



***Institute of Biochemistry, Molecular Biology and
Biotechnology
University of Colombo***

Annual Report – 2016



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Quick Reference

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Directors Review: Civil construction and equipment of the Institute of Biochemistry, Molecular Biology and Biotechnology (IBMBB) was funded by a soft loan of 15 million Swedish Kroners (SEK) provided by the Swedish International Development Agency (SIDA) to the Government of Sri Lanka. The initial design of the IBMBB was funded by the Asian Development Bank's Science and Technology Personnel development project.

The Institute of Biochemistry, Molecular Biology and Biotechnology (IBMBB) was ceremonially declared open on 28th April, 2004 by Her Excellency Anne Marie Fallenius, the Head of Mission, Embassy of Sweden, Colombo, and Prof. Ulf Pettersson, Vice-Rector, University of Uppsala, Sweden. The Ordinance of the Institute was gazetted by Gazette Extra-ordinary No. 1282/25 of 3rd April, 2003. The building is located in the main campus of the University of Colombo. The IBMBB is equipped with all modern instruments used in molecular life sciences such as fully automated DNA sequences, microarray scanner, FPLC, HPLC, Fluorescence and Phase contrast microscopes and laminar flow hoods and other facilities such as cell culture, insectary, cold rooms, local area net working, access to internet via dedicated optical fiber cable and is fully air-conditioned.

The main thrust areas of activities of IBMBB are postgraduate programmes including MSc, MPhil and PhD programmes. The IBMBB does not admit undergraduate students but contribute to undergraduate teaching programmes of the University of Colombo. IBMBB conducts three full time MSc programmes. These are in Molecular Life Sciences, in Cellular and Molecular Immunology and in Bioinformatics. The main objective of these courses is to provide focused training in current areas of molecular life sciences and the allied fields relevant to the development of Sri Lanka and to encourage young graduates to proceed for further advanced studies leading to PhD. In addition to these post-graduate degree programmes, IBMBB is conducting several short training courses, workshops, guest lectures and internship programmes for dissemination of knowledge.

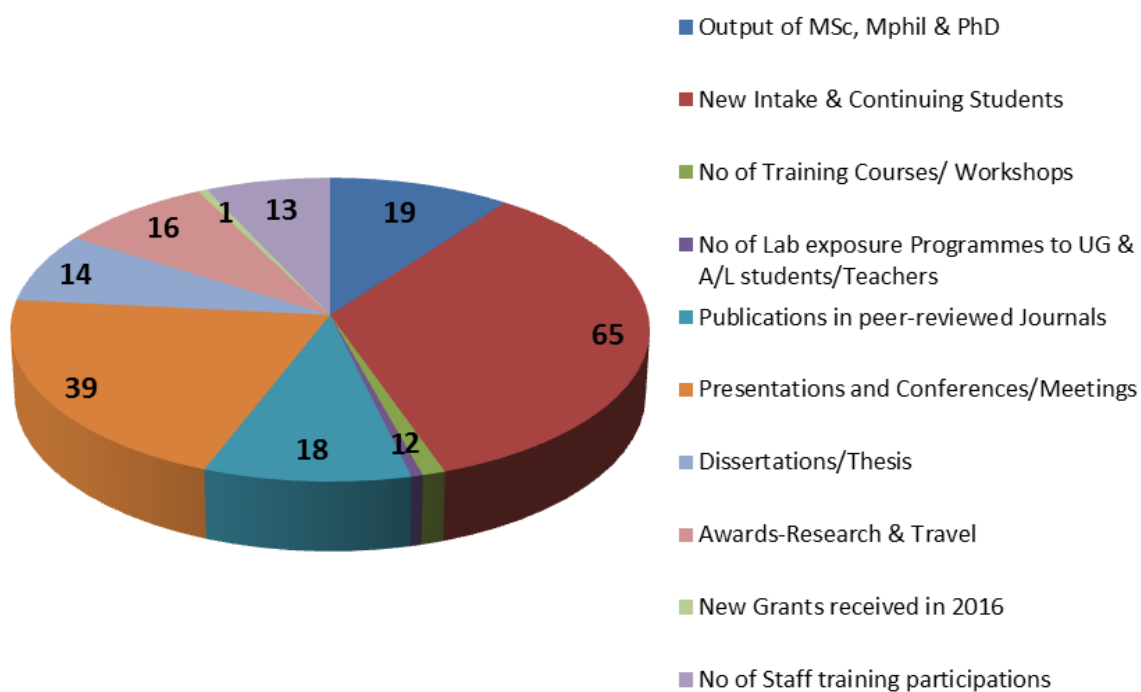
Summary achievements in 2016 are as follows,

- MPhil/PhD students (direct) registered at the IBMBB - Twenty Nine
- MPhil/PhD students (indirect) registered at other Higher Educational Institutes & carried out research at the IBMBB - 4 students
- Successful completion of Degree – One PhD; 1 MPhil; 17 MSc
- Submission of PhD Dissertations for examination – Three
- MSc students registered - Molecular Life Sciences – Eleven
 - Cellular and Molecular Immunology - Ten
- Short training courses/ workshops held – 2
- Awards received by staff & students
 - International travel awards – 2
 - National travel awards – 0
 - Awards for research & publications – 14
- Publications
 - Original research papers published in International Journals – 17
 - Publications under review – 2
 - Research presentations (Total) – 35; (International) - 4

The details are described elsewhere in this report.

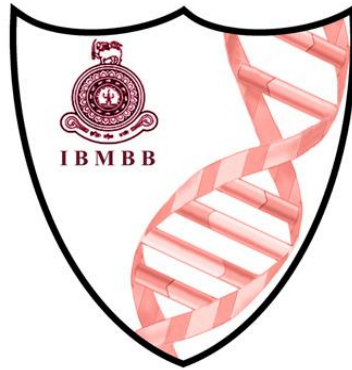


Performance 2016 at a glance



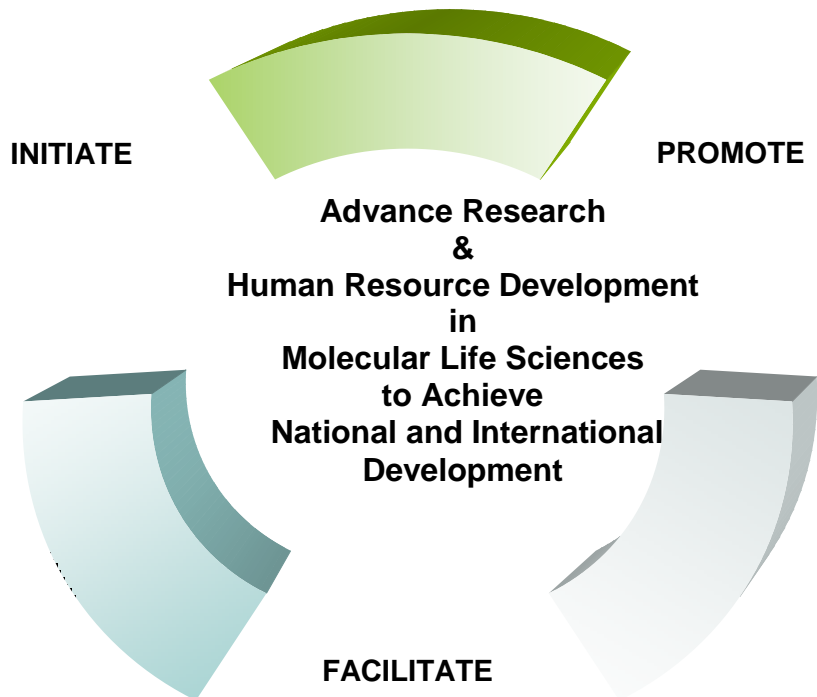


VISION



“To be an
International Centre of Excellence
In
Molecular Life Sciences”

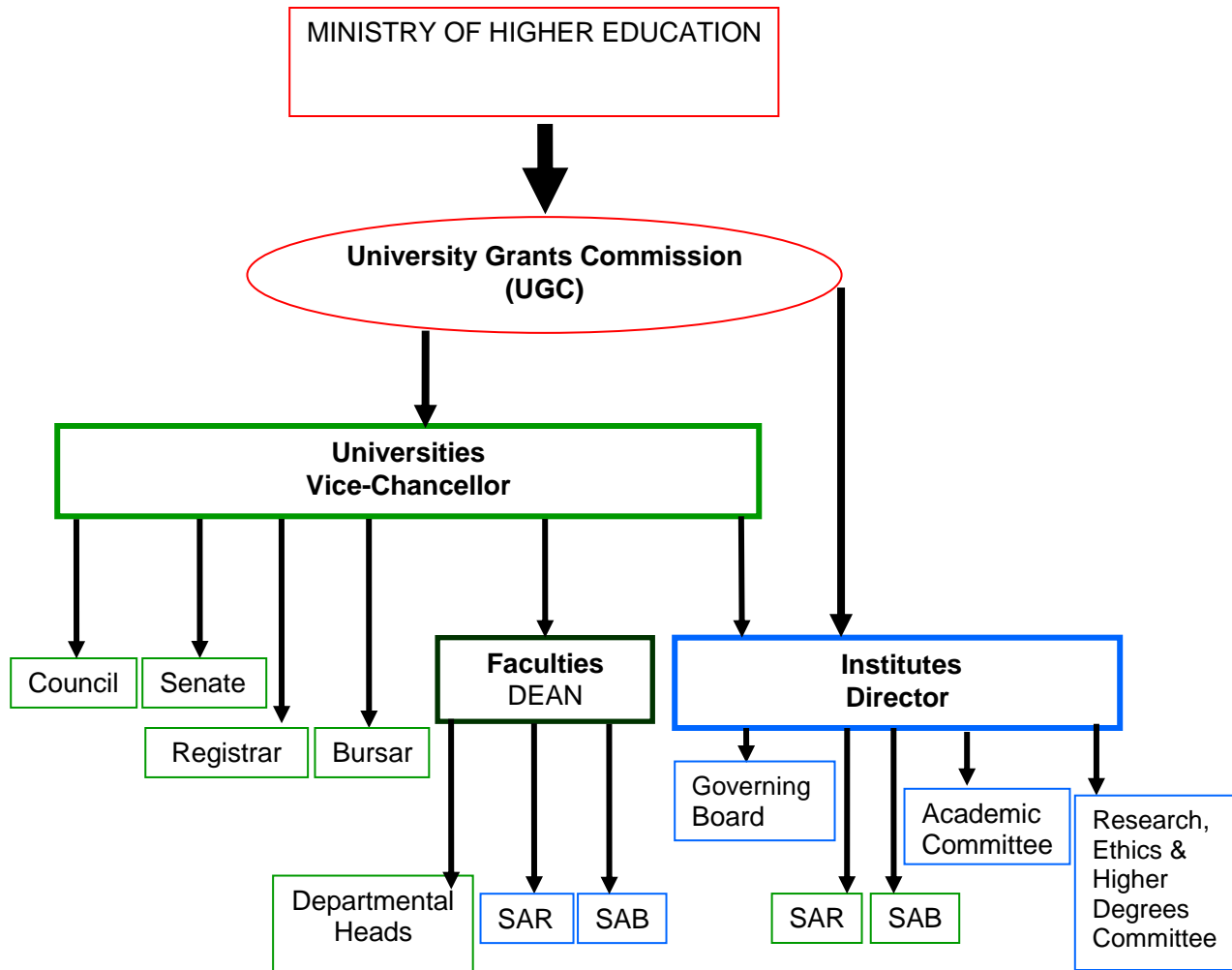
MISSION





ORGANIZATIONAL CHART

Current administrative structure of the University system





Director

Professor Shiroma Handunnetti

Members of Board of Management

Professor Shiroma Handunnetti, Director-IBMBB, (Chairperson)

Mrs M.D.M.D. Karunatilake, Secretary Nominee, Director (Development), Ministry of Higher Education (upto September 2016)

Ms S S Evangeline, Secretary Nominee, Director (Development), Ministry of Higher Education (from October 2016)

Professor Eric H Karunanayake, UGC Nominee

Professor Ira Thabrew, UGC Nominee

Mr C Maliyadde, UGC Nominee

Professor Ramanee Wijesekera, UGC Nominee

Mr Thilak Karunaratne, Council Nominee

Mr Rajan Asirwatham, Council Nominee

Professor Ariyaranee Gnanathanan, Senate Nominee

Ms W Indira Nanayakkara, Senate Nominee

Professor Jennifer Perera, Dean/Medicine, University of Colombo, Ex-officio

Professor KRR Mahanama, Dean/Science, University of Colombo, Ex-officio

Professor Gihan Wickramanayake, Director, University of Colombo School of Computing, Ex-officio (upto May 2016)

Professor K.P.Hewagamage, Director, University of Colombo School of Computing, Ex-officio (from 2016 June)

Professor C P D W Mathew, Head/Biochemistry & Molecular Biology, Faculty of Medicine, Ex-officio (upto May 2016)

Dr. Kithmini Siridewa, Head/Biochemistry & Molecular Biology, Faculty of Medicine, Ex-officio (from 2016 June)

Professor Kamani Tennekoon – On Invitation



International Recognition: IBMBB continued as a Resource Centre for Molecular Life Sciences in Asia for the International Programme in Chemical Sciences (IPICS), University of Uppsala and as the National Node of the European Molecular Biology Network (EMBnet).

International Awards

Prof. Eric Karunanayake, founder and former Director of IBMBB was awarded the World Academy of Sciences Award for Building Science Institutions in Central and South Asia in appreciation of his magnanimous role in securing funds from Sweden for building IBMBB seeing through its completion and nurturing its expansion during his tenure as Director. **Prof. Karunanayake** and two students at IBMBB (**Mr. Meran Ediriweera** and **Ms. Crishani Rodrigo**) received travel awards from the **Third World Academy of Science (TWAS)** to participate in the Regional Conference held from 4-5th December 2016 in Bangalore, India.

Best paper award was received at the 2nd Singapore Society of Oncology Annual Scientific Meeting held in Singapore, 8-10th July 2016 for the paper titled “Govaniadine induced apoptosis on human breast cancer (MCF-7) cells via oxidative stress- related pathways” by **Sivakumaran N, Samarakoon SR, Adhikari A, Ediriweera MK, Tennekoon KH, Thabrew I, Malavige N.**

National Awards received in 2016:

- a) **Prof. Shiroma M. Handunnetti**
President’s Award for Scientific Publications in Year 2014
- b) **Prof. Shiroma M. Handunnetti**
University Research Award (IBMBB) -2015:
- c) **Dr OVDSJ Weerasena**
Two National Research Council Merit Awards for Scientific Publications in Year 2014
- c) 8th IBMBB Annual Scientific Sessions:– Awards for the Best paper in Session on Medicinal Plants – **Ms N Sivakumaran**
Immunology & Infectious diseases – Jointly awarded to **Mr DLPE Gunasekera, Ms MJR Niloofa & Ms N Fernando**
Molecular Biology & Biotechnology – **Ms M Vahinipriya**
Award for Best Poster – **Ms K Gayathri**
- d) 8th Biennial Scientific Sessions of the Allergy and Immunology Society of Sri Lanka
First Prize in Basic Immunology- **Ms MJR Niloofa**
First Prize in Clinical Immunology- **Mr BD Silva**



-
- e) **Ms Rashini Baragamarachchi**
Best Poster Award in Food and Agriculture section at National Science Foundation Research Summit 2016
- f) **Ms. H.A.C.I.K Rodrigo**
Sri Lanka Medical Association award for the Best Paper in Cancer 2016
- g) **Ms. Joanne Tiphania Kotelawela**
NSF Postgraduate Research Scholarship Award -2016

Travel Awards

Ms U Rajagopalan - OSTP Training Scholarship Award, National Science Foundation
- To visit H.E.J Research Institute, Karachchi, Pakistan to receive training in structure elucidation of anti-cancer compounds

Ms. Vahinipriya Manoharan - Travel award, National Science Foundation
- To participate at the San Antonio Breast Cancer Symposium 2016, San Antonio, 6-10th December 2016

Orations/Plenary Speeches

Prof. Kamani H. Tennekoon

Valentine Basnayake Oration 2016 delivered at the Physiological Society of Sri Lanka and a certificate received

Prof K Balasubramaniam Gold Medal Lecture delivered at the Jaffna Science Society, a medal and a certificate received

Prof. Shiroma Handunnetti

Plenary speech delivered at the 9th International Research Conference, Sir John Kotelawla Defence University, a medal and a certificate received

Commendation - Dr Sameera R Samarakoon

Received a certificate from the National Science Foundation for supervising a project on cancer by Mr PM Lochana Piyumantha Fernando who won a special award at the Intel International Science and Engineering Fair 2016

IBMBB staff and students were able to publish their research findings in International Journals and present their findings at several International conferences. Details are given under research publications and communications.



Human Resource Development

Postgraduate Programmes

MPhil/PhD Programmes: Four new MPhil/PhD students registered during 2016. Twenty five students who registered previously at the IBMBB continued their work. Research programmes on which MPhil/PhD work is based, are described under Research activities. Four students registered at other Higher Educational Institutes for MPhil/PhD carried out a part of the studies at the IBMBB. One of the IBMBB PhD students successfully completed the PhD degree and one of the MPhil (indirect) students, also successfully completed the MPhil degree. Three other IBMBB PhD students completed PhD studies and submitted thesis for examination.

(See Table 1 & 2 for the list of MPhil/PhD students and Table 3 for funding received for ongoing and new research programmes on which their studies were based). Table 4 & 5 includes the details on PhD and MSc students completing examination process.

MSc Programme: In March 2016, the Twelveth and Tenth batches were registered for the Masters Degree programmes which includes MSc in Molecular Life Sciences (MLS) with eleven students and MSc in Cellular and Molecular Immunology (CMI) with ten students respectively.

Four students of MSc in Molecular Life Sciences and seven students of Cellular and Molecular Immunology continued their 3rd semester research work in 2016 and a total of eleven students of 2015 Intake submitted their Dissertation for examination (see Table 5 for details). One student in MSc in Molecular Life Sciences (2015 intake) joined the junior batch.

In 2016, Ms Nivethika Sivakumaran received the Professor Eric H Karunanayake Gold Medal for the Best Student in MSc in Molecular Life Sciences. A total 17 students successfully completed their Masters in Molecular Life Sciences (15 from 2014 intake, 01 from 2013 and 01 from 2011 Intakes)

Following staff members continued as Course Coordinators and Assistant Coordinators:

Dr. OVDSJ Weerasena - Course Coordinators, MSc in Molecular Life Sciences

Dr. Sisira Pathirana - Course Co-Coordinators, MSc in Cellular and Molecular Immunology

Ms Daniya Edward - Assistant Course Coordinator, MSc in CMI (upto Sep 2016)

Ms Narmada Fernando - Assistant Course Coordinator, MSc in CMI (from Dec 2016)

Ms Rupika Wijesinghe - Course Co-Coordinator, MSc in Bioinformatics

Mr Kanchana Senanayake - Course Coordinator, MSc in BI (up to Dec 2016)

Dr Ruwandi Ranasinghe – Co-Coodinator Course Coordinator, MSc in BI (from Dec 2016)



The following academics /visiting faculty gave lectures for the **MSc in Molecular Life Sciences**:

Prof. Vasanthi Arsaratnam (Faculty of Medicine, University of Jaffna)
Prof. Rohini Fernandopulle (Kothalawala Defence University)
Prof. Eric H. Karunanayake (Emeritus Professor, University of Colombo))
Prof. Ira Thabrew (Emeritus Professor, University of Kelaniya)
Prof. Kamani H Tennekoon (IBMBB)
Prof. Shyamala Tirimanne (Faculty of Science, University of Colombo)
Prof. Sumedha Wijeratne (Faculty of Medicine, University of Colombo)
Dr. Nilanthi Dassanayake (University of Sri Jayawardenepura)
Dr Sumadee De Silva, (IBMBB)
Dr. Nimal Punyasiri (Head, Research Centre, Nature's Beauty Creations Ltd, Horana)
Dr Sameera Samarakoon (IBMBB)
Dr. Nalinda Silva (University of Sri Jayawardenapura)
Dr. Sumithra Tissera (Family Planning Association)
Dr. Jagathpriya Weerasena (IBMBB)
Ms Kantha Lankathilake (Faculty of Medicine, University of Colombo)

Ms. Sudeshini Hewage, Dr Sumadee De Silva, Dr. Sameera Samarakoon, Dr. Ruwandi Ranasinghe, Ms. Nishara Batagoda and Ms Lakshika Jayasekara assisted with the practical and tutorials of the course.

The following academics/visiting faculty gave lectures for the **MSc in Cellular and Molecular Immunology**:

Prof Shiroma Handunnetti (IBMBB),
Prof Sunil Premawansa (Faculty of Science, University of Colombo)
Prof Suranjith Seneviratne (Consultant Clinical Immunologist, St. Mary's Hospital, Uk)
Prof. Kamani H Tennekoon (IBMBB)
Prof. Shyamala Tirimanne (Faculty of Science, University of Colombo)
Associate Prof. Andrew Nguyen, Dept. of Biological Sciences and Geology, The City University of New York, USA
Dr Enoka Corea, (Faculty of Medicine, University of Colombo)
Dr. Dhanushka Dassanayake (Acting Consultant Immunologist, Medical Research Institute)
Dr Rajiva de Silva (Consultant Immunologist, Medical Research Institute)
Dr. Dharshan De Silva (Genetech Research Institute)
Dr. Sumadee De Silva (IBMBB)
Dr Thusitha Gajanayake (Novartis Phrama Services)
Dr. S. Ginige (Epidemiology Unit, Ministry of Health)
Dr. Baddhika Jayaratne (National Hospital of Sri Lanka)
Ms Kantha Lankathilake (Faculty of Medicine, University of Colombo)
Dr. Kanthi Nanayakkra (Medical Research Institute)
Dr. Sisira Pathirana (Faculty of Medicine, Univeristy of Colombo)
Dr Preethi Perera (Formerly, Medical Research Institute)
Dr. Damayanthi Peiris (Cancer Hospital, Maharagama)
Dr. Rajitha Samarasinghe (Cancer Hospital, Maharagama)



Dr. Jagathpriya Weerasena (IBMBB)
Dr. Sujeewa Weerasinghe (National Cancer Institute, Maharagama)
Ms. Narmada Fernando (IBMBB)

Ms. Daniya Edward and Ms Narmada Fernando assisted the practical course.

(See Table 5 & 6 for MSc Dissertations of those who completed Dissertations work in 2016 and will graduate in 2017).

8th Academic Sessions of IBMBB was held on 26th May 2016. Prof. Lakshman Dissanayake, Vice Chancellor was the chief guest and Late Prof. Stanely Wijesundera family members Wijesundera and many other distinguished guests participated in this occasion. Vidyajoythi Emeritus Professor Rezvi Sheriff delivered the Prof Stanley Wijesundera Memorial Lecture titled ‘Sri Lankan CKDU Epidemic- Research & Service Challenges’. This was a very successful event at IBMBB having received a total of 25 abstracts, including 2 from external researchers. There were 17 and 08 abstracts selected as Oral and Poster presentations respectively.

With the sponsorship from the Wijesundera family, awards for the best research (oral) presentations in the three scientific sessions on i) Medicinal Plants, ii) Immunology & Infectious diseases and iii) Molecular Biology & Biotechnology and a Poster Presentation session were awarded to students for the first time at the annual scientific sessions. Vice Chancellor, Prof Lakshman Dissanayake and Mr Shalitha Wijesundera gave the awards in the awards ceremony held in the evening of the same day.

