
4. **Miss Amberly Oosthuizen.** Impact of exercise intervention on DNA methylation of FKBP5 in obese, insulin resistant South African women. BSC Hons candidate in Medical Physiology, Stellenbosch University.

PUBLICATIONS

1. **Willmer, T**., Dias, S., Louw, J., Goedecke, J., Pheiffer, C. (2020) DNA methylation of FKBP5 in South African women: associations with BMI and insulin resistance. *Manuscript accepted to Clinical Epigenetics*
2. Pheiffer, C., **Willmer, T**., Dias, S., Abrahams, Y., Yan, L., Louw, Y., Goedeckee, J. (2020) Global and Insulin Receptor DNA methylation in Abdominal and Gluteal Adipose Tissues of South African women: Variation according to Body Mass Index, Adipose Depot and Ethnicity. *Manuscript submitted to Frontiers in Genetics*
3. **Willmer, T**., Johnson, R., Louw, J., Pheiffer, C. (2018) Blood based DNA methylation biomarkers for type 2 diabetes: potential for clinical applications. *Front. Endocrinol*, 9(744). DOI: 10.3389/fendo.2018.00744.
4. Pheiffer, C., Dias, S., **Willmer, T**., Louw, J. (2018) Altered microRNA expression during Impaired Glucose Tolerance and High-fat Diet Feeding. *Exp Clin Endocrinol Diabetes*, 126: 1–9.

5. Bleloch, J. S., Ballim, R. D., Kimani, S., Parkes, J., Panieri, E., **Willmer, T**., and Prince, S. (2017) Managing sarcoma: where have we come from and where are we going? *Ther Adv Med Oncol*, 9(10), 637–659.
6. **Willmer, T**., Cooper, A., Peres, J., Omar, R and Prince, S. (2017) The T-Box Transcription Factor 3 in Development and Cancer. *BioScience Trends*. DOI: 10.5582/bst.2017.01043.
7. **Willmer, T**., Hare, S., Peres, J. and Prince S. (2016) The T-box transcription factor TBX3 drives proliferation of chondrosarcoma cells by direct repression of the p21WAF1 cyclin-dependent kinase inhibitor. *Cell Division*,11:6. DOI:10.1186/s13008-016-0019- 0.
8. **Willmer, T**., Cooper, A., Govender, D. and Prince S. (2016) The T-box transcription factor 3 is a promising biomarker and a key regulator of the oncogenic phenotype of a diverse range of sarcoma subtypes. *Oncogenesis*. DOI: 10.1038/oncsis.2016.11.
9. **Willmer, T**., Peres, J., Mowla, S., Abrahams, A. and Prince P. (2015) The T-Box factor TBX3 is important in S-phase and is regulated by c-Myc and cyclin A-CDK2. *Cell Cycle*, 14:19.
10. **Willmer, T**., Contu, L., Blatch, G. L. and Edkins, A. L. (2013) Knockdown of Hop downregulates RhoC expression, and decreases pseudopodia formation and migration in cancer cell lines. *Cancer Letters*, 328 (2): 252-260.

SCIENTIFIC PRESENTATIONS

International

1. **Willmer, T**., Goedecke, J., Louw, J., Pheiffer, C. (2019) DNA methylation of FKBP5 in South African women: associations with BMI and insulin resistance. Oral presentation. ICGEB Workshop on Epigenetics of infectious and non-communicable diseases, Cape Town, South Africa.
2. Myataza, A., **Willmer, T**., Windvogel, S and Pheiffer, C. (2019) Characterization of high fat, high sugar diet-induced molecular changes and modulating effects by GRT in skeletal muscle of Wistar rats. Oral presentation. ICGEB Workshop on Epigenetics of infectious and non-communicable diseases, Cape Town, South Africa.
3. **Willmer, T**., Goedecke, J., Louw, J., Pheiffer, C. (2018) Investigating epigenetic variation underlying obesity and insulin resistance in South African women. Poster presentation. 18TH International Congress of Endocrinology / 53rd SEMDSA Congress, Cape Town, South Africa.
4. Pheiffer, C., **Willmer, T**., Dias, S., Louw, J., Goedecke, J. (2018) Altered DNA methylation is associated with metabolic risk and ethnic variation in South African women. Poster presentation. Keystone Symposium on Molecular and Cellular Biology: Drivers of Type 2 Diabetes: From Genes to Environment, Seoul, South Korea.
5. **Willmer, T**., Smyly, S., Smuts, D., Govender, D and Prince, S. (2017) Targeting the oncogenic TBX3 and its co-factor, nucleolin, in anti-cancer drug development. *Oral presentation* at the 49th Brazilian Congress of Pharmacology and Experimental Therapeutics, Ribeirão Preto, SP, Brazil.
6. **Willmer, T**., Smyly, S., Smuts, D., Govender, D and Prince, S. (2017) Targeting the oncogenic TBX3 and its co-factors in anti-cancer drug development. *Poster presentation* at AACR International Conference on New Frontiers in Cancer Research conference, Cape Town, South Africa.
7. **Willmer, T**., Prince, S., Smuts, D., Peres, J., Parkes, J. and Govender, D. (2016) The T-box transcription factor 3: a diagnostic biomarker and therapeutic target for a diverse range of sarcoma subtypes. *Oral presentation* at the Tata Memorial Centre Platinum Jubilee conference entitled "A Conference of New Ideas in Cancer – Challenging Dogmas", Mumbai, India.
8. **Willmer, T.**, Prince, S., Smuts, D., Peres, J., Parkes, J and Govender, D. (2015) The T-BOX transcription factor 3 is a promising biomarker and therapeutic target in a diverse range of sarcoma subtypes. *Oral presentation* at AORTIC Roadmap to Cancer Control in Africa, Marrakech, Morocco.

