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| MARC S. WEINBERG - BIOGRAPHICAL CV |
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| NAME**Marc S. Weinberg, Ph.D.**436 Brenna Ct.Encinitas CA 92024email: marco.weinberg@gmail.comtel: +1-760-201-9030 (USA)tel: +27-83-6259987 (SA)  | POSITION TITLEResearch Fellow, Vertex PharmaceuticalsAdjunct Assistant Professor (The Scripps Research Institute)Honorary Associate Professor (The University of the Witwatersrand, South Africa) |
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| EDUCATION/TRAINING  |
| INSTITUTION AND LOCATION | DEGREE*(if applicable)* | MM/YY | FIELD OF STUDY |
| University of the Witwatersrand, South Africa | B.Sc.  | 1993-1995  | Biochemistry  |
| University of the Witwatersrand, South Africa | B.Sc. Hons.  | 1996  | Biochemistry  |
| University of the Witwatersrand, South Africa  | Ph.D.  | 1997-2002  | Molecular Biology  |
| Beckman Research Institute, Duarte, CA, USA | Post-Doc  | 2003-2005  | Molecular Biology  |
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A. Personal Statement

I am currently Associate Director and Head of Molecular Biology at Vertex Pharmaceuticals in San Diego where I lead a group dedicated to developing nucleic acid therapies for cystic fibrosis and rare genetic diseases. I also hold adjunct faculty positions at The Scripps Research Institute, La Jolla, USA and at the University of the Witwatersrand (Wits) Medical School, South Africa. My research focuses on the many functions and therapeutic applications of nucleic acids. I graduated with a PhD from The University of the Witwatersrand, South Africa in 2002 and spent 2 years at the Beckman Research Institute in California, studying fast-cleaving hammerhead ribozymes and RNA-based transcriptional modulators for gene therapy. Thereafter, my work turned to small expressed RNAs that attenuate gene function and I led a laboratory where we were one of the first to show that small single-stranded RNAs can switch off genes using components of the nuclear RNA interference pathway. I have also made important contributions to the development of novel RNA structures that are processed into safe and useful antiviral inhibitors, specifically when targeted to HIV and HBV. Recently, my work has delved into new ways to modulate non-coding RNA genes using cell-selected aptamers, CRISPR/Cas9 modulators and novel viral vectors, with specific emphasis on how these approaches can be used to target infectious diseases, cancer, cystic fibrosis and Duchenne muscular dystrophy. To summarize, I have a total of 69 published papers (articles, reviews and book chapters with H-Index = 27), with several publications in journals like *Cell*, *PNAS, Nature Protocols, NAR,* *Mol Ther, J. Hepatology* and *RNA*. I hold 8 prov./full patents and have advised 20 graduate students to completion of their PhD research. Lastly, sit on the editorial board of Molecular Therapy - Nucleic Acids (Impact Factor 5.06) and am a scientific advisor for Next Bioscience.

B. Positions and Honors

Positions and Employment

1996 – 1997 Visiting Research Scientist, Brookdale Center for Molecular Biology, Mount Sinai School of Medicine, New York, USA.

1999 – 2002 Associate Lecturer, Department of Molecular Medicine and Haematology (formerly Medical Biochemistry), University of the Witwatersrand, South Africa.

2003 – 2005 James Gear Postdoctoral Fellow, City of Hope Medical Center, Duarte, California, USA

2002 – 2006 Lecturer, Department of Molecular Medicine and Haematology, University of the Witwatersrand, South Africa.

2006 – 2010 Senior Lecturer, Department of Molecular Medicine and Haematology, University of the Witwatersrand, South Africa.

2008 - 2012 Visiting Lecturer (Occasional), and Oppenheimer Trust Visiting Fellow (2009), Department of Physiology, Anatomy and Genetics, University of Oxford, UK.

2012 - 2015 Senior Research Scientist (Visiting Professor), Department of Molecular and Experimental Medicine, The Scripps Research Institute, La Jolla, CA, USA.

2010 - 2016 Associate Professor, Department of Molecular Medicine and Haematology, University of the Witwatersrand, South Africa

2012 - 2018Associate Editor, South African Journal of Science (SAJS)

2015 - 2016 Assistant Professor, Department of Molecular and Experimental Medicine, The Scripps Research Institute, La Jolla, CA, USA.

