

# ASBCB Newsletter

April 21, 2006

Volume 1, Issue 1

## Message from the President

### Inside this issue:

<b>President's Message</b>	<b>1</b>
<b>Word from Editor</b>	<b>2</b>
<b>Bioinformatics Status</b>	<b>2</b>
<b>Genome News</b>	<b>4</b>
<b>Training/Research</b>	<b>5</b>
<b>Conferences</b>	<b>6</b>
<b>Next Issue</b>	<b>6</b>

### Special points of interest:

- International Glossina Genome Initiative (IGGI)
- South African Malaria Initiative (SAMI)



I would like to welcome you to this first issue of the African Society for Bioinformatics and Computational Biology (ASBCB) Newsletter.

ASBCB was founded a few years ago to promote the exchange of ideas, infrastructure and resources in the fields of bioinformatics and computational biology and facilitate the interaction and collaboration among scientists and educators around the world. It is gratifying to note that with just less than 30 founding members 2 years ago, we have now grown to over 150 members from many

parts of the world. This is clearly a reflection of the increasing interest in the goals of the Society and the need to empower Africans in the application of bioinformatics and computational biology.

Clearly, Africa has been faced with a lot of problems over the years, prominent among which are poverty and diseases. The crucial roles bioinformatics and computational biology play in agriculture, drug discovery and treatment of diseases cannot be overemphasized. Yet many Africans lack sufficient information and knowledge in this scientific development to fully embrace the benefits. It is not surprising therefore that bioinformatics and computational biology do not feature in the curricula of many African Universities, Polytechnics and Colleges.

As a key to the success of the goals of ASBCB, par-

ticularly in the area of improving the knowledge and application of bioinformatics and computational biology, this newsletter is being used as just one of the tools to disseminate information and update everyone on current and future activities. The newsletter is also a medium to measurably advance the awareness and understanding of the science of bioinformatics and computational biology, and increase the application in Africa.

Let me congratulate the Editorial group that has been working so hard to put this newsletter together. Enjoy the newsletter and please feel free to submit comments, articles and suggestions.

With warm regards.

Patrick Erah, Ph.D.  
([erah@uniben.edu](mailto:erah@uniben.edu))

University of Benin, Nigeria

## Word from the Editor

Welcome to our first ASBCB newsletter! We are excited that this first issue has finally moved from a dream project to reality. The ASBCB newsletter is a quarterly magazine intended as a conduit for news related to bioinformatics and computational biology in the continent of

Africa under the aegis of the African Society for Bioinformatics and Computational Biology. The contributors will be from the continent of Africa and the diaspora. As we continue to lay the foundation of what we will be communicating in this newsletter, we hope this issue will be a flavor of

things to come. In time, we will be able to reach a broader readership. The quality of the contributions we have herein attests to the impetus that bioinformatics has picked up in the continent of Africa. The newsletter will be available

as a link from the society (www.asbcb.org).

As bioinformatics continues to gain momentum globally, it is imperative that this area be addressed in the continent with renewed vigor. The completion of the human genome as well as several other genomes, and the rise of the 'omics' phenomena is enabling research possibilities than hitherto anticipated. By transforming biology into information science, higher levels of discoveries can be realized. With more studies and tools focusing on whole genome analyses, an enhanced understanding of the regulatory and meta-

bolic pathways of biological organisms is becoming ever more achievable.

The potential to develop bioinformatics in Africa requires the participation and cooperation of government, university, industry, and private foundations. Collaboration with scien-



tists in different locations or countries on the continent, and with those in developed countries with more advanced infrastructure is paramount. This requires that the scientists be proactive and make alliances and partnerships, consistent with the current global bioinformatics trend. In this issue, we have addressed current status of bioinformatics, genome news, as well as training and research opportunities in the continent.

