



New Enzymology Data Guidelines

The purpose of this article is to alert SASBMB members to a new set of guidelines and standards for reporting enzymology data, which have been developed by the STRENDA (Standards for Reporting Enzymology Data) Commission of the Beilstein-Institut. The following excerpt is taken from the STRENDA introductory document; detailed guidelines can be found at: <http://www.strenda.org/documents.html>.

All reports of kinetic and binding data must include a description of the identity of the catalytic or binding entity (enzyme, protein, nucleic acid or other molecule). This information should include the origin or source of the molecule, its purity, composition, and other characteristics such as post-translational modifications, mutations, and any modifications made to facilitate expression or purification. The assay methods and exact experimental conditions of the assay must be fully described if it is a new assay or provided as a reference to previously published work, with or without modifications. The temperature, pH and pressure (if other than atmospheric) of the assay must always be included, even if previously published. In instances where catalytic

activity or binding cannot be detected, an estimate of the limit of detection based on the sensitivity and error analysis of the assay should be provided. Ambiguous terms such as "not detectable" should be avoided. A description of the software used for data analysis should be included along with calculated errors for all parameters.

These guidelines have been formally adopted by the following journals: Biochemistry, The Journal of Biological Chemistry, BMC Bioinformatics, Archives of Biochemistry and Biophysics, Biochemical and Biophysical Research Communications, and Biochimica et Biophysica Acta (all 9 sections). Any new papers reporting enzymology data submitted to these journals will have to adhere to the guidelines. The STRENDA Commission is looking to extend the list with all major biochemical journals. Further information can be obtained from the STRENDA website (<http://www.strenda.org>), by email from info@strenda.org or from STRENDA Commission member Johann Rohwer (jr@sun.ac.za).

By Johann Rohwer

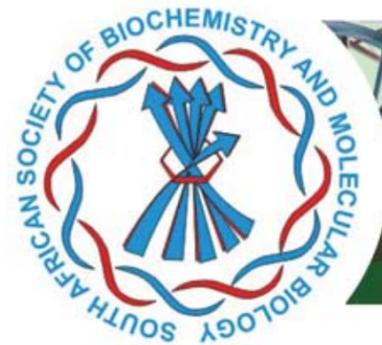
IUBMB meeting in Shanghai, China: Prof Stephanie Burton elected as member of the IUBMB Nominations Committee.

Professors Stephanie Burton and Brett Pletschke represented SASBMB Council at the recent 21st IUBMB and the 12th FAOBMB International Congress of Biochemistry and Molecular Biology (IUBMB-FAOBMB2009 Congress) held in the Shanghai International Convention Center, Shanghai, China from August 2-7, 2009. The theme of the congress was: "Biomolecules for Quality of Life". The conference attracted more than 2000 delegates from over 30 countries. The South African delegates included Prof Don Cowan (UWC), Prof Iqbal Parker (UCT) and two South African students. International plenary speakers included Kurt Wuthrich, Aaron Ciechanover, Sidney Altman, Yi-Gong Shi, Victor Ambros, Robert Roeder, Gregory Hannon, Gang

Pei, Matthias Uhlen, Wolfgang Baumeister, Luc Montagnier and Shinya Yamanaka. Profs Burton and Pletschke attended the 20th General Assembly of the IUBMB as voting delegates on behalf of SASBMB. Prof Iqbal Parker reported that a first IUBMB Advanced School in Africa had been supported by a number of organizations, especially FEBS, EMBO, UNESCO, ICGEB, and that Pascal Coscart, from the Pasteur Institute, Paris, was the co-director of the School. He said that this funding was important because there were students from Africa, Asia, Latin America, Europe, and all their costs had to be covered.

By Prof Brett Pletschke

"The conference attracted more than 2000 delegates from over 30 countries."