2015 - Scientific Advisory Board of Next Bioscience

2016 - Honorary Associate Professor, Department of Molecular Medicine and Haematology, University of the Witwatersrand, South Africa

2016 - Adjunct Assistant Professor, Department of Molecular and Experimental Medicine, The Scripps Research Institute, La Jolla, CA, USA.

2016 - Research Fellow and Associate Director, Vertex Pharmaceuticals, San Diego, USA

Other Experience, Professional Memberships and Honors

1998- Member, South African Society of Biochemistry and Molecular Biology

2004- Member, American Society of Gene and Cell Therapy (elected to oligonucleotide sub-committee since 2011)

2008- Faculty of Health Sciences Research Prize 2008, Awarded for the best research article as measured by journal impact in the Faculty of Health Sciences, University of the Witwatersrand

2009- Member, Oligonucleotides Therapeutics Society

2009- Friedel Sellschop Award. Premier award by the University of the Witwatersrand for exceptional research by a staff member under the age of 35

2009- 2010 Mellon Postgraduate Mentor Award, Jointly awarded with the student, for the exceptional mentorship

2012- Editorial Board Member, *Molecular Therapy – Nucleic Acids* (Nature Publishing Group; IF 4.5)

2012- 2018 Editorial Board Member, *South African Journal of Science* (Academy of Science of SA; IF 1.0)

2015 - National Research Foundation (NRF) of South Africa: B2 rating “leading international scholar”

C. Peer-reviewed Publications

Publications: Journal Articles

1. Passman M., **Weinberg M.S.**, Kew M.C. and Arbuthnot P.B. (2000) In situ demonstration of inhibitory effects of hammerhead ribozymes that are targeted to the Hepatitis Bx sequence in cultured cells, *Biochemical Biophysical Research Communications,* 268: 728-733 (IF: 2.30 /C: 68)
2. **Weinberg M.S**., Passman M., Kew M.C. and Arbuthnot P.B. (2000) Hammerhead ribozyme-mediated inhibition of Hepatitis B virus X gene expression in cultured cells, *Journal of Hepatology.* 33: 142-151 (IF: 11.34 /C: 66)
3. **Weinberg M.S**. and Rossi J.J (2005) Comparative Single-Turnover Kinetic Analyses of *Trans*-Cleaving Hammerhead Ribozymes With Naturally Derived Non-Conserved Sequence Motifs, *FEBS Letters* 579:1619-1624 (IF: 3.17 /C: 29)
4. **Weinberg M.S.**, Villeneuve L.M., Ehsani A, Amarzguioui M., Aagaard L., Chen Z.X., Riggs A.D., Rossi J.J., Morris K.V., (2006). The antisense strand of small interfering RNAs directs histone methylation and transcriptional gene silencing in human cells. *RNA*. 2006 Feb;12(2):256-62. Epub 2005 Dec 22 (IF: 4.94 /C: 327)
5. Carmona S, Ely A, Crowther C, Moolla N, Salazar F.H., Marion PL, Ferry N, **Weinberg M.S.**, Arbuthnot P.(2006) Effective Inhibition of HBV Replication in Vivo by Anti-HBx Short Hairpin RNAs. *Molecular Therapy*. 13(2):411-21. Epub 2005 Dec 5. (IF: 7.01 /C: 134)
6. Cave E., **Weinberg M.S.**, Cilliers T., Carmona S., Morris L. and Arbuthnot P.B. (2006). Silencing of HIV-1 subtype C primary isolates by expressed small hairpin RNAs targeted to gag. *AIDS Research and Human Retroviruses* 22(5):401-410. (IF: 1.94 /C: 19)
7. **Weinberg M.S.**, and Morris K.V., Are viral-encoded microRNAs mediating latent HIV-1 infection? (2006) *DNA and Cell Biology* 25(4):223-31 (IF: 2.63 /C: 49)