An **Open Day** programme was conducted on 02nd September 2016. This was a successful event organized by the IBMBB. About 128 students and parents who came to familiarize with the MSc, Phil/PhD and other short training courses at IBMBB. This programme included providing course details, lab tours, pre-registartion, consultations/discussions with staff and senior students on courses conducted / available at IBMBB.

Short Courses : Two short (5 day) courses and several workshops on Geneanotation were held in 2016,

- i) Training Course in Molecular Biological Techniques - October 2016
- ii) Training Course in Immunological Techniques - November 2016

i) Training Course in Molecular Biological Techniques

In order to provide an exposure to Molecular Biology and Genetics, a 5-day certificate course in Molecular Biological Techniques was conducted from 24th to 28th October 2016 and 18 participants were in this course. The workshop was highly rated by the participants. The participants included staff members from other Universities / Research Institutes/ Government Departments/ students completed A/L expecting University entrance and also



staff members from IBMBB. Some of them were supported by their respective Institutes. This course was coordinated by Dr. Sumadee de Silva and Ms. A Sudeshini Hewage.

ii) Training Course in Immunological Techniques - November 2016

In order to provide an exposure to theory and practical knowledge with hands on experience in Immunological Techniques a 5-day Training courses in basic immunological techniques with hands on practice was conducted from 28th November to 2nd December 2016 for the third time. Twenty (17 External and 3 Internal) candidates participated in this course. This course was conducted with the support of four resource persons, two from IBMBB and two other visiting lectures (one from Faculty of Science, University of Colombo, one from Medical Research Institute) and four Research Assistants at IBMBB. The course content and hands on experience provided by the course was highly appreciated by the participants. A majority of participants were from the Ministry of Health in different categories such as Parasitologist, Entomological Officer, Public Health & Medical Laboratory Technologists etc, and staff members from Faculty of Science and Institute of Indegenous Medicine, University of Colombo and the Open University of Sri Lanka. Prof Shiroma Handunnetti had initiated this course and also was a resource person. Dr Sisira Patahirana and Ms Narmada Fernando were the course coordinators.

Exposure to Molecular Biology and Immunology offered to Undergraduate students

Dr Ruwandi Ranasinghe (Scientific Assistant), and Ms. Lakshika Jayasekara (Teaching Assistant) conducted practical demonstrations on DNA isolation and analytical separation for three batches of BSc (Hons) Biomedical Science students from BMS. In the first batch, 24 students participated on 23rd August 2016 and in the second batch 23 students participated on 24th August 2016 and in the third batch 23 students participated on 25th August 2016.



Institutional Review - 2016

University of Colombo institutional review completed in 2016. The Self Evaluation Reports of all Faculties and Institutes were made and IBMBB participated in this review process, completed the Self Evaluation Report and the Evaluators visited the IBMBB premises on the 15th March 2016. Director made an introductory presentation and the evaluators held discussion with all categories of staff and students, visited the laboratories and assessed the relevant documents. The following staff members contributed to this Institutional Review being the Domain Coordinators and all other staff members contributed to documentation.

Domain	Name(s) of Coordinator(s)	Designation
1. Governance and Management	Prof Shiroma Handunnetti Ms Anoma Ratnayake Mr Krishantha Herath	Director, IBMBB Sen. Asst. Registrar, IBMBB Sen. Asst. Bursar, IBMBB
2. Curriculum Design and Development	Prof. Kamani Tennekoon Prof Eric Karunanayake Prof Shiroma Handunnetti Dr. Jagathpriya Weerasena	Senior Professor, IBMBB Consultant-Development of Academic activities, IBMBB Director, IBMBB Senior Lecturer, IBMBB
3. Teaching and Learning	Dr. Sumadee De Silva	Lecturer, IBMBB
4. Learning Resources, Student Support & Progression	Dr. Jagathpriya Weerasena	Senior Lecturer, IBMBB
5. Student Assessment and Awards	Dr. Jagathpriya Weerasena	Senior Lecturer, IBMBB
6. Strength and Quality of Staff	Prof. Kamani Tennekoon, Ms Sudeshini Hewage Ms Narmada Fernando Ms Nilupa Gunaratne	Senior Professor ,IBMBB Lecturer, IBMBB Lecturer, IBMBB Scientific Assistant, IBMBB
7. Postgraduate studies, Research, Innovation & Commercialization	Prof. Kamani Tennekoon	Senior Professor, IBMBB
8. Community Engagement, Consultancy & Outreach	Dr. S. Samarakoon, Dr. Ruwandi Ranasinghe	Scientific Assistant, IBMBB Scientific Assistant, IBMBB
9. Distance Education	Mr. Kanchana Senanayake	Asst. Network Manager, IBMBB
10. Quality Assurance	Prof Shiroma Handunnetti	Director, IBMBB



Staff Development and Welfare

Staff Training: Nine staff members received training and attended training courses in various aspects as given in the Table below.

Welfare activities: As a part of the activities of the Welfare Society of IBMBB, a sermon was delivered at the IBMBB by the Head priest at the International Meditation Center, the most Venerable, Meethalawe Winitha Thero at 2.00 p.m on 30th June 2016.

In accordance with a proposal made by the Ministry of Sports, the Government has declared the week commencing 25th-30th January 2016 as “National Sports and Physical Fitness Promotion Week”. With regard to this matter, IBMBB organized some activities on 29th January 2016. An exercise session for all the staff & students and a softball cricket tournament between staff and students were organized and successfully conducted.

Blood Donation Programme was held on 26th July 2016 in collaboration with the National Cancer Institute, Maharagama. This event organized by The Welfare Society of IBMBB with the contributions and participations of staff and students of the IBMBB was very successful having 74 participants who donated blood.

Staff training received in 2016

Name of staff member	Designation	Workshop/Training Course	Duration
Ms. N.K.C.S. Champika	Computer Applications Assistant, Gr.II	Diploma in Advance English – 1 st Year	Jan-Dec 2016
Mr. L.C.S. Liyanage	Temporary Driver	Workshop on Scientific, Safe & Economical Driving of Motor Vehicles	1st March 2016
Ms. A.T.N. Somaratne	Trainee Technical Officer	Seminar on Chemical Handling Laboratory Safety	6th May 2016
Ms. L.N.R. Guneratne Ms. T.R.G.N. Fernando	Scientific Assistant, Gr.II	Seminar on "Ethics Values & Responsibilities of Chemical in National Development"	10th June 2016
Mr. L.H.J. Kumara	Scientific Assistant, Gr.II	Workshop on "Attitudes & Skills Development"	17th June 2016
Ms. A.A. Jayasoma	"Technical Officer, Grade II Seg "A"	Seminar on Atomic Absorption Spectrometry	16th August 2016
Prof. Shiroma Handunnetti	Director	Workshop on Improving Our Well being	24th August 2016
Dr. Ruwandi Ranasinghe	Scientific Assistant, Gr.II	Workshop on Effective Research Proposal Writing	7th October 2016



Dr Jagath Weerasena Dr Ruwandi Ranasnghe Mr Kanchan Senanayake Ms Narmada Fernando	Senior Lecturer Scientific Assistant Assist Network Manager Lecturer on Contract, IBMBB	Workshop on Principles of Effective Course Design	16th December 2016
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National Development through National/International Agencies

Collaborative research programmes with the National Cancer Hospital, Maharagama, National Hospital Sri Lanka, North Colombo Teaching Hospital, Ragama, Base Hospital Homagama, Faculties of Medicine and Science, University of Colombo and Sri Jayawardenepura University, Faculty of Medicine, University of Kelaniya, Open University, Wayamba University, Medical Research Institute, Tea Research Institute and Industrial Technology Institute were continued during the year 2016.

Awards received at 8th Annual scientific Sessions of the IBMBB, UOC (27th May 2016)

Best Oral Presentation in Session I - Medicinal Plants

Presentation titled “Anti-proliferative and proapoptotic effects of govaniadine in human breast cancer (MCF-7) cells. (OP3).” by **Sivakumaran N, Samarakoon SR, Adhikari A, Ediriweera MK, Tennekoon KH, Thabrew I**, Malavige N.

Best Oral Presentations in Session II - Immunology and Infectious Diseases

Jointly awarded to Three Presentations titled

“Comparison of cross-reactivity of IgE antibodies with native and recombinant PLA2 (rApi m 1) of Apis mellifera Linnacus and PLA2 of Apis dorsata Fabricius. (OP-C7)” by **Gunasekara DLPE, Handunnetti SM**, Premawansa S, Witharana EWRA, Dasanayake WMDK, Suranjith L Seneviratne, Dias RKS, Premakumara GA , De Silva NR.

“Effects of pathogenic Leptospira on functions and viability of vascular endothelial cells and kidney epithelial cells. (OP9).” by **Fernando N, Handunnetti SM**, Rajapakse S, de Silva HJ, Premawansa S.

“Diagnostic accuracies of six different immunoassays compared to the gold standard tests, real-time quantitative PCR and isolation of pathogenic Leptospira. (OP8)” by **Niloofa R, Karunanayake L, Premawansa S, Rajapakse S, Handunnetti SM**.

Best Oral Presentation in Session III -Molecular Biology and Biotechnology

Presentation titled “Screening of selected Sri Lankan cancer patients for somatic mutation of TP53 gene. (OP12).” by **Vahinipriya M, De Silva S, Karunanayake EH, Tennekoon KH**, De Silva K.



Best Poster presentation

Poster presentation titled “Mutational analysis of B cell activating factor receptor (BAFF-R) and inducible costimulator (ICOS) in patients with common variable immunodeficiency (CVID) in Sri Lanka. (PP7). “ by **Gayathri K, Weeraman CPK, Sathkumara HD, Handunnetti SM**, De Silva AD, De Silva R.

Awards received at 8th Biennial Scientific Sessions of the allergy and Immunology Society of Sri Lanka - (15th July 2016)

First prize in Free Paper Presentaion in Basic Immunology was awarded for the paper titled “Serovar diversity of pathogenic Leptospira infecting patients in Western Province, Sri Lanka” by **Niloofa MJR**, Karunanayake L, Premawansa S, Rajapakse S, **Handunnetti SM**.

First prize in Free Paper Presentaion in Clinical Immunology was awarded for the paper titled “Characterization of allergenic venom constituents of medically important ant species in Sri Lanka and determination of venom cross-reactivity with Western ant species” by **De Silva BD, Handunnetti SM**, Premawansa S, Dias RKS, de Silva NR.

Best Poster Award in Food and Agriculture section at National Science Foundation Research Summit 2016 for the poster titled “Sri Lankan Bacillus thuringiensis isolates with insecticidal and chitinase activity” by **Baragamarachchi R**, Samarasekera R, **Weerasena OVDSJ**.

[IBMBB staff and student names give in bold font.]

Emeritus Professor Eric Karunanayake served as a reviewer to International Science Foundation, Stockholm and Third World Academy of Sciences. He was also invited as a Keynote speaker at the Regional Conference organized by the Third World Academy of Science held in Bangalore from 4-5th December 2016. Prof Karunanayake served as the Consultant on Curriculum Evaluation, Development and Research until November 2016.

Prof Kamani H Tennekoon was appointed as the Chairperson, Board of Study, Molecular Life Sciences at IBMBB and was also a member, Board of Study, Bioinformatics at IBMBB. Prof Tennekoon served as a Visiting Lecturer to MD-Clinical Oncology Programme at PGIM, MPhil Thesis examiner for Faculty of Science, University of Jaffna, PhD Thesis examiner for Indian Institute of Technology, Roorkee, Uttarakhand, India. She was a member of the Scientific Committee & Session Chair: 1st International Conference on Bioscience and Biotechnology with the Theme: Molecular Life Sciences for the Development in the 21st Century held from 12-13th January 2016. Prof Tennekoon was an evaluator of research proposals for National Science Foundation, evaluator of research proposals and final reports for National Research Council, evaluator of research proposals for University of Kelaniya, evaluator of progress reports for Research & Higher Degrees Committee, Faculty of Medicine, University of Colombo. She served as a reviewer for the following International Journals, Tumour Biology and Onco targets and Therapy. Prof Tennekoon



served as a mentor for the junior Faculty in the Molecular Life Sciences programme and mentor for junior staff on Research Supervision at MSc, MPhil and PhD level as appropriate.

Prof Shiroma M Handunnetti was appointed as the Chairperson, Board of Study, Cellular & Molecular Immunology at IBMBB. Prof handunnetti served as the Vice-President, Allergy and Immunology Society of Sri Lanka, member, Board of Management, Staff Developing Center, University of Colombo, member of the Specialty Board for Molecular Medicine at PGIM, member, Committee on Biotechnology, National Science Foundation. She was the Chairperson of the Organizing Committee for the 8th IBMBB Annual Scientific Sessions (May 2016) University of Colombo and a member of the Organizing Committee of the 8th Biennial Scientific Session of the Allergy and Immunology Society of Sri Lanka. Prof Handunnetti served as an Examiner/Moderator for the Bachelor of Medical Laboratory Science, The Open University of Sri Lanka, Visiting Lecturer & Examiner, MSc Applied Entomology, The Open University of Sri Lanka. She had participated in the following Meetings and Workshops, 1st International Conference on Bioscience and Biotechnology: Theme: Molecular Life Sciences for the Development in the 21st Century held from 12-13th January 2016, National Conference on Geospatial Science and Disaster Management, Institute of Human Resource Advancement (IHRA), University of Colombo, 19th January 2016, NSF Research Summit 2016: “ Empowered by Research & Innovation”, 7th July 2016 and Science Dialogue with UNESCO Director General, Ministry of Science, Technology & Research and The National Science Foundation. Prof Handunnetti was an evaluator for Research Proposals for National Science Foundation, an evaluator for Research Project Proposals & Progress Reports for Research & Higher Degrees Committee, Faculty of Medicine, University of Colombo, an evaluator for Abstracts for Institute of Biology, Sri Lanka, an evaluator for Abstracts for SLAAS and an evaluator for Abstracts for University Research Symposium, Faculty of Medicine, University of Colombo. She also served as an advisor for the Welfare Society, IBMBB and was a mentor to the junior staff on MSc Research Supervision.

Dr J Weerasena was appointed as a Member, Steering committee for Establishment of Faculty of Technology, and IBMBB Coordinator, Development of a Health and Safety Policy for the University of Colombo. Dr Weerasena continued to serve as the Secretary, Research Ethics and Higher Degrees Committee of IBMBB, Course Coordinator, MSc in Molecular Life Sciences at IBMBB, Coordinator, Commonwealth Scholarship program for IBMBB and Secretary, Board of Study, Molecular Life Sciences at IBMBB. He was appointed as a member, Board of Study Cellular & Molecular Immunology at IBMBB. Dr Weerasena was the Secretary, Organizing Committee, 8th IBMBB Annual Scientific Sessions held in May 2016. He served as a Visiting Lecturer to Bachelor of Medical Laboratory Sciences programme, Kothalawala Defence University, Council Member, Institute of Biology, Sri Lanka and a member of Pesticides Technical & Advisory Committee, Department of Agriculture. Dr Weerasena served as the President, Welfare Society of IBMBB, University of Colombo.in 2016.



Dr Sunadee De Silva was appointed as a member of the Board of Study Molecular Life Sciences at IBMBB. Dr De Silva continued as the Secretary, Academic Committee of IBMBB. She served as a member & Institute Representative, Annual Research Symposium Committee-2016, University of Colombo and a member, Scientific Committee: 1st International Conference on Bioscience and Biotechnology Theme: Molecular Life Sciences for the Development in the 21st Century held from 12-13th January 2016.

Ms A Sudeshini Heawage was appointed as a member of the Board of Study Molecular Life Sciences at IBMBB. Ms Hewage completed the Certificate course in Teaching in Higher Education, University of Colombo and also received the Staff and Educational Development Association (SEDA) London UK award.

Dr. Sameera R Samarakoon was appointed as a member of the Board of Study Molecular Life Sciences at IBMBB. Dr Samarakoon continued his services as the Business Development Officer: Business Development Unit, IBMBB. He served as a member, Scientific Committee: 1st International Conference on Bioscience and Biotechnology, Theme: Molecular Life Sciences for the Development in the 21st Century held from 12-13th January 2016. Dr Samarakoon had been a Supervisor: Science Research Project competition organized by the National Science Foundation, an Associate Editor: International Journal of Biochemistry & Physiology and the Coordinator: Guest lecture of Dr. Gomika Udugamasooriya held on the 7th June 2016 at the IBMBB.

Dr Ruwandi Ranasinghe was appointed as a member of the Board of Study Molecular Life Sciences at IBMBB. Dr Ranasinghe has served as a member, Business Development Unit (BDU), IBMBB and Assistant Secretary, Welfare Society, IBMBB and as the Coordinator for Practical Demonstrations on DNA isolation and analytical separation for the Biomedical Students at Business Management School (BMS). She had contributed to services by molecular identification for bacterial species for the University of Sri Jayewardenepura and direct sequencing and MLPA services for Credence genomics, University of Sri Jayewardenepura, National Aquatic Resource Research and Development Agency (NARA) and University of Jaffna. Also Dr. Ranasinghe appointed as Co-coordinator for MSc in Bioinformatics at IBMBB and member of the Board of Study, Bioinformatics at IBMBB from November 2016.

Mr Kanchana S Senanayake contributed as the IBMBB, Co-coordinator for MSc in Bioinformatics at IBMBB, as a member of the Board of Study, Bioinformatics at IBMBB, member, Academic Committee at IBMBB.



Research Activities: A number of research programmes were in progress at the IBMBB in the fields of Tropical - Parasitic and Infectious Diseases (Filariasis, Leptospirosis, Dengue and Malaria), Molecular Medicine (Cancer Genetics and Cancer Stem Cells, Reproductive and Developmental Biology, human DNA variation, Genetics of CVID, Molecular studies on Hymenopteran Venom) and Plant Molecular Biology and Plant Metabolimics (Rice, Tea, Papaya, Potato), Biochemistry and Molecular Biology of Microbes (Bacteria and fungi), Medicinal Plants (anti-inflammatory & immunomodulatory, anti-cancer, anti-filariacidal and anti-bacterial activities), Anti-cancer activities of natural compounds and nano-assisted delivery, and Industrial Applications, Molecular identification of new animal species. Each research programme has several projects which provide research training for MPhil/PhD and MSc students under the supervision of the Director, Academic and Academic Support staff of the Institute and Collaborating Scientists. Students, research projects and supervisors are listed in Table 1 and Table 2.

There were a total of 18 full papers in peer-reviewed, indexed, International Journals (17 published, and 1 paper was under review). There were 39 research communications presented at scientific meetings including 4 international abstracts.

Details of funds obtained by Academic Staff / Visiting Professors are given in Table 3.

1) Research Programmes on Parasitic and Infectious Diseases

Parasitic and infectious diseases still contribute significantly to the disease burden of Sri Lankan population. A long standing disease, lymphatic filariasis, though is not fatal by itself has considerable morbidity and treatment options are limited. Leptospirosis (rat fever) and Dengue fever prevalence has recently increased alarmingly and both conditions are associated with significant morbidity and mortality. Delayed diagnosis and lack of understanding of the mechanisms underlying disease process are responsible for higher number of deaths seen with these two diseases. Several research programmes are in place to address these issues. Malaria transmission has been brought under control, however sensitive molecular methods require to be established in this phase where re-introduction is being prevented by the National Anti-Malaria Campaign.

A) Filariasis

A project was in progress in 2016.

i) Studies on *Setaria digitata* genome using new generation sequencing (NGS) technologies for identification of potential drug targets

Aimed at identifying potential drug targets using sequence data of *Setaria digitata*.



Investigators: Prof. Erik Bougcam-Rudloff (University of Uppsala, Sweden), Prof. Eric Karunanayake (IBMBB) and Prof. Kamani H. Tennekoon (IBMBB)
MPhil/PhD Student/IBMBB: Mr. Kanchana S. Senanayake

Funding: Swedish Links Grant.
MPhil/PhD project was in progress in 2016.

B) Leptospirosis (rat fever)

Three MPhil/PhD projects and three MSc projects were in progress in 2016.

i) Rapid immunodiagnostic tests for early detection of leptospirosis (rat fever)

Aimed at comparison of rapid immunodiagnostic tests available for leptospirosis diagnosis and to establish an in-house ELISA as a new rapid diagnostic assay.

Investigators: PI: Prof Shiroma Handunnetti (IBMBB), Prof. Senaka Rajapakse (UOC), Prof. Sunil Premawansa (UOC) and Prof. Janaka de Silva (University of Kelaniya).
Collaborator: Dr. Lilani Karunanayake (Medical Research Institute)
MPhil/PhD student/IBMBB: Ms. M.J.R. Niloofa

Funding: National Science Foundation to Prof Shiroma Handunnetti (NSF/RG/2011/HS/19).
Project work was completed in 2015. PhD dissertation was submitted for examination in 2016.

Abstract was presented at the 8th IBMBB Annual Scientific in May 2016. Two full papers were published.

One abstract presented in 2016

ii) Studies on factors contributing to pathogenesis of severe leptospirosis (rat fever) in Sri Lanka

Aimed to investigate different factors (host factors such as cytokines and genetic factors etc) that would have a predisposition for developing severe leptospirosis

Investigators: PI: Prof Shiroma Handunnetti (IBMBB), Prof. Sunil Premawansa (UOC) and Prof. Senaka Rajapakse (UOC); Collaborator: Dr. Lilani Karunanayake (Medical Research Institute).
MPhil/PhD student/IBMBB: Ms. TRG Narmada Fernando.

Funding: National Research Council to Prof Shiroma Handunnetti, IBMBB (NRC -12-077)
Project work was completed in 2015. PhD dissertation was submitted for examination in 2016.

Abstract was presented at the 8th IBMBB Annual Scientific Sessions in May 2016. Two full papers were published.



iii) Sero-epidemiology of human leptospirosis in the District of Colombo, Sri Lanka

Aimed at characterizing the immune status of residents of Colombo district, so that it will provide cut-off immune titers used in MAT for diagnosis and other epidemiological parameters.

Investigators: PI: Prof. Senaka Rajapakse (UOC), Prof Deepika Fernano and Prof Shiroma Handunnetti (IBMBB); Collaborator: Dr. Lilani Karunanayake (Medical Research Institute). MPhil/PhD student/IBMBB: Mr Krishan Balaji

Funding: University of Colombo to Prof. Senaka Rajapakse (UOC Grant: AP/3/2/2014/RG/14)

MPhil programme was in progress in 2016.

Abstract was presented at the 8th IBMBB Annual Scientific sessions in May 2016.

iv) Establishment of methods for retrieving *Leptospira* organisms/ antigens from urine and blood

Aimed to investigate methodology for retrieving antigens of pathogenic *Leptospira* spp from blood and urine samples in view of developing a diagnostic assay.

Investigators: PI: Prof Shiroma Handunnetti (IBMBB), Prof. Sunil Premawansa (UOC), Prof Senaka Rajapakse (UOC)

MSc student/IBMBB: Mr Hasitha S Weerasinghe

Funding: IBMBB MSc programme

MSc dissertation was submitted for examination in 2016.

v) Effect of pathogenic *Leptospira* in inducing apoptosis/anergy in lymphocytes

Aimed to investigate the possible immune mechanisms during immune response to *Leptospira*.