The newsletter of the SASBMB

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Biochemistry and Molecular Biology: Alive and thriving in the Eastern Cape

Friday, the 6th of November marked the 17th Eastern Cape Biochemistry and Molecular Biology Society Conference, hosted by the Department of Biochemistry and Microbiology at NMMU. This biennial event has steadily grown over the years, hosting 90 delegates from Rhodes, Fort Hare and NMMU.

ture Based Development of Novel ACE Inhibitors: New tricks for old dogs', was dedicated to Prof Willem Oelofsen, who is one of the founding members of the Eastern Cape South African Biochemistry Society. The day was marked by the high standard of student presentations and a



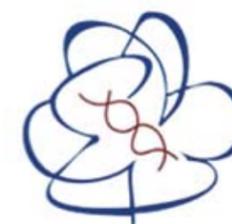
Delegates at the 17th Eastern Cape Biochemistry and Molecular Biology Society Conference

This regional event was made possible by the generous support of sponsors (Analytical & Diagnostic Products, Applied Biosystems, Beckman Coulter, Biorad, Inqaba biotec, Lasec, Merck, Microsep, NMMU, Roche, SASBMB, The Scientific Group, WhiteSci, Wirsam and Vacutec).

large variety of topics, with the three best honours presentations being awarded to Liaan Pretorius (NMMU), Tino Munzhelele (Fort Hare) and Amy Kenyon (Rhodes University). Fun was had by everyone!

By Prof Carminita Frost
Department of Biochemistry and Microbiology, NMMU

The plenary address delivered by Prof Edward Sturrock, entitled 'Struc-



We look forward to a successful year in 2010 and begin the scientific year with the 22nd Congress of the SASBMB. Welcome to SASBMB 2010 at Ilanga Estate, Bloemfontein – **Free your energy!**



Letter From The President

2010 promises to be a very good year for South Africa, with the Football World Cup as a major highlight. I am pleased that the SASBMB conference will take its proud place among such illustrious occasions. I am hoping that as we will be setting the tone for the rest of the year, we are able to position our Society and Life Sciences as critical and strategic players in our nation's quest to address the myriad challenges it faces.



We are at the dawn of a new age, moving into the knowledge economy space, and we as a Society need to ensure we are in the driving seat, as positive agents of change. We also need to take cognizance of our need to address the challenges of building the required skills in South Africa. I would like to reiterate the point that we should not just be happy with producing good science but we should also be seized with the mission of addressing our local problems and increasing our skills base. This will require new thinking and a much more pronounced emphasis on partnerships within the National System of Innovation.

This Conference promises a welcome departure from the past, with organizers placing an emphasis on good science as opposed to 'brand names'. While we have a strong contingent of international scientists; our plenary sessions have a number of young scientists doing very good work. We look forward to these sessions as they provide us with a glimpse into the future. On the

basis of the evidence thus far, I have no doubt that the future is bright.

On behalf of the Council I would like to thank Prof Derek Litthauer for going beyond the call of duty in ensuring that the University of Free State discharges of its mandate in hosting this conference. We are certainly looking forward to a very rewarding experience. I would also like to take this opportunity to congratulate our Silver Medal winner, Prof Ryno Strauss.

I would like to thank the current Council for its support during this term. I think it has been a very fruitful experience. Like most organisations, we started out with a number of objectives. I am glad that we have been able to meet some of the key objectives such as establishing this newsletter, securing the right to host the next FASBMB conference and most obviously delivering on our key mandate of organizing the current conference. I would like to thank Laura Roden for the sterling work she has put into making sure we have a communication tool.

It is left to the incoming President and his Council to ensure that the unfinished work of the current Council is finalized. They will also have to define their own strategic priorities in a rapidly changing environment for science and technology in this country and globally. In particular they will have to evaluate the role of SASBMB within the National System of Innovation and society at large. I have no doubt that Dr Brett Pleschke will be up to the challenge. I wish them all the best of luck.

ICGEB-IUBMB Course "Genomics and Proteomics Approaches in Cancer Research"

September 6th - 10th 2010 Cape Town (Closing date for Registration: 15th February 2010)

Topics:

Genomics: Cancer Genomics Projects, Genomic Data Bases and analysis, Bioinformatics, Functional Genomics, System Biology, SNPs

Proteomics: Mass Spectrometry, Protein Separation and Quantitation, Protein-Protein Interactions, Post-translational modifications, Clinical Proteomics, Biomarker discovery, Proteomics databases.

