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

***Annual Report – 2021***

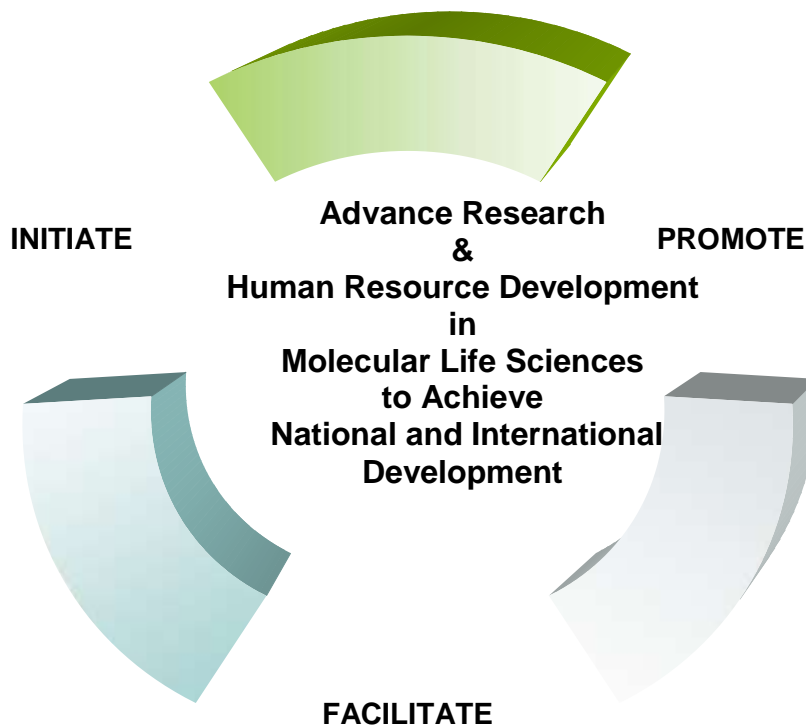


## VISION



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

## MISSION





## 2021 ACHIEVEMENTS

### NEW APPOINTMENTS



Prof. Prasanna Galhena.  
Director  
2021.09.15

MS. K.G.I.Udayangani  
Senior Assistant Registrar  
2021.03.01



Ms. Shirani De Silva  
Deputy Bursar ( On Contract)  
2021.12.01

Dr. J.H.K.D. Senarath  
Lecturer ( Unconfirmed)  
2021.07.01



Dr. D.L.P.E. Gunasekara  
PDRF ( On Contract)  
2021.01.01

Ms. U. Rajagopalan  
Temp. Scientific Assistant  
On Contract  
2021.11.15



Ms. N.R.L. Fernando  
MA (Gr. III)  
2021.11.01

Mr. W.D. Gunaratne  
MA ( Shroff) (Gr III)  
2021.11.01



Ms. P.P.M. Subasinsani  
L.I.A.  
2021.12.15

Ms. K.T. Jayawardana  
Trainee Technical Officer  
2021.12.20



Ms. H.M.V.D. Mudalige  
Trainee Technical Officer  
2021.12.20

### DISSEMINATION OF KNOWLEDGE

1. Training Course in Advance Certificate in Immunology course was Conducted



2. Training course in Cell Culture Techniques





## Awards

- President's award for Scientific publications 2018



Dr. Narmada Fernando



Prof. Shiroma Handunnetti



Prof. Nimal Punyasiri

- National Research Council Merit award for Scientific Research Publications 2018



Prof. Jagath Weerasena



Prof. Shiroma Handunnetti

## International Research Funding

Rs. 520,000.00 received for Indo Sri Lanka Grant

## Virtual Open Day

Virtual Open day was conducted on 08th November 2021



## Concessionary Loan Scheme For the IBMBB Students



Bank of Ceylon



සමුපත් බැංකුව  
சம்பத் வங்கி  
Sampath Bank

Sampath Bank



## Director's Review



The prime focus of the IBMBB is postgraduate teaching and training leading to Masters, Master of Science, Master of Philosophy and Doctor of Philosophy in the fields of Molecular Life Sciences, Cellular and Molecular Immunology and Bioinformatics. All these programmes are well aligned with Sri Lanka Quality Framework (SLQF) levels of 8-12 respectively. Further to above main streams of subjects, IBMBB is currently looking forward in offering Masters of Medicinal Biochemistry and Biotechnology leading to Master of Science in the same field of study, in near future.