Investigators: PI: Dr OVDSJ Weerasena (IBMBB), Prof Shiroma Handunnetti (IBMBB), Ms Narmada Fernando (IBMBB), Prof. Sunil Premawansa (UOC), Prof Senaka Rajapakse (UOC)

MSc student/IBMBB: Ms HM Shashika P Dayarathna

Funding: IBMBB MSc programme

MSc dissertation was submitted for examination in 2016.



vi) Assessment of RNS and ROS production of phagocytic cells *in vitro* induced pathogenic *Leptospira*

Aimed to investigate the possible innate immune mechanisms induced during infections by pathogenic *Leptospira*.

Investigators: PI: Prof Senaka Rajapakse (UOC), Prof Shiroma Handunnetti (IBMBB), Prof. Sunil Premawansa (UOC), Ms Daniya Edaward (IBMBB)
MSc student/IBMBB: Ms WA Sanjika Milhani

Funding: IBMBB MSc programme
MSc dissertation was submitted for examination in 2016.

C) Dengue

Two projects were in progress in 2016.

i) Studies on prognostic markers and pathogenesis of severe dengue

Aimed at understanding mechanisms underlying the pathogenesis of severe dengue and its complications so that information can be used by clinicians for providing better treatment

Investigators: PI: Prof. Sunil Premawansa (UOC), Prof Shiroma Handunnetti (IBMBB), Dr. Dharshan De Silva Genetech, Dr. Gayani Premawansa (North Colombo Teaching Hospital)
MPhil/PhD Student (IBMBB): Ms. Maheshi S Mapalagamage

Funding: National Science Foundation to Prof. Sunil Premawansa (NSF/RG/2014/HS/04)
MPhil/PhD programme was in progress in 2016.

Abstract was presented at the 8th IBMBB Annual Scientific sessions in May 2016.

ii) Determining the role of dengue NS1 in the pathogenesis of dengue infection

Aimed at understanding mechanisms underlying NS1 mediated pathogenesis of dengue.

Investigators: PI: Prof. Neelika Malavige (USJP)-PI, Dr Sameera Samarakoon (IBMBB), and Prof Kamani Tennekoon (IBMBB)

MPhil/PhD Student (USJP): Ms. Deshini Chaturanga Jayathilaka
Funding: National Research Council to Prof. Neelika Malavige
MPhil/PhD programme was in progress in 2016.



D) Malaria

A project was in progress in 2016.

i) Studies in the phase of prevention of reintroduction of malaria in Sri Lanka: Comparison of parasitological and molecular diagnostic methods and molecular characterization infections

Aimed at characterization of imported malaria cases in the phase of prevention of reintroduction of malaria in Sri Lanka and to identify the optimum diagnostic method suitable for such malaria infections.

Investigators: Prof. Deepika Fernando (UOC), Prof. Sunil Premawansa (UOC), Prof Shiroma Handunnetti (IBMBB), Dr OVDSJ Weerasena (IBMBB), Dr Risintha Premaratne (Anti-Malaria Campaign)

MPhil student/IBMBB: Ms WM Kumudu T de Alwis-W Gunasekara

Funding: National Science Foundation to Prof Deepika Fernando (NSF/RG/2014/HS/03)

MPhil programme was in progress in 2016.

2) Research Programmes in Molecular Medicine

Several projects in biomedical sciences were carried out requiring either human or animal experimentation. These include studies on cancer, pregnancy and fetal growth, gynaecological diseases, pregnancy induced hypertension, human DNA variation, genetics of primary immunodeficiency and molecular studies on hymenopteran venom etc.

A) Cancer and Cancer stem cells

Cancer prevalence in Sri Lanka has increased recently and breast cancer affects approximately 1: 25 women. Some breast cancers are hereditary (cancer causing genes pass from mother to daughters) whereas others are sporadic (women with no family history of cancer developing the disease). Obesity is a factor predisposing to sporadic breast cancer, but how obesity causes cancer is not clear.

Five projects were in progress in 2016.

i) Role of obesity hormone leptin in breast cancer

Aimed at identifying possible role of the obesity hormone leptin, its receptor and leptin and leptin receptor genotype in breast cancer

Investigators: Prof Kamani H Tennekoon (IBMBB), Prof Eric H Karunanayake (IBMBB), Dr. Indrani Amarasinghe (National Cancer Institute, Maharagama), Dr. Kanishka De Silva (National Cancer Institute, Maharagama)

MPhil/PhD student/IBMBB: Ms Chrishani Rodrigo



Funding: National Research Council to Prof. Kamani H Tennekoon (NRC -11-018)

One paper was presented at 12th International conference of the Asian Clinical Oncology Society, April 2016, organized by Asian Clinical Oncology Society (ACOS) at New Delhi and another paper at the SLMA 129th Anniversary International Medical Congress 2016, organized by Sri Lanka Medical Association. **The latter was Awarded Daphne Attygalle Prize for Best Oral presentation on Cancer Research – 2016.**

ii) Detection of Pathogenic Mutations in Previously Identified Hotspot region/s in BRCA1 gene in a cohort of Sri Lankan Young Breast Cancer Patients

Aimed to screen BRCA1 exon 11 reported and novel pathogenic variants in a cohort of young Breast cancer patients in Sri Lanka

Investigators: Dr. Sumadee De Silva (IBMBB) and Dr. Kanishka De Silva (National Cancer Institute, Maharagama)

MSc student/IBMBB: Ms. Gethmini Jayasundara

Funding: IBMBB (MSc studies)

MSc dissertation was submitted for examination in 2016.

iii) Analysis of mutations and polymorphisms in exon 11 of BRCA2 gene in Sri Lankan young breast cancer patients

Aimed to screen BRCA2 11 pathogenic mutations in a cohort of young onset Breast cancer patients in Sri Lanka

Investigators: Dr. Sumadee De Silva (IBMBB), Prof Kamani H Tennekoon (IBMBB), Dr. D.M.A.S Dissanayake (National Cancer Institute, Maharagama) and Dr. Kanishka De Silva (National Cancer Institute, Maharagama)

Funding: National Science Foundation to Dr. Sumadee De Silva as a startup grant (RG/2014/BT/04).

One abstract was presented at the the New Horizons in Cancer Research Conference organized by American Association of Cancer Research in November 2015 in Shanghai, China.

One full paper was published



iv) Analysis of somatic mutations (hot spots) of TP53 gene in cancer from paraffin embedded or fresh cancer tissue of cancer patients in Sri Lanka and mutation analysis at RNA and Protein levels

Aimed to screen somatic mutations of TP53 gene in several cancer types using paraffin embedded or fresh cancer tissue of cancer patients in Sri Lanka then analyse mutations at RNA and Protein levels

Investigators: Prof Kamani H Tennekoon (IBMBB), Prof Eric H Karunanayake (IBMBB), Dr. Sumadee De Silva (IBMBB), Prof Preethika Angunawela (Medical Faculty, Colombo) and Dr. Kanishka De Silva (National Cancer Institute, Maharagama)
MPhil/PhD student/IBMBB: Ms Vahinipriya Manoharan

Funding: University Grants Commission grant (UGC/VC/DRIC/SRSP/2014/CMB-01) and National Research Council grant (NRC 15-33) to Dr. Sumadee De Silva
One MPhil programme commenced in 2016. Student spent 5 months at the New Castle University, UK on a split PhD Commonwealth scholarship received by her.

Two abstracts were presented one at the 8th Annual Scientific Sessions of the IBMBB and the second at the San Antonio Breast Cancer Symposium 2016, San Antonio, USA.

v) Cancer stem cells targeted drug-leads from Sri Lankan endemic plants for breast cancer

Aimed at isolation, structural and functional characterization of natural compounds from endemic medicinal plants, which can target breast cancer stem cells.

Investigators: Dr Sameera Samarakoon (PI-IBMBB), Prof Kamani H Tennekoon (IBMBB), Prof Neelika Malavige (USJP), Dr. Kanishka De Silva (National Cancer Institute, Maharagama), Prof dilip E De Silva (UOC)
MPhil/PhD student/IBMBB: Ms Uma Rajagopalan

Funding: National Research Council grant (NRC 14-067) to Dr. Sameera Samarakoon
MPhil/PhD programme commenced in 2016.

B) Reproductive and Developmental Biology

Three projects were in progress.

i) Maternal and newborn factors (genomic and proteomic) affecting Birth weight

Aimed at identifying the role of the

- a) Leptin system in relation to birth size
- b) IGF2 and H19 genotypes in relation to birth size



Investigators: PI: Prof Kamani H Tennekoon (IBMBB) and Dr. JM Kumarasiri, Dr. Ajita Wijesundera (Castle Street Hospital for Women)
MPhil/PhD student/IBMBB: Ms Sudeshini Hewage

Funding: National Research Council to Prof Kamani H Tennekoon
PhD Thesis writing in progress

C) Human DNA variation

PhD and MSc project were completed in 2016.

i) Mitochondrial D loop sequences and haplotypes in Sri Lanka

Aimed at establishing a database of mitochondrial D loop sequences of Sri Lankans which will be useful in forensic DNA testing and in evolutionary studies.

Investigators: Prof Kamani H Tennekoon (IBMBB), Prof Eric Karunanayake (IBMBB) and Prof. Marie Allen (University of Uppsala)
PhD student/IBMBB: Ms Ruwandi Ranasinghe

Funding: National Research Council to Prof Kamani H Tennekoon

Data generated were submitted to International Genetic Databases.
One paper was published.
PhD thesis examination was completed in 2016.

ii) Preliminary study on common human Alu polymorphisms in Sinhalese individuals

Investigators: Prof Kamani H Tennekoon (IBMBB) and Dr. Ruwandi Ranasinghe
MSc student: Ms. P.R. Weerasooriya
MSc Dissertation was submitted to IBMBB for examination in 2016.

D) Molecular studies on short stature

A project was in progress in 2015.

i) Growth hormone and GHRH-R mutations and short stature

Aimed at characterizing mutations in the growth hormone GHRH-R genes in a cohort of children clinically and biochemically confirmed to have GH deficiency.



Investigators: PI: Prof Kamani Tennekoon (IBMBB), Prof KSH De Silva (UOC), Ms Sudeshini Hewage (IBMBB) and Dr. Sumadee De Silva (IBMBB)
MPhil/PhD student/IBMBB: Ms Tharmini Sundralingam

Funding: National Science Foundation to Prof Kamani H Tennekoon (NSF/RG/ 2011/BT/03)
One MPhil project was in progress in 2016.

Two abstracts were presented, one at the 8th Annual Scientific Sessions of the IBMBB and the other at the SLMA 129th Anniversary International Medical Congress 2016

E) Genetics of immunodeficiency

A study was in progress and two other pilot studies commenced in 2016.

i) Identification of p47phox mutations in patients with Chronic Granulomatous Disease (CGD)

Investigators: Dr Rajiva de Silva (Medical Research Institute), Dr Darshan de Silva (Genetech Research Institute) and Prof Shiroma Handunnetti (IBMBB)
MSc student/IBMBB: Ms. N.M.Faiz

Funding: MSc studies (IBMBB) & Medical Research Institute to Dr Rajiva de Silva (Project 05/2016 (MRI))
MSc dissertation was submitted for examination in 2016.

ii) Identification of gp91phox mutations in patients with Chronic Granulomatous Disease (CGD)

Investigators : Dr Rajiva De Silva, Dr Dharshan De Silva, and Prof Shiroma Handunnetti (IBMBB)
MSc student/IBMBB: Mr. Shalinda J.A. Fernando

Funding: MSc studies (IBMBB) & Medical Research Institute to Dr Rajiva de Silva (Project 06/2016 (MRI))
MSc dissertation was submitted for examination in 2016.

iii) Mutational analysis of B cell activating factor receptor (BAFF-R) in patients with Common variable immunodeficiency (CVID) in Sri Lanka

Aimed at the identification of genetic polymorphisms in genes coding for B cell activating factor receptor (BAFF-R) and associations with CVID

Investigators : Dr Rajiva De Silva, Dr Dharshan De Silva, and Prof Shiroma Handunnetti (IBMBB)
MSc student/IBMBB: Ms Gayathri Karunanithy



Funding: MSc studies (IBMBB) & Medical Research Institute to Dr Rajiva de Silva (Project ID:/40-2013)

MSc dissertation was submitted for examination and completed in 2016.

F) Molecular studies on allergen identification and characterizatio

MPhil/PhD study in progress in 2016.and one pilot study was initiated in 2016.

i) Immunochemical characterization of venom of *Apis dorsata*

Aimed at molecular and immunological characterization of immunogens in venom of *Apis dorsata* (Giant Asian honey bee) and immune cross reactivity with venom immunogens in *A. cerana* for establishment of a de-sensitization protocol.

Investigators: Dr Rajiva de Silva (MRI), Prof Sunil Premawansa (UOC), Prof Shiroma Handunnetti (IBMBB), Prof Sriyani Dias (University of Kelaniya) and Dr EWRA Witharana (Consultant Physician, Deniyaya Base Hospital)

MPhil/PhD student: Mr Peshala Gunasekera

Funding: MSc studies (IBMBB) & Medical Research Institute to Dr Rajiva de Silva (Project ID:/46-2013); National Science Foundation Grant (NSF/RG/2014/HS/02) to Dr Rajiva de Silva (PI) & Prof Shiroma Handunnetti (collaborator)

MPhil/PhD study was in progress in 2016. Two oral presentations were made during 2016, one at the 8th Annual Scientific Sessions of the IBMBB sessions and one at the 8th Biennial Scientific Sessions of the Allergy and Immunology Society of Sri Lanka. A manuscript was submitted.

ii) Study on allergenic pollen records from airborne samples during the peak time of South-West monsoon in the Western Province

Investigators: Prof Sunil Premawansa (UOC), Prof Shiroma Handunnetti (IBMBB), Dr Rajiva de Silva (MRI) &-Prof TR Premathilake

MPhil/PhD student: Ms. G.K.D.Ishaka

Funding: MSc studies (IBMBB)

MSc Dissertation was submitted for examination in 2016



3) Research Programmes on Plant Molecular Biology and Plant metabolomics

A) Rice

Two projects were in progress in 2016.

i) Assessment of Genetic diversity and tracing the origin of weedy rice

Aimed at assessing the level and distribution of genetic diversity of weedy rice population and tracing the possible genetic origin of weedy rice found in the paddy fields in Sri Lanka.

Investigators: PI: Prof. Shyama R. Weerakoon (Open University of Sri Lanka), Dr. Jagathpriya Weerasena (IBMBB)

MPhil/PhD student/IBMBB: Ms. Dulangi Karunarathne

Funding: National Science Foundation to Prof Shyama Weerakoon (NSF/RG/ 2011/BT/06)
MPhil/PhD project was in progress in 2016.

B) Tea

Three projects were in progress in 2016.

i) Genetic characterization of tea cultivars and marker for blister blight disease

Investigators: PI: Dr K M Mewan (TRI) and Dr, Jagathpriya Weerasena (IBMBB)

MPhil/PhD student/IBMBB: Mr KH Tissa Karunaratne

Funding: National Research Council to Dr. K M Mewan (NRC-09-066)
PhD Thesis writing in progress in 2016.

ii) DNA phylogeny, morphology pathogenicity of fungi causing agent of stem canker in Tea

Investigators: Ms NHL Pradeepa (PhD student/IBMBB, TRI scientist), Dr, Jagathpriya Weerasena (IBMBB), Prof RLC Wijesundera (Dept of Plant Sciences, UOC), Dr S Abeysinghe (TRI)

Funding: Tea Research Institute
PhD Thesis writing in progress in 2016.

C) Potato

One project was in progress in 2016.

Development of rapid method for detection of causative organism of brown rot of potato (*Ralstonia solanacearum*)



Aimed at developing a rapid method for detection of the causative organism of brown rot of potato which is a serious quarantine pest in imported seed potato. Collaborative study with National Plant Quarantine Service (NPQS), Katunayake and IBMBB

Investigators: PI. Dr. P. Nilanthi. Dassanayake (USJP), Dr. Jagathpriya Weerasena (IBMBB), MPhil/PhD student/IBMBB: Ms. A Ayesha U Perera

Funding: National Research Council to Dr P Nilanthi Dassanayake (NRC -11-099)
MPhil/PhD project was in progress in 2016.

D) Papaya

Development of Molecular markers associated with male and hermaphrodite papaya plants.

Investigators: Dr. Niroshani Epitawalage, Prof. Shamala Tirimanne (Faculty of Science – University of Colombo)
MSc Student : Ms. Amra Iuop

Funding : MSc funds.
MSc study was in progress in 2016.

4) Research Programme on Biochemistry and Molecular Biology of Microbes

A project was in progress in 2016.

i) Identifying *Bacillus thuringiensis* isolates with insecticidal activity

Aimed at isolating and characterizing of *Bacillus thuringiensis* strains with enhanced insecticidal activity that can be used to control rice and vegetable pests

Investigators: Dr. OVDSJ Weerasena (IBMBB), Dr. Radhika Samarasekera (Industrial Technology Institute)
MPhil/PhD student/IBMBB: Ms Rashini Baragama-Arachchi

Funding: National Science Foundation and National Research Council to Dr. Radhika Samarasekera (NSF/RG/2011/BT/05)
MPhil/PhD project was in progress in 2016.



5) Research Programme on Medicinal plants

A) Research on medicinal plants with anti-inflammatory, immunomodulatory and anti-allergic effects

A PhD project was in progress and a MSc study was completed in 2016.

The focus of these studies was on medicinal plants used in the treatment of diseases either associated with or caused by inflammatory responses or those used as immunomodulators.

i) Drug leads from medicinal plants in Sri Lanka: Investigations on immune-modulatory / anti-allergic activity

Aimed at evaluating possible immunomodulatory / anti-allergic activities of selected endemic and medicinal plants

Investigators: Prof Shiroma Handunnetti (IBMBB), Prof Dilip De Silva (UOC)

MPhil/PhD student/IBMBB: Ms BA Dilani Rukshala

Funding: Ministry of Higher Education: Capital Grant for Research on Drug Leads from Medicinal Plants

PhD study was in progress in 2016

ii) Effect of *Munronia pinnata* on NK cells

Investigators: Dr Swarna Hapuarachchi, Institute of Indigenous Medicine Ms Narmada Fernando (IBMBB), Prof Shiroma Handunnetti (IBMBB)

MSc Student : Ms. N.Amanda Fernando

Funding: MSc studies (IBMBB)

MSc dissertation was submitted for examination and completed in 2016.

B) Anti-cancer effects of medicinal plants

Five studies were in progress in 2016

i) Aimed at scientifically proving purported anti-cancer effects of

a) An Ayurvedic formulation containing three plants, namely *Nigella sativa* seeds, *Hemidesmus indicus* roots and *Smilax glabra* rhizomes

b) Katupila – *Fluggea leucopyrus*

Investigators: Prof Ira Thabrew (NSF Fellow and Visiting Professor, IBMBB), Prof Kamani Tennekoon (IBMBB), Prof Dilip De Silva (UOC) and Dr. Sameera Samarakoon (Scientific Assistant /IBMBB)

MPhil/PhD student/IBMBB: Ms Anuka Mendis



Funding: Dept. of Ayurveda, IBMBB, National Science Foundation to Prof Ira Thabrew (NSF/ Fellow /2012/01)

PhD study was in progress in 2016

Abstract was presented at the 8th Annual Scientific Sessions of Institute of Biochemistry, Molecular Biology & Biotechnology (IBMBB).

ii) Anti-cancer effects of *Mangifera zeylanica* - an endemic plant

Investigators: Prof Kamani H Tennekoon (IBMBB), Prof Ira Thabrew (Visiting Professor, IBMBB), Prof Dilip De Silva (UoC) and Dr S Sameera R Samarakoon (IBMBB)

MPhil/PhD student/IBMBB: Mr Meran Keshawa

Funding: National Research Council to Prof Kamani Tennekoon (NRC -11-018)

PhD Thesis was submitted for examination in 2016.

Four papers were published and one is under review. One abstract was presented at the 8th Annual Scientific Sessions of Institute of Biochemistry, Molecular Biology & Biotechnology (IBMBB).

iii) Anti-cancer effects of *Vernonia zeylanica* - an endemic plant

Investigators: Prof. Ira Thabrew (Visiting Professor, IBMBB), Prof Kamani H Tennekoon (IBMBB), Prof Dilip De Silva (UoC) and Dr S Sameera R Samarakoon (IBMBB)

MPhil/PhD student/IBMBB: Ms Anuka Mendis

Funding: Ministry of Higher Education: Capital Grant for Research on Drug Leads from Medicinal Plants and National Science Foundation.

PhD study was in progress in 2016.

One paper was presented at the 8th Annual Scientific Sessions of Institute of Biochemistry, Molecular Biology & Biotechnology (IBMBB).

iv) Screening of selected endemic plants for anti-cancer activity

Investigators: Prof Kamani H Tennekoon (IBMBB), Prof Ira Thabrew (Visiting Professor, IBMBB), Prof Dilip De Silva (UoC), Prof Eric Karunanayake (IBMBB) and Dr Sameera Samarakoon (IBMBB)

MPhil/PhD student/IBMBB: Ms Panchima Jayaratne

Funding: Ministry of Higher Education: Capital Grant for Research on Drug Leads from Medicinal Plants

MPhil study was in progress in 2016.

One paper was published in 2016



v) Screening of selected mangrove plants for anti-cancer activity

Investigators: Dr. Sameera R Samarakoon (IBMBB), Prof. Kamani H Tennekoon (IBMBB), Prof. Ira Thabrew (IBMBB), Prof. Dilip De Silva (UOC), Prof. Iqbal Chaudhery (Karachi, Pakistan).

Funding: International Foundation for Science to Dr Sameera Samarakoon (Grant No: F 5377-1)

This study was in progress in 2016.

vi) Evaluating anti-cancer effects of a polyherbal mixture on lung cancer cells (NCI-H-292)

Investigators: Prof. Ira Thabrew Dr. Sameera R Samarakoon
MSc student : Ms. C.P.V.V. Priyadarshani

Funding: MSc studies (IBMBB)

MSc dissertation was submitted for examination and completed in 2016.

C) Anti-filaricidal activity of selected endemic and medicinal plants

Aimed at evaluating possible anti-filaricidal activity of selected endemic and medicinal plants

Investigators: Prof Eric Karunanayake (IBMBB), Prof Kamani Tennekoon (IBMBB), Prof Dilip De Silva (UOC) and Dr Sameera Samarakoon (IBMBB)

MPhil/PhD student/IBMBB: Mr Kanishka Senathilake

Funding: Ministry of Higher Education: Capital Grant for Research on Drug Leads from Medicinal Plants

One paper was presented at the 8th Annual Scientific Sessions of Institute of Biochemistry, Molecular Biology & Biotechnology (IBMBB).

One paper was published and another is under review

PhD study was in progress in 2016.

