

## CURRICULUM VITAE

ANNEKE VAN DER SPOEL VAN DIJK (NÉE VAN DIJK)

### 1. PERSONAL PARTICULARS

- a. Name and Surname: Anneke van der Spoel van Dijk
- b. Date of birth: 19 November 1958
- c. Gender: Female
- d. Marital status and number of dependants: Married with two kids
- e. Residential Address: 17 Frans Venter Street, Langenhovenpark, Bloemfontein
- f. Business Address: Department of Medical Microbiology (G4), Faculty of Health Sciences, University of the Free State, P.O. Box 339, Bloemfontein, Free State
- g. Telephone numbers: (051) 4053462 – work
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- i. E-mail address: [vdsvdijka@ufs.ac.za](mailto:vdsvdijka@ufs.ac.za); [anneke19nov@gmail.com](mailto:anneke19nov@gmail.com)
- j. Nationality: SA Citizen
- k. ID nr: 5811190068085
- l. HPCSA nr. MW0006785

### 2. QUALIFICATIONS

- a. Schooling: Free State Senior Certificate (matriculation), Jim Fouché High School, 1976.
- b. Tertiary Education: University of the Free State
  - 1979: BSc. (Zoology & Genetics).
  - 1980: BSc. (Hons) (Genetics).
  - 1984: MSc. (Genetics).

### 3. POSITIONS HELD:

1980-1987: Researcher at the Tobacco and Cotton Research Institute at Rustenburg.

1987-1990: Lecturer at the Department of Genetics, University of the Free State.

1991-1992: Researcher at the Department of Botany & Genetics, UFS.

1992 - 2001: Medical Scientist Senior/Junior Lecturer, Dept. of Medical Microbiology, PAO/UFS

2001 – Current: Medical Scientist (D2)/Junior Lecturer, Dept. of Medical Microbiology, NHLS/UFS.

- a. **Responsibilities:** Teaching: BMedSc Honn; Microbiology course to MBChB 2<sup>nd</sup> years when required; molecular technical skills to technologists and technicians. Reviewing of Tuberculosis Laboratory tests and training of clinical assistants to do so. IQC for microbiology laboratory. MMedSc students.
- b. **Research:** Projects include diagnostic techniques, molecular epidemiology and data mining of *Mycobacterium* species and other outbreak causing organisms including Enterobacteriaceae. Supervise MMedSc, BMedSc, BTech and MBChB registrar research projects

#### 4. ACADEMIC EXPERIENCE

##### **Undergraduate teaching: 2011 - 2016**

2011: Lecturing: MKM314 and MKM344 modules

2013-2014: Occasionally lecturing of Medical Bacteriology to 2<sup>nd</sup> year MBChBII students.

2016: Assist with presenting of practical classes to Optometry students

2016: Present basic molecular biology (3 lectures to BTech students

Intern Medical scientist training:

Supervisor of intern project 2015: Miss Tracy Arendse with title: "Investigating susceptibility profiles of XDR-TB isolates and detection of possible mutations in the ATP-synthase gene targeted by bedaquiline."

Postgraduate involvement BMedSc (Hons):

2007-2008: Module development, presenting of BMedSc Honn – Current advances in Medical Microbiology

2009-2016: Current advances in Medical Microbiology; Molecular Microbiology, Research techniques - Co-presented with colleagues. Convenor: BMedSc (Hons)

2010 – 2016: Supervisor for the following BMedSc honours, MBChBII and MMed projects.

1. Molecular epidemiology of *Mycobacterium tuberculosis* isolates with *rpoB* gene mutations not detected with routine testing for resistance to rifampicin. Completed 2010
2. Evaluation of discordant rifampicin resistance of *Mycobacterium tuberculosis* strains following GeneXpert MTB/RIF and Genotype MTBDRplus line probe assay testing of sputum. Completed 2013.
3. The investigation of the presence of compensatory mutations in the *rpoC* gene of Pre-XDR and XDR *Mycobacterium tuberculosis* strains. Completed 2014.
4. Detecting low level rifampicin resistance in *Mycobacterium tuberculosis*. Completed 2014.
5. Mutations present in the *gyrA* and *gyrB* genes of pre-extreme drug resistance (pre-XDR) and extreme drug resistance (XDR) *Mycobacterium tuberculosis* isolates. Completed 2015.
6. Detecting low level rifampicin resistance in *Mycobacterium tuberculosis*. Completed 2015.
7. Tuberculosis in adolescents aged 10 – 19 in the Free State province. 2014-2015.
8. Investigating drug resistance determinants of bedaquiline naïve isolates of *Mycobacterium tuberculosis*. Nokwanda P Ntshingila. 2016
9. Molecular detection of *Mycobacterium tuberculosis* from paraffin-embedded specimens. Lerato Makuoane. 2016
10. Investigating phenotypic resistance to rifampicin using BACTEC MGIT testing for strains with no specific mutations detected by the Genotype MTBDRplus assay. Lindah L Tshane. 2016.
11. Susceptibility testing of strains of tuberculosis amongst the adolescent population in the Free State using the HAIN MDRTBsl V2 and MGIT methods. Anelisiwe Mbengashe. 2016.

