

BIOGRAPHICAL

Bernard Fourie is an Extraordinary Professor in the Department of Medical Microbiology in the Faculty of Health Sciences at UP, where he leads several large-scale projects in tuberculosis, mostly with international collaboration and funding. His scientific contributions to peer-reviewed scientific journals/textbooks number more than 130. Dr Fourie is a Principal Investigator in the MRC Collaborating Centre for Tuberculosis Biomarker-Targeted Interventions (Lead: Hatherill, UCT), The MRC Unit on Antimicrobial Resistance (Lead: Dheda, UCT) and serves on the Autophagy, Inflammation and Metabolism (AIM) Centre International Council of Affiliate Members, University of New Mexico, USA Currently, Dr Fourie is making novel contributions to the field of inhaled therapies for tuberculosis, in particular pulmonary delivery of drugs and vaccines. He is also pursuing novel approaches to the simplification of molecular-based profiling for tuberculosis, and is engaged in international efforts to identifying biomarkers of risk for TB disease. In 2018, he was a Finalist in the NSTF Lifetime Achievement Rewards category.

| 1.1 GENERAL INFORMATION | | | | | |
|--|---|--------------------|-------------------------------------|---------------------|---------------|
| Surname: | FOURIE | | Maiden name (if applicable): | | |
| First names: | Petrus Bernardus | | | | |
| Title: | Prof | Gender: | Male | Citizenship: | South African |
| ID no: | 460402 5067 088 | | Date of birth: | 2 April 1946 | |
| Position at UP: | Extraordinary Professor | | | NRF rating: | C1 |
| Faculty: | Health Sciences | Department: | Medical Microbiology | | |
| Email address: | bernard.fourie@up.ac.za | | | | |
| Physical address at UP (for delivery purposes): | Room 3-16, Department of Medical Microbiology, Pathology building, 5 Bophelo Road, Prinshof Campus, UP/NHLS | | | | |
| Telephone number: | 012 319 2170 | | Fax number: | 012 321 9456 | |

| Degree/Diploma | Field of study | HE institution | Year obtained |
|-----------------|----------------------|---|---------------|
| BSc (Pret) | Zoology | University of Pretoria, Pretoria | 1971 |
| BSc Hons (Pret) | Zoology | University of Pretoria, Pretoria | 1972 |
| MSc (Pret) | Zoology | University of Pretoria, Pretoria | 1975 |
| PhD (Wits) | Medical Microbiology | University of the Witwatersrand, Johannesburg | 1982 |

| 1.3 WORK/RESEARCH EXPERIENCE TO DATE | | |
|---|---|---------------------|
| Name of employer | Capacity and/or type of work | Period |
| University of Pretoria | Research Professor (Extraordinary) | Jun 2009 – Current |
| Medicine in Need Inc., Boston, USA | Chief Scientific Officer | May 2005 – Jun 2011 |
| European and Developing Countries Clinical Trials Partnership, The Hague, Netherlands | Technical Advisor | Jun 2004 – May 2005 |
| Medical Research Council, Pretoria | Director | Jan 1990 – Feb 2004 |
| Medical Research Council, Pretoria | Scientist/Senior Scientist/Specialist Scientist | Feb 1974 – Dec 1989 |
| University of Pretoria | Junior Lecturer | Jan 1971 – Dec 1973 |

| 1.4 OTHER APPOINTMENTS/POSITIONS | |
|---|--|
| 1990-current | Biological Medicines Committee of the MCC/SAHPRA, South Africa. |
| 1991-1992 | Member of the Tuberculosis Advisory Board, Open Society Institute, New York, USA |
| 1998-2005 | Member of the IUATLD Clinical Trials Programme Steering Committee |
| 2000-2016 | Consultant, German Technical Cooperation (GIZ) on PPPs for TB/HIV control |
| 2000-current | Member of the Working Group on New Drugs of the Stop TB Partnership |
| 2000-2006 | Member/Secretary: Scientific Advisory Committee, Global Alliance for TB Drug Development |
| 2003-2005 | Board Member, European and Developing Countries Clinical Trials Partnership (EDCTP) |
| 2006-2012 | Member, Clinical and Epidemiological Technical Advisory Board, Aeras TB Vaccine Foundation |
| 2007-2011 | Chair, Business Advisory Committee, Global Drug Facility, Stop TB Partnership |
| 2008-current | Proposal Review Committee and Expert Consultant, UNITAID, Geneva |
| 1997-current | Expert Consultant to WHO Global TB Programme (GDG, TEG and others) |
| 2008-2016 | Expert Consultant to UNIDO (United Nations Industrial Organization), Vienna |
| 2014-current | Member of the Board of Directors (Non-Executive) of the National Bioproducts Institute, South Africa |
| 2015-2017 | Expert Review Panel member, EDCTP, The Hague, Netherlands |
| 2018-current | Member of the AIM Centre International Council of Affiliate Members, University of New Mexico, USA |