Beatrice Kilel, Ph.D.  
bkilel@hotmail.com  
Editor, ASBCB Newsletter

**“Potential to develop bioinformatics in Africa requires participation of university, government, industry and private foundations”.**

## Bioinformatics Status - A Publication Perspective

Let me first welcome the first issue of this newsletter with the hope that it will serve the African bioinformatics community and help in networking bioinformaticists in the old continent and worldwide. When the editor asked me for a contribution to the ASBCB newsletter, I have in mind to consider the current status of African bioinformatics, particularly from the publications perspective.

My previous investigations have in fact, showed me that African bioinformatics is young, still at its infancy. Although many bioinformatics papers (starting from 1991) were published by African scientists, all of them correspond to investigations done within re-

search laboratories in other countries (mainly USA and Europe). The first papers related to bioinformatics from scientists working in African countries appeared only about ten years ago.

South Africa has been the first country to enter this emerging field followed by Tunisia and some other African countries (see report by BenKahla and Hide in this issue). In order to assess the impact and scientific production of African bioinformaticists and to identify high-level scientists in this field, I searched the Medline at Pubmed (<http://www.pubmed.org/>) with: “Bioinformatics” as a keyword in the “Journal” field for each of the African countries’ names in the

“Affiliation” field.

This search covers papers done by bioinformaticists working in African countries in journals having the term ‘Bioinformatics’ in their name; this includes the following journals: Bioinformatics, Briefings in Bioinformatics, Applied Bioinformatics, BMC Bioinformatics, Journal of Bioinformatics and Computational Biology and Proteins: Structure Function and Bioinformatics.

To these, I added two other leading journals: Nucleic Acids Research and Genome Research and examined the hits one by one to keep only those related to bioinformatics and having a major bioinformatics contribution. Of course, this is not an exhaustive search,

since many bioinformatics papers published in wide scope journals could be missed, but it gives a good idea about African bioinformatics.

The results of this search are given in the table shown.

Author*	Journal	Year	Affiliation
Bourn WR	Nucleic Acids Res.	1995	Univ. of Cape Town, South Africa
Miller RT	Genome Research	1999	Univ. Western Cape, South Africa
Petterton HG	Bioinformatics	2000	Univ. of Cape Town, S. Africa
Martin D	Bioinformatics	2000	Univ. Natal Durban, South Africa
Bajic VB	Brief. Bioinformatics	2000	Univ. Western Cape, South Africa
Christoffels A	Nucleic Acids Res.	2001	Univ. Pretoria, South Africa
Joubert F	Proteins	2001	Univ. Western Cape, South Africa
Hide WA	Genome Research	2001	Univ. Western Cape, South Africa
Nembaware V	Genome Research	2002	Univ. Western Cape, South Africa
Kelso J	Genome Research	2003	Univ. Pretoria, South Africa
Birkholtz L	Proteins	2003	Univ. Natal Durban, South Africa
DeOliveira	Bioinformatics	2003	Univ. Western Cape, South Africa
Kelso J	Genome Research	2003	Univ. of Cape Town, South Africa
Swart EC	BMC Bioinformatics	2004	Univ. Stellenbosch, South Africa
Olivier BG	Proteins	2004	Univ. Western Cape, South Africa
Chang CF	Nucleic Acids Res.	2004	Univ. Stellenbosch, South Africa
Olivier BG	Bioinformatics	2005	Univ. of Cape Town, South Africa
Posada D	Bioinformatics	2005	Univ. Western Cape, South Africa
Tiffin N	Nucleic Acids Res.	2005	Univ. Western Cape, South Africa
Rebai A	Proteins	2006	Centre Biotechnology Sfax, Tunisia

We see that the number of publications in high-level peer-reviewed bioinformatics journal is still very weak. Starting from the year 2000, the average number of published papers per year is about 3. Most of the papers (95%) are from South African scientists and 40% of them are from researchers at the SANBI (South African National Bioinformatics Institute) in the University of Western Cape, which is the leading center of bioinformatics in Africa. However, the absence of any significant publication from other African countries is compelling. This means that problems remain either in human resources (absence of specialized and well trained bioinformaticists) or computing facilities and skills or both.