M.Med.Sc studies supervised.

1. Molecular epidemiology of *Mycobacterium tuberculosis* strains in the Free State and Northern Cape. SZ Mokhethi). Completed 2004.

- 2.) Origin and diversity of *Mycobacterium tuberculosis* strains in the Free State, South Africa. PM Mokhoahle. Completed 2009
- 3.) Comparison of methods and samples used in the diagnosis of childhood PTB and characterisation of *Mycobacterium tuberculosis* isolates. AE Ogunbayo. Started in 2016

External examiner:

1. M.Med.Sc: BK Dajee. The effect of selected polymorphisms in the p53 pathway as potential genetic modifiers of cancers risk and penetrance in female Afrikaner *BRCA2* carriers. 2007.

Section Human Genetics, Department Neurology, Faculty of Health Sciences, University of the Free State.

2. M.Sc. (Med): LM Ngobeni. Tetracycline resistance among ureaplasmas isolated from women presenting for termination of pregnancy at the Dr George Mukhari Academic Hospital, Ga-Rankuwa. 2015.

Department of Microbiological Pathology, Faculty of Health Sciences, Sefako Makgatho Health Sciences University, South Africa.

## 5. RESEARCH EXPERIENCE:

### PROJECTS 2010-2016:

1. Monitoring of drug resistance, drug resistance determinants and molecular epidemiology of *Mycobacterium tuberculosis* isolates in the Free State province, South Africa. MRC R130 000/, NHLS TRUST R90 000 – 2010.

2. Molecular techniques to determine the extended-spectrum  $\beta$ -lactamase (ESBL) status and investigate the molecular epidemiology of *Klebsiella pneumoniae*. NHLS Trust grant 2010 – R 90 000.

3. Detection of mutations involved in resistance to Pyrazinamide, Fluoroquinolones and Diarylquinolines in MDR strains of *Mycobacterium tuberculosis* in the Free State and the best methods to detect resistance.

Funding: NHLS TRUST R90 000 – 2015.

4. Comparison of TB in adolescents and adults. NHLSRT R100 000 2016.

## 6. PUBLICATIONS:

1. Jacquemard R, Venter A, Van der Spoel van Dijk, Van Heerden CJ, Folmer R, Chalkley LJ, Van Wyk H. Aetiology of lower airway infections in hospitalized children under 18 months of age in the Bloemfontein area. *South African Medical Journal* 2001; 91(11):972-974.

2. Van der Spoel van Dijk A. Molecular characterisation of isoniazid-resistant *Mycobacterium tuberculosis* strains from the Free State and Northern Cape provinces, South Africa. *Journal of Thrombosis and Haemostasis* 2003; 1(Supp 1): Abstract number 902\_p1292. (Abstracts from XIX International ISTH Congress).

3. van Rensburg HCJ, Meulemans H, Rigouts L, Heunis JC, Janse van Rensburg E, Matebesi SZ, van der Spoel A, Timmerman C, De Graeve D, Pauwels L, Portaels F, Gryseels B, van Houtte J. Social research as an intervention tool in tuberculosis control. *Int J Tuberc Lung Dis* 2004; 8(9):1127-1129.