9. **Willmer, T** and Prince, S. (2014) The T-box transcription factor, TBX3, promotes tumourigenesis in soft tissue and bone sarcomas: a possible therapeutic target. *Poster presentation* at European Association for Cancer Research (EACR) 23rd Biennial Congress, Munich, Germany.

National

1. Viraragavan, A., **Willmer, T**., Johnson, R., Basson A and Pheiffer, C. (2019) Molecular alterations in adipose depots of male and female Wistar rats fed a high fat, high sugar cafeteria diet. *Oral presentation* at 47th Conference of the Physiology Society of Southern Africa, East London, South Africa.
2. Myataza, A., **Willmer, T**., Windvogel, S., Johnson, R and Pheiffer, C. (2019) Characterisation of cafeteria diet-induced molecular changes in skeletal muscle of male Wistar rats. *Oral presentation* at 47th Conference of the Physiology Society of Southern Africa, East London, South Africa.
3. Myataza, A., **Willmer, T**., Windvogel, S. and Pheiffer, C. (2019) Characterisation of cafeteria diet-induced molecular changes in skeletal muscle of male Wistar rats. *Oral presentation* at 18th Biennial Congress of the Southern African Society for Human Genetics, Cape Town, South Africa.
4. **Willmer, T.**, Ncube, S., Smuts, D., Smiley, S., Prince, S. (2018). The c-Myc/TBX3/nucleolin/Hsc70 signalling axis in oncogenesis. *Oral presentation* at SASBMB- FASBMB Conference, North-West University, Potchefstroom, South Africa.
5. **Willmer, T**., Smuts, D., Govender, D. and Prince, S. (2016) Targeting the Oncogenic Transcription Factor TBX3 and its co-factors in Anti-Cancer Drug Development. *Oral presentation* at SASBMB, East London, South Africa.
6. **Willmer, T**. and Prince S. (2015) The T-box transcription factor 3 is a promising biomarker and therapeutic target in a diverse range of sarcoma subtypes. *Oral presentation* at UCT Human Biology and Clinical Laboratory Science Research Day, Cape Town, South Africa. *Award for best oral presentation.*
7. **Willmer, T**. and Prince S. (2015) The T-box transcription factor 3 is a promising biomarker and therapeutic target in a diverse range of sarcoma subtypes. *Oral presentation* at Pathology Research and Development Congress (PathRed), Johannesburg, South Africa.
8. **Willmer, T.** and Prince S. (2015) Overexpression of the T-box transcription factor, TBX3, as an early marker of sarcomas. *Oral presentation* at CANSA research in action conference, Stellenbosch, South Africa.
9. **Willmer, T**., Blatch, G. L. and Edkins, A. L. (2012) The role of Hsp90/Hsp70 organising protein (Hop) in the proliferation, survival and invasion of cancer cells. *Oral presentation* at SASBMB-FASEB 2012
10. Burger, A., **Willmer, T**., Whiteley, C. and Boshoff, A (2010) Escherichia coli RNA degradosome: The analysis of heat shock proteins and enolase. SASBMB – Free Your Energy. Bloemfontein.

ENTRUSTED ACTIVITIES

Journal review: Journal of Cellular Biochemistry, Cellular Physiology and Biochemistry
Examiner: BSc honours programme, Departments of Human Biology, Faculty of Health Sciences, University of Cape Town; BSc honours programme, Department of Medical Physiology, Faculty of Medicine, Stellenbosch University
Teaching: Cell Biology Honours programme, University of Cape Town; Medical Physiology Honours programme, Stellenbosch University
Tutoring: 2nd year Physiology, University of Cape Town; 1st year MBCHB histology