

CURRICULUM VITAE

NILESH BHAILALBHAI PATEL, PhD, FKNAS

OFFICE ADDRESS

Department of Medical Physiology
University of Nairobi
P.O. Box 30197
Nairobi 00100, Kenya

Tel: 254-020-4442309/2017857

Fax: 254-020-3750154

Email: npatel@uonbi.ac.ke

DATE AND PLACE OF BIRTH

10 August 1954
Nairobi, Kenya

NATIONALITY

Kenyan

GENDER

Male

EDUCATION

1978-1984	Ph.D. University of California, Irvine Subject: Physiology and Biophysics
1977-1978	Education Abroad Program Student University of California, Irvine
1974-1977	B.Sc. (Hon) University of Nairobi, Kenya Subject: Zoology and Biochemistry

POSITIONS

1 st April 2009-2015	Chairman, Department of Medical Physiology
August 5-18 2008	Ag Chairman
August 2000-Present	Associate Professor Department of Medical Physiology University of Nairobi, Kenya
April 1996 - August 2000	Senior Lecturer Dept of Medical Physiology University of Nairobi, Kenya
1989- April 1996	Lecturer Department of Medical Physiology University of Nairobi, Kenya

1986-1989	Managing Partner/ Administrator Avenue Nursing Home (now Avenue Hospital) Nairobi, Kenya
1984-1986	Postdoctoral Fellow Dept. of Zoology University of California, Davis
1984	Teaching Assistant Undergraduate Development Biology Department of Development and Cell Biology University of California, Irvine
1981	Teaching Assistant Department of Physiology and Biophysics University of California, Irvine

PUBLICATION LIST

PAPERS

1. **Patel, Nilesh** and Mu-ming Poo. (1982). Orientation of neurite growth by extracellular electric fields. *J. Neurosci.* 2:483-496.
2. **Patel, Nilesh** and Mu-Ming Poo. (1984). Perturbation of neurite growth by pulsed and focal electric fields. *J. Neurosci.* 4:2939-2947.
3. **Patel, N.B.**, Z-p. Xie, S.H. Young, and Mu-Ming Poo. (1985). Response of nerve growth cone to focal electric currents. *J. Neurosci. Res.* 13:245-256.
4. **Patel, N.B.** (1986). Reversible inhibition of neurite growth by focal electric currents. *Prog Clin Biol Res* 210:271-8.
5. **Patel, N.B.** (1994). Nitric oxide: A new biological messenger. *East African Medical Journal.* 17:75-76.
6. Ng'wena, A.G.M., **Patel, N.B.** Wango, E.O. (1997) Plasma luteinizing hormone levels in response to gonadotropin releasing hormone and clonidine in *Trypanosoma congolense* infected female goats. *Brain Research Bulletin* 44:591-595.
7. Sayi, J.G., **Patel, N.B.**, Premkumar, D.R.D., Adem, A., Winblad, B., Matuja, W.B., Mtui, E.P., Gatere, S., Friedland, R.P., Koss, E., Kalaria, R.N. (1997). Apolipoprotein E polymorphism in elderly East Africans. *East African Medical Journal.* 74: 65-67.
8. Kalaria, R.N., Ogengo, J.A., **Patel, N.B.**, Sayi, J.G., Kitinya, J.N., Chande, H.M., Matuja, W.B., Mtui, E.P., Kimani, J.K., Premkumar, D.R.D., Koss, E., Gatere, S.,

- Friedland, R.P. (1997). Evaluation of risk factors for Alzheimer's Disease in elderly East Africans. *Brain Research Bulletin* 44:573-577.
9. Ng'wena, A.G.M., **Patel, N. B.**, Wango, E.O. (1998) Luteinizing hormone levels in *Trypanosoma congolense* infected female goats. Proceedings of the First Meeting of the Federation of African Society of Biochemistry and Molecular Biology: 145-148.
 10. Walters, R.S. and **Patel N.B.** (1999) Promoting neuroscience research in Kenya: What can we do as a neuroscience community? *Internal. J. Neuroscience* (1-2).
 11. **Patel, N.B.** (2000) Mechanism of action of cathinone, the active ingredient of khat (*Catha edulis*). *East African Medical Journal* 77: 329 - 332.
 12. Roselida, A.O., **Patel, N.B.**, Wango, E.O., and Mwenda, J.M. (2000) A study on the effect of khat (*Catha edulis*) on plasma testosterone, prolactin, and cortisol hormones in male olive baboons (*Papio anubis*). Proceedings of the Sixth Biochemical Society of Kenya Annual Scientific Conference. 28-32.
 13. Nyongesa, A., **Patel, N. B.**, Onyango, Wang, E. O. (epub 2006) *In vitro* study of the effects of khat (*Catha edulis Forsk*) extract on isolated mouse Leydig Cells. *Journal of Ethnopharmacology* 110 (3): 401-405. (Epub ahead of print: 2006, doi:10.1016/j.j.2006.09.040. 110(3):401-405.
 14. Oyungu, E, Kioy, P. G., **Patel, N. B.** (2007) Effect of *Catha edulis* (khat) on behavior and its potential to induce seizures in Spargue-Dawley rats. *EAMJ* 84: (5): 219-225.
 15. Nyongesa A. W., **Patel, N. B.**, Onyanyo, D. W., Odogongo, H. O., Wango, E. O. (2008) Khat (*Catha edulis*) lowers plasma luteinizing hormone (LH) and testosterone secretion, but increases cortisol levels in male rabbits. *Journal of Ethnopharmacology*. (Nov 22 2007 Epub ahead of print). 116 (2) : 245-250
 16. Chien-Hsiun Chen, Toshiki Mizuno, Robert Elston, Monica M Kariuki, Kathleen Hall, Fred Unverzagt, Hugh Hendrie, Samuel Gatere, Paul Kioy, **Nilesh B Patel**, Robert P Friedland, Raj N Kalaria. (2008) A comparative study to screen dementia and *APOE* genotypes in an ageing East African population. *Neurobiol Aging* 2010 May;31(5):732-40. Epub 2008
 17. Kimani, Samuel T; **Patel, Nilesh B**; Kioy, Paul G. (2008) Effect of single and daily khat (*Catha edulis*) extract on locomotor behaviour in CBA mice. *Scientific Research and Essay* Vol. 3 (5), pp. 187-196, May, 2008
 18. Oyungu, E., Kioy, P. G., **Patel, N. B.** (2009) Proconvulsant Effect of Khat (*Catha edulis*) in Spargue Dawley Rats. *J. Ethnopharmacol* 30: 121(3): 476-8. Epub 2008 Nov 8.