Current COVID-19 pandemic made the year 2021 an extremely challenging one. However, IBMBB was able to face this situation with a success note due to timely implemented remedial plans such as blended learning platform, online document management system, on-site activities for small groups and online assessments. These measures made the IBMBB to achieve on time deliveries as planned previously in its master calendar.

In addition to above post-graduate teaching, IBMBB is actively contributing to continuous professional development programs, consultation, undergraduate teaching, research and development and industry collaboration. In the year 2022, IBMBB committed for few earmark events such as signing of MOU and MTA with industry collaborators, execution of joint research projects with University of Colombo Institute for Agro-technology and Rural Sciences, UOC, and 3<sup>rd</sup> International Conference. I'm happy to share an overview of our achievements during the year 2021 which will be further explained in the relevant chapters of this annual report.

### Summary of Achievements in 2021

2021 New Registrations	Masters	Molecular Life Sciences	20
	Masters	Cellular and Molecular Immunology	18
	Masters	Bioinformatics	19
	MSc	Molecular Life Sciences	12
	MSc	Cellular and Molecular Immunology	06
	MSc	Bioinformatics	03
2021 Output	Doctor of Philosophy		01
	MSc	Cellular and Molecular Immunology	06
	Masters of Molecular Life Sciences		01
	Master of Cellular and Molecular Immunology		01
	Master of Bioinformatics		11
	Post-graduate Diploma in Molecular Life Sciences		01
	Post-graduate Diploma in Bioinformatics		02
Publications	Full papers	Indexed, international Journals	18
	Research Communications	Local	16
		International	05
Awards received			05

Prof. Prasanna Galhena  
Director/ IBMBB



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## Historical Review

The 21<sup>st</sup> century will be dominated by two disciplines, namely Information and Computer Technology and Molecular Life Sciences. Nations that invested in science and knowledge based development have progressed significantly compared to those that did not make such commitment. Sri Lanka is yet to have a vibrant industry based on Biotechnology and allied fields whereas our neighbors are far ahead of us. A key factor for lack of industries based on Biotechnology and allied fields in Sri Lanka is the dearth of trained manpower and lack of national policy for novel investments.

The Institute of Biochemistry, Molecular Biology and Biotechnology (IBMBB) was established as an independent Institute of the University of Colombo with a view to provide for guidance,, training, research and development and consultancy in the fields of Biochemistry, Molecular Biology and Biotechnology recognized by University Grants Commission as an affiliated institute of University of Colombo. The establishment of the IBMBB was due to tiring effort by the founder director IBMBB, Prof. Eric H. Karunanayake and support extended by Swedish International Development Agency/ Swedish Agency for Research Cooperation with Developing Countries (Sida/ SAREC). Construction and equipment of the building of the IBMBB was provided by the Investment Department of Sida (Sida/ INEC). 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 IBMBB was ceremonially declared open on 28<sup>th</sup> 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 3<sup>rd</sup> April, 2003. The IBMBB 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 floor hoods and other facilities such as cell culture, insectary, cold rooms, local area networking, access to internet via dedicated optical fiber cable and is fully air-conditioned. IBMBB commenced its research activities in June 2004 by facilitating the MPhil and PhD students research work under the supervision of Prof. Eric Karunanayake. Two taught Masters degree courses commenced in February 2005, one in “Molecular Life Sciences” and the other in “Cellular and Molecular Immunology”. The third Master of Science degree programme in Bioinformatics commenced in May 2012, as a joint programme with University of Colombo School of Computing.

The curriculum revision for these three Masters degree programmes were completed and aligned to SFQF levels 8-10 by end of 2019. All three degree programmes with the new curricular commenced in 2019 with the revised By-Laws and Regulations approved by the Council of the University of Colombo.