Faculty will include: Towia Libermann (Harvard University, USA), Mike Myers (ICGEB Trieste, Italy), Paul

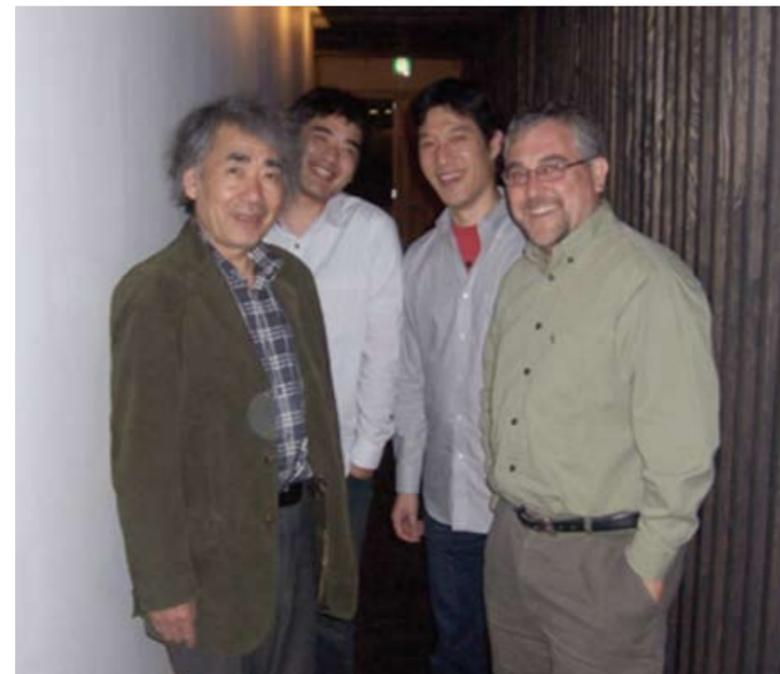
Brennan (IARC, France), Hasan Otu (Sabanci University, Turkey), Jonathan Blackburn (UCT, South Africa), Outi Monni (University of Helsinki, Finland), Nicola Mulder (UCT, South Africa), Iqbal Parker (ICGEB, South Africa). Submit your Participation Form (available for download <http://www.icgeb.trieste.it/meetings-and-courses.html>) which includes, curriculum vitae in English and a short list of publications (if any), together with a one-page abstract of your current research (all in one pdf file) to:

Luiz F Zerbini, PhD., Group Leader, Cancer Genomics, International Centre for Genetic Engineering and Biotechnology (ICGEB) Wernher and Beit Building (South) Anzio Road, Observatory 7925 Cape Town, South Africa, Tel: +27-21 650 7627, Fax: +27-21 650 7717



News from Rhodes University

The Department recently hosted two Japanese colleagues, Professor Kazuo Sakka and Dr Makiko Sakka from the Graduate School of Bioresources at Mie University, Tsu, Japan. This visit was part of a two-year collaborative NRF- Japanese Society for the Promotion of Science (JSPS) funded programme between researchers from Rhodes University (Prof Brett Pletschke) and Mie University in Japan. A key objective of this collaborative research programme is to discover novel multi-enzyme complexes in bacteria which can be used for the degradation of complex biomass for subsequent bio-fuel production. These "second generation biofuel technologies" are important from the point of circumventing the current food-versus-fuel debate. By using complex biomass substrates,



Prof Greg Blatch (right) met with his collaborator Prof Kaz Nagata (Left) and two of his students during a visit to Kyoto University, Japan (October 2009)

such as agricultural waste products and non-food crops, food security can be maintained.

Travels and conferences:

Prof Greg Blatch recently travelled to Sapporo, Japan, to present a paper at the 4th International Congress on

Stress Responses in Biology and Medicine (October 2009). During the congress he was invited onto the organizing committee for the 2013 congress to be held in the UK. After the congress, Prof Blatch travelled to Kyoto to visit his collaborator Prof Kaz Nagata (Kyoto University) where they initiated an NRF-JSTA-funded project.

New arrivals and changes:

Three new lecturing staff members joined the Department during the course of 2009: Dr Adrienne Edkins, Dr Aileen Boshoff and Dr Özlem Tastan Bishop. In addition, Dr Brett Pletschke and Dr Janice Limson were both promoted to the level of Associate Professor.

The Department is setting up a Structural Bioinformatics Unit led by Dr Özlem Tastan Bishop (Senior Lecturer). The Unit is equipped with top of the range computers and a file server, and has the capacity of hosting 10 postgraduate students. The Unit will start to function at the begin-

ning of 2010. It has already 8 research projects with local and international collaborators. Dr Tastan Bishop is currently looking for research students to participate in these projects.

By Prof Brett Pletschke

Honorary SASBMB membership

Congratulations to Prof Albert Neitz (University of Pretoria), Prof Braam Louw (University of Stellenbosch), Prof Clive Dennison (UKZN, Pietermaritzburg) and Prof John Duncan (Rhodes University) on their honorary Membership of SASBMB.