**Contribution:** Lead and co-corresponding author

1. Arbuthnot P.B., Longshaw V., Naidoo T., **Weinberg M.S**., (2007) Opportunities for treatment of chronic hepatitis B and C virus infection using RNA interference. *Journal of Viral Hepatitis* 14: 447-459 (IF: 4.23 /C: 50)
2. **Weinberg M.S.**, Carmona S., Ely A., Crowther C., Barichievy S., Mufamadi S., and Arbuthnot P.B. Specific inhibition of HBV replication in vitro and in vivo with expressed long hairpin RNA, (2007), *Molecular Therapy* Mar;15(3):534-41. Epub 2007 Jan 9. (IF: 7.01 /C: 109)
3. **Weinberg M.S.** Ely,A. Passman M., Mufamadi S.M., and Arbuthnot P.B., (2007) Effective anti-HBV hammerhead ribozymes derived from multimeric precursors, *Oligonucleotides* Spring;17(1):104-12 (IF: 2.62 /C: 20)
4. Scherer L, Rossi J.J., and **Weinberg M.S.**, (2007) Progress and prospect:RNA based therapies for treatment of HIV infection-prospects and problems, *Gene Therapy* 14: 1057-1064 (IF: 3.01 /C: 110)
5. Barichievy S., Saayman S., von Eije K., Morris K.V., Arbuthnot P., and **Weinberg M.S.**, (2007) The inhibitory efficacy of RNA Pol III-expressed long hairpin RNAs targeted to un-translated regions of the HIV-1 5’ long terminal repeat. *Oligonucleotides,* 17(4):419-31. (IF: 2.62 /C: 43)
6. **Weinberg M.S.**, Barichievy S., Schaffer L., Han J and Morris K.V., (2007), An RNA targeted to the HIV-1 LTR promoter modulates indiscriminate off-target gene activation, *Nucleic Acids Research,*35(21):7303-12 (IF: 11.56 /C: 52)
7. Saayman S., Barichievy S., Capovilla A., Morris K.V., Arbuthnot P., and **Weinberg M.S**. (2008) The efficacy of generating three independent anti-HIV-1 siRNAs from a single U6 RNA Pol III-expressed long hairpin RNA. *PLoS ONE* Jul 2;3(7):e2602. (IF: 2.76 /C: 63)
8. **Weinberg M.S.** and Morris K.V., (2008), In vivo targeted delivery of small interfering RNAs to HIV-1 infected T-cells: a model system whose time has come. *Cellscience Reviews* (online)*.*
9. Arbuthnot P.B., Ely A., and **Weinberg M.S**., (2009) Hepatic delivery of RNA Interference activators for therapeutic application. *Current Gene Therapy* Apr;9(2):91-103 (IF 5.32 /C: 21)
10. **Weinberg M.S.** and Wood M.J.A. (2009) Short non-coding RNA biology and neurodegenerative disorders: novel disease targets and therapeutics. *Human Molecular Genetics*. Apr 15;18(R1):R27-39. (IF: 5.99 /C: 76)
11. Scholefield J., Greenberg L.J., **Weinberg M.S.**, Arbuthnot P.B., Abdelgany A., Sibley C.R. and Wood M.J.A. (2009) Design of RNAi hairpins for mutation-specific silencing of ataxin-7 and correction of a SCA7 phenotype. *PLoS ONE* Sep 30;4(9):e7232. (IF: 2.76 /C: 58)
12. Chattopadhyay S., Ely A., Bloom K.,**Weinberg M.S.** and Arbuthnot P. (2009) Inhibition of Hepatitis B virus replication with linear DNA sequences expressing antiviral micro RNA shuttles, *Biochemical Biophysical Research Communications,* **389(3):484-9. Epub 2009 Sep 4 . (IF: 2.47 /C: 16)