## Directors of the IBMBB

### ***Present Director:***

Prof. Prasanna Galhena

### ***Founder Director:***

Prof. Eric H Karunanayake 2004 - 2007

### ***Past Directors:***

Prof. Kamani H Tennekoon	2007 - 2012
Prof. Kamani H Tennekoon	Jan-Mar 2013 (Acting Director)
Prof. M H Rezvi Sheriff	April 2013 - September 2014 (Acting Director)
Prof. Shiroma M Handunnetti	October 2014 - January 2015 (Acting Director)
Prof. Shiroma M Handunnetti	February 2015 – February 2018
Prof. Tara D. Silva	February 2018 – August 2021 (Acting Director)
Prof. Shiroma M Handunnetti	August 2018 – August 2021
Prof. Shiroma M Handunnetti	September 1 <sup>st</sup> -14 <sup>th</sup> 2021 (Acting Director)

## Quick Reference

**Registered Office:** No: 90, Cumaratunga Munidasa Mawatha, Colombo 3, Sri Lanka

### **Telephone Numbers:**

General:	+94-11-2552528
Director:	+94-11-2552534
Senior Assistant Registrar:	+94-11-2553672
Senior Assistant Bursar:	+94-11-2553683

### **Fax Numbers:**

Director:	+94-11-2552529
General:	+94-11-2553683

### **E-mail:**

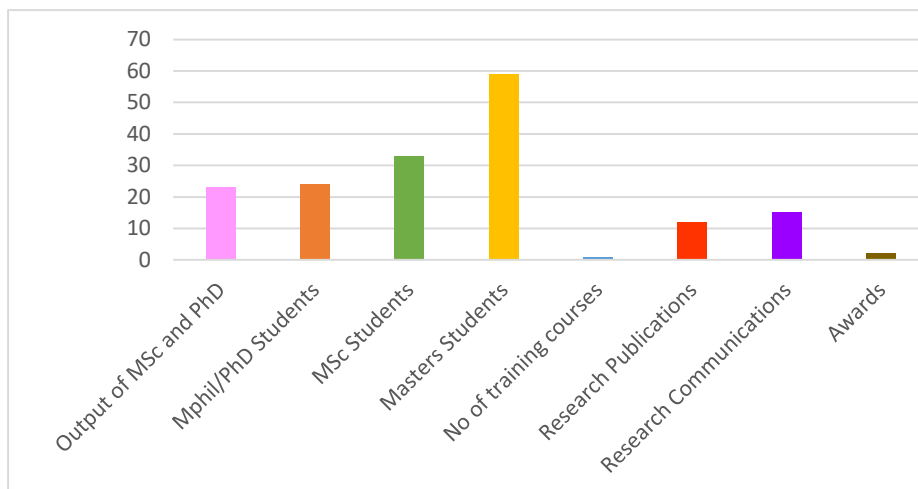
director@ibmbb.cmb.ac.lk  
sar@ ibmbb.cmb.ac.lk  
sab@ ibmbb.cmb.ac.lk/ db@ ibmbb.cmb.ac.lk