D) Anti-microbial activity of selected endemic and medicinal plants

Aimed at evaluating possible antimicrobial activity of selected endemic and medicinal plants

Investigators: Prof Dilip De Silva (UOC), Prof Kamani Tennekoon and Dr Sameera Samarakoon (IBMBB)

MPhil/PhD student/UoC: Mr W Sadin De Silva



Funding: Ministry of Higher Education: Capital Grant for Research on Drug Leads from Medicinal Plants

MPhil was submitted for examination and examination was successfully completed in 2016

6) Research Programme on Anti-cancer effects of Natural Compounds and Nano-assisted delivery

i) Development of nano assisted dual delivery carrier system for delivery of siRNA of P glycoprotein with cancer stem cells targeted anti cancer drug

Investigators: Dr. Sameera R Samarakoon, Prof. Needra Karunaratna Mr. Meran K Ediriweera

MSc student: Mr. M.S Rana

Funding: MSc studies (IBMBB)

One MSc dissertation was submitted for examination and completed in 2016.

7) Research Programmes on Industrial Applications

A study was in progress and funding for another project was pending in 2015.

i) Validation and Value Addition of Bio-active Natural Ingredients for Industrial Applications

This study was aimed at identification of different bioactivities of different medicinal plants for development of industrial applications.

Investigators: Dr Radhika Samarasekara, Dr OVDSJ Weerasena (IBMBB) & Prof Shiroma Handunnetti (IBMBB)

MPhil/PhD students/IBMBB: Ms Sachindra Perera (ITI) & Ms. Saroopa Samaradivakara (ITI)

Funding: National Research Council to Dr Radhika Samarasekara (NRC-12-100)

Two PhD projects were in progress in 2016.

One paper was presented at the 35th Annual Session of the Institute of Biology Sri Lanka and another at the Biennial scientific sessions of the Industrial Technology Institute in 2016.

ii) Immunomodulatory activity of a herbal formulation in Sri Lankan Market

This study was aimed at investigating the immunomodulatory activity and the immune mechanisms of Link *Samahan*, a herbal formulation comprising 14 medicinal plant parts

Investigators: Prof Shiroma Handunnetti (IBMBB), Dr. OVDSJ Weerasena (IBMBB), Prof A Abeysekera, Link Natural Products Pvt Ltd.

MSc Student: Ms. Loshini Ranaweera



Funding: Research collaborative study initiated following an MOU with Link Natural Products Pvt Ltd. and the IBMBB, University of Colombo for funding this MPhil/PhD study.

8) Research Program on Molecular Identification of New Animal Species in Sri Lanka

A project was in progress in 2016.

These studies were aimed at identification of new animal species found in Sri Lanka by modern molecular biological techniques.

i) Molecular identification new animal species

Investigators: Mr. Mendis Wickramasinghe (Sri Lanka Herpetological Society), Prof Kamani Tennekoon (IBMBB) & Dr Sameera R Samarakoon (IBMBB)

Research Student: Ms Nethu Wickramasinghe (Sri Lanka Herpetological Society)

Funding: Sri Lanka Herpetological Society

Services:

Following services were offered through the Business Development Unit, IBMBB.

1. Mutation detection services for BRCA I and II, p53 and KRAS and BRAF genes
2. DNA sequencing service
3. Cell viability assay service (plant extracts & natural and synthetic compounds)

Other services carried out by staff members of IBMBB.

1. Molecular identification of bacterial and fungal samples from Multichemi Pvt LTD
Supervising DNA sequencing for samples from Credence Geneomics
2. Neutrophil based assays for confirmation of CGD

Activities carried out under BDU

- a. Guest speech for the science day of Mayurapada Central College, Narammala was delivered by Dr. Sammeera R. Samarakoon, on 27th July 2016.
- b. Application scientists from Lab mate Asia (PVT) Ltd visited IBMBB on 16th August 2016 for a “Road Show”. Dr. Vikash Vat from Labmate Asia delivered two presentations on “Cell Separation tool for Immunology and Stem Cell Research” and “Labmate Products”



Visitors to the Institute:

The Institute had several overseas visitors during the year.

Dr. Gomika Udugamasooriya, PhD. (Associate Professor), Department of Pharmacological & Pharmaceutical Sciences, University of Houston delivered a guest lecture on “Novel Peptidomimetics based Cancer Therapy- Diagnostic Tool Developments” on 2016.06.07.

Dr. Andrew Nguyen, Associate Professor, Department of Biological Sciences and Geology, The City University of New York delivered a guest lecture on “ Sphingosine- 1- phosphate mediated IL6/STAT3 induction of inflammation associated colorectal cancer Immunology” on 2016.09.23

Ms. Sithara Waidyaratne, MS, MB, (ASCP), Director, Clinical Operations, Companion Dx Reference Lab, LLC, Houston, Texas, USA delivered a guest lecture on “Power of Personalized Medicine” on 2016.09.13

Ms. Wasundara Fernando, MSc, Lecturer in Pharmacy, Department of Medical Sciences, University of Sri Jayawardenapura (PhD Candidate at Dalhousie University, Canada) delivered a guest lecture on “Antimetastatic and antiangiogenic activities of dietary biomolecules-derived phloridzin docosahexaenoate (PZ-DHA)” on 2016.12.09.

Prof Tuly de Silva and Prof T Abeysekera, Link Natural Products (Pvt) Ltd visited IBMBB on the 26th February 2016, for initiating the University –Industry Collaborative Research programme and funding a PhD study at IBMBB.

Mr. Alan Wainwright from the Institute of Biomedical Science (UK), Mr. Derek Stobo and Dr. Sue Jones from the University of Northumbria (UK) visited to IBMBB on 11th July 2016 for a brief meeting with the coordinators of the practicas sessions conducted for BMS students.

Human Resources: Professor Eric H Karunanayake, Founder Director and Emeritus Professor continued to work at the IBMBB in an Honorary capacity, contributing significantly to teaching programmes and supervision of postgraduate students. Prof Eric H. Karunanayake continued to contribute as Consulatant for Development of Academic activities in the IBMBB, University of Colombo in 2016.

Prof. Ira Thabrew continued to work at the IBMBB as a Visiting Professor.

Prof E Dilip de Silva was appointed as Visiting Honorary Professor at IBMBB.



Constraints: Human Resources and Financial Resources were the major constraints for implementing the activities as per Corporate/ Strategic & Management Plan 2016-2020. Some academic cadre positions were pending certain clarifications; the post of Professor of Biochemistry was advertised following clarifications received from UGC and recruitment of Senior Lecturer-Cell Biology was pending a decision from the USAB and Council, University of Colombo.



Staff as at 31st December 2016

Permanent Cadre

Prof. Shiroma M Handunnetti	Director, IBMBB & Professor in Immunology
Prof. Kamani H Tennekoon	Senior Professor of Molecular Life Sciences
Dr. OVDS Jagathpriya Weerasena	Senior Lecturer, Grade II (Molecular Biology)
Dr. W Sumadee De Silva	Lecturer, (DNA Diagnostics)
Ms. A Sudeshini Hewage	Lecturer, Probationary (Biochemistry & Molecular Biology)
Ms. Anoma Ratnayake	Senior Assistant Registrar
Mr. HM Krishantha Herath	Senior Assistant Bursar
Mr. Kanchana Senanayake	Asst Network Manager, Grade II
Dr. Sameera Samarakoon	Scientific Assistant (Cell Biology), Grade II
Ms. Ruwandi Ranasinghe	Scientific Assistant (DNA Identification-on contract)
Ms. BN Nishara T Batagoda	Scientific Assistant (Bioinformatics -on contract)
Ms. Anoma Jayasoma	Technical Officer, Grade II “Seg A”
Mr. Jayantha Kumara	Scientific Assistant (Electronics -up to 7 th October 2016)
Ms. Sekani D Premadasa	Trainee Technical Officer
Ms. AN Tharini Somaratne	Trainee Technical Officer
Ms. Thanuja Atapattu	Book Keeper, Grade II “Seg A”
Ms. NKC Sumali Champika	Computer Applications Assistant, Grade II
Ms. KW Chaturika Fernando	Computer Applications Assistant, Grade III
Mr. GG Sashika Niranjana	Computer Applications Assistant, Grade III
Ms. Nadeesha Jayawardhana	Computer Applications Assistant, Grade III
Ms. Priyanganie Dabare	Computer Application Assistant, Grade III
Ms. PVA Chameera Helani	Library Information Assistant (From 2015-03-02)
Mr. YBMNY Bandara	Laboratory Attendant (Lower Grade)
Mr. EHGD Nirosan Abewardena	Laboratory Attendant (Lower Grade)
Mr. KM Dhanushka Bandara	Labourer, Grade III

Temporary Assignments

Ms TRG Narmada Fernando	– Lecturer - Immunology (On assignment)
Ms. Daniya Edward	- Course Coordinator/ Scientific Assistant (up to 2016.11.07)
Mr. Nipuna Rathnayake	- Scientific Assistant – IT (up to 2016.06.10)
Mr. M.K. Ediriweera	- Temporary Scientific Asst. for Business Development Unit - (up to 2016. 05.15)
Ms. B.M.L.P. Jayasekara	-Technical/Research/Scientific Assistant
Mr Nisala Fernando	- Research Assistant
Ms LNAA Nissanka	- Scientific Assistant (On assignment) up to Jan 2016)



Ms. BH Minoli D. Perera	- Trainee Telephone Operator cum Receptionist
Ms. MV Lakdini N Haridasan	- Trainee Computer Application Asst.
Ms. H.D. Thilani Dilhani	- Trainee Computer Application Asst.
Mr. M.P.D. Fernando	- Trainee Computer Application Asst.
Ms. I.A. P. Ilangakoon	- Trainee Computer Application Asst
Mr. N.H.K.Senathilaka	- Temporary Scientific Assistant (from November 2016)

Current Researchers

Prof. Eric H Karunanayake	- Emeritus Professor & Founder Director/IBMBB
Prof. Kamani H Tennekoon	- Senior Professor of Molecular Life Sciences, IBMBB
Prof. Ira Thabrew	- Visiting Professor & NSF Research Fellow, IBMBB
Prof. Shiroma Handunnetti	- Director, IBMBB, Professor in Immunology
Dr. Jagathpriya Weerasena	- Senior Lecturer/Molecular Biology, IBMBB
Dr. W Sumadee de Silva	- Lecturer - DNA Diagnostic, IBMBB
Dr. Sameera Samarakoon	- Scientific Assistant (Cell Biology)
Ms. A Sudeshini Hewage	- Lecturer, Probationary/Biochemistry & Molecular Biology
Ms Ruwandi Ranasinghe	- Scientific Assistant (DNA Identification)

Research Collaborators

Prof. Marie Allen	- Professor, Genetics and Pathology, University of Uppsala, Sweden
Prof. Preethika Angunawela	- Professor in Pathology, Faculty of Medicine, UoC
Prof. Ranil Dassanayake	- Prof. in Chemistry, Faculty of Science, UoC
Prof. Dilip De Silva	- Professor of Organic Chemistry, Faculty of Science, UoC
Prof Deepika Fernando	- Professor of Parasitology, Faculty of Medicine, UoC
Prof. Janaka De Silva	- Professor of Medicine, Faculty of Medicine, UoK
Prof. Shamyia De Silva	- Professor in Paediatrics, Department of Paediatrics, UoC
Prof Tuly de Silva	- Emeritus Professor, Link Natural Products Pvt Ltd
Prof. Saroj Jayasinghe	- Professor of Clinical Medicine, Faculty of Medicine, UoC
Prof. Needra Karunaratne	- Professor of Biochemistry, University of Peradeniya
Prof Veranja Karunaratne	- Professor of Chemistry, University of Peradeniya
Prof. Neelika Malavige	- Director, Dengue Research Center, University of Sri Jayewarenepura
Prof Padmalal Manage	- Professor in Zoology, University of Sri Jayewarenepura
Prof. Sunil Premawansa	- Professor in Zoology, Faculty of Science, UoC



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- Prof. Senaka Rajapakse - Professor in Clinical Medicine, Faculty of Medicine, UoC
Prof. W D Ratnasooriya - Professor of Zoology, Faculty of Science, UoC
Prof. Hemantha Senanayake - Professor in Obstetrics and Gynecology, UoC
Prof. Suranjith Seneviratne - Professor, Royal Free Hospital & University College London
Centre for Immunodeficiency, UK
Prof. Alessandro Sette - Professor, Center for Infectious Disease, La Jolla Institute for
Allergy and Immunology, USA
Prof. Shyama Weerakoon - Professor of Botany, Open University of Sri Lanka
Prof Rajitha Wickremesinghe - Professor in Community Medicine, Faculty of Medicine, UoK
Dr Achyut Adhikari - Associate Professor, HEJ Institute of Chemistry, Pakistan
Dr. Erik Rudloff-Bongcam - Professor, Swedish Agricultural University,
Uppsala
Prof K Thangaraj - Senior Principle Scientists, Center for Cellular & Molecular
Biology, Hiderabad, India
Dr. Niraj Rai - Research Associate, Center for Cellular & Molecular Biology,
Hiderabad, India
Dr. Dhanushka Dassanayake - Acting Consultant Immunologist, Medical Research Unit
Dr. Dharshan De Silva - Director, Genetech Research Institute, Colombo
Dr. Kanishka De Silva - Consultant Oncological Surgeon, National Cancer Institute
Dr. Rajiva De Silva - Consultant Immunologist, Medical Research Institute
Dr. Kumudu Fernando - Former Director, Agri Biotechnology Centre, UoP
Dr Geethani Galagoda - Consulatan Virologist, Medical Research Institute
Dr. Dinara Gunasekera - Senior Scientists, Sri Lanka Institute of Nanotechnology
Dr. Lilani Karunanayake - Consulatan Microbiologist, Medical Research Institute
Dr. Nisha Kottearachchi - Senior Lecturer, Wayamba University
Dr Sisira Pathirana - Senior Research Officer, Faculty of Medicine, UoC
Dr. GA Sirimal Premakumara - Director General, Industrial Technology Institute,
Dr. Gayani Premawansa - Consultant Physician, North Colombo Teaching Hospital,
Dr. Risintha Premaratne - Director, Anti-Malaria Campaign
Dr. Radhika Samarasekera - Herbal Technology Division, Industrial Technology
Institute
Dr Asitha Siriwardena - Scientist, Sri Lanka Institute of Nanotechnology
Dr EWRA Witharana - Consulatan Physician, Deniyaya Base Hospital
Mr. D. Kottawa-Arachchi - Research Officer, Tea Research Institute, Talawakele
Mr. Mendis Wickremasinghe - Chairman, Sri Lanka Herpatological Society



Research (MPhil/PhD) students

Ms. NHL Pradeepa	Research Officer, Tea Research Institute
Ms. A Sudeshini Hewage	Probationary Lecturer
Ms. Ayesha U Perera	
Ms. K Dulangi K Karunaratna	
Mr. KH Tissa Karunaratne	
Mr. EP Meran Keshawa	Temporary Scientific Assistant
Ms. MJ Roshan Niloofa	
Ms. TRG Narmada Fernando	Temporary Lecturer (Immunology)
Ms HACHI Chrishani Rodrigo	
Mr. NH Kanishka S Senathilake	
Ms. BA Dilani Rukshala	
Ms. Anuka S Mendis	
Ms. D P Panchima Jayarathna	
Ms. HD Sachindra M Perera	
Ms. Saroopa P Samaradivakara	
Ms. EM Sachini I Ekanayaka	
Ms. Maduwanthi Chandhrakanthan	
Ms. Tharmini Sundralingam	
Ms. Rashini Baragama-Arachchi	
Ms. Maheshi Mapalagamage	
Mr. Kanchana S Senanayake	
Mr. Krishan Balaji	
Ms. Kumudu Gunasekera	Parasitologist, Anti Malaria Campaign, Ministry of Health
Ms Uma Rajagopaln	
Ms Vahinipriya Manoharana	
Mr Peshala Gunasekera	

Registered for PG degrees in other HEIs

Mr. Sadin De Silva	Faculty of Science, University of Colombo
Ms. Vindya Fernando	Faculty of Science, University of Colombo
Dr Padmasiri Dissanayake	Institute of Indigenous Medicine, University, of Colombo



Research Publications: In the Authors names, staff/students /research assistants of IBMBB are indicated in bold font. Students registered at other HEIs and carrying out work at the IBMBB are given in bold italic

Publications and Research Communications

List of Publications in Peer-reviewed Journals

1. de Silva KS, Tennekoon KH, Sundralingam T, Navarathne B, Hewage AS, de Silva WS, Ganihigama D, Jayasinghe HD, Muhandiram ME. Growth hormone releasing hormone receptor codon 72 mutation in a cohort of Sri Lankan patients with growth hormone deficiency. *Ceylon Medical Journal*, 2016 Mar; 61(1):18-21
2. De Silva, S, Tennekoon, KH, Dissanayake, A, De Silva K, Jayasekera L. Novel and reported pathogenic variants in exon 11 of BRCA2 gene in a cohort of Sri Lankan young breast cancer patients. *Familial Cancer*. 2016 December 30. Doi:10.1007/s10689-016-9962-9
3. Ediriweera MK, Tennekoon KH, Adhikari A, Samarakoon SR, Thabrew I, de Silva ED (2016) New halogenated constituents from *Mangifera zeylanica* Hook.f. and their potential anti-cancer effects in breast and ovarian cancer cells. *Journal of Ethnopharmacology*. 2016 May 17. pii: S0378-8741(16)30314-2. doi: 10.1016/j.jep.2016.05.047. [Epub ahead of print]
4. Ediriweera PMK, Tennekoon KH, Samarakoon SR, Thabrew I, de Silva ED. Induction of apoptosis in MCF-7 breast cancer cells by Sri Lankan endemic mango (*Mangifera zeylanica*) fruit peel through oxidative stress and analysis of its phytochemical constituents. *Journal of Food Biochemistry*, 28 May 2016 DOI: 10.1111/jfbc.12294
5. Ediriweera PMK, Tennekoon KH, Samarakoon SR, Thabrew I, de Silva ED. Cytotoxic and apoptotic effects of the bark of two common mango (*Mangifera indica*) varieties from Sri Lanka on breast and ovarian cancer cells. *British Journal of Pharmaceutical Research*, 2016; DOI: 10.9734/BJPR/2016/24004
6. Ediriweera PMK, Tennekoon KH, Samarakoon SR, Thabrew I, de Silva ED. A study on potential anticancer activity of *Mangifera zeylanica* bark: Evaluation of the cytotoxic and apoptotic effects of the hexane extract and bioassay guided fractionation to identify phytochemical constituents. *Oncology Letters*, 2016; 11: 1335-1344
7. Fernando F, Shalini Wickramasinghe, Roshan Niloofa, Chathuraka Rodrigo, Lilani Karunanayake, H Janaka de Silva, Rajitha Wickramasinghe, Sunil Premawansa, Senaka Rajapakse, Shiroma Handunnetti. Protein carbonyl as a biomarker of oxidative stress in severe leptospirosis, and its usefulness in differentiating leptospirosis from dengue infections. *PLoS ONE*. 2016; 11(6): e0156085. doi:10.1371/journal.pone.0156085



8. Fernando VAK, Jagath Weerasena, Inoka C. Perera, Chandima D. Dangalle, Shiroma Handunnetti, Sunil Premawansa, Mayuri R. Wijesinghe. Hexavalent chromium induced lethal and sub-lethal effects in the Asian common toad *Duttaphrynus melanostictus*. *Aquatic Toxicology*, 2016; 177:98-105. May 2016, DOI:10.1016/j.
9. Jayarathna PP, Tennekoon KH, Samarakoon SR, Thabrew I, Karunanayake EH, de Silva ED, Ediriweera MK Cytotoxic, Antioxidant and Apoptotic Effects of Twenty Sri Lankan Endemic Plants in Breast Cancer Cells. *European Journal of Medicinal Plants*, 2016, 15(1) DOI: 10.9734/EJMP/2016/26591
10. Karunarathna KDK, S Somaratne, SR Weerakoon, OVDSJ Weerasena. Agromorphological and Genetic Diversity of weedy rice (*Oryza sativa* f. *spontanea*) populations in Sri Lanka: An application of Self Organizing Map (SOM). Submitted *Journal of Information Processing in Agriculture*. 2016, (R1 Under Review)
11. Karunarathna KDK, SR Weerakoon, S Somaratne, OVDSJ Weerasena. Distribution Patterns and Genetic relationships of weedy rice (*Oryza sativa* f. *Spontaneae*) populations in different climatic zones in Sri Lanka. *Journal of Agricultural Science and Technology* 2016, (Under Review).
12. Kumari KDKP, Samarasinghe K, Handunnetti SM, Suresh TS. Preliminary Studies on Activity Guided Fractionation of the Ethanolic Extract of Dried Flowers of *Aegle Marmelos*. *International Journal of Green and Herbal Chemistry*. 2016; 5(2): 122-138.
13. Rajapakse S, Praveen Weeratunga, M.J. Roshan Niloofa, Narmada Fernando, Nipun Lakshitha Fernando, Chathuraka Rodrigo, Sachith Maduranga, Nuwanthi Nandasiri, Sunil Premawansa, H. Janaka De Silva, Lilani Karunanayake, Shiroma Handunnetti. A diagnostic scoring model for leptospirosis in resource limited settings- A prospective study. *PLOS Neglected Tropical Diseases*. 2016; 10 (6): e0004513. doi:10.1371/journal.pntd.0004513
14. Samaradivakara SP, Radhika Samarasekera, Shiroma M Handunnetti, Jagathpriya Weerasena. Cholinesterase, protease inhibitory and antioxidant capacities of Sri Lankan medicinal plants. *Industrial Crops & Products*, 2016; 83:227-234.
15. Samarakoon SR, Fernando N, Ediriweera MK, Adhikari A, Wijayabandara L, de Silva ED, Tennekoon KH. Isolation of Hopenone-I from the Leaves of Mangrove Plant *Scyphiphora hydrophyllacea* and Its Cytotoxic Properties. *British Journal of Pharmaceutical Research*, 2016, 10(1); DOI : 10.9734/BJPR/2016/23317
16. Samarakoon SR, Shanmuganathan C, Ediriweera MK, Piyathilaka P, Tennekoon KH, Thabrew I. Screening of Fifteen Mangrove Plants Found in Sri Lanka for in-vitro Cytotoxic Properties on Breast (MCF-7) and Hepatocellular Carcinoma (HepG2) Cells. *European Journal of Medicinal Plants*, 2016, 14(4) DOI: 10.9734/EJMP/2016/26107
17. Senathilake KS, Karunanayake EH, Samarakoon SR, Tennekoon KH, de Silva ED. Rhizome extracts of *Curcuma zedoaria* Rosc induce caspase dependant apoptosis via generation of reactive oxygen species in filarial parasite *Setaria digitata* in vitro. *Experimental Parasitology*, 2016 May 10;167:50-60. doi: 10.1016/j.[Epub ahead of print]



18. Wickremesinghe R, Shiroma Handunnetti. Role of Human Neutrophils in Inflammation and it's Modulation by *Ixora coccinea*. *Research and Reviews: A Journal of Immunology*, 2016; 6(1):32-48.