13. Barichievy S., Saayman S., Arbuthnot P., and **Weinberg M.S.**, (2009), RNAi Interference-based gene expression strategies aimed at sustained therapeutic inhibition of HIV, *Current Topics in Medicinal Chemistry*, 9(12):1065-1078 (IF: 3.40 /C: 16)
14. Saayman S., Arbuthnot P., and **Weinberg M.S.**, (2010), Efective Pol III-expressed long hairpin RNAs targeted to multiple unique sites of HIV-1. *Methods in Molecular Biology* 629:159-174 (IF: 1.29 /C: 6)
15. **Weinberg M.S.** and Arbuthnot P.B. (2010), Progress in the use of RNA Interference as a therapy for chronic Hepatitis B Virus infection. *Genome Medicine* **2**:28 (28 April 2010) (IF: 8.90 /C: 22)
16. Hean J., Crowther C., Ely A., ul Islam R., Bloom K.**, Weinberg M.S.**, van Otterlo W, de Koning C., Salazar F., Marion P.,Roesch E., LeMaitre M., Herdewijn P. and Arbuthnot P., (2010), Inhibition of Hepatitis B Virus replicatio*n in vivo* using lipoplexes containing altritol-modified antiviral siRNAs*. Artificial DNA: PNA & XNA*, Jul;1(1):17-26. (IF: - /C: 32)
17. Saayman S., Arbuthnot PB., and **Weinberg M.S**. (2010), Deriving four functional anti-HIV siRNAs from a single Pol III-generated transcript comprising two adjacent long hairpin RNA precursors, *Nucleic Acids Research,* **38** (19): 6652-6663. (IF: 11.56 /C: 35)
18. **Weinberg M.S**. and van den Berg F. (2010), RNAi-based therapies for the treatment of HIV, *European Pharmaceutical Review* **15**(3):33-37
19. Dyer V., Ely A., Bloom K., **Weinberg M.S.** and Arbuthnot P. (2010) tRNAlys3 promoter cassettes that efficiently express RNAi-activating anti hepatitis B virus short hairpin RNAs *Biochemical Biophysical Research Communications*, doi:10.1016/j.bbrc.2010.06.122 ** (IF: 2.47 /C: 13)
20. Green V. and **Weinberg M.S.** (2011), Small RNA-induced transcriptional gene regulation in mammals: mechanisms, therapeutic applications and scope within the genome. *Progress in Molecular Biology and Translational Sciences* 102:11-46.(IF: - /C: 11)
21. Sibley C., Seow Y., Saayman S., Dijkstra K., El Andaloussi S., **WeinbergM.S.**, WoodM.J.A. (2011), The biogenesis and characterisation of mammalian microRNAs of mirtron origin *Nucleic Acids Research* (1):438-48. Epub 2011 Sep 13 (IF: 11.56 /C: 88)
22. Scott T., Paweska J., Arbuthnot P. and **Weinberg M.S.**, (2012), Pathogenic effects of Rift Valley fever virus NSs gene are alleviated in cultured cells by expressed antiviral short hairpin RNAs. *Antiviral Therapy*. 17(4):643-56 (IF: 3.02 /C: 10)
23. Taylor S, Harmse, J, Arbuthnot P., **Weinberg M.S.** and Rey CH, (2012), Construction of effective inverted invert-repeat silencing cassettes using sodium bisulfite treatment coupled with strand-specific PCR. *Biotechniques*, 52:4, 254–262 (IF: 2.03 /C: 2)
24. Sibley C.R., Seow Y, Curtis H. **Weinberg M.S.**, and Wood M.J.A. (2012), Silencing of Parkinson's disease-associated genes with artificial mirtron mimics of miR-1224, *Nucleic Acids Research*, Jan;40(1):438-48 (IF: 11.56 /C: 29)
25. Green V., Arbuthnot, P. and **WeinbergM.S.**, (2012), Impact of Sustained RNA Interference-Mediated Suppression of Cellular Cofactor Tat-SF1 on HIV-1 Replication in CD4+ T cells *Virology Journal* 9:272 (IF: 2.14 /C: 8)