In the next issues of this newsletter, I will give regularly, a short description of the most important contributions by African bioinformaticists published in the last three months. This will encourage networking of scientists working on similar subjects or having similar interests.

\* If the corresponding author is not specified in Pubmed abstract, name of first author is given.

Ahmed Rebai, Ph.D.

([Ahmed.rebai@cbs.rnrt.tn](mailto:Ahmed.rebai@cbs.rnrt.tn))

Bioinformatics Unit, Center of Biotech of Sfax, Tunisia

**“Absence of significant publications from most African countries is compelling”.**

## Current State of Bioinformatics - A General Perspective

The development of science in Africa is dependent on the development of properly functioning scientific academies (Editorial, Nature, 16 February 2006). The African “academy of bioinformatics” is not yet well enough organized and although professional bioinformaticists exist, a network is currently nonexistent. We have started, a couple of months ago, compiling a report about the current status of bioinformatics in Africa in order to go a step further towards the development of a strong African network of bioinformatics. The final report will be made public as soon as it is ready. Even though the present document is incomplete a general consensus is beginning to emerge. South Africa, Kenya, Nigeria and Tunisia are the four African countries that have invested into long term training and equipping of scientists in the field of bioinformatics. A strong community of bioinformaticians is starting to exist in these countries. This observation agrees with the commentary of Maurizio Iaccarino (EMBO reports, May 2004) who defended that it was difficult to develop research in developing countries without adequately planning it. Other countries like Sudan, Morocco and Mali are in earlier stages of development of their bioinformatics communities. In addition, frustratingly, the world-wide problem of amalgamating understanding between bioinformatics, classical biology, mathematics and computer science is particularly lacking at all current sites in Africa.

Alia Benkahla, Ph.D., University of Sfax, Tunisia ([Alia.Benkahla@pasteur.rns.tn](mailto:Alia.Benkahla@pasteur.rns.tn))

Winston Hide, Ph.D., University of Western Cape, South Africa ([Winhide@sanbi.ac.za](mailto:Winhide@sanbi.ac.za))

# Genome News

## Genome Resources for Trypanosomiasis Establish in Africa: The International Glossina Genome Initiative (IGGI)

The International Glossina Genome Initiative (IGGI) was established through WHO/Tropical Disease Research and Training (TDR) ([www.who.int/tdr/](http://www.who.int/tdr/)) in 2004 with the ultimate goal to impact on tsetse control by generating a fully annotated whole genome sequence for Glossina – the vector for Human African Trypanosomiasis. There is an emphasis on African empowerment in the programme, with the high level annotation and responsibility for translating the genome to functional outputs focused

clearly upon Africa (Nature, 29 January 2004 “African labs win major role in tsetse-fly genome project”). Experts in the fields of genomics, tsetse biology and population genetics from three continents are collaborating to



generate and use genomic data to promote the understanding of Glossina biology. The hope is that this will stimulate the development of new vector control initiatives including potential targeted insecticide development, improved trap and target design, and indirect transgenic approaches via symbionts.

Another aim of IGGI is to increase the size and impact of the Glossina research community especially in the disease endemic countries. These aims are to be supported

through training courses such as the Training Course on Bioinformatics and Functional Genomics Applied to Tsetse Fly (<http://www.sanbi.ac.za/mrc/tdr2006.html>) to be presented in July at the South African National Bioinformatics Institute (<http://www.sanbi.ac.za>), University of Western Cape, near Cape Town, South Africa. An Online Glossina Genomics Resource is being developed as part of the activities of IGGI. The resource will include access to all genomic and expression data generated for

Glossina, background information about ongoing projects by IGGI members, contact details of experts in the field, status of the genome project and ultimately access to the genome sequence and its annotations. Currently, *G. morsitans* BAC-end sequencing is being done at RIKEN Genomic Sciences Center (Japan) and shotgun genome-wide sequencing is being done at

Sanger Center, with 6 million reads dedicated to the project. Several collections of ESTs will be released shortly through the Glossina resource site. An international jamboree for annotation of the Glossina genome will be held at SANBI, most likely in late 2008. Key African collaborators in IGGI include Daniel Masiga and Joseph Ndung'u (Kenya), Loyce Okedi (Uganda), Phillippe Solano (Cote d'Ivoire), and Win Hide (South Africa).