19. Kariuki, Hellen Nyambura; Kanui, Titus, Ikusya Kanui; Yenesew, Abiy; Mbugua, Paul Mungai; **Patel, Nilesh Bhailalbhai** (2012) Antinociceptive activity of the root extracts of *Rhus natalensis* Kraus and *Senna singueana*. *Phytopharmacology* 2(2) 312-317
20. R.M.J. Deacon, T.D. Dulu, **N.B. Patel**. (2012) Naked mole-rats: Behavioural phenotyping and comparison with C57BL/6 mice. *Behavioural Brain Research* 231:193–200
21. Kariuki, Hellen N; Kanui, TI; Yenesew, A; **Patel Nilesh B**; Mbugua, P M. (2012) Antinociceptive activity of *Toddalia asiatica* (L) Lam. in models of central and peripheral pain. *Phytopharmacology* 3(1) 122-129.
22. Mercy Y. Akinyi, Jenny Tung, Maamun Jeneby, **Nilesh B. Patel**, Jeanne Altmann, Susan C. Alberts. (2013) Role of grooming in reducing tick load in wild baboons (*Papio cynocephalus*). *Animal Behavior* 85:559-568.
23. Kariuki HN, Kanui TI, Yenesew A, **Patel N**, Mbugua PM. 2013. Antinociceptive and anti-inflammatory effects of *Toddalia asiatica* (L) Lam. (Rutaceae) root extract in Swiss albino mice. *Pan African Medical journal*. 14:133.
24. Kimani ST, **Patel NB**, Kioy, PG. 2016 Memory deficits associated with khat (*Catha edulis*) use in rodents. *Metab Brain Dis*. 2016 Feb;31(1):45-52. doi: 10.1007/s11011-015-9738-1. Epub 2015 Sep 30.
25. Karani Magutah, **Nilesh B. Patel**, Kihumbu Thairu. (2016). Majority of elderly sedentary Kenyans show unfavourable body composition. *J Aging Sci*. 4:3. Doi: 10.4172/2329-8847.1000260.

BOOKS

Manual on Pain Management in a Low Resource Setting. (2009) Edited by Andreas Kopf and Nilesh B. Patel. (Available as a free download from International Association for the Study of Pain (IASP) website. Also available in Portuguese.)

Neglected Tropical Diseases and Conditions of the Nervous System. (2014) Editors: Marina Bentivoglio , Esper A. Cavalheiro , Krister Kristensson , and Nilesh B. Patel. Springer Science+Business Media New York

BOOK CHAPTERS

Patel, Nilesh B. (2009). Physiology and Pathophysiology of Pain. In: *Manual on Pain Management in a Low Resource Setting.* (2009) Editors: Andreas Kopf and Nilesh B. Patel. pp:22-27

Patel, Nilesh B. (2014). Neurobiology of Khat (*Catha edulis* Forsk). In: *Neglected Tropical Diseases and Conditions of the Nervous System.* Editors: Marina Bentivoglio , Esper A. Cavalheiro , Krister Kristensson , and Nilesh B. Patel. Springer Science+Business Media New York. pp 207-317

Patel, Nilesh B. (2015) , “Natural Amphetamine” Khat: A Cultural Tradition or a Drug of Abuse?. In: Pille Taba, Andrew Lees and Katrin Sikk, editors, *International Review of Neurobiology*, Vol. 120. Burlington. Academic Press, pp. 235-255.

TRANSLATION WORK

Organised Kiswahili translation of “**Neuroscience: Science of the Brain**” prepared by the British Neuroscience Association and the European Dana Alliance. 2006.

CONFERENCE ABSTRACTS

- 1 **Patel, Nilesh** and Mu-ming Poo. (1979). Orientation of axonal growth of embryonic Xenopus neurons by small extracellular fields. *Soc. Neurosci. Abstr.* 5:561.
- 2 **Patel, Nilesh** and Mu-ming Poo. (1983). Perturbation of neurite growth by pulsed and focal electric fields. *Soc. Neurosci. Abstr.* 9:64.8.
- 3 **Patel, N.B.** and Gatere, S. (1995). Effects of Chronic Khat Use in Human Brain. Second Society of Neuroscientists of Africa International Conference. Abstr.185.
- 4 **Patel, N.B.** Kalaria, R.N., and Gatere, S. (1996). Chronic intoxication of khat (miraa) in humans. *Soc. Neurosci. Abstr.:* 835.9.
- 5 Savi, J.G., Premkumar, D.R.D., **Patel, N.B.**, Bhandari, A.S., Gatere, S., Matuja, R.P., Friedland, R.P., Koss, E., and Kalaria, R.N. (1996). ApoE polymorphism in elderly East Africans. *Soc. Neurosci. Abstr.:* 86.4.
- 6 Ng'wena, A.G.M., **Patel, N.B.**, and Wango, E.O. (1996) Luteinizing hormone levels in *Trypanosome congolense* infected female goats. First Pan-African Conference on Biochemistry and Molecular Biology. Abstr. D-10.