| 1.5 PUBLICATIONS / BOOKS / OTHER |
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| <p><i>Epidemiology and public health aspects of TB</i></p> <ol style="list-style-type: none"> 1. Fourie B. Dealing with HIV-associated tuberculosis at the community level. <i>Int J Tuberc Lung Dis.</i> 2003 Sep;7(9 Suppl 1):S2. PubMed PMID: 12971647. 2. Weyer K, Fourie PB, Dürreheim D, Lancaster J, Haslöv K, Bryden H. <i>Mycobacterium bovis</i> as a zoonosis in the Kruger National Park, South Africa. <i>Int J Tuberc Lung Dis.</i> 1999 Dec;3(12):1113-9. PubMed PMID: 10599016. 3. Maher D, Hausler HP, Raviglione MC, Kaleeba N, Aisu T, Fourie B, Nunn P. Tuberculosis care in community care organizations in sub-Saharan Africa: practice and potential. <i>Int J Tuberc Lung Dis.</i> 1997 Jun;1(3):276-83. PubMed PMID: 9432377. 4. Weyer K, Fourie PB. Tuberculosis control in South Africa--time for a new paradigm? <i>S Afr Med J.</i> 1996 May;86(5):563-4; author reply 564-5. PubMed PMID: 8711562. 5. Berman S, Kibel MA, Fourie PB, Strebel PM. Childhood tuberculosis and tuberculous meningitis: high incidence rates in the Western Cape of South Africa. <i>Tuber Lung Dis.</i> 1992 Dec;73(6):349-55. PubMed PMID: 1292715. 6. Hessel PA, Fourie PB. Ethical issues in epidemiological research. <i>S Afr Med J.</i> 1987 Dec 19;72(12):863-5. PubMed PMID: 3424034. 7. Fourie PB. BCG vaccination and the EPI. <i>S Afr Med J.</i> 1987 Sep 5;72(5):323-6. PubMed PMID: 3616834. 8. Fourie PB. Notification of tuberculosis. <i>S Afr Med J.</i> 1986 Feb 15;69(4):218-9. PubMed PMID: 3952579. 9. Fourie PB. Patterns of tuberculin hypersensitivity in South Africa. <i>Tubercle.</i> 1983 Sep;64(3):167-79. PubMed PMID: 6636305. 10. Fourie PB. The prevalence and annual rate of tuberculous infection in South Africa. <i>Tubercle.</i> 1983 Sep;64(3):181-92. PubMed PMID: 6605603. |

11. Fourie PB, Odendaal MW. Mycobacterium tuberculosis in a closed colony of baboons (*Papio ursinus*). *Lab Anim.* 1983 Apr;17(2):125-8. PubMed PMID: 6865319.
12. Fourie PB, Austoker LH. Tuberculosis prevalence survey in the Daveyton (Benoni) urban black community. *S Afr Med J.* 1981 Jul 11;60(2):64-7. PubMed PMID: 7244930.
13. Fourie PB, Gatner EM, Glatthaar E, Kleeberg HH. Follow-up tuberculosis prevalence survey of Transkei. *Tubercle.* 1980 Jun;61(2):71-9. PubMed PMID: 6776673.
14. Gatner EMS, Fourie PB, Kleeberg HH. Tuberculosis case-finding procedures. *S Afr Med J* 1979; 56 (23): 980.
15. Fourie PB, Kleeberg HH. Tuberculosis in laboratory animals. *J S Afr Vet Assoc.* 1978 Sep;49(3):219-21. PubMed PMID: 106116.