We invite nominations of Honorary SASBMB members. The criteria for becoming an Honorary member are: to be

a retired member of the Society and to have served the Society outstandingly during his/her lifetime. Nominators must have the agreement of the nominees for the proposal. The following must be then be submitted to Council: nomination, motivation by nominator, permission by nominee and the CV of the nominee.



News from KwaZulu-Natal

The hot Berg winds and rapidly fading Jacaranda blooms remind us that the summer break commeth. Just a few large piles of exam scripts to attack and meetings to negotiate and then the garden and children will get some close attention! Prof. Theresa Coetzer has finished her 7-month stint as acting Deputy Dean of our Faculty of Science and Agriculture (Pietermaritzburg campus). She enjoyed the challenge, but is glad to have time to tackle the "conversion of data into written articles to submit" and spending less time on the road travelling between the two campuses. Our School has embarked on a series of workshops to challenge and develop our teaching and research skills. The first was run by Theresa and Prof. Trevor Anderson entitled "Assessment: why, what and how" and the second had sessions run by Trevor on the theory and Prof. Dean Goldring on the practical aspects of "Curriculum Development". Trevor has been awarded superannuation so will be leading us with education research until 2013. Theresa attended a Postgraduate Supervision Conference run by the Centre for Higher and Adult Education at Stellenbosch earlier in the year. She then had to get her notes in order and presented a workshop on postgraduate supervision for our College of Engineering and Science.

Conferences:

Phyllia Vukea (Leap Lecturer) and PhD student in Theresa's lab, was one of the few awarded a fellowship to attend the "Young Scientists Program" prior to the 21st IUBMB and the 12th FAOBMB International Congress of Biochemistry and Molecular Biology which took place in Shanghai in August, 2009. At the main conference she presented her work on the Infectious Bursal Disease Virus Protease VP4. "The trip was my first my international experience and truly memorable – but I did not like the food" she said upon her return after several travel glitches due to missing connecting flights! Prof. Anderson presented in the Symposium of History and Education of Biochemistry at the IUBMB conference. Dr Shahidul Islam presented his work on the "Anti-diabetic effect of Korean Beachu on type II diabetes" at the 20th World Diabetes Conference in Montreal, Canada in October. Dean Goldring was invited to present a Royal Society Lecture "Malaria: Drugs and diagnostics – where is the vaccine?" Dr Carola Niesler was invited to present a lecture at Bio2Biz 09 in September (Durban) on her work on Stem Cells. Her presentation on "Stem Cell Technologies: Past, Present and Future" attracted a lot of interest and comment. Kyle Goetsch, MSc student working with Carola, presented an oral presentation "The extracellular matrix factors, decorin and collagen



are essential for myoblast migration" at the 37th Congress of the Physiological Society SA in Stellenbosch in September. Trevor Anderson hosted colleagues from Linköping University in Sweden and Professor Bengt-Harald 'Nalle' Jonsson from the Division of Molecular Biotechnology presented us with seminars on "Design of functional peptide-nanoparticle complexes" and "Structure-functional relationships in carbonic anhydrase".

Awards:

Mrs Celia Snyman studying "Proteases in invasive breast cancer" was awarded a Department of Science and Technology Women in Science Award. Celia is completing her PhD in Dr Edith Elliotts' laboratory.

Farewell:

Professor Mario Ariatti, a founding member of Biochemistry on the Westville campus, will be retiring at the end of 2009. He obtained his BSc in Chemistry and Biochemistry from University College, London. His first publication was in 1974 on his work on puromycin at the University of Rhodesia (now Zimbabwe). That publication was with Arthur Hawtrey, who was also his PhD supervisor. Hawtrey established the Department of Biochemistry in Rhodesia and then with Mario established Biochemistry at the University of Westville in 1975. Mario tells me that there are still some of the original chemical bottles on the shelf from Kanto chemicals in Japan with labels about ingredients "to be tested". Mario and Arthur have had a 34 year association and have published 36 articles together, the most recent being in 2008. I am reliably informed that there is another publication "in the wings". Mario was promoted to Professor of Biochemistry at UDW in 1990 and Senior Professor in 2003. Mario has trained 10 MSc and 3 PhD students and has 60 publications. He collaborates with Prof. C Tanzarella (University Roma Te, Italy) with funding from the Italian Government. He is part of the NRF Nanotechnology Flagship R3.9 million project "Development of liposomal nanoparticle vectors for therapeutic delivery of antiviral RNA interference sequences" with Dr Mogie Singh (UKZN) and from Wits Prof. C De Koenig, Dr V Otterlo and co-ordinated by Prof. P Arbuthnot. He has no intention of taking it easy. He has just had his NRF rating renewed for another 5 years, and as you can see above, has funding to keep his research interests going. Mario is a very valued colleague whose insight and experience are the foundations and building blocks of Biochemistry Westville.