(Reference – Report of the ExCo Meeting for IGGI held at TIGR, Rockville,

USA on 15 December 2005.

Winston Hide, Ph.D.  
([Winhide@sanbi.ac.za](mailto:Winhide@sanbi.ac.za))  
Director, SANBI  
University of Western Cape, South Africa

**“African labs win major role in tsetse-fly genome project”.**

## The South African Malaria Initiative (SAMI)



The South African Malaria Initiative (SAMI) is a partnership established to facilitate the integration of malaria research and related capacity develop-

ment in South Africa and the rest of Africa. The aim is to stimulate the use of modern molecular research tools to improve malaria prevention and control. The South African Minister of Science & Technology, Mosibudi Mangena, officially launched the SAMI on Tuesday, 7 February 2006, at a special function at the Edoardo Villa Museum, University of Pretoria. Key role players including representatives

from the Medicines for Malaria Venture (MMV) and the World Health Organisation (WHO) also attended the launch. Malaria research in Africa is set to get a major boost with the Organisation (WHO) also attended the launch. Malaria research in Africa is set to get a major boost with the South African Department of Science and Technology's R 11 million (1.8 million US\$) research grant in support of the South African

Malaria Initiative (SAMI). More information at the official site - <http://www.acgt.co.za/sami/>

Jaco de Ridder

([jaco.de.ridder@bioagric.up.ac.za](mailto:jaco.de.ridder@bioagric.up.ac.za)).

Department of Biochemistry

University of Pretoria, South Africa

# Training/Research

In the recent past the world has witnessed a tremendous progress in human genome project as well as genome projects of several other organisms. This development has paved way for a lot of research and training opportunities in this emerging field of Bioinformatics and Computational biology.

Many Institutions and organizations both government and private have provisions for funds; grants, fellowship and scholarship for training and research for long and short time.

Some of the available opportunities are put together in the following websites. [www.iscb.org/univ\\_programs/program\\_board.php](http://www.iscb.org/univ_programs/program_board.php) PhD/Msc/B.Sc short & long time



biomedicine to pharmaceutical companies by expeditiously yielding a greater quantity to lead drugs for therapy.

However, I encourage young scientists currently working on Bioinformatics to intensify their efforts. And I also encourage older and experienced scientists to see to building formidable platform that is pos-

<http://www.internationalgraduate.net/>  
Graduate opportunities worldwide

[www.scidea.org/graduate.asp](http://www.scidea.org/graduate.asp)  
Grant/post doctoral/graduate fellowshipship

[www.daad.de](http://www.daad.de) DAAD - Training / Research opportunities

[www.cebitec.uni-bielefeld.de/groups/fg402/standorte.shtml](http://www.cebitec.uni-bielefeld.de/groups/fg402/standorte.shtml)

<http://www.cebitec.uni-bielefeld.de/groups/fg402/standorte.shtml>

<http://www.ssi-tdr.net> Research opportunities

<http://bioinformatics.org/news>  
Training and research opportunities

[www.togp.sinica.edu.tw](http://www.togp.sinica.edu.tw) Graduate opportunities in Taiwan

<http://www.internationalgraduate.net/>  
Worldwide training opportunities

## **Future Prospect of Bioinformatics**

Bioinformatics exhibits tremendous potential for playing a major role in the future development of science and technology. This is evident from the fact that modern technology and related sciences are increasingly becoming dependent on this new technology. It is expected that Bioinformatics will contribute especially in the future as the leading edge in

terity oriented.