### **Inquiries:**

info@ibmbb.cmb.ac.lk



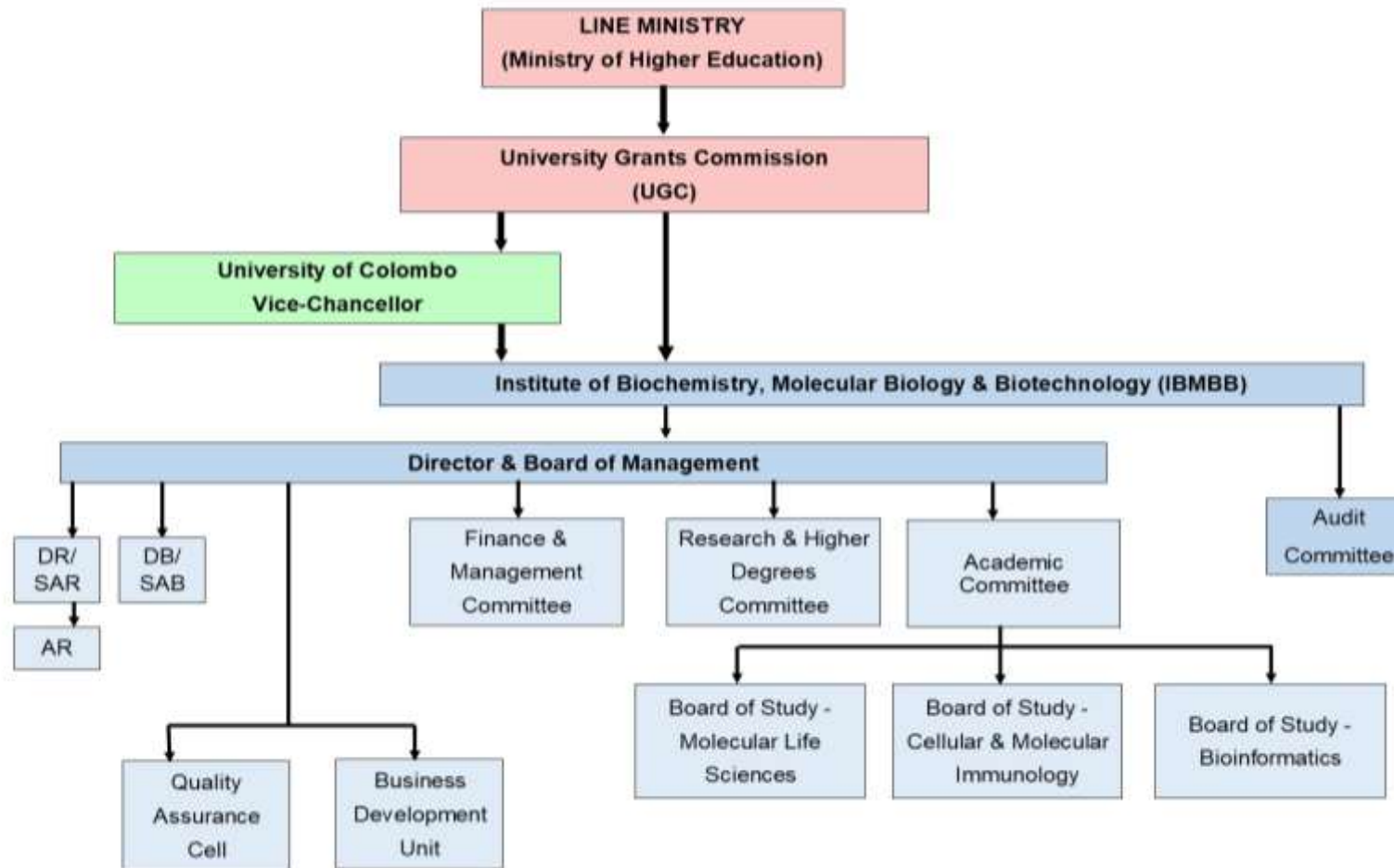
## Performance in 2021 at a glance



Registered Students & Completion of Postgraduate Degrees and PG Diplomas (2019 – 2021)					
Year	Course		No of Registered students	Completion of Postgraduate Degree	Completion of PG Diploma
2021	Masters (SLQF-9)	Molecular Life Sciences	20	01	01
		Cellular and Molecular Immunology	18	01	00
		Bioinformatics	19	11	02
	MSc (SLQF-10)	Molecular Life Sciences	12	00	N/A
		Cellular and Molecular Immunology	06	06	
		Bioinformatics	03	00	
	MPhil & PhD		0	01	
2020	Masters (SLQF-9)	Molecular Life Sciences	15	01	
		Cellular and Molecular Immunology	07	00	
	MSc (SLQF-10)	Molecular Life Sciences	04	06	
		Cellular and Molecular Immunology	04	06	
	Post Graduate Diploma in Cellular & Mol. Immunology (SLQF-8)			01	
	MPhil & PhD		02	02	
2019	Masters (SLQF-9)	Molecular Life Sciences	10	5	
		Cellular and Molecular Immunology	07	2	
		Bioinformatics	19	0	
	MPhil & PhD		2	9	



## Organizational Chart





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## **Director**

Prof. Prasanna Galhena

## **Members of Board of Management**

Prof. Prasanna Galhena, Director-IBMBB, (Chairman) (from 15<sup>th</sup> September 2021)

Prof. Shiroma Handunnetti, Director-IBMBB (Chairperson) (up to 14<sup>th</sup> September 2021)

Ms. S S Evangeline, Secretary Nominee, Director (Development), Ministry of Higher Education

Prof. Eric H Karunanayake, UGC Nominee

Prof. Ira Thabrew, UGC Nominee

Prof. Ramanee Wijesekera, UGC Nominee

Prof. S.P. Deraniyagala, UGC nominee

Mr. Thilak Karunaratne, Council Nominee

Ms. Padmini Ranaweera, Council nominee

Prof. W Indira Nanayakkara, Senate Nominee

Prof. Senaka Rajapakse, Senate Nominee

Prof. Vajira Dissanayake, Dean/ Medicine, University of Colombo, Ex-officio

Prof. Upul Sonnadara, Dean/ Science, University of Colombo, Ex-officio

Prof. K P Hewagamage, Director, University of Colombo School of Computing (UCSC), Ex-officio

Prof. Kithmini Siridewa, Head/Biochemistry & Molecular Biology, Faculty of Medicine, Ex-officio



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## 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).