Anti-TB drugs and vaccines: Development and evaluation

16. Lawal I, Fourie B, Mathebula M, Moagi I, et al. Residual FDG metabolic activity and its prognostic value for disease relapse among patients treated for pulmonary tuberculosis. *Journal of Nuclear Medicine* 2019; 60 (Supplement 1): 296-296.
17. Sei CJ, Shey B-A, Schuman RF, Rikhi N, Muema K, Rodriguez JD, Daum LT, Fourie PB, Fischer GW. Opsonic monoclonal antibodies enhance phagocytic killing activity and clearance of *Mycobacterium tuberculosis* from blood in a quantitative qPCR mouse model. *Heliyon* 5(9):2019; e02260. doi: 10.1016/j.heliyon.2019.e02260.
18. Cholo MC, Mothiba MT, Fourie B, Anderson R. Mechanisms of action and therapeutic efficacies of the lipophilic antimycobacterial agents clofazimine and bedaquiline. *Journal of Antimicrobial Chemotherapy.* 2016 Oct 20:dkw426.
19. Hennig S, Svensson EM, Niebecker R, Fourie PB, Weiner MH, Bonora S, Peloquin CA, Gallicano K, Flexner C, Pym A, Vis P, Olliaro PL, McIlleron H, Karlsson MO. Population pharmacokinetic drug-drug interaction pooled analysis of existing data for rifabutin and HIV PIs. *J Antimicrob Chemother.* 2016 Jan 31. pii: dkv470. [Epub ahead of print] PubMed PMID: 26832753.
20. Rustomjee R, Lockhart S, Shea J, Fourie PB, Hindle Z, Steel G, Hussey G, Ginsberg A, Brennan MJ. Novel licensure pathways for expeditious introduction of new tuberculosis vaccines: a discussion of the adaptive licensure concept. *Tuberculosis (Edinb).* 2014 Mar;94(2):178-82. doi: 10.1016/j.tube.2013.11.002. Epub 2013 Dec 8. PubMed PMID: 24360811.
21. Hatherill M, Verver S, Mahomed H; Taskforce on Clinical Research Issues, Stop TB Partnership Working Group on TB Vaccines. Consensus statement on diagnostic end points for infant tuberculosis vaccine trials. *Clin Infect Dis.* 2012 Feb 15;54(4):493-501. doi: 10.1093/cid/cir823. Epub 2011 Dec 5. PubMed PMID: 22144538.
22. Mahomed H, Fourie PB. Clinical trials of TB vaccines: harmonization and cooperation. *Tuberculosis (Edinb).* 2012 Mar;92 Suppl 1:S21-4. doi: 10.1016/S1472-9792(12)70008-2. PubMed PMID: 22441155.
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37. Blomberg B, Fourie B. Fixed-dose combination drugs for tuberculosis: application in standardised treatment regimens. *Drugs.* 2003;63(6):535-53. Review. PubMed PMID: 12656652.
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41. Fourie PB. Proposed minimum registration requirements for fixed-dose combination anti-tuberculosis drugs. *Int J Tuberc Lung Dis.* 1999 Nov;3(11 Suppl 3):S362-7; discussion S381-7. PubMed PMID: 10593719.
42. McIlleron H, Gabriels G, Smith PJ, Fourie PB, Ellard GA. The development of a standardised screening protocol for the in vivo assessment of rifampicin bioavailability. *Int J Tuberc Lung Dis.* 1999 Nov;3(11 Suppl 3):S329-35; discussion S351-2. PubMed PMID: 10593713.

43. Pillai G, Fourie PB, Padayatchi N, Onyebujoh PC, McIlleron H, Smith PJ, Gabriels G. Recent bioequivalence studies on fixed-dose combination anti-tuberculosis drug formulations available on the global market. *Int J Tuberc Lung Dis.* 1999 Nov;3(11 Suppl 3):S309-16; discussion S317-21. PubMed PMID: 10593710.
44. Ellard GA, Fourie PB. Rifampicin bioavailability: a review of its pharmacology and the chemotherapeutic necessity for ensuring optimal absorption. *Int J Tuberc Lung Dis.* 1999 Nov;3(11 Suppl 3):S301-8; discussion S317-21. Review. PubMed PMID: 10593709.
45. Onyebujoh PC, Levin JB, Fourie PB. Immunotherapy with *Mycobacterium vaccae*. *The Lancet.* 1999 Oct 16;354(9187):1388-9.
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47. McGregor MM, Olliaro P, Wolmarans L, Mabuza B, Bredell M, Felten MK, Fourie PB. Efficacy and safety of rifabutin in the treatment of patients with newly diagnosed pulmonary tuberculosis. *Am J Respir Crit Care Med.* 1996 Nov;154(5):1462-7. PubMed PMID: 8912765.