- 7 Ng'wena, A.G.M., **Patel, N.B.**, and Wango, E.O. (1997). Effect of gonadotropin releasing agonist and clonidine in goats infected with *Trypanosome congolense*. 3rd International Conference, Society of Neuroscientists of Africa. Abstr.: 44.
- 8 Connor, J. B. and **Patel, N.B.** (1999) Headshake behavior in rats in response to ICV injection of cathinone and amphetamine. 4th International Congress, Society of Neuroscientists of Africa. Abstr.: 36.
- 9 Kalaria, R. N., **Patel, N.B.**, Kariuki, M., Kioy, P., Gatere, S., Hall, K.S., Unverzagt, F.W., Hendrie, H.C., Friedland, R.P. (1999) Epidemiological studies and genetic factors in Alzheimer's disease in rural Kenya. 4th International Congress, Society of Neuroscientists of Africa. Abstr.: 101.
- 10 **Patel, N.B.**, Diop, A.G., Daniels, M.J., Zigmond, and Kalaria, R.N. (1999) SONA and the promotion of research and teaching of neuroscience in Africa. Society for Neuroscience (USA) Abstr. 104.71
- 11 Thomas, A. J., Cookson, N., Yang, F., Crumine., C., **Patel, N.B.**, Ferrier, N., Selman, W. R. S., Lust, W.D., Cole, G., Kalaria, R. N. (1999) Caspase 3 activation in baboons after focal ischaemic injury. Society for Neuroscience (USA) Abstr. 446.3
- 12 Chen C-H, Elston, R. C., **Patel, N. B.**, Kalaria, R. N., Gatere, S., Friedland, R. P. (2000) Pilot study of a screening test for cognitive impairment for use in an East African population. Regional North American Annual Meeting of the World Federation of Neurology - Research Group on Neuroepidemiology Meeting. Neuroepidemiology 2000. Abstr. 19.
- 13 **Patel, N.B.**, Kalaria, R.N., Kioy, P., Kariuki, M, Unverzagt, F., Hendrie, H., Gatere, S., Freidland, R.P. (2000) High APOE ε4 allele frequency in elderly Kikuyus in Kenya. World Alzheimer's Congress 2000 No.: 289.
- 14 Sayi, J. G., Premkumar, D. R. D., **Patel, N.B.**, Bhandari, A. S., Gatere, S., Matuja, w. B., Freidland, Koss, E., R.P. Kalaria. Apolipoprotein E alleles in elderly East Africans. World Alzheimer's Congress 2000 No.: 503.
- 15 Roselida, A.O., **Patel, N.B.**, Wango, E.O., and Mwenda, J.M. (2000) A study on the effect of khat (*Catha edulis*) on plasma testosterone, prolactin, and cortisol hormones in male olive baboons (*Papio anubis*). 6th Biochemical Society of Kenya Annual Scientific Conference, Nairobi, Kenya.

- 16 **Patel, Nilesh B.**, Conner, John, Kimani, Mary. (2001). Khat (*catha edulis*) a commonly used plant with amphetamine-like effects. 5th Society of Neuroscientist of Africa International Conference. Abs. 6.
- 17 **Patel, N. B.** (2001) Electric Field Effects on Neurites. Kenya Society of Neuroscientists, Nairobi, Kenya
- 18 **Patel, N. B.** (2001) Principles and Practise of Doing Research. Emergency Management in Africa, 1st International Conference, 19th-22nd November 2001, KICC, Nairobi, Kenya.
- 19 **Patel, N. B.** (2001) The Internationalisation of Education: USA-Kenya link. Neuroscience in Developing Countries Symposium, 31st Annual Meeting, Society for Neuroscience, USA.
- 20 **Patel, N. B.** (2003) The Effects of *Catha edulis*. 6th Society of Neuroscientists of Africa International Conference. Abuja, Nigeria.
- 21 Oyungu, Eren, Kioy, P., **Patel, Nilesh B.** (2003). Khat (*Catha edulis*) reduces pentylenetetrazol (PTZ) induced seizures. Biochemical Society of Kenya Conference. Nairobi, Kenya. 11-15 August 2003.
- 22 Mbeo, G, **Patel, N. B.**, Mwaniki, Mbeo, P.O. (2003) *Catha edulis* potentiates the analgesic effects of opioid analgesics fentanyl, codeine, and morphine in mice. 6th IBRO World Congress of Neuroscience. Abs no. 3268.
- 23 **Patel, Nilesh B.**, Oyungu, E., Kioy, P. G. (2004). Pentylenetetrazole (PTZ) seizures threshold in male rats treated with *Catha edulis* (Khat). Federation of European Neuroscience Societies (FENS) Forum.
- 24 Agweyu, Ambrose; **Patel, Nilesh B.**; Cooper, Howard. (2005) The effects of khat (*Catha edulis*) on locomotor circadian rhythms in mice. SONA 2005 International Conference, Cape Town, South Africa.
- 25 **Patel, Nilesh B** (2005) *Catha edulis*: A neglected problem of African Drug Addiction. Symposium: Neurobiology of Neglected African Diseases. SONA 2005 International Conference, Cape Town, South Africa.
- 26 **Patel, Nilesh B.**, IBRO African Neuroscience Program. (2005). 26th African Health Sciences Congress. Abs. no. 212. Ain Soukhna, Egypt.
- 27 Nyongesa, A.W., **Patel, N. B.**, Onyango, D. W., Wango, E.O. (2006) Khat (*Catha edulis*) decreases plasma luteinizing hormone and testosterone but upregulates corti-