26. **Weinberg M.S.** and Morris K.V. (2013), Long non-coding RNA targeting and transcriptional derepression, *Nucleic Acid Therapeutics* February 2013, 23(1): 9-14 (IF: 2.62 /C: 40)
27. Da Costa Dias B., Jovanovic K., Gonsalves D., Moodley K., Reusch U., Knackmuss S., Penny C., **Weinberg M.S.**, Little, M. & Weiss, S.F.T. (2013) Anti-LRP/LR specific antibody IgG1-iS18 and knock-down of LRP/LR by shRNAs rescue cells from Aβ42 induced cytotoxicity, *Scientific Reports* 2013, 3(2702); DOI:10.1038/srep02702 (IF: 4.12 /C: 9)
28. Jovanovic K., Gonsalves D., Da Costa Dias B., Moodley K., Reusch U., Knackmuss S., Penny C., **Weinberg M.S**., Little M. & Weiss S.F.T., (2013), Anti-LRP/LR specific antibodies and shRNAs impede amyloid beta shedding in Alzheimer’s disease, *Scientific Reports,* 2013, 3(2699); DOI:10.1038/srep02699 (IF: 4.12 /C: 20)
29. Li J., **Weinberg M.S.** and Prince S., (2013) The oncogenic TBX3 is a downstream target and mediator of the TGF-β1 signaling pathway. *Molecular Biology of the Cell*. Sep 11. (IF: 3.51 /C: 42)
30. Roberts T., Morris K.V., and **Weinberg M.S**. (2013) Perspectives on the mechanism of transcriptional regulation by long non-coding RNAs. *Epigenetics* Oct 22;9(1). (IF: 4.9 /C: 59)
31. Fanucchi S., Shibayama Y., Hurd S., **Weinberg M.S.**, and Mhlanga M., (2013) Chromosomal contact permits transcription between co-regulated genes. *Cell,* 155(3): 1-10 (IF: 31.4 /C: 117)
32. **Weinberg M.S.** and Morris K.V. (2013), A new world order: tailored gene targeting and regulation using CRISPR, *Molecular Therapy* (2014); **22** 5, 893. doi:10.1038/mt.2014.54 (IF: 7.01 /C: 3)
33. da Costa Dias B., JovanovicK., GonsalvesD., MoodleyK. ReuschU., KnackmussS., **WeinbergM.S.**, Little M., and Weiss S.F.T. (2014), 37kDa/67kDa Laminin Receptor contributes to neuronal cell death by mediating Aβ42 internalization *Scientific Reports* 4(5556), doi:10.1038/srep05556 (IF: 4.12 /C: 18)
34. **Weinberg M.S.** (2014), Therapeutic Aptamers March On, *Molecular Therapy-Nucleic Acids* (2014); **22** 5, 893. doi:10.1038/mt.2014.54 (IF: 4.51 /C: 9)
35. Hart J.R., Roberts T.C., **Weinberg M.S.**, Morris K.V., Vogt P.K. (2014), MYC regulates the non-coding transcriptome. *Oncotarget* *5*(24), 12543-12554 (IF: 5.17 /C: 39)
36. Zhou J., Satheesan S., Li H., **Weinberg M.S**., Morris K.V., Burnett J., and Rossi J. (2015) Evolution of Cell-specific RNA aptamer against human CCR5 via Live Cell-based SELEX for Targeted HIV-1 therapy. *Chemistry and Biology* (IF: 6.65 /C: 44)
37. Saayman S., Ali S., Morris K.V., and **Weinberg M.S.** (2015), The therapeutic application of CRISPR/Cas9 technologies for HIV-1. *Expert Opinion Biological Therapy* 15(6), 819-830 (IF: 3.68 /C: 48)
38. Fok E.T., Mhlanga M.M., PennyC.B. and **Weinberg M.S**. (2015), Multiplexed CRISPR/Cas9 genome editing increases the efficacy of homologous-dependent repair of donor sequences in mammalian cells. *S.African Journal of Science* 111(7/8), http://dx.doi.org/10.17159/sajs.2015/20150002 (IF: 0.96 /C: 0)