4. Mokhethi SZ, Van der spoel van Dijk A, Van der Zanden AGM, Rigouts L. High strain diversity among isoniazid-resistant *Mycobacterium tuberculosis* isolates from the Free State and Northern Cape provinces, South Africa. *ACTA ACADEMICA SUPPLEMENTUM* 2005(1):110-127

5. Van der Spoel van Dijk A, Mokhethi SZ, Khumalo MJ, Shamputa IC, Matebesi SZ, van Rensburg HCJ, Portaels F, Rigouts L. DNA fingerprinting analyses of *Mycobacterium tuberculosis*-complex isolates from the Free State, South Africa, as part of a multidisciplinary study. *ACTA ACADEMICA SUPPLEMENTUM* 2005(1):82-109
6. Van der Spoel van Dijk A, Makhoahle PM, Rigouts L, Baba, K. Diverse molecular genotypes of *Mycobacterium tuberculosis* complex isolates circulating in the Free State, South Africa. *Int J Microbiol*; 2016: ID 6572165.
7. Van der Spoel van Dijk A, Arendse Tracy, Baba, K. Baseline atpE sequence analysis of *Mycobacterium tuberculosis* isolates from patients on bedaquiline free treatment in the Free State, South Africa. *BMC Research Notes*. 2016 Submitted.

#### 7. PAPERS PRESENTED 2010 - 2016:

##### INTERNATIONAL Congress Presentations and Posters:

1. Van der Spoel van Dijk A, SM Moshoeshe. First report of *bla<sub>ctx-m</sub>* type extended-spectrum-beta-lactamases in an academic hospital in Bloemfontein, South Africa. 13<sup>th</sup> International Congress on Infectious Diseases, Kuala Lumpur, Malaysia, 19-22 June 2008.
2. Van der Spoel van Dijk A, Wojno T, Hoosen AA. Multi-drug resistant tuberculosis (MDR-TB) in the Free State, South Africa in 2012. 16<sup>th</sup> International congress on Infectious Diseases, Cape Town, South Africa, 2-5 April 2014.
3. Van der Spoel van Dijk A, Hoosen AA. Multidrug resistant tuberculosis (MDR-TB) amongst adolescents in the Free State province, South Africa. Abstract #6838, 26<sup>th</sup> European congress of clinical microbiology and infectious diseases (ECCMID), Amsterdam, 10-12 April 2016.

##### NATIONAL and LOCAL Congress Presentations and Posters 2010-2016:

1. Makhoahle PM, Van der Spoel van Dijk A. *Mycobacterium* complex strains in the Free State province, South Africa: Preponderance and diversity amid T1 (SIT53) and LAM3 (SIT33) families. Faculty forum, Bloemfontein, 2010.
2. Van der Spoel van Dijk A, Van der Berg M, Phasiwe LD, van Heerden CJ, Elliott E. Identification of resistance to RIF and INH in MTB complex using genotype MTBDRplus methodology. Faculty forum, Bloemfontein, 2010.
3. Van der Spoel van Dijk A, Hoosen AA. The impact of the *Mycobacterium tuberculosis* GenoType MTBDRplus assay on case detection and MDR identification in the Free State Province, South Africa, 2012: A retrospective study. 18th Biennial Conference of the South African Society of Microbiology (SASM), Forever Resorts Warmbaths, Bela-Bela, Limpopo, South Africa, 24-27 November 2013.
4. Van der Spoel van Dijk A, Roodt J, Bester A, Hoosen A. The impact of the *Mycobacterium tuberculosis* GenoType MTBDRplus assay on case detection and MDR identification in the Free State province: A retrospective study. Free State Provincial Health Research Day Symposium held on the 20th September in Bloemfontein. Tuberculosis Track. Free State Provincial Health Research Day, Bloemfontein, 2013.
5. Van der Spoel van Dijk A. Nontuberculous *Mycobacterium* (NTM) species identified at the Universitas TB Reference Laboratory: A retrospective study using reported data. Free State Research Day, Bloemfontein, 2014.