- sol levels in male rabbits. 5th Biennial Scientific Conference, Faculty of Veterinary Medicine, University of Nairobi.
- 28 Nyongesa, A.W., **Patel, N. B.**, Onyango, D. W., Wango, E.O. (2006) Effect khat (*Catha edulis*) extract on testicular morphology of male rabbits in both acute and chronic phase of administration. 5th Biennial Scientific Conference, Faculty of Veterinary Medicine, University of Nairobi.
- 29 Akinyi, Y.M., K'Omudho, A., Ndung'u, M., **Patel, N.B.**, Wango, E.O., Cooper, H.M. (2006) Physiological and molecular mechanisms of the circadian timing system in the non-human primate. 2^{ème} Colloque Méditerranéen de Neurosciences. Marrakech, Morocco. 13-15 December 2006.
- 30 **Patel, N. B.**, Kimani, S., Kioy, P.G. Effect of *Catha edulis* (khat) on learning and memory on CBA mice. International Brain Research Organisation (IBRO) World Congress, 12th -17th July 2007, Melbourne, Australia.
- 31 **Patel, N. B** (2007) The contribution of basic neuroscience in the understanding of khat-induced neuronal dysfunction. 8th Society of Neuroscience International Conference, Kinshasa, DRC.
- 32 **Patel, N. B** (2007) *Catha edulis* (khat): a neglected problem of African drug addiction. International Brain Research Organisation (IBRO) World Congress. Neurobiology of Neglected African Diseases, Satellite Meeting. Melbourne Australia.
- 33 **Patel, N. B** (2007) Primates in Neuroscience Research. 17th Scientific Conference, Institute of Primate Research, Nairobi, Kenya.
- 34 Obonyo, N.G. and **Patel, N. B.** The effect of khat (*Catha edulis*) on learning and memory using a Morris Water Maze. 17th Institute of Primate Research Scientific Conference, 14th-17th November 2007, Nairobi, Kenya. Abstract no: N.5
- 35 Akinyi, Mercy, K'omudho, A., Ndung'u, M., Wango, E.O., **Patel, N. B.**, Cooper, H. M. Effect of light on daily rhythms in the non-human primate. 17th Institute of Primate Research Scientific Conference, 14th-17th November 2007, Nairobi, Kenya. Abstract no: N.4
- 36 **Patel, N. B** (2008) Ion Channel Mutations and Long QT Syndromes. The Kenya Cardiac Society, 24th Annual Scientific Meeting. Nairobi, Kenya.
- 37 **Patel, N. B.** and Kopf, A. (2008) Educational material for general distribution to healthcare providers in low resource settings. International Association for the Study of Pain Congress, Glasgow. Tracking number: 08-A-2997-IASP.

- 38 **Patel, N. B.** (2009) Recreational drugs. 9th SONA Conference. Sharm El-Sheikh, Egypt.
- 39 **Patel, N. B.** (2009) Novel targets for pain management. Pain research and opioid use in pain management. 9th SONA Conference. Sharm El-Sheikh, Egypt. **Patel, N. B.** (2009) Khat Khat Research Programme Symposium (KRP). 9th SONA Conference. Sharm El-Sheikh, Egypt..
- 40 **Patel, N. B., Oyungu E, Kioy, P. G.** (2011) Effect of *Catha edulis* Forsk (khat, miraa) on seizures. 1st International Scientific Conference, College of Health Sciences. Nairobi, Kenya.
- 41 **Patel, N. B.** (2011) Khat: a widely used natural amphetamine in African. Neurobiology of Neglected African Diseases Symposium. IBRO World Congress.
- 42 Jamal, I, Bukachi, F, **Patel, N. B.** (2011). Investigation of the short – and long-term effects of khat (*Catha edulis* Forsk) on the rat heart. Cardiovascular Journal of Africa: The 10th Pan African Society of Caridiology Conference and the Uganda Heart Association Congress, Uganda.
- 43 Hellen N. Kariuki, Titus I. Kanui, Abiy Yenesew, **Nilesh B. Patel.** Paul M. Mbugua (2012). Antinociceptive activities of *Toddalia Asiatica* root extract using the formalin test on mice. 14th World Congress on Pain , Milan, Italy.
- 44 **Patel, Nilesh B.** (2013) Epigenetic Process in the Transition from Acute to Chronic Pain States. The 9th National Albanian Pain Conference Tirana, Albania.
- 45 **Patel, Nilesh B.** Dulu, Deacons, R. (2013) Behavioral Phenotyping of Naked Mole Rat (*Heterocephalus glaber*). 11th International Conference Society of Neuroscientists of Africa, Rabat, Morocco.
- 46 Kalson M. Jama, **Patel, Nilesh B** (2013) Cognitive effects of binge-dose (neurotoxic) of khat extract in mice. 11th International Conference Society of Neuroscientists of Africa, Rabat, Morocco.
- 47 **Patel, N. B.,** Kalson M Jama. (2014) Assessing cognitive and executive function in mice treated with khat (miraa, *Catha edulis* Forsk) 3rd CHS/KNH Scientific Conference, Nairobi, Kenya.
- 48 Kilekwang, Leonard and Patel, Nilesh B.(2017) *Catha edulis* Forsk (khat) induces conditioned place preference in mice. Society of Neuroscientists of Africa Conference, 10-14 June 2017. Abstract no.: MP-07.

- 49 Ongayo, Gerald and Patel, Nilesh B. (2017) Lack of gross impairment of blood brain barrier integrity with binge-dose pattern of khat (*Catha edulis* Forsk) extract treatment. Society of Neuroscientists of Africa Conference, 10-14 June 2017. Abstract no.: MP-08.
- 50 Tamimi, Iman F. M. and Patel, Nilesh B. (2017) Open field ethogram and olfactory preference in naked mole rat (*Heterocephalus glabus*). Society of Neuroscientists of Africa Conference, 10-14 June 2017. Abstract no.: CR-07.
- 51 Murithi, Caroline and Patel, Nilesh B. (2017) Comparison between *Mus musculus* (Swiss Albino mice) and *Acomys cahirinus* (Spiny mice) in an open field activity and spontaneous alternation in T-maze. Society of Neuroscientists of Africa Conference, 10-14 June 2017. Abstract no.: VN-12.