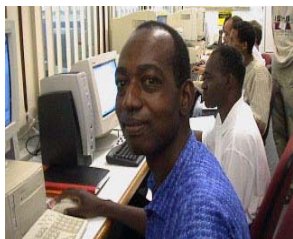
Ezekiel F. Adebiyi, Ph.D.  
([efadebiyi@yahoo.com](mailto:efadebiyi@yahoo.com))

Department of Computer and Information Sciences

Covenant University, Ota, Nigeria

**“There is a need to build a formidable platform that is posterity oriented”.**

## A Case for Local/Regional Strength



Africa is a big place (> 52 countries, about 30,300,000 square km and thousands of unique languages). It is a continent of many contrasts, and diverse capabilities in terms of access to knowledge and facilities for advancing science. Efforts to grow the number and competence of bioinformaticians (developers and users) will greatly benefit from home-grown strategies that take into consideration local situations.

In the eastern African region, we have sought to encourage awareness, and conduct short-term training workshops, in addition to research projects that have a strong bioinformatics component. To a large extent, the training workshops have been conducted in support of activities by the Biochemical Society of Kenya. Our thrust now is to consider partnerships with well established centres to enable us (through universities) to make longer term, undergraduate and post-graduate training possible, even as nascent efforts to have such programs running emerge. Keep an eye here for developments!

Daniel Masiga, Ph.D., ICIPE/Kenyatta University, Nairobi, Kenya ([dmasiga@icipe.org](mailto:dmasiga@icipe.org))

**African society for bioinformatics  
and computational biology**

c/o South African National Bioinformatics  
Institute  
University of the Western Cape  
Bellville 7535  
SOUTH AFRICA

Phone: +27 (0)21 9593645  
E-mail: [jaco.de.ridder@bioagric.up.ac.za](mailto:jaco.de.ridder@bioagric.up.ac.za)



We're on the Web!

<http://www.asbcb.org/newsletter>

## Conferences and Trainings

Event Date	Location	Event Title
Apr 21, 2006	United States - MD	<a href="#"><u>National Postdoctoral Association Annual Meeting</u></a>
Apr 27, 2006	France - 83	<a href="#"><u>Workshop # 166 "Identification of non-coding functional regions in genomes"</u></a>
May 01, 2006	United States - NY	<a href="#"><u>CASP6.5--Between CASP meeting 2006</u></a>
May 21, 2006	Germany	<a href="#"><u>Training Course in Biomedical Ontology</u></a>
May 29, 2006	Netherlands	<a href="#"><u>3rd International Symposium on Networks in Bioinformatics</u></a>
Jun 05, 2006	United Kingdom	<a href="#"><u>Signalling to Chromatin - Epigenetics</u></a>
Jun 14, 2006	United States - NY	<a href="#"><u>Cold Spring Harbor Course in High Throughput Data Analysis</u></a>
Jun 14, 2006	Sweden	<a href="#"><u>EMBNET AGM 2006</u></a>
Jun 15, 2006	United States - DC	<a href="#"><u>8th Biodetection Technologies</u></a>
Jun 25, 2006	Hong Kong	<a href="#"><u>INFORMS International Meeting - Bioinformatics Cluster</u></a>
Jun 26, 2006	United States - NV	<a href="#"><u>Gene Networks: Theory and Application</u></a>
Jun 27, 2006	United States - CA	<a href="#"><u>2nd International Conference on Data Management for Real-Life Problems in Biomedicine (DMRB 2006)</u></a>
Jul 08, 2006	United States - WA	<a href="#"><u>2006 Workshop on the Biological Applications of Genetic and Evolutionary Computing (BioGEC'06)</u></a>
Jul 09, 2006	United States - MA	<a href="#"><u>Microbial Stress Response</u></a>

\*\*\* Note that these meetings are the ones that are ISCB-sponsored found at [http://www.iscb.org/events/event\\_board.php](http://www.iscb.org/events/event_board.php). In future, this section will be used for regional conferences and trainings.

## In the next issue...

We will continue on some of the topics that have been introduced in this first issue. The state of bioinformatics is growing and there is always something new to report. So watch out for such developments in the upcoming ASBCB Newsletter. Dr. Etienne de Villiers (ILRI) will contribute on bioinformatics platform in Africa and training conducted among other highlights.

Hope to see you then!