6. Geyer HDW, Van der Spoel van Dijk A. The dilemma of discrepant rifampicin resistance results with GeneXpert® MTB/RIF and GenoType® MTBDRplus assays. Free State Research Day, Bloemfontein, 2014.
7. Sokhela CM, van der Spoel van Dijk A. Restriction method for detecting low level rifampicin resistance in *Mycobacterium tuberculosis*. Pathology Research and Development Congress (PATHRED), Emperors Palace, Johannesburg, 15-16 April 2015.
8. Van der Spoel van Dijk A. Nontuberculous Mycobacterium (NTM) species identified at the Universitas TB Reference Laboratory: A retrospective study using reported data. Pathology Research and Development Congress (PATHRED), Emperors Palace, Johannesburg, 15-16 April 2015.
9. Claassen H, Dreyer E, du Plessis L, Klinck J, Liebetrau J, Van der Spoel van Dijk A. Multidrug resistant tuberculosis amongst adolescents in the Free State. Free State Department of Health Research Day, Bloemfontein, 12-13 November 2015. (Awarded best novel research by students).
10. Geyer HDW, van der Spoel van Dijk A. Mutations in the *rpoB* gene of *Mycobacterium tuberculosis* isolates with inconclusive GenoType MTBDRplus assay results. Pathology Research and Development Congress (PATHRED), Emperors Palace, Johannesburg, 15-16 April 2015.
11. van der Spoel van Dijk A, Arendse T, Baba K, Hoosen AA. Sequencing the target (*atpE*) of bedaquiline in *Mycobacterium tuberculosis* isolates. Faculty of Health Science Research Forum, Bloemfontein, 2016.
12. Maotoana M, van der Spoel van Dijk A. Screening of infrequent rifampicin mutations in *Mycobacterium tuberculosis*. Faculty of Health Science Research Forum, Bloemfontein, 2016.
13. van der Spoel van Dijk A, Arendse T, Baba K, Hoosen AA. The bedaquiline (BDQ) target gene *atpE* of BDQ naïve *Mycobacterium tuberculosis* isolates. 3<sup>rd</sup> Free State Department of Health Research Day, Bloemfontein, October 2016.
12. Ogunbayo EA, van der Spoel van Dijk A. Genotypic and phenotypic characterization of fluoroquinolone resistant tuberculosis isolates from the Free State province. 3<sup>rd</sup> Free State Department of Health Research Day, Bloemfontein, October 2016.
13. van der Spoel van Dijk A, Hallbauer U, Nyaga M, Baba K. Next generation sequencing and KvarQ analysis resolve discrepancies in laboratory findings for tuberculosis cases. 3<sup>rd</sup> Free State Department of Health Research Day, Bloemfontein, October 2016.
14. Maotoana M, van der Spoel van Dijk A. Screening of infrequent rifampicin mutations in *Mycobacterium tuberculosis*. 3<sup>rd</sup> Free State Department of Health Research Day, Bloemfontein, October 2016.

## 8. FORMAR INTERNATIONAL and LOCAL COLLABORATION

- a. Flemish research collaborators 2001-2004: The St Ignatius University of Antwerp, Prof H Meulemans. Prince Leopold Institute of Tropical Medicine, Mycobacteriology Unit, Antwerp, BELGIUM, Prof F Portaels and Dr Leen Rigouts, Department of Public Health, Drs Armand Van Deun and Anne Buvè. Origin and diversity of *Mycobacterium tuberculosis* strains in the Free State, South Africa.
- b. Dr Tania Crucitti. Prince Leopold Institute of Tropical Medicine, STD/HIV Research and Intervention Unit, Antwerp, BELGIUM, "AIDS Impuls Programme II", 2002-2003.
- c. Dr Adri GM van der Zanden. Drug susceptibility testing and rifologotyping. Laboratory for Medical Microbiology and Infectious Diseases, Apeldoorn, The NETHERLANDS. Research in Molecular Diagnostics

d. University of the Free State, Centre for Health Systems Research and Development (CHSRD), Bloemfontein, Prof. D van Rensburg: “Joint project on tuberculosis in the Free State (South Africa) – from infection to cure”

#### 9. PROJECTS REVIEWED FOR NHLS AND MRC

a. 2010: MS TITLE: Development of a Duplex PCR Assay for the Detection of Plasmid-Mediated Resistance to Penicillin and Tetracycline in *Neisseria gonorrhoeae*.

b. 2013. Review of NRF Thuthuka Programme application. Genomic and proteomic characterization of *Trichomonas vaginalis* resistant and susceptible strains.

#### 10. DIAGNOSTICS:

TB diagnostics competency 2013-2016.

Acted as Health and Safety officer of the department from 2009 – 2011.

Responsible for internal quality control of the microbiology laboratory, NHLS Central, Bloemfontein.

#### 11. WORKSHOPS ATTENDED:

1. Introduction to Data Management. PathRed 2015

2. Data analysis. Pathology Research and Development Congress (PATHRED) at Emperors Palace in Johannesburg on 14 April 2015. PathRed 2015

3. National Health Information Relational Database [NHIRD] Training. Bloemfontein, 14-15 October 2015.

4. Academic research writing and publishing. Presented by Suzy Anderson (Business and product innovation, Emerald Publishing Group, UK) on 19 October 2015. Postgraduate School, UFS.

This document represents to the best of my knowledge a true picture of my career activities from 2010 - until 2015.