DEPARTMENTAL RESPONSIBILITIES

2014-	Class Tutor BSc intercalated and MSc Medical Physiology
2001- 2009	Coordinator, M.Sc. program in Medical Physiology
1999- 2002	Continuous Assessment Test coordinator for MBChB, BDS, BPharm.
1999 – Present	Department representative, Faculty Postgraduate Studies Committee
1990-Present	Department of Medical Physiology Graduate Studies Committee

PROFESSIONAL POSITIONS

- 2015 Reviewer: Journal of Ethnopharmacology, Substance Abuse, BMC Research Notes, Substance Abuse Treatment, Prevention, and Policy
- 2014 Behavioral Brain Research
- 2011-2015 Member, Africa Regional Committee, International Brain Research Organization (IBRO)
- 2009- Member, Developing World Subcommittee of NeuPSIG,
- 2003-2007 External Examiner, Department of Medical Physiology, Moi University, Eldoret, Kenya
- 2002- Member of College Academic Board
College of Health Sciences
College of Physical and Biological Sciences
- 2001- Advisory Board, African Journal of Neurological Sciences
- 2000-2003 Reviewer, East African Medical Journal

1999- 2004	Vice Chairman, African Regional Committee, International Brain Research Organisation (IBRO)
1999- 2009	Secretary-General, Society for Neuroscientists of Africa (SONA)
1995- 1999	Editor, Society of Neuroscientists of Africa Newsletter
1994-96	Secretary, Kenya Society of Neuroscientists (KSN)

INTERNATIONAL MEETINGS CO-ORDINATOR

1. Organising Committee, 1st International Scientific Conference, College of Health Sciences. 15-17th June 2011. Nairobi, Kenya.
2. Organising Committee, SONA 2009 International Conference, Sharm El-Sheikh, Egypt. 8-13 Dec 2009.
3. Organising Committee, SONA 2005 International Conference, Cape Town, South Africa, 18-22 April 2005.
4. Chairman, Organising Committee, 5th Society of Neuroscientists of Africa International Conference, 23-27 April 2001, Nairobi, Kenya.
5. Session chair. Education and Training Opportunities in Africa. 26th African Health Sciences Congress, Ain Soukhna, Egypt. 28th Nov-1st Dec 2005.
6. AIDS, Pain, and Pain in AIDS Patients. First Annual Scientific Conference of the Kenya Society of Neuroscientists (KSN), Kenya Psychiatric Association (KPA), and the Kenya Association for the Study of Pain (KASP). Nairobi, Kenya. 1994.

MEETING CO-ORDINATOR AND PARTICIPANT

1. Co-organiser with Richard Brown, Dalhousie University, Canada. IBRO-ARC School: From Wildlife to Laboratory: Basics Concepts for Behavioral Research. 6-10 June 2017.
2. Co-organiser. Advanced Behavioural Neuroscience School. Nairobi, Kenya. 12-18th Dec 2010
3. Co-organiser. Teaching Tools in Neuroscience. Fayoum University. Fayoum, Egypt. 2-6th Dec 2009.
4. Co-organiser. Advanced Behavioural Neuroscience School. Nairobi, Kenya. 13th-20th December 2008.
5. Co-Organiser. 2nd International Neuroimmunology Course. Ismalia, Egypt. 24th Nov – 3rd Dec 2008
6. Co-organiser. IBRO Neuroimmunology Mini-School, Ismalia, Egypt. 18th-21st November 2007.
7. Co-organiser. Neurobiology of Neglected African Diseases. International Brain Research Organisation (IBRO), Satellite Meeting, 11 July 2007, Melbourne, Australia
8. Co-organiser. Fogarty – IBRO African Neuroscience School, Nairobi, Kenya. 22nd-25th May 2007.
9. Co-organiser. 11th ISN-IBRO African Neuroscience School on Behavioural Neuroscience, Nairobi, Kenya. 10th-17th Dec 2005.

10. Organiser. Symposium on Neurobiology of Neglected African Diseases. SONA 2005 International Conference, Cape Town, South Africa, 20-22 April 2005
11. Co-organiser. First Course on Interdisciplinary Pain Management. Sponsored by the International Association for the Study of Pain. 16th- 25th November 2004.
12. Co-organiser. 7th IBRO African Neuroscience School, Molecular Neuropharmacology, 31st October – 8th November 2004, Nairobi, Kenya.
13. Co-organiser. Essential and Behavioural Neuroscience. 5th International Brain Research African Neuroscience School, Nairobi, Kenya. 14th-21st December 2003.
14. Member, Organising Committee, INMHA/IBRO Neuroscience School, 1st-7th September 2003, Stellenbosch, South Africa.
15. Neuroscience Symposium 2002, Kenya Society of Neuroscientists, 21 September 2002. Nairobi, Kenya.
16. Chair and Organiser, 3rd International Brain Research Organisation African Neuroscience School, 1-7 September 2002, Nairobi, Kenya.
17. Faculty/Instructor. 2nd African Neuroscience School organised by the International Brain Research Organisation (IBRO) and the Society of Neuroscientists of Africa (SONA), Rabat, Morocco. 21-28 April 2002
18. Faculty/Instructor 1st International Brain Research Organisation (IBRO) African Neuroscience School. Pietersbrug, South Africa. September 2000
19. Psychostimulants: Amphetamines, cocaine, cathinone (Khat). 3rd International Conference, Society of Neuroscientists of Africa, Cape Town, South Africa. 1997

IBRO African Neuroscience School website: <http://www.uonbi.ac.ke/projects/ibro/>

Invited Talks and Workshops/School Presentations

1. *Statistics in Medical Work*. Continuous Medical Education, Avenue Group. 24 January 2002.
2. *Axonal Path Finding in Neuronal Development*. Kenya Society of Neuroscientists Seminar. 6 February 2002.
3. *Neurodevelopment*. 2nd IBRO African Neuroscience School, Rabat, Morocco. 20th-27th April 2002.
4. *Developments in CNS Regeneration*. Kenya Society of Neuroscientists Seminar. August 2002.
5. *Basic Mechanism of Neural Development*. 3rd IBRO African Neuroscience School, 1st-7th September 2002.
6. *Neuronal Development and CNS regeneration*. Neuroscience Symposium 2002, Kenya Society of Neuroscientists, 21 September 2002.