By Professor Dean Goldring, University KwaZulu-Natal, Department of Biochemistry



News from the Institute for Microbial Biotechnology and Metagenomics (IMBM), University of the Western Cape

By Prof Don Cowan

The IMBM is linked to the Department of Biotechnology at UWC and has a substantial research team with interests in fundamental and applied microbial ecology and genomics. With a current staffing of nearly 50 research, administrative and technical staff (which includes 17 post doctoral fellows), the Institute aims to lead UWC in post graduate science training, cutting edge research and international publications.

Highlights from the IMBM year include:

Awards:

Miss Ncebakazi Galada, a final year student at the University of the Western Cape, from IMBM Lab was honoured to be granted an award by Nature Publishing Group to attend one of the Gordon Research Conferences on the Archaea: Ecology, Metabolism & Molecular Biology, which was held in July at Waterville Valley Resort, New Hampshire, USA. The conference was graced by the presence of a number of research pioneers and experts such as Prof Karl Stetter.

Negotiations with PlantBio were concluded in March 2009 with the award of a R19M 4-year project, incorporating laboratories in four institutions and administered by IMBM.



Prof. Karl Stetter congratulating Miss Galada in front of her poster on "Metagenomic analysis of hydrothermal sediments from El Tatio volcanic sites, Chile".

Don Cowan (Director, IMBM) was awarded the SASM Silver Medal [In recognition of exceptional, meritorious and original research] at the SASM Durban Conference in September 2009. Dominique Anderson (Year 1 PhD) was awarded the Merck Young Scientist Award for the research she conducted towards her MSc ("Gene discovery in Antarctic Dry Valley Soils"). Following an exchange visit to the University of Bergin in September, she used part of her \$US4000 prize money to make a 1 week visit to Iceland's thermal pools.

Tanya Nyman (Honours; Masters in 2010) was

awarded the Merck Medical for top 2008 3rd year marks in October 2009.

Claude C Kouadjo (visiting PhD student, Technical University, Côte d'Ivoire) was awarded the prize for the best Poster, entitled "Characterisation of chromium-resistant bacteria from Fly Ash dumping systems in SA", at the SASM Durban Conference in September 2009.



Dominique Anderson: recipient of the Merck Young Scientist Award

Travels:

Natasha Mavengere (Year 1, PhD) undertook an 8-week exchange visit to the University of Karlsruhe, Germany, as part of collaboration between Prof Christoph Syldakt and Prof Steph Burton (CPUT).

Graduations:

IMBM graduated two PhDs in 2009: Andrew Nel ('Identification of novel cold adapted nitrile hydrolysing enzymes') and Nuraan Khan ('Characterization of hypolithic communities associated with hy-



Drs Nuraan Khan and Andrew Nel, IMBM graduates

politic environments in Antarctic Dry Valley soils') IMBM is currently offering a number of PhD and MSc bursaries for projects linked to biofuels research, extremophile microbial ecology, gene discovery and protein structure-function. For more information, contact imbm.uwc@gmail.com.



News from Molecular and Cell Biology, University of Cape Town

New life is being breathed into the department in the form of new equipment purchased with a grant from the Department of Education. We will soon be the proud owners and users of a Proteomics/Metabolomics Platform with HPLC, QTOF and GCMS, a Protein spot picker, a new ultra centrifuge, several controlled environment plant growth chambers and a Lumina IVIS (allowing in vivo luminescence and fluorescence measurements). It is a very exciting time, and although some have been reluctant to part with old pieces of equipment because they have some sentimental attachment, most of us are still pinching ourselves trying to believe our good fortune.

We have appointed a new lecturer in 2009 – Dr Zenda Woodman who is very interested in the role of the envelope protein variants in the pathogenesis of HIV.