39. Roberts T.C., Hart J.R., Kaikkonnen M.U., **Weinberg M.S**., Vogt P.K., Morris K.V. (2015) Quantification of nascent transcription by bromouridine immunocapture nuclear run-on RT-qPCR *Nature Protocols* Aug;10(8):1198-211. doi: 10.1038/nprot.2015.076. Epub 2015 Jul 16. (IF: 12.42 /C: 22)
40. **Weinberg M.S**., Hart J.R. and Vogt P.K. (2015), A brave new MYC-amplified world, *Aging* 7(7) (IF: 4.87 /C: 3)
41. Saayman S.M., Lazar D.C., Scott T.A., Hart J.R. Takahashi M., Burnett J.C., Planelles V., Morris K.V. and **Weinberg M.S.** (2015), Potent and targeted activation of latent HIV-1 using the CRISPR/dCas9 activator complex. *Molecular Therapy* doi: 10.1038/mt.2015.202. (IF: 7.01 /C: 65)
42. van den Berg F.T., Rossi J.J., Arbuthnot P. and **Weinberg M.S**. (2016), Design of effective primary microRNA mimics with different basal stem conformations. *Molecular Therapy – Nucleic Acids*, 2016 Jan 12;5:e278. doi: 10.1038/mtna.2015.53 (IF: 5.06 /C: 4)
43. Hart J.R., **Weinberg M.S.**, Morris K.V., Roberts T.C., Janda K.D., Garner A.L., Vogt P.K. (2016) MINCR is not a MYC-induced lncRNA. *Proceedings of the Nat Acad Sci.* 2;113(5):E496-7. doi: 10.1073/pnas.1519903113. Epub 2016 Jan 25 (IF: 9.50 /C: 2)
44. **Weinberg M.S.** and Morris K.V. Transcriptional gene silencing in Humans; a decade of insights into RNA directed epigenetic gene regulation and an exploration of potential therapeutic applications. *Nucleic Acids Research* (2016), 44(14): 6505-6517 (IF: 11.56 /C: 44)
45. Scholefield J.and **Weinberg M.S**, (2016), The Application of CRISPR/Cas9 Technologies and Therapies in Stem Cells, *Current Stem Cell Reports* 2(2): 95-103 (IF: - /C: 2)
46. Saayman S.M., Ackley A., Burdach J., Clemson M., Gruenert D.C., Tachikawa K., Chivukula P., **Weinberg M.S**., Morris K.V. (2016), Long non-coding RNA BGas regulates the cystic fibrosis transmembrane conductance regulator, *Molecular Therapy* 24 (8), 1351-1357 (IF: 7.01 /C: 6)
47. Scott T., Moyo B., Nicholson S., Maepa M.B., Watashi K, Ely A., **Weinberg M.S**., Arbuthnot P. (2017), ssAAVs containing cassettes encoding SaCas9 and guides targeting hepatitis B virus inactivate replication of the virus in cultured cells. *Scientific Reports*, 7: 7401. (IF: 4,12 /C: 12)
48. Dhar N., **Weinberg M.S**., Michod R.E., Durand P.M., (2017), Molecular trade-offs in RNA ligases affected the modular emergence of complex ribozymes at the origin of life. *Royal Society Open Science* 4 (9), 170376 (IF: 2.50 /C: 1)
49. Shrivastava S., Charlins P., Ackley A., Embree H., Dropulic B., Akkina R., **Weinberg M.S.**, Morris K.V. (2018), Stable Transcriptional Repression and Parasitism of HIV-1. *Molecular Therapy – Nucleic Acids* 12:12-28 (IF: 5.05 /C: 0)
50. Zhou J., Lazar D., Li H., Xia X., Satheesan S., Charlins P., O'Mealy P. Akkina R., Saayman S. **Weinberg M.S.**, Rossi J.J., and Morris K.V. (2018), Receptor-targeted aptamer-siRNA conjugate-directed transcriptional regulation of HIV-1.*Theranostics* 8(6): 1575–1590 (IF: 8.71 /C: 5)