7. *History of Electrophysiology*. IMNHA/IBRO Advanced African Neuroscience School. Neurophysiology/Electrical Activity in the Nervous System, Cape Town, South Africa. 1st-7th September 2003.
8. *Basic Statistics*. Essential and Behavioural Neuroscience, 5th IBRO African Neuroscience School, Nairobi, Kenya. 14th-21st December 2003.
9. *Hormones and Behaviour*. Essential and Behavioural Neuroscience, 5th IBRO African Neuroscience School, Nairobi, Kenya. 14th-21st December 2003.
10. *Electrical Properties of Cell Membranes*. Molecular Neuropharmacology. 7th IBRO African Neuroscience School. Nairobi, Kenya. 31st October- 8 November 2004.
11. *Physiology of Pain*. First Course on Interdisciplinary Pain Management. Nairobi, Kenya. 16th-25th November 2004.
12. *The effects of khat (Catha edulis Forsk): An amphetamine-like plant substance*. Chronobiology in Africa Workshop, Hans Merensky Estate, South Africa, 23-28 April 2005.
13. *History of Electrophysiology*. IAC-USNC African Neuroscience School. (12th IBRO Africa Regionals Committee School) Neural Systems: From Channels to Circuits. University of Cape Town and Stellenbosch, South Africa. 1st-9th July 2006.
14. *Basic Electricity and Basis of Membrane Potential*. IAC-USNC African Neuroscience School. (12th IBRO Africa Regionals Committee School) Neural Systems: From Channels to Circuits. University of Cape Town and Stellenbosch, South Africa. 1st-9th July 2006.
15. *Basics of the Nervous System*. IBRO Neuroimmunology Mini-School, Ismalia, Egypt. 18th-21st November 2007.
16. *Blood Brain Barrier and Trypanosomiasis*. 3rd WHO/TDR KARI-TRC Capacity Strengthening Introductory Course on Tsetse and Trypanosomiasis. KARI-TRC, Kenya. 5th-23rd May 2008.
17. *Membrane Potential* 1st Teaching Tools in Neuroscience Workshop. IBRO/SfN/UNESCO. Saly, Dakar. 30 June-3 July 2008.
18. *Membrane Ion Channels*. 1st Teaching Tools in Neuroscience Workshop. IBRO/SfN/UNESCO. Saly, Dakar. 30 June-3 July 2008.
19. *Basics of the Nervous System*. 2nd International Neuroimmunology Course. IBRO/ICCI, Ismalia, Egypt. 24th Nov-3rd Dec 2008
20. *Introduction to Ion Channels*. 2nd International Neuroimmunology Course. IBRO/ICCI, Ismalia, Egypt. 24th Nov-3rd Dec 2008
21. *Experimental Design*. Advanced Behavioural Neuroscience School. IBRO/UNESCO/CIHR. Nairobi, Kenya. 13th-20th December 2008.
22. *Descriptive and Inferential Statistics*. Advanced Behavioural Neuroscience School. IBRO/UNESCO/CIHR. Nairobi, Kenya. 13th-20th December 2008.
23. *Eye optics and movement*. Teaching Tools in Neuroscience Workshop II. IBRO/SfN/NAS. Fayoum University, Fayoum, Egypt. 2-6th December 2009.
24. *Khat: a widely used natural amphetamine in Africa*. Dipartimento di Scienze Neurologiche, Neuropsicologiche, Morfologiche Motorie, Università degli Studi di Verona, Italy, 19 July 2011 .
25. *Optics and Eye Mechanics*. 5th Teaching Tools School & Workshop in Neuroscience Durban, South Africa. September 8 -13 2012
26. *Drugs of abuse and epigenetics*, IBRO/UNESCO School of Neuroscience, Environment, Epigenetics and Behaviour, Pwani University, Kilifi, Kenya, December 8-15, 2012

27. *What is epigenetics and its role of drug addiction* IBRO/ARC/ISN African Neuroscience School "Addiction to drugs of Abuse: From neurochemical to pathological aspects", Faculty of Sciences, Mohammed V-Agdal University, Rabat, Morocco. 08th – 12th June, 2013
28. Education material for Local Pain Schools in Low Resource Settings. Train-the-Trainer Workshop, Triana, Albania.
29. *Physiology of Pain*. Education material for Local Pain Schools in Low Resource Settings. Nakuru, Kenya. 14-16th April 2013.
30. *Optics and Eye Mechanics*. Sixth Teaching Tools Workshop – Rabat Morocco, 7-12th June 2013.
31. *Sensory Receptors*. Sixth Teaching Tools Workshop – Rabat Morocco, 7-12th June 2013.
32. *Optics and Eye Mechanics*. 8th Teaching Tools Workshop – Addis Ababa, Ethiopia. 16-22nd Sept. 2015
33. *Sensory Receptors*. 8th Teaching Tools Workshop – Addis Ababa, Ethiopia. 16-22nd Sept. 2015.
34. *Neurons in Action Laboratory*. 8th Teaching Tools Workshop – Addis Ababa, Ethiopia. 16-22nd Sept. 2015.
35. *Optics and Eye Mechanics*. 10th Teaching Tools Workshop – Entebbe, Uganda, 5-10 June, 2017
36. *Sensory Receptors*. 10th Teaching Tools Workshop – Entebbe, Uganda, 5-10 June 2017.
- 37.