R ESEARCH COMMUNICATIONS:

1. Balaji K, Karunanayake L, Handunnetti SM, Fernando SD , Rajapakse S. Community based sero-prevalence of human leptospirosis infection in the Colombo District. (OP10). Proceedings of the 8th Annual Scientific Sessions of Institute of Biochemistry, Molecular Biology & Biotechnology (IBMBB), University of Colombo. 27th May 2016, pp: 21.
2. Baragamaarachchi RY, Vidanapathirana AC, Weerasena OVDSJ, Samarasekera R. and Nishantha KMDWP. Sri Lankan *Bacillus thuringiensis* isolates with insecticidal and chitinase activity. 2016. The NSF Research Summit. pp 88
3. Baragamaarachchi RY, Weerasena OVDSJ, Samarasekera RR. Screening of novel chitinolytic *Bacillus thuringiensis* strains isolated from Sri Lankan soil. (OP14). Proceedings of the 8th Annual Scientific Sessions of Institute of Biochemistry, Molecular Biology & Biotechnology (IBMBB), University of Colombo. 27th May 2016, pp: 25.
4. De Silva BD, Handunnetti SM , Premawansa S, Dias RKS, Seneviratne SL, de Silva R C3 Characterization of allergenic venom constituents of medically important ant species in Sri Lanka and determination of venom cross-reactivity with Western ant species. (OP-C3). Proceedings of the 8th Biennial Sessions of the AISSL, 15th July 2016, pp 32.
5. De Silva BD, Handunnetti SM1, Premawansa S, Dias RKS, de Silva NR. Immunochemical characterization of venom of medically important ants in Sri Lanka and determination of venom cross-reactivity with Western ant species. (PP3). Proceedings of the 8th Annual Scientific Sessions of Institute of Biochemistry, Molecular Biology & Biotechnology (IBMBB), University of Colombo. 27th May 2016, pp: 31.
6. Ediriweera MK, Tennekoon KH, Samarakoon SR, Thabrew I, de Silva ED, Adhikari A Cytotoxic potential of new compounds isolated from *Mangifera zeylanica* on breast (MCF-7 and MDA-MB-231) and ovarian (SKOV-3) cancer cells. (OP1). Proceedings of the 8th Annual Scientific Sessions of Institute of Biochemistry, Molecular Biology & Biotechnology (IBMBB), University of Colombo. 27th May 2016, pp: 12.
7. Ekanayaka EMSI, Weerakoon SR, Weerasena OVDSJ, Somaratne S. Identification of AFLP marker/s to differentiate herbicide resistant Sri Lankan rice (*Oryza sativa*) varieties. (OP13). Proceedings of the 8th Annual Scientific Sessions of Institute of Biochemistry, Molecular Biology & Biotechnology (IBMBB), University of Colombo. 27th May 2016, pp: 24.



8. Ekanayaka EMSI, Weerakoon SR, Somaratne S, Weerasena OVDSJ. (2016) and Silva, T.D., In vivo and in vitro application of EMS to induce Herbicide Resistance in Sri Lankan rice (*Oryza sativa* L.) varieties. 20th Australasian Weeds Conference 11-15 September. (Accepted)
9. Fernando F, Shalini Wickramasinghe, Roshan Niloofa, Chathuraka Rodrigo, Lilani Karunanayake, H Janaka de Silva, Rajitha Wickramasinghe, Sunil Premawansa, Senaka Rajapakse, Shiroma Handunnetti. Protein carbonyl as a biomarker of oxidative stress for differentiating critical phase dengue infections from severe leptospirosis. 2016. The NSF Research Summit. pp xx.
10. Fernando N, Handunnetti SM, Rajapakse S, de Silva HJ, Premawansa S.. Effects of pathogenic *Leptospira* on functions and viability of vascular endothelial cells and kidney epithelial cells. (OP9). Proceedings of the 8th Annual Scientific Sessions of Institute of Biochemistry, Molecular Biology & Biotechnology (IBMBB), University of Colombo. 27th May 2016, pp: 20.
11. Fonseka GGM, Weerasena OVDSJ, Kottarachchi NS. DNA barcoding and latex protease activity of Sri Lankan mountain papaya. (PP8). Proceedings of the 8th Annual Scientific Sessions of Institute of Biochemistry, Molecular Biology & Biotechnology (IBMBB), University of Colombo. 27th May 2016, pp: 36.
12. Gamage R, De Silva S, De Silva K, Dissanayake A, Jayasekara L. Association of BRCA2 N372H polymorphism with the risk of early onset of breast cancer in a cohort of Sri Lankan breast cancer patients. Proceedings of the 17th World Congress of Gynecological Endocrinology; 2016; Florence, Italy.
13. Gayathri K, Weeraman CPK, Sathkumara HD, Handunnetti S, De Silva AD, de Silva R. Mutational analysis of B cell activating factor receptor (BAFF-R) and inducible co-stimulator (ICOS) in patients with common variable immunodeficiency (CVID) in Sri Lanka. (OP-B4). Proceedings of the 8th Biennial Sessions of the AISSL, 15th July 2016, pp 26.
14. Gayathri K, Weeraman CPK, Sathkumara HD, Handunnetti SM1, De Silva AD, De Silva R3 Mutational analysis of B cell activating factor receptor (BAFF-R) and inducible costimulator (ICOS) in patients with common variable immunodeficiency (CVID) in Sri Lanka. (PP7). Proceedings of the 8th Annual Scientific Sessions of Institute of Biochemistry, Molecular Biology & Biotechnology (IBMBB), University of Colombo. 27th May 2016, pp: 35.
15. Gunasekara DLPE, Handunnetti SM, Premawansa S, Witharana EWRA, Dasanayake WMDK, Suranjith L Seneviratne, Dias RKS, Premakumara GA, De Silva NR. Comparison of cross-reactivity of IgE antibodies with native and recombinant PLA2 (rApi m 1) of *Apis mellifera* Linnacus and PLA2 of *Apis dorsata* Fabricius. (OP-C7). Proceedings of the 8th Biennial Sessions of the AISSL, 15th July 2016, pp 36.



16. Gunasekara DLPE, Handunnetti SM, Premawansa S, Dias RKS, Witharana EWRA, Dasanayake WMDK, Premakumara GAS and De Silva NR. Comparison of HPLC profiles of venom of *Apis dorsata* Fabricius (Giant Asian honey bee) and *Apis mellifera* Linnaeus (Western honey bee). (OP7). Proceedings of the 8th Annual Scientific Sessions of Institute of Biochemistry, Molecular Biology & Biotechnology (IBMBB), University of Colombo. 27th May 2016, pp: 18.
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20. Mapalagamage M , Handunnetti S , Premawansa G ,Fernando GTG , De Silva D, Premawansa S, Involvement of serum antioxidants and lipid peroxides in severe dengue infection. (OP-B1). Proceedings of the 8th Biennial Sessions of the AISSL, 15th July 2016, pp 23.
21. Mapalagamage MS, Handunnetti SM, De Silva A, Premawansa G, Premawansa S. Contribution of different types of antioxidants to dengue hemorrhagic fever patients in Sri Lanka. (OP11). Proceedings of the 8th Annual Scientific Sessions of Institute of Biochemistry, Molecular Biology & Biotechnology (IBMBB), University of Colombo. 27th May 2016, pp: 22.
22. Mendis AS, Thabrew MI, Samarakoon S, Tennekoon KH Possible mechanisms mediating anti-proliferating effects in breast cancer phenotypes by *Vernonia zeylanica* (L.) Less. (OP2). Proceedings of the 8th Annual Scientific Sessions of Institute of Biochemistry, Molecular Biology & Biotechnology (IBMBB), University of Colombo. 27th May 2016, pp: 13.
23. Nadhikala M, Pathirana PPSL , Periris S , Handunnetti SM , Galgada GCS Passive transfer of anti -measles, -mumps and -rubella antibodies from mother to newborn in Sri Lanka. (OP-C1). Proceedings of the 8th Biennial Sessions of the AISSL, 15th July 2016, pp 30.



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26. Niloofa R, Karunanayake L, Premawansa S, Rajapakse S, Handunnetti SM. Serovar diversity of pathogenic *Leptospira* infecting patients in Western Province, Sri Lanka. (OP-B3). Proceedings of the 8th Biennial Sessions of the AISSL, 15th July 2016, pp 25.
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28. Rajagopalan U, Samarakoon SR, Tennekoon KH and de Silva ED. Anti-proliferative effect of five Sri Lankan endemic plants on breast cancer stem cells. (OP4). Proceedings of the 8th Annual Scientific Sessions of Institute of Biochemistry, Molecular Biology & Biotechnology (IBMBB), University of Colombo. 27th May 2016, pp: 15.
29. Rodrigo HAICK, Tennekoon KH, Karunanayake EH, Amarasinghe IY, De Silva GKS. The Relationship between the polymorphisms of -2548 G/A Leptin Gene, Q223R , K109R of leptin receptor gene and risk of Breast Cancer in a cohort of sporadic breast cancer patients in Sri Lanka. 12th International Conference of Asian Clinical Oncology Society (ACOS) 8th to 10th April, 2016, New Delhi, pp 120.
30. Rodrigo HACIK, Tennekoon KH, Karunanayake EH, Amarasinghe IY, De Silva GKS. Components of the leptin system as risk factors for sporadic breast cancer in Sri Lankan women: their modulation by menopausal status. (OP-66). Proceedings of the 129th Anniversary International Medical Congress of Sri Lanka Medical Association (SLMA), 25th to 27th July 2016. pp:143.
31. Sathkumara HD, De Silva AD, Handunnetti SM, De Silva, NR. Sri Lankan CVID population displays a higher prevalence of TNFRSF13B gene variation. (OP-C5). Proceedings of the 8th Biennial Sessions of the AISSL, 15th July 2016, pp 34.
32. Senadheera SPBM, Karunanayake EH, Weerasinghe AR, Wijesinghe CR. Biological signatures across seven dominant human cancers in Sri Lanka. (PP6). Proceedings of the 8th Annual Scientific Sessions of Institute of Biochemistry, Molecular Biology & Biotechnology (IBMBB), University of Colombo. 27th May 2016, pp: 34.



33. Senathilake KS, Karunanayake EH, Samarakoon SR, Tennekoon KH, Adhikari A, de Silva ED. Anti-filarial activity of *Dipterocarpus zeylanicus*: Bioactivity guided isolation of active compounds and induction of apoptosis in filarial parasite *Setaria digitata* in vitro. (OP6). Proceedings of the 8th Annual Scientific Sessions of Institute of Biochemistry, Molecular Biology & Biotechnology (IBMBB), University of Colombo. 27th May 2016, pp: 17.
34. Sivakumaran N, Samarakoon SR, Adhikari A, Ediriweera MK, Tennekoon KH, Thabrew II, Malavige N. Anti-proliferative and proapoptotic effects of govaniadine in human breast cancer (MCF-7) cells. (OP3). Proceedings of the 8th Annual Scientific Sessions of Institute of Biochemistry, Molecular Biology & Biotechnology (IBMBB), University of Colombo. pp: 14.
35. Sundralingam T, Tennekoon KH, de Silva KSH, De Silva S, Hewage AS. Sequence variants in the promoter region of GH1 gene in a cohort of growth hormone deficient (GHD) children in Sri Lanka. (OP16). Proceedings of the 8th Annual Scientific Sessions of Institute of Biochemistry, Molecular Biology & Biotechnology (IBMBB), University of Colombo. 27th May 2016, pp: 27.
36. Tharmarajah L, Thabrew I, Samarakoon SR, Mendis AS, Padumadasa C. (PP2). Evaluation of the effects of proanthocyanidins extracted from the bark of *Thespesia populnea* (L.) Sol.ex Correa, on cell survival and apoptosis of human hepatoma (HepG2) cells. Proceedings of the 8th Annual Scientific Sessions of Institute of Biochemistry, Molecular Biology & Biotechnology (IBMBB), University of Colombo. 27th May 2016, pp: 30.
37. Vahinipriya M, De Silva S, Karunanayake EH, Tennekoon KH, De Silva K. Screening of selected Sri Lankan cancer patients for somatic mutation of TP53 gene. (OP12). Proceedings of the 8th Annual Scientific Sessions of Institute of Biochemistry, Molecular Biology & Biotechnology (IBMBB), University of Colombo. 27th May 2016, pp: 23
38. Warakaula WADLR, Fonseka. GGM, Weerasena OVDSJ, Wickramaarachchi WATR, Yakandawala K, Kottarachchi NS. Morphological and DNA based characterization of Mountain papaya as a source for the improvement of *Carica papaya*. Proceedings of Wayamba University Congress 2016, Senate Research and Higher Degree Committee. pp 46-47
39. Manoharan V, Lunec J, Esfandiari A, Mahdi A, Wu CE, Zanjirband M, Karunanayake EH, Tennekoon KH, De Silva S. Cytotoxic potential of the RG7388 MDM2-p53 binding antagonist and the GSK2830371 WIP1 inhibitor on MX-1 and MCF-7 human breast cancer cells (P3-07-21). San Antonio Breast Cancer Symposium 2016, San Antonio, USA



Table 1: MPhil/PhD Degrees in Progress and New Registrations – Year 2016

	Index Number	Name of the student	Degree registered	Source(s) of funds	Tentative Title	Supervisors
01	IBMBB/MPhil /08/005	Ms. NHL Pradeepa	PhD	Funds available at from Tea Research Institute	DNA Phylogeny, morphology and pathogenicity of <i>Macrophoma theicola</i> patch the casual agent of stem canker in Tea	Dr. OVSDJ Weerasena Dr. Sanath Abeysekara
02	IBMBB/MPhil /10/001	Ms. A Sudeshini Hewage	PhD	NRC/IPICS	Selected polymorphisms of the H19 and IGF-II genes in a Sri Lankan birth cohort: effect of maternal and newborn genotype on birth size	Prof. Eric H Karunanayake Prof. Kamani H Tennekoon
03	IBMBB/MPhil /11/001	Ms. Ayesha U Perera	MPhil/PhD	National Research Council- NRC-11-099	Molecular identification of <i>Ralstonia solanacearum</i> (E.F.Smith) in seed potato	Dr. P Nilanthi Dassanayake Dr. OVSDJ Weerasena
04	IBMBB/MPhil /12/001	Ms. K Dulangi K Karunarathna	MPhil/PhD	National Science Foundation- NSF/RG/2011/BT /06	Assessment of Genetic diversity and tracing the origin of weedy rice population found in rice fields in Sri Lanka	Dr. Shyma R Weerakoon Dr. OVSDJ Weerasena Dr. S Somaratne
05	IBMBB/MPhil /12/002	Mr. KH Tissa Karunarathna	MPhil/PhD	National Research Council-NRC-09-066	Use of SSR markers for genetic characterization and finer-printing of recommended tea (<i>Camellia sinensis</i> L) cultivars and tagging of blister blight disease resistance in tea	Dr. KM Mewan Dr. OVSDJ Weerasena
06	IBMBB/MPhil /12/004	Mr. EP Meran Keshawa	PhD	National Research Council- NRC-11-018	Possible anti-carcinogenic effects of <i>Mangifera zeylanica</i> : Identification of active compounds and evaluation of molecular mechanisms	Prof. Kamani H Tennekoon Prof. Ira Thabrew Prof. E Dilip De Silva



	Index Number	Name of the student	Degree registered	Source(s) of funds	Tentative Title	Supervisors
07	IBMBB/MPhil /12/005	Ms. HACIK Rodrigo	MPhil/PhD	National Research Council- NRC- 11-018	Determination of circulating levels of Leptin, soluble leptin receptor and nicotinamide phosphoribosyl transferase and selected leptin and leptin receptor genotypes in a cohort of sporadic breast cancer patients in Sri Lanka	Prof. Kamani H Tennekoon Prof. Eric H Karunanayake
08	IBMBB/MPhil /12/006	Ms. MJ Roshan Niloofa	PhD	National Science Foundation- NRC/RG/2011/H S/19	Studies on comparing rapid immunodiagnostic methods and immune status of leptospirosis in Western province in Sri Lanka	Prof Shiroma M Handunnetti Prof. Senaka Rajapakse Prof. W Sunil Premawansa
09	IBMBB/MPhil /12/007	Ms. TRG Narmada Fernando	PhD	National Research Council- NRC- 11-077	Studies on factors contributing to pathogenesis of severe leptospirosis in Sri Lanka	Dr. Shiroma M Handunnetti Prof. W Sunil Premawansa Prof. Senaka Rajapakse
10	IBMBB/MPhil /13/001	Ms. BA Dilani Rukshala	MPhil/PhD	Ministry of Higher Education – Drugs leads	Drugs Leads from medicinal plants in Sri Lanka: Investigation on immunomodulatory / anti –allergic activity	Prof Shiroma M Handunnetti Prof. E Dilip de Silva
11	IBMBB/MPhil /13/002	Mr. NH Kanishka S Senathilake	MPhil/PhD	Ministry of Higher Education – Drugs leads	Search for antifilarial drugs from Sri Lankan medicinal plants	Prof. Eric H Karunanayake Prof. Kamani H Tennekoon
12	IBMBB/MPhil /13/003	Ms. Anuka S Mendis	PhD	Ministry of Higher Education – Drugs leads	To evaluate potential use of <i>Flueggea leucopyrus</i> & <i>Vernonia zeylanica</i> in the treatment of breast cancer	Prof. Ira Thabrew Prof. Kamani H Tennekoon



	Index Number	Name of the student	Degree registered	Source(s) of funds	Tentative Title	Supervisors
13	IBMBB/MPhil /13/004	Ms. DDP Panchima Jayarathna	MPhil/PhD	Ministry of Higher Education – Drugs leads	Screening of selected endemic plants for possible cytotoxic compounds & isolation & structure elucidation of potential anticancer compound(s) identified	Prof. Kamani H Tennekoon Prof. Ira Thabrew Prof. Dilip de Silva Prof. Eric H Karunanayake
14	IBMBB/MPhil /13/005	Ms. HD Sachindra M Perera	MPhil/PhD	National Research Council- NRC-12-100	Studies on antioxidant, immunomodulatory and β -lactamase inhibitory bioactives of medicinal plants	Dr. Radhika Samarasekera Prof Shiroma Handunnetti Dr. OVDSJ Weerasena
15	IBMBB/MPhil /13/006	Ms. Saroopa P Samaradivakara	MPhil/PhD	National Research Council- NRC-12-100	Studies on antioxidant cholinesterase & Protease Inhibitory bio actives of medicinal plants	Dr. Radhika Samarasekera Dr. OVDSJ Weerasena Prof Shiroma Handunnetti
16	IBMBB/MPhil /13/007	Ms. EM Sachini I Ekanayaka	MPhil/PhD	National Research Council- NRC-12-037	Developing herbicide resistant (HR) Sri Lankan rice (<i>Oryza sativa</i> L) varieties by means of seed/anther mutagenesis and developing molecular markers to identify HR rice	Prof. Shyama R Weerakoon Dr. OVDSJ Weerasena Prof. Tara D Silva Dr. S Somaratne
17	IBMBB/MPhil /13/008	Ms. Maduwanthi Chandhrakanthan	MPhil/PhD	National Research Council- NRC-12-100	Activity studied isolation of anti inflammatory compounds from <i>Alpinia carcarata</i> rhizome and leaf	Dr. Selvaluxmy Chelvendran Dr. Shiroma Handunnetti Dr. GA Sirimal Premakumara



	Index Number	Name of the student	Degree registered	Source(s) of funds	Tentative Title	Supervisors
18	IBMBB/MPhil /14/001	Ms. Rashini Y Baragama-Arachchi	MPhil/PhD	National Science Foundation- NSF/RG/2011/BT /05	Molecular and biochemical characterization of Bt isolates with insecticidal activity in Sri Lanka	Dr. Radhika Samarasekara Dr. OVDSJ Weerasena
19	IBMBB/MPhil /14/002	Mr. Kanchana S Senanayake	MPhil/PhD	Swedish Research Links International collaborative research grant- The Swedish Research Council	Analysis of <i>Seteria digitata</i> genome using NGS technologies: identification of potential drug targets in <i>Seteria digitata</i>	Dr. Erik Bongcam Rudloff Prof. EH Karunanayake Prof. Kamani H Tennekoon
20	IBMBB/MPhil /14/003	Ms. Tharmini Sundralingam	MPhil/PhD	National Science Foundation- NSF/RG/2011/BT /03	Characterization of mutations and sequence variants of growth hormone (GH) and growth hormone releasing hormone receptor (GHRH-R) in a cohort of Sri Lankan children with GH deficiency	Prof. KH Tennekoon Prof. Shamy De Silva
21	IBMBB/MPhil /14/004	Mr. Krishan R Balaji	MPhil/PhD	University of Colombo Research Grant- AP/3/2/2014/RG/ 14	Sero-epidemiology of human leptospirosis in the District of Colombo, Sri Lanka	Prof. Senaka Rajapakse Prof Shiroma Handunnetti Prof. Deepika Fernando
22	IBMBB/MPhil /14/005	Ms. Maheshi S Mapalagamage	MPhil/PhD	National Science Foundation- NSF/RG/2014/HS /04	Studies on prognostic markers and pathogenesis of severe dengue associated with oxidative stress, host genetic polymorphisms and endothelial dysfunction	Prof. Sunil Premawansa Prof Shiroma Handunnetti Dr. Dharshan De Silva Dr. Gayani Premawansa



	Index Number	Name of the student	Degree registered	Source(s) of funds	Tentative Title	Supervisors
23	IBMBB/MPhil /14/006	Ms. WM Kumudu T de AW Gunasekera	MPhil	National Science Foundation- NSF/RG/2014/HS /04	Comparison of parasitological and molecular diagnostic methods used for malaria diagnosis in the phase of prevention of reintroduction of malaria in Sri Lanka	Prof. Deepika Fernando Prof. Sunil Premawansa Prof Shiroma Handunnetti Dr. Jagath Weerasena Dr. Risintha Premaratne
24	IBMBB/MPhil /15/001	Ms. Vahinipriya Manoharan	MPhil/PhD	University Grants Commission- UGC/VC/DRIC/S RSP/2014/CMB-01 and National Research Council NRC 15-33	Analysis of somatic mutations of <i>TP53</i> gene in cancer from paraffin embedded or fresh cancer tissue of cancer patients in Sri Lanka and mutation analysis at RNA and Protein levels	Prof Eric H Karunanayake Prof Kamani H Tennekoon Dr. Sumadee De Silva Dr. Kanishka De Silva
25	IBMBB/MPhil /15/001	Ms. Umapriyatharshini Rajagopalan	MPhil/PhD	National Research Council NRC – 14 - 067	Screening of Sri Lankan endemic plants for anti-cancer stem cell activity and evaluation of anti-cancer stem cell properties of isolated compounds from active plants for breast cancer	Dr. Sameera R. Samarakoon Prof. K.H. Tennekoon Prof. E Dilip de Silva
26	IBMBB/MPhil /15/003	Mr D L Peshala E Gunasekera	MPhil/PhD	National Science Foundation- NSF/RG/2015/HS /02	Immunochemical characterization of venom of <i>Apis dorsata</i>	Dr Rajiv De Silva Prof. Sunil Premawansa Prof Shiroma Handunnetti Prof Sriyani Dias
27	IBMBB/MPhil /16/001	Ms Joanne Kotalawala	MPhil/PhD	National Science Foundation – Scholarship-pending / Self-financed	Characterization of mitochondrial DNA mutations in the D-loop and mt DNA haplogroups sporadic breast cancer	Prof. Kamani Tennekoon Dr. Kanishka De Silva



	Index Number	Name of the student	Degree registered	Source(s) of funds	Tentative Title	Supervisors
28	IBMBB/MPhil /16/002	Mr Saman Kotigala	MPhil/PhD	National Science Foundation – Scholarship-pending / Self-financed	Screening of Sri Lankan endemic plants for anti-cancer activity in Lung cancer cells, isolation , structure elucidation of active anti-cancer compounds and evaluation of their molecular mechanisms of action	Prof. Ira Thabrew Dr. S.R. Samarakoon
29	IBMBB/MPhil /16/003	Ms B V L R Ranaweera	MPhil/PhD	University-Industry collaborative study: IBMBB, UOC and Link Natural Products Pvt Ltd	Study on immunostimulatory activity and underlying immune mechanisms of a herbal formulation in the Sri Lanka market	Prof Shiroma Handunnetti Dr OVDSJ Weerasena



Table 2 : Student Registered in other Higher Educational Institutions & carrying a part of study in the IBMBB Laboratories - 2016

No.	Name of student	Degree registered	Affiliation	Source of funds	Tentative title of theis	Names of Supervisors
1	Ms. Poorna C Piyathilake	PhD	Uni. of Sri Jayewarenepura	NRC-11-034	Molecular detection of toxigenic cyanobacteria, quantification of microcystin and exploiting microbial diversity to remove microcystin for water treatment solution	*Prof. Kamani H Tennekoon Prof. MM Pathmalal Prof. Nissanka de Silva
2	Mr. Sadin De Silva	MPhil/PhD	Faculty of Science, Uni. of Colombo	Treasury Grant- Drug Leads from Medicinal Plants	Antimicrobial agent from Sri Lankan medicinal plant	Prof. Dilip De Silva *Prof. Kamani H Tennekoon
3	Ms. Surani Ediriweera	MPhil/PhD	Faculty of Science, Uni. of Colombo	NRC-11-040	Study of diversity of macrofungi in selected dry zone forest reserves of Sri Lanka	Prof. Ravi Wijesundara Dr. C Nanayakkara *Dr. Jagath Weerasena
4	Ms. HKAVindya AK Fernando	MPhil/PhD	Faculty of Science, Uni. of Colombo	HETC-Faculty of Science	Ecotoxicological effects of chromium on selected fauna in Sri Lanka	Prof. Sunil Premavansa Dr Mayuri Wijesinghe *Dr. SM Handunnetti *Dr. Jagath Weerasena
5	Dr. D Padmasiri A Dissanayake	MPhil/PhD	Indigenous Medicine, Uni. of Colombo	HETC- Institute of Indeginous Medicine	Anti-inflammatory potential of decoctions of <i>Cyathulla prostrata</i> , <i>Acyranthus aspera</i> and <i>Asparagus racemosus</i>	Prof HMA Thisera *Dr. SM Handunnetti Dr S Sivaganesh

* Supervisors for research component conducted at IBMBB, University of Colombo.



