

Final Report: IBRO/UNESCO/ISN/NRF Postgraduate Neuroscience School

“Sleep and Circadian Rhythms”

The Nest,

Drankensburg Mountains, South Africa.

Dates: March 19-25, 2015.

Organizers: Prof. Paul R. Manger, Dr. Nadine Gravett, Dr. Adhil Bhagwandin.
School of Anatomical Sciences, University of the Witwatersrand, South Africa.

Sponsors: International Brain Research Organization (IBRO), United Nations Educational, Scientific and Cultural Organization (UNESCO), International Society of Neurochemistry (ISN), National Research Foundation of South Africa (NRF).

Background to the Evolution of the Visual System IBRO School:

One of the central aspects of interest in the life of any animal, including humans, is the period it spends sleeping each day. During sleep the animal is vulnerable to predation or territorial invasion and cannot spend this time to obtain nutrition or reproduce. Yet, going without sleep has its own complications – sleep appears to be a central life-sustaining process. Why any animal sleeps is an open issue, we really don't know why sleep is necessary to sustain life, we just know that it is. Sleep is intricately connected with circadian rhythms, the daily rhythm set by sunlight, in both the brain and behaviour. The school focussed upon these intimately linked behaviours and how the brain processes and controls these behaviours.

Structure of the School:

The School provided a comprehensive short course in an aspect of neuroscience that the students would not have been exposed to at their institution. The central outcome was the education of students, by recognized experts, in a specific field of neuroscience. In addition to attending the School, the students also attended the 12th Meeting of SONA (Society of Neuroscientists of Africa) meeting in Durban, which occurred immediately following the School. In fact, the students from the School represented the largest

proportion of post-graduate level students at the SONA conference and all students presented their degree research as posters at this conference providing valuable additional input into their ongoing research.

19 March: Arrived in Johannesburg and departed to School site. Welcome to the School in the evening, introduction of faculty and students and handing out of school notebooks.

20 March: Day 1 of School Schedule

9.00 – Lecture 1 – Introduction to Sleep and Circadian Rhythms and their importance in animal biology – Nadine Gravett

10.00 – Lecture 2 – Introduction to Sleep, the basics – Jerry Siegel

11.30 – Lecture 3 – Sleep in non-mammalian vertebrates – Jerry Siegel

14.00 – 17.00 – Practical Session 1 – Grant workshop – how to think about, prepare and present a grant application, All students and faculty. Led by Dr. Bhagwandin and Prof. Manger.

21 March: Day 2 of School Schedule

9.00 – Lecture 4 – Sleep in mammals – Jerry Siegel

10.00 – Lecture 5 – Anatomy of the neurochemical systems involved in sleep – Adhil Bhagwandin

11.30 – Lecture 6 – Evolution of neurochemical sleep systems – Paul Manger

14.00 – 17.00 – Practical Session 2 – Three themed practical sessions will be presented. The students will be divided into three groups to rotate through these practical sessions. The themes of the practicals will be: (A) Actigraphy as a means to record sleep in free-living large mammals, led by Dr. Gravett and Prof. Manger (B) Recording and scoring circadian rhythms in small mammals, led by Profs. Nouria Lahkdar-Ghazal, Pevet and Elallali. (C) Recording and scoring sleep in vertebrates, led by Prof. Siegel and Dr. Bhagwandin.

22 March: Day 3 of School Schedule

9.00 – Lecture 4 – Introduction to circadian rhythms, the basics – Paul Pevet

10.00 – Lecture 5 – Anatomy of the non-image forming visual system – Paul Manger
11.30 – Lecture 6 – Circadian rhythms in non-mammalian vertebrates – Khalid Elallali
14.00 – 17.00 – Practical Session 3

23 March: Day 4 of School Schedule

9.00 – Lecture 4 – Circadian rhythms in small mammals – Nouria Lakhdar-Ghazal
10.00 – Lecture 5 – Circadian rhythms in large mammals – Khalid Elallali
11.30 – Lecture 6 – The neurochemistry of circadian rhythms – Nouria Lakhdar-Ghazal
14.00 – 17.00 – Practical Session 4

24 March: Day 5 of School Schedule

9.00 – Lecture 4 – Sleep and circadian rhythms in large African mammals – Nadine Gravett
10.00 – Lecture 5 – Sleep and circadian rhythms in small African mammals – Adhil Bhagwandin
11.30 – Lecture 6 – Neurochemical integration of sleep and circadian rhythms – Paul Manger
14.00 – 17.00 – Presentation of student grant proposals

25 March: Morning Departed to SONA conference in Durban

Student demographics:

Female – 10; Male – 10.

PhD students – 15; MSc students – 4; Qualified neurologist – 1.

Algeria – 2 students; Cameroon – 2 students; Ethiopia – 1 student; Morocco – 2 students; Mauritania – 1 student; Nigeria – 6 students; South Africa – 5 students; Zimbabwe – 1 student.

Student Attendees:

Ms Lydia Boumansour (Algeria, PhD student)

Mr Salem Issad (Algeria, PhD student)

Ms Mireille Kameni (Cameroon, PhD student)
Ms Vivian Ndam (Cameroon, PhD student)
Mr Teketel Kediso (Ethiopia, PhD student)
Mr Anass Tinakoua (Morocco, PhD student)
Ms Hicham Farsi (Morocco, PhD student)
Mr Samy Dadah (Mauritania, Neurologist)
Mr Aminu Imam (Nigeria, PhD student)
Ms Ansa Cobham (Nigeria, MSc student)
Mr Eberechi Dike (Nigeria, PhD student)
Ms Misturah Adana (Nigeria, PhD student)
Mr Mujeedat Olubori (Nigeria, MSc student)
Mr David Lepka (Nigeria, PhD student)
Ms Alexis Chaumeton (South Africa. MSc student)
Mr Brendan Billings (South Africa, PhD student)
Mr Joshua Davimes (South Africa, PhD student)
Dr Nyota Masumbuko-Kahamba (DR Congo/South Africa. MSc student)
Ms Ilke Philander (South Africa, PhD student)
Mr Fidelis Chibhabha (Zimbabwe, PhD student)

Instructors who participated in the course:

Dr. Adhil Bhagwandin (South Africa)
Dr. Khalid El-allali (Morocco)
Dr. Nadine Gravett (South Africa)
Prof. Nouria Lahkdar-Ghazal (Morocco)
Prof. Paul Manger (South Africa)
Prof. Paul Pevet (France)
Prof. Jerry Siegel (USA)

Budget:

	Amount (ZAR)
INCOMES	
IBRO/UNESCO core grant (□22 000)	289 770.60
National Research Foundation, South Africa	35 000.00
International Society for Neurochemistry (\$20 000 USD, \$5 000 USD outstanding)	233 680.00
TOTAL INCOME	+558 450.60
EXPENDITURE	
Air Travel (tickets and insurance)	262 609.80
Accommodation and catering at School	169 807.23
Accommodation at SONA conference	65 857.02
Registrations for SONA conference	48 400.00
Local Travel (bus and instructors)	39 821.00
Student prizes (five books)	13 910.90
Handbook Printing and Binding	5 312.90
TOTAL EXPENDITURE	-605 718.85
Current overspend	-47 268.25
Income expected: \$5 000 USD from ISN on receipt of final report (estimated at 10 rand/US dollar)	+50 000.00
Final budget tally underspend estimate	+2 731.75