Workshops Attended

Addictive Disorders. Neuroscience School of Advanced Studies, 4-11 June 2016, Cortuana, Italy.

Laboratory Animal Science, 12th-16th June 2006. Organised by the Dept Vet Anatomy and Physiology, University of Nairobi, and Division of Comparative Medicine, University of Uppsala, Sweden.

Good Laboratory Practise (GLP) Course, U 24th-26th October, 2007. Organised by the UNDP/World Bank/WHO Special Program for Research and Training in Tropical Diseases (TDR) and University of Nairobi. Nairobi, Kenya.

Web-based lectures

1. Membrane and action potential. Florida Gulf Coast University. Dept. Physical Therapy. PhD students. November 2001.
2. Neurotransmitters. Florida Gulf Coast University. Dept. Physical Therapy. Ph.D. students. November 2001.

Invited Lecturer in

1. BSc. Biomedical Laboratory Technology, Department of Animal Physiology, University of Nairobi.
2. MSc. Reproductive Biology, WHO Reproductive Biology Unit, Department of Animal Physiology, University of Nairobi.

RESEARCH GRANTS

1. *Study of the effects of Catha edulis Forsk (khat, miraa) on Behavior, Cognition and Neurotoxicity in mice.*

Principal Investigator: Nilesh B. Patel

Co-investigator: Prof. Julius Ogengo, Dept Human Anatomy, University of Nairobi.

Deans Grant 2012

2. *Population Based Prevalence Study of Genetics and Environmental Factors for Alzheimer's Disease in Kenya*

Funded by Alzheimer's Association, USA. Period: 1997-2001.

Local project manager

Collaboration with:

Prof. Robert Friedland, Case Western Reserve University, USA (PI)

Prof. Raj Kalaria, University of Newcastle upon Tyne, UK (PI)

Dr. Samuel Gatere, Consultant Psychiatrist, Nairobi, Kenya

Dr. Paul Kioy, University of Nairobi, Kenya.

BOOK GRANTS

Educational Material for Pain Management.

Funded by International Association for the Study of Pain (IASP). Developing Countries Project: Initiative for Improving Pain Education. 2008-2009.

Collaboration with Dr. (Med) Andreas Kopf, Charite Hospital, Berlin, Germany.

Available as a free download from International Association for the Study of Pain (IASP) website. Also available in Portuguese.

EDUCATION GRANTS

Student Exchange Programme between the University of Nairobi, School of Medicine, and the Charité Universitätsmedizin, Berlin, Germany. 2015-2018.

Dr. (med) Andreas Kopf, CUB, and Prof., Nilesh b. Patel, UON

Braun Foundation. Eur 60,000

CURRENT RESEARCH INTEREST

The effects of khat (*Catha edulis*) on cognitive function and behaviour.

STUDENT PLACEMENT

Rosie Gachie (Jan – July 2003)	Prof. Marina Bentivoglio, University of Verona, Verona, Italy
Mary Muhia (April – September 2004)	Prof. Jarom Feldom, Federal Institute of Technology, Zurich, Switzerland.

UNDERGRADUATE STUDENT RESEARCH SUPERVISION

- 2013** Gerald Nyachieo Ong'ayo Effect of *Catha edulis* Frosk on blood brain permeability in rats
- 2012** Jama Kalson Short and long term effects of binge dose of khat (*Catha edulis*) in mice
- 2012** Paul K Nduati Effect of escalating khat (*Catha edulis*) dose regimen on cognitive function in mice
- 2011** Keraka Phoebe Moraa. Glucose, phosphorus, and electrocardiographic changes in the Re-Feeding Syndrome. Co-supervisor: Dr. Anne Muriithi.
- 2010** Imran Jamal. Investigation of the short and long-term effects of Khat (*Catha edulis* Forsk) on the rat heart. Co-supervisor: Dr. F. O. Bukachi.
- 2010** Esther M. Muthumbi. A Study of the comparative effects of extracts from two cultivars of khat (*Catha edulis*) on species typical behaviour in mice.
- 2009** Michael Ilako. Neurotoxic administration of *Catha edulis* extract and the novel object recognition test.
- 2006** Obonyo Nchfatso. The effect of khat (*Catha edulis*) on learning and memory using a Morris Water Maze
- 2005** Agweyu, Ambrose. The effects of khat (*Catha edulis*) on locomotor circadian rhythms in mice. B.Sc. Intercalated degree
- 2002** Hussein Dossajee, Joseph Ng'ethe Mutumbu, Ambrose Agweyu, Farida Essajee, Peter Kariuki,

POST GRADUATE STUDENT SUPERVISION AND ACTIVITIES

- 2016-** Caroline Muriithi
- 2015** External Examiner. PhD dissertation. A study of WKY rats as a model of depression. Petrus Jurgens van Zyl. University of Cape Town.
- 2014-** Effect of wild yam root extract on learning and memory in mice.
Student: Rose K. Kamenchu
Degree: **MSc Medical Physiology**
Co-Supervisor: Prof. K. T. Thairu
- 2014-** Cardio-respiratory Fitness Status in Physically Healthy Elderly Kenyans from Rural and Urban Set-ups

Student: Magutah, Karani. BScN, MPH (Epidemiology & Disease Control), MSc (Medical Physiology)

Degree: **PhD**

Co-supervisors: Prof. Kihumbu Thairu, MBChB, PhD (University of Nairobi)