Table 3 : Research Funding -2016.

*Funds received by the Principal Investigators Institution and made available for research component conducted at IBMBB,UOC

Grantee	Name of the Project	Funding Agency	Grant No	Funds available (Rs)
Prof Kamani Tennekoon (PI)	Characterisation of mutations and sequence variants in growth hormone and growth hormone releasing hormone receptor in a cohort of children with growth hormone deficiency	National Science Foundation	RG/2011/BT/03	300,000.00
Prof Kamani Tennekoon (PI)	Identification of potential molecular and genetic markers of sporadic breast cancer and evaluation of selected traditional medicines as potential anti cancer drugs for breast and ovarian cancers using an <i>in vitro</i> model	National Research Council	NRC-11-018	700,000.00
Prof Kamani Tennekoon (PI)	Possible anti-carcinogenic mechanisms of novel cytotoxic compounds isolated from <i>Camptosperma zeylanica</i> on breast cancer cells: Evaluation of molecular mechanisms and validation of anti-breast cancer pathway/s	National Science Foundation	RG/2016/BT/02	900,000.00
Prof Shiroma Handunnetti (PI)	Studies on factors contributing to pathogenesis of severe leptospirosis in Sri Lanka	National Research Council	NRC-12-077	65,000.00
Prof Shiroma Handunnetti (PI)	Studies on comparing immunodiagnostic methods and immune status of leptospirosis patients in Colombo and Gampaha districts	National Science Foundation	RG/2011/HS/19	37,500.00
Prof Shiroma Handunnetti (PI) Dr OVDSJ Weerasena (Co-PI)	Study on immunostimulatory activity and underlying immune mechanisms of a herbal formulation in the Sri Lanka market	University-Industry collaborative study: IBMBB, UOC and Link Natural Products Pvt Ltd		2,835,694.00
Prof SR Weerakoon (PI) Dr OVDSJ Weerasena (Co-I)	Assessment of Genetic diversity and tracing the origin of weedy rice population found in rice fields in Sri Lanka	National Science Foundation	RG/2011/BT/06	Funds are handle by PI's Institution
Dr OVDSJ Weerasena (Co-I) Dr. R. Samarasekara (PI)	Development of <i>Bacillus thuringiensis</i> (Bt) microbial pesticide with enhanced and broad spectrum activity to control rice and vegetable pests	National Science Foundation	RG/2011/BT/05	Funds are handle by PI's Institution
Prof. Deepika Fernando (PI) Dr. OVDSJ Weerasena (Co-I) Prof. Sunil Premawansa (Co-I) Dr S Handunnetti (Collaborator)	Monitoring the management response following the detection of malaria cases during the phase of malaria elimination in Sri Lanka	National Science Foundation	RG/2014/HS/03	Funds are handle by PI's Institution



Grantee	Name of the Project	Funding Agency	Grant No	Funds available (Rs)
Dr. Jagath Weerasena (Co-I) Prof. S.R. Weerakoon (PI)	Developing herbicide resistant (HR) Sri Lankan rice (<i>Oryza sativa L.</i>) varieties by means of seed/another mutagenesis and molecular screening of mutants to identify potential molecular markers to identify HR rice.	National Research Council	NRC 12-037	Funds are handle by PI's Institution
Dr Sumadee De Silva (PI)	Analysis of mutations and polymorphisms in exon 11 of <i>BRCA2</i> gene in Sri Lankan young breast cancer patient	National Science Foundation	RG/2014/BT/04	20,587.00
Dr Sameera R Samarakon (PI)	Cancer stem cells targeted drug leads from Sri Lankan endemic plants for breast cancer	National Research Council	NRC-14-067	1,800,000
Ms R.A.C.R. Ranasinghe (PI) Prof Eric Karunanayake (Co-I) Prof Kamani Tennekoon (Co-I)	Peopling of Sri Lanka: A high resolution MtDNA study based on NGS	IBMBB-CCMB, India Collaborative project. Mainly funded by The Royal Society as Travel grant		578,420.00
Prof EH Karunanayake (PI) Prof KH Tennekoon (Co-I)	Using next generation sequencing technologies (NGS) to find a cure for human and cattle filariasis.	Swedish Research links programme 2014	2013-6757	546,011.00
Prof Senaka Rajapakse (PI) Prof Shiroma Handunnetti (Co-I) Prof Deepika Fernando (Co-I)	Sero-epidemiology of human leptospirosis in the District of Colombo, Sri Lanka	University of Colombo	AP/ 3/2/2014/ RG/14	Funds are handle by PI's Institution
Prof Sunil Premawansa (PI) Dr SM Handunnetti (Co-I) Dr Dharshan De Silva (Co-I) Dr Gayani Premawansa (Co-I)	Studies on prognostic markers and pathogenesis of severe dengue associated with oxidative stress, host genetic polymorphisms and endothelial dysfunction	National Science Foundation	RG/2014/HS/04	Funds are handle by PI's Institution
Dr. Sumadee De Silva (PI)	Analysis of somatic mutations of <i>TP53</i> gene in cancer from paraffin embedded or fresh cancer tissue of cancer patients in Sri Lanka	University Grants Commission	UGC/VC/DRIC /SRSP/2014/C MB-01	768,834.43 (balance from 1 st year)
Dr.Sumadee De Silva (Co-I)	TP53 mutation in selected cancers: Analysis of mutation at RNA and protein and in cell free DNA	National Research Council	NRC 15-033	4,453,940.00 (remaining from main grant)
Dr Rajiva De Silva (PI) Prof Shiroma Handunnetti (Collaborator)	Immunochemical characterization of hymenopteran insect venom of <i>Apis cerana</i> , <i>A. dorsata</i> and <i>Vespa affinis</i> .	National Science Foundation	RG/2015/HS/02	Funds are handle by PI's Institution
Prof S Handunnetti (Co-I) Ms Mifra Faiz (PI) Dr Rajiva de Silva (Co-I)	Identification of autosomal recessive p47phox mutations in patients with Chronic Granulomatous Disease (CGD)	Medical Research Institute	2016/05	Funds are handle by PI's Institution



Grantee	Name of the Project	Funding Agency	Grant No	Funds available (Rs)
Dr. Neelika Malavige (PI) Dr Sameera Samarakon (Co-I) Prof. K H Tennekoon (Co-I)	Determining the role of dengue NS1 in the pathogenesis of dengue infections- from National Research Council Sri Lanka	National Research Council	NRC-15-014	Funds are handle by PI's Institution
Mr Shalinda de Silva (PI) Dr Rajiva de Silva (Co-I) Prof S Handunnetti (Co-I) Dr Dharshan de Silva (Co-I) Dr Dhanushka Dassanayake (Co-I)	Identification of gp91phox mutations in patients with Chronic Granulomatous Disease (CGD)	Medical Research Institute	2016/06	Funds are handle by PI's Institution
Total funds available from Research Grants in year 2016				13,005,986.43

Activated from 2016 onwards



Table 4: PhD Dissertations submitted for Examination in year 2016

Name of the Student	Gender	Year of entry	Dissertation submitted for examination	Degree Programme	Title of the Dissertation/Thesis
EPM Keshawa	M	2012	2016	PhD / IBMBB	“Anti-cancer compounds of <i>Mangifera zeylanica</i> Hook f: Isolation, structure elucidation & evaluation of their molecular mechanism of action”
MJR Niloofa	F	2012	2016	PhD/ IBMBB	“Studies on comparing rapid immune diagnostic methods and immune status of leptospirosis patients in western province, Sri Lanka”
TRGN Fernando	F	2012	2016	PhD/ IBMBB	“Studies on factors contributing to pathogenesis of severe leptospirosis in Sri Lanka”



Table 5: MSc Dissertations - Molecular Life Sciences/2015 Intake

Index Number	Name of the Student	Title of the Project	Supervisors
MLS-15-002	Ms. G.P. Jayasundara	Detection of Pathogenic Mutations in Previously Identified Hotspot region/s in <i>BRCA1</i> gene in a cohort of Sri Lankan Young Breast Cancer Patients	Dr. Sumadee De Silva Dr. Kanishka De Silva
MLS-15-003	Ms. C.P.V.V. Priyadarshani	Evaluating anticancer effects of a polyherbal mixture on lung cancer cells (NCI-H-292)	Prof. Ira Thabrew Dr. Sameera R Samarakoon
MLS-15-004	Mr. M.S Rana	Development of nano assisted dual delivery carrier system for delivery of siRNA of P glycoprotein with cancer stem cells targeted anti cancer drug	Dr. Sameera R Samarakoon Prof. Needra Karunarathna Mr. Meran K Ediriweera
MLS-15-005	Ms. P.R. Weerasooriya	Preliminary study on common human <i>Alu</i> polymorphisms in Sinhalese individuals	Dr. Ruwandi Ranasinghe Prof. KH Tennekoon



Table 6: MSc Dissertations – Cellular & Molecular Immunology/2015 Intake

Index No	Name	Project title	Supervisors
CMI-15-001	Ms. H.M.S.P. Dayarathna	Effect of oxidative stress on circulatory lymphocytes in severe leptospirosis patients	Dr Jagath Weerasena Ms Narmada Fernando
CMI-15-002	Ms. N.M.Faiz	Identification of p47phox mutations in patients with Chronic Granulomatous Disease (CGD)	Dr Dharshan De Silva Dr Rajiva de Silva Prof Shiroma Handunnetti
CMI-15-003	Ms. N.A.Fernando	Effect of <i>Munronia pinnata</i> on NK cells	Dr Swarna Hapuarachchi Ms Narmada Fernando
CMI-15-004	Mr.S.J.A. Fernando	Identification of gp91phox mutations in patients with Chronic Granulomatous Disease (CGD)	Dr Rajiva de Silva Dr Dharshan De Silva Prof Shiroma Handunnetti
CMI-15-005	Ms. G.K.D.Ishaka	Study on allergenic pollen records from airborne samples during the peak time of South-West monsoon in the Western Province	Prof Sunil Premawansa Prof TR Premathilake Prof Shiroma Handunnetti
CMI-15-007	Ms.W.A.S. Milhani	Assessment of RNS and ROS production by neutrophils isolated from patients with leptospirosis compared to <i>in vitro</i> induced healthy neutrophils	Prof Senaka Rajapakse Prof Shiroma Handunnetti Ms Daniya Edward
CMI-15-008	Mr. H.S.Weerasinghe	Evaluation of detection of <i>Leptospira</i> organisms/ antigens in urine compared to blood during leptospirosis infections	Prof Shiroma Handunnetti Prof Sunil Premawansa Prof Senaka Rajapakse



Snapshots of Events in 2016

8th IBMBB Academic Sessions – May 2016



Inauguration –welcome addressing by Director



Prof. Stanley wijesundera Memorial lecture by
Professor Rezvi Sheriff



Oral Presentation



Short Training Courses – 2016

Training course in Molecular biological techniques - October 2016



Participants and Resource persons



Laboratory sessions

Training Course in Immunological Techniques – November 2016



Participants and Resource persons



Laboratory sessions



Awards Received



Prof. Eric Karunanayake, founder and former Director of IBMBB, was awarded the World Academy of Sciences Award for Building Science Institutions in Central and South Asia from the Third World Academy of Science (TWAS) held in Bangalore, India.

Open Day – 2nd September 2016



Registration Table



Bana Programmee June 2016



Ven. Kahagolle somawansa thero

Staff Welfare Programmes

Activities for Sports Week January 2016





Blood Donation- July 2016



Members of the IBMBB staff, students of IBMBB and donors from outside participating in the blood donation campaign



INSTITUTE OF BIOCHEMISTRY, MOLECULAR BIOLOGY & BIOTECHNOLOGY
UNIVERSITY OF COLOMBO
STATEMENT OF FINANCIAL POSITION AS AT 31ST DECEMBER 2016
(Figures adjusted to the Nearest Rupee)

	Note	2,016 Rs.	2,015 Rs.
<u>ASSETS</u>			
<u>CURRENT ASSETS</u>			
Bank Balances	Note - 02	27,277,579	11,741,209
Investments in call deposits		14,415,000	11,215,000
Other Receivables	Note - 03	2,425,916	1,462,164
Advance A/C	Note - 04	307,700	1,437,363
Staff Loans	Note - 05	2,334,348	2,854,855
Investments	Note - 06	30,117,873	27,986,590
Chemicals & Glassware		11,571,381	8,074,503
		88,449,797	64,771,683
<u>NON CURRENT ASSETS</u>			
Motor Vehicles	Note - 07	5,155,003	5,734,503
Library Books and Periodicals	Note - 07	993,371	937,079
Lab Tools	Note - 07	717,535	951,840
Fixtures and Fittings	Note - 07	251,818	266,338
Lab and Teaching Equipments	Note - 07	10,954,723	18,683,495
Computers	Note - 07	6,984,725	6,716,248
Office Furniture & Equipments	Note - 07	6,431,023	5,954,424
		31,488,198	39,243,927
TOTAL ASSETS		119,937,996	104,015,610



INSTITUTE OF BIOCHEMISTRY, MOLECULAR BIOLOGY & BIOTECHNOLOGY
UNIVERSITY OF COLOMBO
STATEMENT OF FINANCIAL POSITION AS AT 31ST DECEMBER 2016 CONT

	2,016	2,015
	Rs.	Rs.
<u>LIABILITIES</u>		
<u>CURRENT LIABILITIES</u>		
Refundable Deposits	98,603	78,793
Refundable Laboratory Deposits	2,862,173	2,441,500
Accrued Expenditure And Other Payable	4,029,731	3,790,979
	6,990,507	6,311,272
<u>NON CURRENT LIABILITIES</u>		
Provision for Gratuity	5,789,374	4,566,241
Provision for Audit Fee	576,850	376,850
Research Grants	3,539,185	4,490,392
	9,905,409	9,433,482
TOTAL LIABILITIES	16,895,916	15,744,754
NET ASSETS	103,042,079	88,270,855
<u>EQUITY / NET ASSETS</u>		
<u>CAPITAL</u>		
Capital Grant Spent	22,196,013	27,806,936
Capital Grant Unspent	5,852,183	162,440
Gifts & Donations	6,714,627	7,294,127
	34,762,822	35,263,502
<u>ACCUMILATED FUND</u>		
Income and Expenditure A/C	46,204,651	32,016,818
<u>RESTRICTED FUNDS</u>		
Institute Development Fund	5,929,055	5,692,392
Endowment Fund	3,221,903	3,008,799
staff welfare fund	-	392,850
Asset Replacement Fund	12,923,649	11,896,494
	22,074,607	20,990,535
TOTAL EQUITY / NET ASSETS	103,042,079	88,270,855

Prepared & Certified by

.....
Senior Asst. Bursar

.....
Senior Asst. Registrar

"The Accounting policies on pages 6 to 10 and other Notes on pages 11 to 17 form an integral part of these Financial Statements. The Board of Directors is responsible for the preparation and presentation of these Financial Statements. These Financial Statements were approved by the Board of Directors and signed on their behalf,"

.....
Board Member

.....
Director /Board Member



INSTITUTE OF BIOCHEMISTRY, MOLECULAR BIOLOGY & BIOTECHNOLOGY
UNIVERSITY OF COLOMBO
STATEMENT OF FINANCIAL PERFORMANCE
FOR THE YEAR ENDED 31ST DECEMBER 2016

		2,016	2015
		Rs.	Rs.
INCOME			
Govt. Grant for Recurrent Expenditure		58,358,000	61,270,000
Govt. Grant for Rehabilitation of Capital Assets		7,950,000	4,000,000
Amortization of Fixed Assets		12,310,680	11,380,349
Research Grants	Note - 10	2,848,674	4,369,374
Generated Income	Note - 11	11,606,249	7,612,825
Interest Income		2,801,189	2,144,903
Other Income	Note - 12	332,650	1,802,697
		96,207,442	92,580,149
Less : EXPENDITURE			
Personal Emoluments	Note - 13	33,316,651	30,303,066
Travelling		322,089	724,467
Supplies	Note - 14	7,816,149	13,714,578
Maintenance Expenditure	Note - 15	5,166,461	3,976,082
Contractual Services	Note - 16	15,492,018	14,300,784
Other Recurrent Expenses	Note - 17	5,087,402	13,034,937
Depreciation		13,875,986	12,912,725
		81,076,756	88,966,640
Excess of Income over Expenditure		15,130,687	3,613,509



INSTITUTE OF BIOCHEMISTRY, MOLECULAR BIOLOGY & BIOTECHNOLOGY

UNIVERSITY OF COLOMBO
CASH FLOW STATEMENT
FOR THE YEAR ENDED 31ST DECEMBER 2016

	Rs.	Rs.
<i>Excess of the year</i>		15,130,687
Adjustments for items not involving movement of Funds		
Provision for Gratuity	1,223,134	
Provision for Audit Fees	200,000	
Govt. Grant Received for Capital	(7,950,000)	
Amortization of Fixed Assets	(12,310,680)	
Depreciation	13,875,986	
Prior Year Adjustments	(942,854)	
Operating excess before working capital changes	(5,904,415)	
Increase in Receivables	(2,810,460)	
Decrease in Payables	679,236	
		(8,035,639)
NET CASH FLOW FROM OPERATING ACTIVITIES		7,095,048
CASH FLOWS FROM INVESTING ACTIVITIES		
Acquisition of Fixed Assets	(6,120,257)	
Increase in Investments	(2,131,284)	
		(8,251,541)
CASH FLOWS FROM FINANCING ACTIVITIES		
Research Grants	(951,207)	
Net changes in restricted funds	1,084,073	
Government Grant for Capital Expenditure	19,760,000	
		19,892,866
Net Increase in Cash Equivalents		18,736,374
Cash & cash equivalents at the beginning of the period		22,956,208
Cash & cash equivalents at the end of the period		41,692,582



INSTITUTE OF BIOCHEMISTRY, MOLECULAR BIOLOGY & BIOTECHNOLOGY
STATEMENT OF CHANGES IN EQUITY/NET ASSETS FOR THE YEAR ENDED 31/12/16

	Accumulated Fund	Asset Replacement Reserve	Reserves & Restricted Fund	Capital Grant Spent	Capital Grant Unspent	Gift & Donations	Total
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Balance as at 31st December 2015	32,016,818	11,896,495	9,094,041	27,806,936	162,440	7,294,127	88,270,856
Transfer from Grant	156,820						
Foreign Students Stipend	30,000						
Over Transfer Asst Repl. Fund	3,651						
Transfer to General Reserve	392,850						392,850
Surplus / Deficit for the period	15,130,687						15,130,687
Adjustments in respect of previous Year	60,000	(3,651)					56,349
	47,790,825	11,892,844	9,094,041	27,806,936	162,440	7,294,127	104,041,213
Capital Grant Received					19,760,000		19,760,000
Transfer to Restricted Funds	(1,480,572)	1,030,805	449,767				0
Transfer to Welfare Fund			(392,850)				(392,850)
Transfer to Individual Research Fund	(64,000)						
Acrued Int. Income	(41,603)						
Capital Grant Spent /Unspent During the Year				6,120,257	(6,120,257)		-
Transfer to Rehabilitation					(7,950,000)		(7,950,000)
Amortization of Donations				(11,731,180)		(579,500)	(12,310,680)
	(1,586,175)	1,030,805	56,917	(5,610,923)	(14,070,257)	(579,500)	(20,653,530)
Balance as at 31st December 2016	46,204,651	12,923,649	9,150,958	22,196,013	5,852,183	6,714,627	103,147,683



Notes to the Financial Statement

1. Significant Accounting Policies

1.1 Reporting Entity

IBMBB has been incorporated under the Ordinance No.1285/25 and gazetted on 23rd April 2003. The main administration is at No 90, Cumaratunga Munidasa Mawatha, Colombo 03. The Financial Statement of the IBMBB are prepared for the year ending 31/12/2016.

2. Significant Accounting Policies

2.1. Basis of Preparation

The Financial Statements are prepared on the historical basis of accounting, in conformity with Sri Lanka Public Accounting Standards. All accounting policies adopted are applied consistently with those of previous year, where necessary comparative figures have been adjusted to confirm the changes, in presentation of current year figures.

The financial statements are prepared in Sri Lanka Rupees, which is the functional and presentation Currency.

2.2 Conversion of Foreign Currencies

All foreign currency transactions are accounted for at the exchange rates prevailing at the date of the transactions; gains and losses resulting from the settlement of such translation and from the translation of monetary assets and liabilities denominated in foreign currencies are recognized in the income statement. Monetary assets and liabilities denominated in foreign currencies are translated at exchange rates prevailing on the balance sheet date.

2.3 Assets and the bases of their valuation

2.3.1 Property Plant and Equipment (PPE)

Property plant and Equipments has not included value of the land and a building since legal ownership of land has not being transferred to IBMBB by University of Colombo.

Property, Lab and Teaching Equipments include the items purchased out of government grant, research grants internally generated funds and donations. Property and Equipment are recorded at cost of purchase together with any incidental expenses thereon. The assets are shown at cost less accumulated depreciation. Assets received as grants have been valued at their fair value.