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48. Sekyere JO, Maningi NE, Fourie PB. *Mycobacterium tuberculosis*, antimicrobials, immunity, and lung–gut microbiota crosstalk: current updates and emerging advances. *Annals of the New York Academy of Sciences* 2020;
49. Sekyere JO, Reta MA, Maningi NE, Fourie PB. Antibiotic resistance of *Mycobacterium tuberculosis* complex in Africa: A systematic review of current reports of molecular epidemiology, mechanisms and diagnostics. *Journal of Infection* 2020; 79 (6), 550-571
50. Rees K, Muditambi N, Maswanganyi M, Railton J, McIntyre JA, Struthers HE, Fourie PB, Peters RPH. The impact of implementing a Xpert MTB/RIF algorithm on drug-sensitive pulmonary tuberculosis: a retrospective analysis. *Epidemiol Infect.* 2018;146(2):246-255. doi: 10.1017/S0950268817002746.
51. Maningi NE, Daum LT, Rodriguez JD, Said HM, Peters RPH, Osei-Sekyere J, Fischer GW, Chambers JP, Fourie PB. Multi- and extensively-drug resistant *Mycobacterium tuberculosis* in South Africa: A molecular analysis of historical isolates. *Journal of Clinical Microbiology* 2018; 56:1214-1217. doi: 10.1128/JCM.01214-17.
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53. Omar SV, Peters RP, Ismail NA, Jonkman K, Dreyer AW, Said HM, Gwala T, Ismail N, Fourie PB. Field evaluation of a novel preservation medium to transport sputum specimens for molecular detection of *Mycobacterium tuberculosis* in a rural African setting. *Tropical Medicine & International Health.* 2016 Jun 1;21(6):776-82.
54. Daum LT, Fourie P, Peters R, Rodriguez J, Worthy S, Khubbar M, Bhattacharyya S, Gradus M, Helm C, Fischer G. GeneXpert detection of *mycobacterium tuberculosis* from sputum collected and transported in a molecular transport medium. *International Journal of Infectious Diseases.* 2016 Apr 1;45:392-3.
55. Maningi NE, Daum LT, Rodriguez JD, Mphahlele M, Peters RP, Fischer GW, Chambers JP, Fourie PB. Improved Detection by Next-Generation Sequencing of Pyrazinamide Resistance in *Mycobacterium tuberculosis* Isolates. *J Clin Microbiol.* 2015 Dec;53(12):3779-83. doi: 10.1128/JCM.01179-15.
56. Omar SV, Peters RP, Ismail NA, Dreyer AW, Said HM, Gwala T, Ismail N, Fourie PB. Laboratory evaluation of a specimen transport medium for downstream molecular processing of sputum samples to detect *Mycobacterium tuberculosis*. *J Microbiol Methods.* 2015 Oct;117:57-63. doi: 10.1016/j.mimet.2015.07.010. Epub 2015 Jul 14. PubMed PMID: 26183764.

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66. Fourie B, Weyer K. Trials of anti-tuberculosis treatment as a diagnostic tool in smear-negative tuberculosis are of questionable benefit. *Int J Tuberc Lung Dis.* 2000 Nov;4(11):997. PubMed PMID: 11092709.
67. Schilke K, Weyer K, Bretzel G, Amthor B, Brandt J, Sticht-Groh V, Fourie PB, Haas WH. Universal pattern of RpoB gene mutations among multidrug-resistant isolates of Mycobacterium tuberculosis complex from Africa. *Int J Tuberc Lung Dis.* 1999 Jul;3(7):620-6. PubMed PMID: 10423225.
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Inhaled therapies for TB

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