Publications: Book Chapters

1. Hean J., and **Weinberg M.S.**, (2008), The hammerhead ribozyme revisited: new biological insights for the development of therapeutic agents and for reverse genomics applications, In: RNA and the Regulation of Gene Expression: A Hidden Layer of Complexity. Ed. K.V. Morris, Caister Academic Press, Norfolk, UK, pp 1-19
2. Scherer L., **Weinberg M.S.**, and Rossi J.J., (2008), RNA based therapies for treatment of HIV infection, In: Therapeutic Oligonucleotides. Ed. J. Kurreck., Royal Society of Chemistry, RSC Biomolecular Series, Cambridge, UK pp 316-28.
3. **Weinberg M.S.**, Whalley N, and Ramsay M., (2009), The Anatomy and Physiology of the Genome, In: Molecular Medicine for Clinicians. Ed. Mendelow B, Ramsay M, Chetty N, and Stevens W. Wits University Press, ISBN: 978-1-86814-465-5, pp19-36
4. **Weinberg M.S.** and Arbuthnot P.B., (2009), Gene Therapy, In: Molecular Medicine for Clinicians. Ed. Mendelow B, Ramsay M, Chetty N, and Stevens W. Wits University Press, ISBN: 978-1-86814-465-5, pp 413-421
5. **Arbuthnot P.B. and Weinberg M.S.,** (2009**), Molecular research case study: Developing novel RNA Interference-based therapy, In: Molecular Medicine for Clinicians. Ed.** Mendelow B, Ramsay M, Chetty N, and Stevens W**. Wits University Press,** ISBN: 978-1-86814-465-5**, pp441-448**
6. **Weinberg M.S**. and van den Berg F. (2011), RNAi-based gene-expression based strategies to combat HIV, In: Understanding HIV/AIDS Management and Care - Pandemic Approaches in the 21st Century. Ed. Kasenga F.H., InTech Publishing, ISBN 978-953-307-603-4,
7. **Weinberg M.S.** and Arbuthnot, P.B., (2014), An overview on the application of microRNAs, In: Recent advances in miRNA applications. Ed. Weinberg MS and Arbuthnot P.B., Caister Academic Press, Norfolk, UK. ISBN: 978-1-908230-43-0. pp1-17
8. Rey M.E.C.,, Harmse J., Taylor S.H., Arbuthnot P., and **Weinberg M.S.** (2015), Construction of Mismatched Inverted Repeat (IR) Silencing Vectors for Maximizing IR Stability and Effective Gene Silencing in Plants. *Plant Gene Silencing: Methods and Protocols*. In: Methods of Molecular Biology Eds Mysore K.S., and Senthil-Kumar M., Springer Press, USA, 295-304; ISBN: 978-1-4939-2452-3
9. Saayman S., Roberts T.,C., Morris K.V., and **Weinberg M.S.**, (2015), HIV latency and the non-coding RNA therapeutic landscape. In: Gene Therapy of HIV and Chronic Viral Diseases Eds. Ertl H., Berkhout B. and **Weinberg M.S.**, Springer Press, USA, 169-189, ISBN: 978-1-4939-2431-8
10. Roberts T.C., Ezzat K., El Andaloussi S. and **Weinberg M.S.**, (2015), Advances and challenges in siRNA delivery. In: Methods in Molecular Biology Ed. Shum K., Rossi J.J., Springer Press, USA (1364) 291-310; ISBN: 978-1-4939-3111-8

Publications: Books (Editor)

1. Recent advances in miRNA applications. Editors. **Weinberg MS** and Arbuthnot P.B., Caister Academic Press, Norfolk, UK, 2014, ISBN: 978-1-908230-43-0. pp1-17
2. Gene Therapy of HIV and Chronic Viral Diseases Editors. Ertl H., Berkhout B. and **Weinberg MS**, Springer Press, 2015, USA 169-189, ISBN: 978-1-4939-2431-8

Patents

1. Jiehua Zhou, John Rossi, Kevin Morris, **Marc Weinberg**, John Burnett, Cell-specific internalizing RNA aptamers against human CCR5 and uses therefore, US Patent 9,605,266 (2017)
2. **Marc Weinberg** and Tristan Scott. Targeted editing of the HIV Tar element. South African Patent: 2015/00552
3. Stefan Weiss, Thomas Franz, Katarina Jovanovic, Danielle Gonsavles, Bianca Da Costa Dias, Stefan Knackmuss, Uwe Reusch, Melvyn Little, **Marc Weinberg**, Compounds for use in the treatment of Alzheimer's disease. WO Patent 2,013,042,053, 2013, US Patent 9,365,647 (2016)
4. Laura Millroy, **Marc Weinberg**, Makobetsa Khati. A CD7 Internalizing aptamer. SA Prov Patent. 2013/02010. PCT/IB2014/059944
5. **Marc Weinberg**, Johan Harmse, Sarah Taylor, Christine Rey and Patrick Arbuthnot. Long double stranded RNA duplex. PCT/IB2008/050316. US Patent 8,293,974 (2012)
6. **Marc Weinberg**, Sergio Carmona, Abdullah Ely and Patrick Arbuthnot. Anti HBV microRNA constructs. South African Patent: 2006/01368, US Patent Appl No. 10/568,933
7. **Marc Weinberg**, Patrick Arbuthnot, Sergio Carmona and Abdullah Ely. A self-processing RNA expression cassette. PCT/IB2004/002816
8. **Marc Weinberg** and Patrick Arbuthnot, Ribozyme Therapy of HBV, 30th April 2001. South African Patent: 2002/3449