2.3.2 Impairment

An asset's carrying amount is written down immediately to its recoverable amount, such reduction is recognized as an expense immediately.

2.3.3 Amortization

Amortization is recognized in income statement on a straight line basis over the estimate useful life of the assets.

2.3.4 Gain or loss on disposal

Gains and losses on disposals are determined by comparing proceeds with carrying amount. These are included in the income statement

2.3.5. Subsequent cost

Subsequent costs are included in the asset's carrying amount or recognized as a separate asset, as appropriate, only when it is probable that future economic benefits associated with the items will flow to the institute and the cost of items can be measured reliably. All other repairs and maintenance are charged to income statement during the financial period in which they are incurred.

2.3.6. Depreciation

Assets, for which dates of purchase are known, depreciation is provided in proportion to the number of months completed or such assets were used from the date of purchase. Assets of which exact date of purchase is not known depreciation is provided for the whole year in which they were purchased. Depreciation will be provided on the year of the sale/ disposal in proportion to the number of months the assets over the estimated useful life of assets.

Depreciation has been charged to income statement on all property and equipment on the straight line basis at the following rates per annum in order to write off the cost of such assets over their estimated useful lives.

Rates of Depreciation

- | | | |
|-----------------------------------|---|---------------|
| • Vehicles | - | 10% per annum |
| • Fixtures & Fittings | - | 10% per annum |
| • Office Furniture & Equipment | - | 10% per annum |
| • Computers | - | 20% per annum |
| • Laboratory & Teaching Equipment | - | 20% per annum |
| • Lab Tools | - | 20% per annum |
| • Library Books and Periodicals | - | 20% per annum |

2.3.6. Inventories

Inventories are valued at the lower of cost or estimated net realizable value. Net realizable value is the price at which inventories can be sold in the ordinary course of business after allowing for cost of realization and/or cost of invention from their existing state to saleable.



2.4 Income and Expenditure

2.4.1. Government Grant

Grants received from the General Treasury of the Government of Sri Lanka and Tuition Fees received are recognized as income in the period in which the related costs are recognized.

Government grants utilized to acquire assets less liabilities are recognized as deferred income.

2.4.2 Revenue Recognition

(a) **Government Grants (Recurrent)**

The Government Recurrent grants are recognized in the period in which they are received.

(b) **Government Grant (Capital)**

Grant relating to purchase of property and equipment are included in non-current liabilities as deferred income and are credited to the income statement on a straight line basis over the expected life of the related assets.

(c) **Student Registration**

Student Registration fees are recognized as revenue only on the receipt of fees.

(d) **Course Fees**

Course fees are recognized over the period of instruction. Where adequate information is not available to make such allocation to different financial periods, fees are recognized as income on a cash basis.

(e) **Investment Income**

Interest income received out of Investment is accounted on accrued basis.

2.4.3 Receivables

Receivables are stated at the amounts that they are estimated to realize.

2.4.4 Cash & cash equivalents

Cash & cash equivalents comprise cash & bank balances and short term investments.

2.4.5 Current Assts

Current Assets classified in the balance sheet are those which will be recovered within one year after the Balance Sheet date.

2.4.6 Current Liabilities

Liabilities classified as current Liabilities in the balance sheet are those that fall due for payment within one year from the Balance sheet date. All known liabilities have been accounted for in preparing the final statements.



2.4.7 Cash flow statement

The cash flow statements have been prepared using the “Indirect Method” for the purpose of the statement of cash flow. Cash & cash equivalents are comprised cash & bank balances, short term deposits.

2.4.8 Employee Benefits

(a) Defined benefit plans

Provision is made in the accounts for retirement gratuities at rates applicable under the payment of Gratuity Act No.12 of 1983. Although employees should complete a minimum period five years of continued employment to qualify for gratuity payments under the Act, provision is made after complete one year of employment on the assumption that all employees intend to continue in employment to at least five years.

(b) Defined Contribution Plans- UPF & ETF

Employees are members of the University Provident Fund and Employees Trust Fund. Contribution to defined contribution plans, UPF, EPF & ETF are recognized as an expense in the income statement as incurred.

2.4.9 Disclosure

The IBMBB has occupied in a land where the ownership of the land belongs to University of Colombo



Note - 02		2016	2015
Bank Balances		Rs.	Rs.
Peoples Bank Thimbirigasyaya			
Account No.	86100121189723	22,003,716	7,403,599
	86100151192314	2,389,523	1,206,451
	86100151189712	-	9
	86100211189723	2,647,876	2,702,186
	86100301189723	220	200,220
	86100491189723	236,245	228,745
		27,277,579	11,741,209

Note - 03		2016	2015
Other Receivables		Rs.	Rs.
Pre Payment		633,438	297,679
Refundable Deposit for Fuel		85,000	35,000
Refundable Deposit for Dongle		1,000	1,000
Refundable Deposit for CO2		24,000	24,000
Interest Receivable		1,511,423	972,819
Salary Overpaid		81,697	111,697
Other		89,359	19,969
		2,425,916	1,462,164

Note - 04		2016	2015
Advance		Rs.	Rs.
		307,700	1,437,363

Note - 05		2016	2015
Staff Loans		Rs.	Rs.
Distress Loans		2,127,087	2,482,728
Computer Loans		144,425	249,675
Vehicle Loan		36,656	81,652
Staff Loans		26,180	40,800
		2,334,348	2,854,855

Note -06		2016	2015
Investments - Specific Funds		Rs.	Rs.
Generated Funds - Fixed Deposits		30,117,873	27,986,590
		30,117,873	27,986,590



Institute of Biochemistry, Molecular Biology & Biotechnology - University of Colombo
Notes to the Financial Statements - 2016(Contd..)

Note - 07
Non current Assets

Description	Vehicle	Office furniture & Equipment	Computers	Fixtures and fittings	Lab and Teaching Equipment	Lab Tools	Library books and Periodicals	Total
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Non Current Assets								
Balance as at 01/01/2016	5,795,000	10,845,606	10,660,356	398,144	95,509,980	3,662,552	2,197,195	129,068,835
Additions/ Improvements		1,584,243	2,504,220		1,636,300		395,494	6,120,257
Disposals	-	-	-	-	-	-	-	-
Total	5,795,000	12,429,849	13,164,576	398,144	97,146,280	3,662,552	2,592,690	135,189,092
Provision for Depreciation								
Rate of Depreciation	10%	10%	20%	10%	20%	20%	20%	
Balance as at 01/01/2016	60,497	4,891,182	3,944,108	131,806	76,826,485	2,710,712	1,260,116	89,824,908
Depreciation for the year	579,500	1,107,643	2,235,743	14,520	9,365,073	234,304	339,202	13,875,986
Balance as at 31/12/2016	639,997	5,998,826	6,179,852	146,326	86,191,558	2,945,017	1,599,318	103,700,894
Net book Value- 31/12/2016	5,155,003	6,431,023	6,984,725	251,818	10,954,723	717,535	993,371	31,488,198



Note - 08

Provision for Gratuity

Opening Balance 01.01.2016
Provision During the year
Closing Balance 31.12.2016

2016 Rs.	2015 Rs.
4,566,241	3,880,858
1,223,132	685,383
5,789,373	4,566,241

Note - 09

Research Grants - 2017

SAREC Grant -2017.
RPC - 2017
HRP Grant-2017
NSF Grant IV-2017
IPICS - 2017
NSF Grant I-2017
NSF Grant iii-2017
Dept.of Ayurvedic Grant-2017
IFS 2017
Swedish Research Grant .2017
NSF Grant -v -2017
Individual Research Fund-2017
Start-up Research Grant (UGC)2017
NSF GRANT (Prof.KHT)-2017
Royal Society Grant 2017
C/R Grant- Ms.D.V.D. Hemalika
Research Collaboration Grant- Dr Andru

2016 Rs.	2015 Rs.
-	9
49,828	49,828
-	94,439
-	49,685
668,339	962,591
-	37,505
48,458	48,458
2,543	2,543
-	636,785
348,462	696,314
20,587	308,587
167,664	59,500
699,489	1,544,150
672,438	-
574,020	-
75,000	-
212,358	-
3,539,185	4,490,392

Note -10

Research Grants

NSF Grant iv-2016
NSF Grant - I 2016
IPICS 2016
IFS Grant 2016
Swedish Research Grant .2016
NSF Grant -v -2016
Start-up Research Grant (UGC)2016
NSF GRANT (Prof.KHT)-2016
Royal Society Grant 2016

2016 Rs.	2015 Rs.
-	1,115,439
37,500	383,976
388,700	310,119
-	682,566
347,852	968,744
288,000	521,080
844,660	387,451
937,562	-
4,400	-
2,848,674	4,369,374



Note - 11
Generated Income

Annual Session Sponsorships
Examination fees
Msc Course Fee
Certificate Course
Msc Registration Fee
Application Fee
Sample collection Charges
Library Fee
Other

	2016	2015
	Rs.	Rs.
174,541	93,000	
73,471	29,000	
8,864,388	5,161,111	
1,110,000	822,000	
271,000	240,000	
48,750	68,464	
589,200	931,500	
11,000	88,000	
463,900	179,750	
11,606,249	7,612,825	

Note - 12
Other Income

Computer loan interest
Staff Loan interest
Transcript fee
Distress Loan Interest
Vehicle Loan Interest
Other Sundry Income

	2016	2015
	Rs.	Rs.
9,185	10,170	
1,462	1,940	
35,000	24,725	
104,232	92,698	
2,936	1,690	
179,836	1,671,473	
332,650	1,802,697	

Note - 13
Personnel Emoluments

Salaries & Wages
U.P.F
Pension
E.T.F.
E.P.F
Academic Allowance
Cost of Living Allowances
Over Time Payment
Other Allowances
Gratuity
Acting Pay
Research Allowances
Allowances
Visiting Lecturer Fee
Property Loan Interest

	2016	2015
	Rs.	Rs.
8,929,313	8,103,797	
1,474,949	1,320,734	
840,399	709,864	
537,031	426,478	
296,596	74,583	
4,148,889	3,523,633	
2,479,001	2,239,759	
157,473	50,892	
3,311,783	3,850,090	
1,223,134	685,383	
-	42,379	
1,210,626	1,310,034	
7,777,776	6,229,456	
878,579	1,683,250	
51,101	52,735	
33,316,651	30,303,066	



Note - 14	2016	2015
Supplies	Rs.	Rs.
Mechanical and Electrical Goods	52,272	124,384
Stationery & Office Requisites	485,734	723,430
Fuel and Lubricant	237,754	8,550
Uniforms	28,652	3,500
Chemicals & Glassware	7,001,488	12,844,941
Other	10,249	9,774
	7,816,149	13,714,578

Note-14.1

Note -14.1		
Chemicals & Glassware		
Opening Balance	11,571,381	7,890,072
Purchase During the Year	7,001,488	13,029,372
	18,572,869	20,919,444
Closing Balance	(11,571,381)	(8,074,503)
	7,001,488	12,844,941

Note - 15

Maintenance Expenditure	2016	2015
	Rs.	Rs.
Rehabilitation & Maint. Of Capital Assets	2,385,728	2,220,073
Plant, Machinery Equipment	887,187	851,635
Buildings & Structures	1,344,516	711,370
Office Equip. Maintanance	396,542	180,867
Other	152,488	12,137
	5,166,461	3,976,082

Note - 16

Contractual Services	2016	2015
	Rs.	Rs.
Transport	19,910	26,470
Telecommunication	2,307,941	1,398,843
Postage	73,405	70,340
Security Service	1,213,005	1,126,223
Electricity	8,362,616	8,148,608
Water	351,817	285,180
Cleaning Service	2,423,782	2,223,620
Rent & Hiring Charges	-	-
Rates, Taxes & Local Authorities	182,952	182,952
Printing, Advertising etc.	553,841	736,549
Other	2,750	102,000
	15,492,018	14,300,784



Note - 17

Other Recurrent Expenditure

	2016 Rs.	2015 Rs.
Knowledge Enhancements (Research Project)	88,000	7,912,780
Special Services - Board Meeting & Committees	838,650	692,626
Consultation Fee	1,502,438	701,138
Workshops, Seminars	478,917	1,122,857
Academic Research	447,475	550,903
Staff Development	43,550	205,190
Entertainment Expenses	160,538	81,687
Contribution & Membership Fee	254,330	213,459
Bank Charges	23,247	30,410
Holiday Warrents & Season Tickets	76,300	33,760
Convocation	4,900	21,960
Examination Expens	285,296	200,125
Student welfare	6,200	26,313
Audit Fee	200,000	200,000
Certificate Course Expenses	390,846	406,580
Disposal Loss		24,687
Annual Scientific Session	92,264	210,757
Other	194,451	399,706
	5,087,402	13,034,937



Review on Internal audit functions in the year 2016

Four Audit Committee meetings of the Institute of Biochemistry, Molecular Biology and Biotechnology were held in 2016 where attention was paid mainly to matters referred to in the audit inquiries made by the Government Audit Branch.

The Audit Committee has recommended procedures to be followed to rectify the shortcomings highlighted in those audit reports.

The internal audit reports submitted by the Internal Audit Branch of the University of Colombo too were discussed at the Audit Committee and recommendations have been made for the improvement of the internal administration of the Institute and the control of expenditure.

Audit Committee reports have been submitted at the meetings of the Board of Management and approved.

Chairman
Audit Committee



Failures and Justifications - 2016

During the year 2016, the available laboratory spaces were not sufficient to any further increase in student intake, in addition the other constraints such as lack of adequate human and financial resources to implement some of the activities in the strategic plan 2016 – 2020.

Approval for expanding the building space had been requested from University of Colombo as IBMBB is situated in the premises of University of Colombo. University has requested for collaborative programmes and an appropriate justification for the extension building to the IBMBB. However, the extension building to the IBMBB is now incorporated in to the Master Plan for the development of the University of Colombo.

Fulltime MSc courses conducted by the IBMBB have a full time research component during the third Semester that requires 1:1 supervision of student research projects. MPhil and PhD programmes are also based on fulltime research. Without having adequate academic cadre, IBMBB finds it difficult to expand its high quality human resource training programmes. New cadre posts requested had been reviewed but not yet received.

IBMBB academic cadre consists of two Professor posts and five Senior Lecturer posts. Five Scientific Assistant posts and one Assistant Network Manager post are available as Academic Support grades. Some of these posts were vacant in year 2016. Approval for the Post of Professor of Biochemistry was received from UGC and advertised. For the post of Senior Lecturer-Cell Biology, the USAB and Council decisions are pending. As the current Director was the only full time academic staff member at IBMBB for conducting the teaching and coordinating the MSc-CMI course and the requested cadre posts for lecturer and scientific assistant had not been received by the end of 2016, a lecturer on contract had appointed following council approval.

IBMBB has four technical officer posts and during 2016 one Technical officer was recruited. There is one competent, Technical officer with appropriate qualifications and the other two are trainee Technical officers who do not have the appropriate qualifications required for the teaching programmes conducted at IBMBB and hence undergoing on the job training.



Plan of work for 2017

Teaching:

- Increase student intake to existing MSc programmes
- Complete the curriculum evaluation and revision –MSc (MLS & CMI)
- Continue/strengthen existing MSc and PhD programmes
- Complete the curriculum revisions to MSc-Bioinformatics course for intake in 2016
- Establishment and maintenance of a comprehensive resource pool of Faculty
- Strengthening modern teaching / learning methods
- Improving English Language, Scientific Writing, Presentation, Communication and IT skills of students

Research:

- Initiate new PhD research programmes
- New admissions to MPhil/PhD programmes, Training of professionals / technocrats in the applications of Molecular Life Sciences
- Generating new knowledge through research programmes
- Identify priority areas requiring solutions based on tools of Molecular Life Sciences Immunology, Bioinformatics and Allied fields
- Implementation of research programmes directed towards identification of novel drug targets from medicinal plants & marine resources
- Establish new research programmes for R&D work aimed at personalized medicine and human DNA variation
- Continue existing programmes in biomedical sciences and plant molecular biology and develop new research programmes based on findings when warranted
- Encourage and assist in obtaining National/ International competitive research grants by faculty members/ collaborators
- Enact memoranda of understanding with Research Institutes/Private sector Institutes
- Strengthen collaborative research programmes with health sector
- Strengthen cooperation with other Faculties /Universities and private sector Educational Institutes
- Dissemination of Knowledge/ Research Findings



Service:

- Develop collaboration with Industry/Private sector
- Maintain and update mirrors of Biological databases
- Provide on-line tools for Bioinformatics based/ learning /research
- Establish a repository of Archives giving the land mark developments in the field of Molecular Life Sciences
- Establish archives of historical developments resulting in the establishment of IBMBB
- Generating funds through Business Development plan.
- Diagnostic services for cancer, other diseases and for plantation sector
- Consultancies
- Fee-levying Postgraduate and other training programmes
- Training of professionals and technocrats in the application of Molecular Life Sciences, Immunology, Bioinformatics and Allied fields

Maintaining International Standards:

- Enhance existing /develop new collaborations with Universities and Research Institutes overseas
- Provide training in Molecular Life Sciences, Immunology, Bioinformatics and allied fields, nationally and regionally
- Develop content for E- learning for students/teachers in Bioinformatics, Molecular Life Sciences, Immunology and allied fields
- Establish links with international centres of excellence for E- teachers and E- resources in Bioinformatics
- Establishment of an external review system
- Ethical practices in scientific and biomedical research
- Ethical, societal and legal implications of genetic research and genetic information
- Provide opportunities for short-term overseas training of faculty members
- Encourage and assist in participation at International conferences by faculty members/collaborators/ students to present research carried out at the IBMBB

Governance:

- Performance Based Evaluation System for all categories of staff
- Development of a Training Policy and Guidelines
- Code of Ethics for staff and students
- Compliance with accepted norms of Accounting standards



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கணக்காய்வாளர் தலைமை அதிபதி திணைக்களம்
AUDITOR GENERAL'S DEPARTMENT



මගේ අංකය } HED/B/IBMBB/6/16/3
 எனது இல. }
 My No. }

ඔබේ අංකය }
 உமது இல. }
 Your No. }

දිනය } 30 September 2017
 திகதி }
 Date }

The Director,
 Institute of Biochemistry, Molecular Biology and Biotechnology.

Report of the Auditor General on the Financial Statements of Institute of Biochemistry, Molecular Biology and Biotechnology affiliated to the University of Colombo for the year ended 31 December 2016 in terms of Section 17 of the Institute of Biochemistry, Molecular Biology and Biotechnology Ordinance No. 01 of 2003, and Section 108 (1) of the Universities Act, No. 16 of 1978.

The audit of financial statements of the Institute of Biochemistry, Molecular Biology and Biotechnology affiliated to the University of Colombo for the year ended 31 December 2016 comprising the statement of financial position as at 31 December 2016 and the statement of financial performance, statement of changes in equity and cash flow statement for the year then ended and a summary of significant accounting policies and other explanatory information was carried out under my direction in pursuance of provisions in Article 154(1) of the Constitution of the Democratic Socialist Republic of Sri Lanka read in conjunction with Section 17 of the Institute of Biochemistry, Molecular Biology and Biotechnology Ordinance No. 01 of 2003 and Sub-section 108(1) of the Universities Act enacted under Sub-section 107(5) and Section 18 of the Universities Act, No. 16 of 1978. My comments and observations which I consider should be published with the Annual Report of the Institute in terms of Section 108(1) of the Universities Act appear in this report.

1.2 Management's Responsibility for the Financial Statements

The management is responsible for the preparation and fair presentation of these financial statements in accordance with Sri Lanka Public Sector Accounting Standards and for such internal control as the management determines is necessary to enable the preparation of financial statements that are free from material misstatements whether due to fraud or error.

1.3 Auditor's Responsibility

My responsibility is to express an opinion on these financial statements based on my audit. I conducted my audit in accordance with Sri Lanka Auditing Standards consistent with International Auditing Standards of Supreme Audit Institutions (ISSAI 1000-1810). Those Standards require that I comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatements.



An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgement, including the assessment of the risks of material misstatements of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the Institute's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Institute's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of financial statements. Section 111 of the Universities Act, No. 16 of 1978 give discretionary powers to the Auditor General to determine the scope and extent of the audit.

I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my audit opinion.

1.4 Basis for Qualified Opinion

My opinion is qualified based on the matters described in paragraph 2:2 of this report.

2. Financial Statements

2.1 Qualified Opinion

In my opinion, except for the effects of the matters described in paragraph 2.2 of this report, financial statements give a true and fair view of the financial position of the Institute of Biochemistry, Molecular Biology and Biotechnology affiliated to the University of Colombo as at 31 December 2016 and its financial performance and cash flows for the year then ended in accordance with the Sri Lanka Public Sector Accounting Standards.

2.2 Comments on Financial Statements.

2.2.1 Sri Lanka Public Sector Accounting Standards

The following observations are made.

(a.) **Sri Lanka Public Sector Accounting Standard 02**

The interest income of Rs. 2,220,982 received in cash for the year 2016 had been shown under operating activities instead of being shown as a cash inflow under investment activities in the cash flow statement.

(b.) **Sri Lanka Public Sector Accounting Standard 07**

As the useful life of non-current assets had not been revised annually, the Property, Plant and Equipment costing Rs. 52,662,824 had still been in use despite being fully depreciated. As such, action had not been taken to revise the estimated error in terms of Sri Lanka Public Sector Accounting Standard 03.



2.2.2 Accounting Deficiencies

Prior year adjustments amounting to Rs. 942,854 shown in the statement of financial performance, had been adjusted under operating activities in the cash flow statement, and the prior year adjustments shown in the statement of changes in equity amounted to Rs.56,349. As such, the balancing of the financial statements had been questionable in audit.

2.2.3 Unexplained Differences

A difference of Rs. 308,130 was observed when comparing the value for the acquisition of non-current assets in the year under review with the Register of Assets.

2.3 Non-compliances with Laws, Rules, Regulations, and Management Decisions

The following non-compliances were observed.

<u>Reference to Law, Rules, and Regulations</u>	<u>Non-compliance</u>
a) Sub-section 15(v) of Part 11 of the Universities Act, No. 16 of 1978	Approval of the University Grants Commission should be obtained in respect of the courses conducted by the institutions of higher education, but approval had not been so obtained for 03 courses conducted in the year 2016.
b) Sections 3.1 and 3.2 of Chapter XX of the Establishments Code of the University.	Salaries and allowances totalling Rs. 7,623,341 had been paid without verifying the arrival of 05 employees in the academic staff of the Institute.

3. Financial Review

3.1 Financial Results

According to the financial statements presented, the financial result for the year ended 31 December 2016 had been a surplus of Rs. 15,130,687, as compared with the corresponding surplus of Rs.3,613,509 for the preceding year, indicating an improvement of the financial result by a sum of Rs.11,517,178 for the year under review. The decrease in the other recurrent expenditure by a sum of Rs.7,947,535, and the increase in the income earned by a sum of Rs. 3,993,424, had mainly attributed to the said improvement.

An analysis on the financial results of the year under review and 04 preceding years indicated that the surplus had improved with variances from the year 2012 up to the year 2016. Nevertheless, once the employee remuneration and depreciation on non-current



assets had been adjusted to the financial result, the contribution of Rs. 26,189,085 for the year 2012, had continuously improved up to Rs.58,912,652 by the year 2016.