The Science Faculty has changed from offering undergraduate degrees in Programmes where students specialise in subjects, to an 'open' BSc with majors. This has

lead to us reconsidering the structure of our curriculum and what a student who majors in Biochemistry, Genetics or Microbiology needs to know. While we have settled on our curricula, there is some disquiet and uncertainty of whether we have or can achieve a comprehensive structure in the time-frame of the undergraduate degree. Given the history of our department – a fusion of Microbiology and Biochemistry departments – there was a lot of anxiety in deciding on the curricula, especially what belonged where. This led to us questioning the reality of the distinctions between our disciplines and whether we should be offering one major – in Molecular and Cell Biology! This was decided to be a step too far for most, and put on a back burner for reconsideration at a later date. Are there similar debates happening in other Departments/Universities? We would love to hear your views and about the solutions implemented in your departments.

By Laura Roden, MCB, UCT

Biochemistry at the Medical School at NUST, Zimbabwe

The National University of Science and Technology (NUST), was established in 1990. Its Medical School was established in 2004 with the first group of students being admitted into the MBBS programme in February 2005. Medical students study Biochemistry during the first 3 years of the 5.5-year programme. The curriculum is unique in that there is a deliberate emphasis on integrated teaching as well as on the problem-based learning approach.

The student-centred approach has been challenged by the paucity of learning resources/materials as well as unreliable internet services. The Biochemistry core courses are taught during the first two years; the third year provides interface between the preclinical and the clinical courses. The teaching style is didactic with a strong thread of guided discovery learning. Students are given topics on which to research and present to the class with the lecturer guid-



Front view of the Administration building (an early view) this is the 'heart' of NUST



ing the whole process. In this fashion students learn from each other within the safe rails afforded by the guidance from the lecturers. Needless to say, the Biochemistry that the medical students learn is a pared down version of what science students learn. The focus is on essential information that provides a foundation for the appreciation of normal processes and thereafter, disease processes. The students are provided with a framework on which to hang the utilization of the science of Biochemistry in the clinical field, e.g. to understand the utility of Biochemistry in tracking/reporting disease processes (diagnostic use) as well as during the recovery processes (prognostic use).

Right at the beginning, the students get to appreciate the structure and function relationships of the major biomolecules. Leading on from the biomolecular basics is catabolism. Studies of catabolism start from the food molecules and the molecular details of digestive processes. That treatise progresses naturally into the energetics course which addresses glycolysis, the TCA cycle and the electron transport chain. The production of energy from the typical energy molecules as well as from carbon skeletons of amino acids is addressed and finally, the urea cycle adjuncts nicely to these studies. The anabolism aspects are covered in a separate course that addresses gluconeogenesis, glycogenesis, the synthesis of various lipids (fatty acids, cholesterol and TAG), amino acid synthesis, haem biosynthesis and nucleic acid synthesis as well as salvage. This course provides a cap on basic Biochemistry. The next course address-



The Commerce Building at NUST which houses some of the staff of the Medical School

es the role played by the hormones in regulating and coordinating metabolism. This course provides a molecular adjunct to physiological processes and also addresses the molecular aspects of intercellular communication. During the course students appreciate the related-ness of the biochemical processes and the physiological events but also the cooperation of specialized body organs, e.g. the inter-organ cooperation typified by the Cori cycle.

The students begin their study of clinical Biochemistry in the third year. The pathological processes that can affect the human body are discussed at depth. Students are led through discussions of clinical cases and how biochemical tests can be used in the diagnosis of various disorders and diseases. During the same time students would be learning basics of diagnostic processes in other courses thus the clinical Biochemistry integrates into the entire tapestry of disease diagnosis. The students learn the typical molecular indicators of disease, immunotechnologies, basic molecular biology techniques and utilization and some side-room diagnostic techniques.

Apart from the usual practical work in the laboratories, students are exposed to the 'real thing' at the Pathology Laboratories in the hospital as well as the private laboratories. Students are guided to think laterally, to solve problems, to work in teams.

By Dr Noma Ndiweni, PhD
Dean: Faculty of Medicine, NUST, Bulawayo, Zimbabwe

Society Membership

Sign up to become a member of SASBMB.

Direct your browser to <http://www.sasbmb.org.za/html/registration.php>

Why?

As a member of the society you will be eligible for dis-

counted rates for conference attendance, grants to allow you to travel to SASBMB and the Federation of African Societies of Biochemistry and Molecular Biology (FASBMB) conferences, plus you will be part of the South African scientific community and keep in touch with your colleagues in the fields of Biochemistry and Molecular Biology.