- 2007-2013** Antinociceptive activities of some medicinal plant extracts using animal models.
Student: Kariuki, Hellen N., BDS, M.Sc.
Degree: **PhD**
Co-supervisors: Prof. T. I. Kanui, Dept Veterinary Anatomy and Physiology, University of Nairobi, Prof. Abiy Yenesew, Dept Chemistry, University of Nairobi.
- 2007-2010** Grooming and its effect on the prevalence of tick borne diseases: A Case study of wild yellow baboons (*Papio cynocephalus cynocephalus*).
Student: Akinyi, Mercy. BVM
Degree: **M.Sc. Medical Physiology**
Co-Supervisors: Prof. Jeanne Altmann, Princeton University, USA; Prof. Susan Alberts, Duke University, USA
Currently at Duke University, USA, PhD programme.
- 2003-2007** Evaluation of the effect of khat (*Catha edulis* Forsk) on spatial learning and memory in CBA mice using the Morris Water Maze.
Student: Kimani, Samuel Thuo, B.Sc. (Nursing)
Degree: **M.Sc. Medical Physiology**
Co-Supervisor: Prof. P. Kioy, Dept. Medical Physiology, University of Nairobi, Nairobi, Kenya.
Currently with the Department of Nursing, School of Medicine, University of Nairobi.
- 2001-2003** Effect of khat (*Catha edulis*) extract on pentylenetetrazole induced seizures in rats.
Student: Oyungu Eren, MBChB
Degree: **M.Sc. Medical Physiology**
Co-Supervisor: Prof. P. Kioy, Dept. Medical Physiology, University of Nairobi, Nairobi, Kenya.
Currently with the Department of Medical Physiology, Moi University, Eldoret, Kenya.
- 2002-** Khat induced reproductive dysfunction in male rabbits.
Student: Nyongesa A. Wafula, BVM, Dept. Animal Physiology
Degree: **M.Sc. Reproductive Biology**
Co-supervisor: Prof. E.O. Wango, Reproductive Biology Unit, University of Nairobi, Nairobi, Kenya.
- 2001-2003** The effect of *Vernonia hochstetteri* extracts on pilocarpine induced epileptic seizures.
Student: Robert O. Mang'eni, B.Sc.
Degree: **M.Sc. Medical Physiology**
Co-supervisor: Prof. P. Kioy, Dept Medical Physiology, University of Nairobi, Nairobi, Kenya
Currently with Department of Medical Physiology, Moi University, Eldoret, Kenya.

- October 2002** Board of Examiners member, Mr. Daudi Langat's PhD thesis "Molecular characterization of *Paan-AG*, AN, HLA-G-like gene expression in baboon (*Papio anubis*) placenta" University of Nairobi.
- '1999-2002** Effects of khat (*Catha edulis*) on reproductive hormones and semen parameters in male baboons (*Papio anubis*).
 Student: R. O. Achieng, B.Sc.
 Degree: **M.Sc in Reproductive Biology**
 Co-supervisors: Dr. J. Mwenda, Institute of Primate Research and Prof. E.O. Wango, Reproductive Biology Unit, Dept. Animal Physiology, University of Nairobi.
- 1991-1996** Gastric Motility Responses following Duodenal Stimulation of an *in vitro* Rabbit Stomach-Duodenum preparation.
 Student: Dr. Anne Murithii, BDS.
 Degree: **M.Sc. in Medical Physiology**.
 Co-Supervisor: Dr. P.M. Mbugua, Dept. Medical Physiology, University of Nairobi.
Currently with the Department of Medical Physiology, University of Nairobi, Kenya
- '1994-1997** Plasma Levels of Luteinizing Hormone (LH) in Response to Gonadotropin Releasing Hormone (GnRH) agonist and Clonidine Challenge in Female Goats infected with *Trypanosoma congolense*.
 Student: A.G.M. Ng'wena, B.Sc.
 Degree: **M.Sc. in Medical Physiology**.
 Co-supervisor: Dr. E.O. Wango, Reproductive Biology Unit, Dept. Animal Physiology, University of Nairobi.

Currently with the Department of Medical Physiology, Moi University, Eldoret, Kenya

POSTGRADUATE THESIS EXAMINER

- May 2006** External Examiner. Nirvana Shanalee Pillay, PhD Thesis. University of Cape Town, SA. An Investigation of the *in vivo* role of vaccinia virus complement control protein in head injury and Alzheimer's Disease.
- March 2004** Board of Examiners member. Phelimon Kipkemoi Towett. University of Nairobi. PhD thesis: "A physiological study of mu, delta, and kappa opioid receptors in naked mole rat (*Heterocephalus glaber*): Their role in thermal and chemical nociception and behaviour."

AWARDS AND HONOURS

1997 South African Medical Research Council Lectureship
 2011 Fellow of the Kenya National Academy of Science (FKNAS)

PROFESSIONAL SOCIETIES

Society of Neuroscientists of Africa
Kenya Society of Neuroscientists
Society for Neuroscience (USA)
New York Academy of Sciences
International Brain Research Organisation (IBRO)
International Society for Neurochemistry (ISN)
Kenya National Academy of Science
International Association for the Study of Pain (IASP)

COMMUNITY WORK

Brain Awareness Event (BAW) (<http://www.ubongokenya.org/>) since 2005
March 11 – 17 2002 Brain Awareness Week coordinator
March 13-19 2000 Brain Awareness Week coordinator
1999-2001 Secretary, Nyari Residents Welfare Society
2002-2003 Vice Chairman, Nyari Residents Welfare Society
June 2002 The “Kisumu Caravan”. Medical train to Kisumu.
4th-9th March 2004 The Avenuehealthcare “Kenya Express” medical train to Nanyuki
2003 Committee Member, Vet Lab Sports Club.
2004 Vice Captain, Vet Lab Golf Club.
2005 Captain, Vet Lab Golf Club.