3.2 **Analytical Financial Review**

According to the statement of financial position presented, the current ratio of the Institute in the year under review had been 7.8. However, as 35 per cent of the current assets is represented by short term investments and cash balances, it was observed that a significant amount of assets of the Institute had been retained in liquidity assets.

4. **Operating Review**

4.1 **Performance**

According to the information made available by the Institute, the main objectives of the Institute include: to produce postgraduates in line with local and international job market in respect of the Molecular Biology, and parallel areas, to contribute to the development of the nation by being a center of excellence in the field of bioinformatics, to establish a conducive environment and a culture of solidarity, to earn by providing services and teaching for the well-being of the society by promoting social responsibilities, and good governance.

The following observations are made on the achievement of those objectives.

- (a) According to the Report, No. 38 of the Finance and Management Committee, dated 05 July 2016, provision amounting to Rs. 500,000 had been made in respect of the short term training course on cell culture techniques, but the said course had not been conducted in the year under review.
- (b) In order to maximize the funds being generated through teaching and supply of services, strategies for strengthening the Business Promotion Unit had been introduced under Objective No. 04 in the Action Plan of the Institute. Activities such as, consultancy and legal advice, acquisition of capital assets, marketing the research findings, providing the services for diagnosing breast cancer, and mutation testing for breast cancer, had been shown thereunder, but only 02 researches had been conducted in the year. Researches on the identification of genetic mutations relating to breast cancer, had not been conducted for the year 2016. Accordingly, it was observed that the Institute had not taken adequate measures to achieve the objectives of the plan.
- (c) No student enrollments had been made after the year 2012 in respect of the course for the degree of MSc in Bioinformatics, and the contents of the subjects of the said course had been revised since the year 2015. From September 2015 up to 28 February 2017, the date of audit, 07 review meetings had been conducted thereon. The rules proposed for the courses had been drafted and presented to the Board of Academics, but the dates for



recommencing the courses had not been decided. As the commencement of the course had been delayed for a period of 04 years, the students expecting to follow the course had been deprived of the opportunity.

4.2 **Management Activities**

The following observations are made.

- a) Cash donations amounting to Rs. 200,000 had been received from a private party in July 2015 so as to award gold medals for the merit students of the degree course in bioinformatics, and that amount had been invested in timely deposits in the year under review. The convocations for the aforesaid course had been held at the end of the year 2015, but no action had been taken to award gold medals to the merit students as expected, thus observing that the objective of the donors had not been fulfilled.
- b) Action had not been taken to identify and settle the debit balances totalling Rs.1,991,832 continued to exist over many years in 02 donation accounts under capital grants that had been spent.

4.3 **Operating Activities**

Capital grants valued at Rs. 2,791,677 received from the Treasury for the improvement and rehabilitation of assets, had not been utilized for the intended purpose in the year under review; instead, the said sum had been credited to the Government grants account relating to the rehabilitation and improvement.

4.4 **Staff Administration**

Three posts remained vacant in the approved academic staff. Instead of taking action to fill those vacancies, a Lecturer had been appointed on contract basis for one of those vacant posts in the capacity of Senior Lecturer in respect of the course named MSc in Cellular and Molecular Immunology, and allowances totalling Rs. 678,796 had been paid from the recurrent provisions during the year 2016.

5. **Accountability and Good Governance**

5.1 **Procurement Plan**

A sum of Rs. 9,520,000 had been received from the Treasury in the year under review for acquiring fixed assets. As the value of actual purchases made during the year under review amounted to Rs. 6,120,257, it was observed that the purchases planned in accordance with the annual Procurement Plan of the Institute had not been made.

**6. Systems and Controls**

Deficiencies in systems and controls observed during the course of audit were brought to the notice of the Director of the Institute from time to time. Special attention is needed in respect of the following areas of control.

Areas of Systems and Controls**Observation**

- | | |
|-------------------------|---|
| a) Control of Stores | Failure to maintain stock books in an updated manner by conducting the annual Board of Survey properly. |
| b) Staff Administration | Failure to take action to fill vacancies and revise the approved cadre in accordance with requirements. |
| c) Accounting | Failure to maintain journal entries with respect to transfers between the accounts. Failure to prepare an accurate trial balance. |

Sgd./ H.M. GAMINI WIJESINGHE
Auditor General

H.M. Gamini Wijesinghe.
Auditor General



29.12.2017

Mr H.M. Gamini Wijesinghe
Auditor General
Auditor General's Department
306/72, Polduwa Road
Battaramulla

Replies to the Report of the Auditor General on the Financial Statement of the Institute of Biochemistry, Molecular Biology and Biotechnology affiliated to the University of Colombo for the year ended 31st December, 2016 in terms of Regulation No. 17 of the Institute of Biochemistry, Molecular Biology and Biotechnology and Section 108 (1) of the Universities Act No. 16 of 1978

2.2 Comments on Financial Statements

2.2.1 Accounting Standards of the State Sector of Sri Lanka

(a) Accounting Standards 02 of the State Sector of Sri Lanka

Corrective action will be taken.

(b) Accounting Standards 07 of the State Sector of Sri Lanka

All the immovable assets owned by the Institute as at 01.01.2017 were revaluated and the revaluated values were accounted for.

2.2.2 Accounting deficiencies

Action required for rectification will be taken in the coming Financial Year.

2.2.3 Unexplained discrepancies

The value of the acquisition of assets in the year under review was compared with the Assets Register and the correct schedule has been presented with the Final Accounts.

2.3 Non-compliance to laws, rules, regulations and management decisions

(a) The following three MSc Courses are being conducted at present by the Institute of Biochemistry, Molecular Biology and Biotechnology:

1. MSc in Molecular Life Sciences
2. MSc in Cellular and Molecular Immunology
3. MSc in Bioinformatics



Out of these three Courses, the first two were commenced in 2005 and the third was started in 2012.

A Board of Study was established in 2016 for the designing of study materials of the MSc programmes in Molecular Life Sciences and Cellular and Molecular Immunology and accordingly, the curriculum which was in operation till then was revised to comply with the new revision of the Sri Lanka Qualifications Framework.

An advisor was appointed with approval of the Board of Management to revise the curriculums in order to make them consistent with the new revision of the SLQF 2015 and the said task was completed in 2017 and presented to the Board of Management. It is kindly informed that action will be taken to follow the proper methodology in terms of the by-laws and regulations pertaining to the curricula and to obtain the approval of the University Grants Commission immediately after obtaining the required approval of the University in 2017.

Furthermore, until the above mentioned actions are taken, out of the above three programmes, the intake of students for the Programme of MSc in Bioinformatics has been temporarily suspended and action will be taken re-start that Programme with necessary changes once the approval of the University Grants Commission is received.

(b) As a tradition, the academic staff of the university system do not mark their arrival/attendance.

However, the members of the staff of this Institute attend to their academic functions according to an approved time table and make entries in the log book provided for that purpose. Accordingly, all members of the academic staff from Lecturers (Probationary) to Senior Professors perform their duties diligently under my supervision according to the work norms of the academic staff approved by the Senate of the University of Colombo. Similarly, members of the academic staff of this Institute perform their duties during week-ends, public holidays as well as beyond working hours on ordinary working days of the week in academic and research activities, teaching and at times in administrative matters as well. Therefore, I certify that although in view of the above mentioned fact -, as is the practice followed in other Universities - the academic staff of this Institute do not mark their attendance, they all perform their academic duties and functions in a proper manner.

3. Financial Review

3.1 Financial Results

Agreed.



3.2 Analytical Financial Review

Agreed.

Money approved for making payments relating to the purchase orders issued as at the last day of 2016 was released by the General Treasury during the last few months of 2016. Funds so received have been kept as liquid assets until the purchases of goods and services are completed and payments made.

4. Operational Review

4.1 Performance

(a) Reasons for not conducting this short term training programme are given below as per the written statement given by the Course Coordinator, Dr Sameera Samarakoon:

The Training Course in Cell Culture Techniques planned for the year 2016 and the budget for which had been completed, was not conducted as scheduled on account of an unexpected strike by the non-academic staff during the week within which it had been planned to be conducted.

Planning and coordinating activities of this programme are performed by Dr Sameera Samarakone under the supervision of Senior Professor Ms Kamani Tennakone. Subsequently, the fixing of a period of five days enabling the participation of all resource persons in the programme was difficult due to the following reasons:

1. Only a few resource persons being available in Sri Lanka who are suitable to the contents of the aforementioned courses. Although the MSc students of the resource persons, i.e. Professor Kamani Tennakone, Dr Sameera Samarakone and Professor Ira Thabrew took part actively in the programme, in 2016 many of them had left on completing their courses.
 2. Since many of the functions in the field of Cell Biology were carried out by Dr Sameera Samarakone who acted in the post of Scientific Assistant (Cell Biology) as it has not been possible to fill the vacancy in the post of Lecturer in Cell Biology for the last three years, he was busy on account of other academic research activities
- (b) This audit matter has been rejected as per the written submission made by Professor Kamani Tennakoon and the matters pertaining to that are mentioned below:

Measures have been taken to create awareness through the distribution of leaflets containing information on our Institute among the students, private Universities and research institutes in Sri Lanka and through social media such as E-mail and



Facebook in order to disseminate information on the Open Day introduced for the purpose of maximizing profits by teaching activities and other activities in 2016 and the examinations of the services of the Institute. Accordingly, it was able to attract a numerically larger group of students to the Institute.

Similarly, awareness has been created by the Business Development Unit also regarding all the short term courses of the Institute, through the above mentioned means. Furthermore, steps are being taken to attract students to this field by popularizing science through the conduct of various seminars as well.

Marketing of research findings

It takes quite a long period of time to put into the market any research or finding. At present, about 50% of the researches conducted by researchers including Senior Professor, Kamani Tennakone and Dr Sameera Samarakone has been completed. Action will be taken to introduce those research findings to the market once patent is obtained for such intellectual property.

Legal advice and counseling

Legal advice and counseling services are not undertaken by the Institute of Biochemistry, Molecular Biology and Biotechnology. Therefore, legal advice and counseling have to be obtained from legal experts and lawyers as required.

Acquisition of Capital Assets

Acquisition of Capital Assets has not been done so far. However, there is opportunity in the future to acquire capital assets through incomes generated by acts such as the marketing of patents etc.

Mutation testing for Breast Cancer

Patients have to incur a heavy cost for this BRCA 1/BRCA 2 testing. This service is provided to those who can afford that amount and since the fee is high for the majority of patients, the number who obtain the service is limited.

However, various researches were undertaken in 2016 through PhD and MSc researches, research allocations for supervisors etc. for more than 50 cancer patients including the identification of genetic mutations. Due to the nearly two-fold increase in the cost of BRCA 1/BRCA 2 and the relevant chemicals, the present fee will have to be revised. Then the number of patients who receive this service will decline further.

- (c) The intake of post graduate students for MSc in Bioinformatics has been temporarily suspended after the revision of the curriculum until the approval of the University



Grants Commission is received and thereafter, action will be taken again for recruitment of students for that course.

4.2 Management Activities

(a) Gold medals meant for the students in the academic year 2012 were awarded at the convocation of the University of Colombo held in December, 2015.

(b) Necessary action will be taken to rectify it in the coming Financial Year.

4.3 Operational Activities

Not agreed.

The allocation received from the General Treasury in 2016 for the rehabilitation of assets was Rs. 7,950,000.00 and since it was a donation received for capital rehabilitation expenditure, in the Financial Statement it has been shown as Government Grant for Rehabilitation of Capital Assets considering I as a capital income. Furthermore, a sum of Rs. 5,158,323.00 has been spent on the rehabilitation and improvement of assets during the year.

4.4 Staff Management

Following are the vacant positions in the approved cadre:

I.	Professor	- 01
II.	Senior Lecturer	- 02

- I. Post of Professor – The selection for this post was not approved in 2014 firstly by the Board of Control and secondly by the University Grants Commission. Necessary arrangements were made since 2016 once gain for the appointment to that post and to obtain the necessary approval from the University Grants Commission.
- II. Post of Senior Lecturer (Cell Biology) – The selection made by the Institute for this post in 2014 was not approved by the Board of Management of the University of Colombo. The selected candidate filed a case before the University Services Board of Appeal and the Board of Control has informed this Institute not to make a selection to this post until the case is over. The selected candidate of the Colombo University was appointed to the said post in October 2017.
- III. Senior Lecturer (Immunology) – Dr Shiroma Handunnetti, who served in this post previously serves at present in the post of Director having received a post of Professor (Three years: from February, 2015 to February, 2018). During this period of three years, Professor Handunnetti has been engaged in administrative functions while attending to



the functions relating to the MSc in Cellular and Molecular Immunology which were performed by her when she was in the post of Senior Lecturer and also in the teaching of students / coordinating examination activities etc. since there are no other Senior Lecturers in this Institute. There are 2 posts of Professor and 5 posts of Lecturer in this Institute. Since those Lecturers are mainly detailed for the MSc in Molecular Life Sciences course, during the three-year period in which Prof. Handunnetti has been the Director, action was taken to recruit a temporary female Lecturer to the post of Senior Lecturer (on contract basis) with the financial provisions during that period. This recruitment was recommended by the Board of Management and approved by the Board of Control. The salaries and allowances applicable to the post have been paid.

It would have been possible to recruit permanent Lecturers if the cadre positions requested by this Institute since 11.07.2014 had been given.

Furthermore, a request was made to the Department of Management Services of the Ministry of Finance by the Vice Chancellor of the University of Colombo through the University Grants Commission by letter dated 01.03.2017 highlighting this special necessity.

The 2017 cadre requirement for the IBMBB has been received in August, 2017 and the recruitment activities have commenced at present.

- IV. The members on the permanent cadre of this Institute are those recruited relating to the subject areas of permanent Lecturers. They have taken part in activities such as the conduct of various studies, short term courses etc. relating to such areas of study. In addition to those, conduct of research activities pertaining to such areas is a task entrusted to them. Due to this reason, it is not possible to obtain their services for coordinating activities relating to this course.

Professor Shiroma Handunnetti functioned as the Course Coordinator of MSc in Cellular and Molecular Immunology and with her appointment as Director, a temporary Teaching Assistant was appointed for the coordinating activities of that course. However, the Senate has informed the Institute to appoint a permanent Lecturer of the academic staff of the University of Colombo for that purpose. Accordingly, Dr Sisira Pathirana of the permanent staff of the Medical Faculty who is a visiting lecturer of the course was appointed as Coordinator. Since he is outside the Institute, at present the female Lecturer who serves on contract basis continues to function as Course Coordinator.



5. Accountability and Good Governance

5.1 Procurement Plan

Assets to the tune of Rs. 6,120,257.00 were acquired during the year using the amount of Rs. 9,520,000.00 received from the Treasury for the acquisition of fixed assets. Although the procurement actions required for the acquisition of the balance were taken within the year according to the procurement plan, such amounts could not be used since it was not able to finalize those procurement activities until the end of the year. This amount has been shown as capital commitments. However, those capital commitments have been released by now.

6. Systems and Controls

Action will be taken in future to rectify shortcomings in the systems and controls highlighted by the audit.

Professor Shiroma Handunnetti
Director

29.12.2017

Copies: (1) Secretary, Ministry of Higher Education and Highways
 (2) Secretary, Ministry of Finance and Media
 (3) Chairman, University Grants Commission
 (4) Vice Chancellor, University of Colombo



Summary of Annual Report and Accounts – 2016

1. Details of Resources & Students:

Faculty	Course	Total Students	Total Academic Staff	Total Non Academic Staff
IBMBB, UOC	MSc in Molecular Life Sciences	15	5	19*
	MSc in Cellular and Molecular Immunology	11		
	Msc in Bioinformatics	-		
	MPhil	29		
	PhD			
	Registered for MPhil/PhD in other Institutions and carried out a compartment research work	04		
	Training courses in Molecular Biology & Immunology	18+20		
Exposure on Molecular Biology & Immunology to undergraduate students from other HEIs -No of batches(No of students)	68			
Total		165	5	19

* Include 05 Academic Support Staff

01 - Assistant Network Manager

04 - Scientific Assistants

2. Details of Academic Staff

Faculty	Subject	Medium	Senior Prof	Professor	Senior Lecturer	Lecturer	Asst. Lecturer	Instructors
	Molecular Life Sciences	English	1	-	-	-	-	-
	Cellular & Molecular Immunology	English	-	1*	-	1#	-	-
	Molecular Techniques	English	-	-	1	-	-	-
	Biochemistry and Molecular Biology	English				1		
	DNA Diagnostics					1		
Total			1	1	1	3	-	-

* Professor in Immunology is appointed as the Director, #-hence a Lecturer in Immunology is recruited on contract.



3. Details of Non-Academic Staff

Faculty/ Branch	Most Senior	Senior Staff	Junior Staff	Minor Employees
IBMBB	1-Senior Assistant Registrar 1-Senior Assistant Bursar		1- Technical Officer, Gr.II 2- Trainee Technical Officer	2- Laboratory Attendant
			5- Computer Applications Assistant	1- Labourer
			1- Book Keeper	
			1-Library Information Assistant	
			1-Telephone Operator cum Receptionist	
Total	2		11	3

4. Details of Research, Innovation and Publications:

Subject	Published	Commercialized	Presented
a. No of Researches MSc Dissertations PhD Thesiis MPhil Thesis	17 1 1		
b. No of Innovations			
c. No of Journals			
d. No of Books	1		
e. No of News paper articles	2		
e. No of Articles –Full Papers in Journals	18		
f. Other (Research , Communications)			39
Total	40		39

5. Details of Programme, Seminars & Workshops:

Subject	Attended	Completed	Presented	Attended	Completed	Presented
	2015			2016		
a. No of Postgraduate Degree Programme	3	3	3	3	2	2
b. No of Postgraduate DiplomaProgramme						
c. No of Degree Programme						
d. No of Diploma Programme						
f. Training Short Courses/workshops	3	3	3	2	2	2
g. Annual sessions	1	1	1	1	1	1
h. International Conference (with 4 Symposia)						
Demonstration on Moleculal Biology and Immunology practical demonstrations	14	14	14	14	14	14
Total	21	21	21	20	20	20



6. Details of Awards Received:

Subject	No of Awards	No of Academics	No of Students	No of Awards	No of Academics	No of Students
	2015			2016		
a. Local awards				4		2
b. National Awards	10	4		12	3	11
c. International Awards	7		7	2	2	
d. Travel Awards	2	2		2		2
Total	19	6	7	20	5	15

8. Details of Recurrent Expenditure: 2016

	Subject	2015 (Rs.)	2016(Rs.)
a.	Personal emoluments	30,303,066	33,316,651
b.	Travelling	724,467	322,089
c.	Supplies	13,714,578	7,816,149
d.	Maintenance	3,976,082	5,166,461
e.	Contractual Services	14,300,784	15,492,018
f.	Other (including depreciation)	25,947,662	18,963,388
	Total	88,966,640	81,076,756

9. Details of Capital Expenditure:

	Subject	2015 (Rs.)	2016 (Rs.)
a.	Acquisition of furniture & Office Equipments	1,929,700	1,584,243
b.	Acquisition of Machineries(Computers & Lab Equip.)	9,803,049	4,140,520
c.	Acquisition of Building & Structures	-	-
d.	Other (Library Books)	614,720	395,494
e.	Vehicle	5,795,000	-
	Total	18,338,163	6,120,257



10. Details of Project Expenditure (Local/ Foreign Funded):

Name	Exp in 2015(Rs.)	Exp in 2016 (Rs.)	Cumulative Exp as at 31.12.2016	% of Physical Progress
NSF Grant	2,020,495	1,263,062	3,283,557	work planned for 2016 completed
IFS	682,566	0.00	682566	
IPIC	310,119	388,700	698,819	
Swedish Research Grant	968,744	347,852	1,316,596	
Start-up Research Grant (UGC)	387,451	844,660	1,232,111	
Royal Society Grant	0.00	4,400		
Total	4,369,375	2,848,674	7,218,049	

11. Details of Financial Progress (Expenditure):

	Subject	Provision in 2016 Rs.	Exp in 2016 Rs.	Savings/Excess Rs.
a.	Recurrent (Except Project)		67,201,000	
b.	Capital (Except Project)		6,120,257	
c.	Project-Local funded –NSF Grant	-		
Total				

*Depreciation not Considered * Included Expenditures from Generated Income

**Funds in the Capital Grant Unspent Account has been used.

12. Details of Financial Progress (Generated Income) :

	Source of Revenue	Provision in 2016 (Rs.)	Collection in 2016 (Rs.)	Deficit/ Surplus (Rs.)
a.	Undergraduate Studies	not relevant	not relevant	
b.	Postgraduate Studies	5,161,000	8,864,388	-
c.	Consultancies		0.00	
d.	Other		2,741,861	
Total		5,161,000	11,606,249	



13. Financial Performance Analysis-2016:

	Subject	Formula	Course	Exp. Per Student Rs.
a.	Recurrent Expenditure per Student (RE)	RE*/ No of Student strength	MPhil & PhD	1,402,526.69
			MSc	402,755.62
	Capital Expenditure per Student (CE)	CE/ No of Student strength	MPhil & PhD	219,590.24
			MSc	94,725.20
			Total	2,119,597.75

* Included only Academic, Academic Support, Technical Officers, Lab Attendants salaries

* Not included Security, Electricity, Water

** Included cost of additions of capital assets

** Includes funds from NRC Grants which are not operated by IBMBB



Cumulative Summary of Students by Year - MSc & MPhil/PhD Programmes

		2004 June to Dec	2005 *	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Total
MSc *(commenced in 2005)	Total		8	18	25	24	24	33	34	34	34	42	33	34	
	New intake		8	10	11	13	12	19	10	22	11	18	12	21	167
	Continuing			8	14	11	12	14	24	12	23	24	21	13	
	Output				3	11	10	8	8	17	11	8	18	17	111
MPhil/PhD	Total	3	3	8	8	13	13	12	13	14	17	24	27	25	
	New intake	3	0	5	1	5	1	1	1	11	7	6	3	4	48
	continuing		3	3	7	8	12	11	12	6	10	18	24	23	
	Output				1	0	1	1	1	3	4	1		1	9
MSc (indirect)	Total	2	6	3	1									-	
	New intake	2	4	1					1					-	8
	Continuing		2	2	1									-	
	Output	1		4		1				1				-	7
MPhil/PhD (indirect)	Total	7*	6	4	6	5	8	6	3	1	6	4	5	4	
	New intake		1	0	3		4	0	1	0	0	1		-	10
	Continuing	7	5	4	3	5	4	6	2	1	6	3	5	-	
	Output		1	2		1			3	1		3	1	1	13
Postgraduate students	Total	12	23	33	40	42	45	51	51	52	57	70	65	63	
	New intake	5	13	16	15	18	17	20	13	33	18	25	15	25	233
	Continuing	7	10	17	25	24	28	31	38	19	39	45	50	-	
	Output	1	1	6	4	13	11	9	12	22	22	15	12	19	140
Staff:Student ratio		1:12	1:8	1:8	1:10	1:14	1:15	1:17	1:17	1:17	1:14	1:14	1:13	1:13	

Includes * students registered at other Faculties / Universities under the SAREC Grant before relocation to IBMBB

Summary 2004-2016	MSc	MPhil/PhD	Total	
Direct Output	111	9	120	140
Indirect Output	7	13	20	
Direct Intake	167	48	215	233
Indirect Intake	8	10	18	