## National Awards received in 2021

- a) President's Award for Scientific Publications in Year 2018 were received by  
**Dr Narmada Fernando**  
**Prof Shiroma Handunnetti**  
**Prof Nimal Punyasiri**
- b) National Research Council Merit Award for Scientific Research published in the year 2018  
**Prof Jagathpriya Weerasena**  
**Prof Shiroma Handunnetti**

## Contribution to Human Resource Development

### Postgraduate degree Programmes

**MPhil/PhD Programmes:** No new MPhil/PhD students registered during 2021 and there was a total of twenty four registered MPhil/PhD students at the IBMBB. Research programmes based on MPhil/PhD work are described under research activities. Five PhD students and One MPhil student submitted thesis for examination & viva voce examinations will be held in the first quarter of the 2022. One PhD student completed her *viva* examinations in 2021.

(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 5, 6, 7 & 8 includes the details on PhD and MSc students completing examination process in 2021.

**Masters & MSc Programmes:** In February 2021, new student intakes were taken for the revised curricular of the three degree programmes in Molecular Life Sciences, Cellular and Molecular Immunology, Bioinformatics. With revised curricular, the 3rd batch of students registered for the Masters (SLQF 9) degrees includes Master of Molecular Life Sciences (MLS) with twenty students and Master of Cellular and Molecular Immunology (CMI) with eighteen students respectively. The 2<sup>nd</sup> batch of students under the revised curricular registered for Master of Bioinformatics (BI) in 2021 with nineteen students.

Twelve students of MLS and six students of CMI had been resistered for the Master of Science and eleven students of MSc in MLS and one student of MSc in CMI continued their MSc research project work in 2021. Total of five MLS and six CMI MSc students submitted their dissertation for examination in 2021 (see Table 5 & 6 for details). Research project work of MLS and CMI were delayed due to interruptions on academic activities occurred in April 2021 due to COVID-19 pandemic.



In 2021, a total 06 students successfully completed their MSc in Molecular Immunology. One student of MLS, one student of CMI and eleven students of BI opted to leave the programme receiving Masters and another one students of MLS and two students of BI opted to leave the programme receiving Post Graduate Diploma.

Following staff members continued as Programme Coordinators and Co/Assistant Coordinators:

Prof. OVDSJ Weerasena, Programme Coordinator, MSc in Molecular Life Sciences  
Dr. Sudeshini Hewage, Assistant Programme Coordinator, MSc Molecular Life Sciences

Dr. Sisira Pathirana, Programme Coordinator, MSc in Cellular & Molecular Immunology  
Dr. Narmada Fernando, Assistant Programme Coordinator, MSc in CMI (upto October 2021)  
Dr. Kanishka Senarath, Assistant Programme Coordinator, MSc in CMI (from October 2021)

Ms. Rupika Wijesinghe, Programme Co-Coordinator, MSc in Bioinformatics, UCSC  
Dr. Ruwandi Ranasinghe, Programme Co-Coordinator, MSc in Bioinformatics, (2019 Intake)  
Dr. Sumadee de Silva, Programme Co-Coordinator, Masters in Bioinformatics (2021 Intake)

The following academics/visiting faculty took part in teaching for the **MSc in Molecular Life Sciences**:

Prof. Kamani H Tennekoon, Senior Professor of Molecular Life Sciences, IBMBB  
Prof. Vasanthy Arsaratnam, Senior Professor of Biochemistry, Faculty of Medicine, University of Jaffna  
Prof. Nimal Punyasiri, Professor of Biochemistry, IBMBB  
Prof Nilanthi Dassanayake, Professor in Botany, University of Sri Jayawardenapura  
Prof Kantha Lankathilake, Professor in Community Medicine, University of Colombo  
Prof. Shalini Sri Ranganathan, Professor in Pharmacology, University of Colombo  
Prof. OVDSJ Weerasena, Professor in Molecular Biology, IBMBB  
Dr. Nalinda Silva, Senior Lecturer in Physiology, Faculty of Medical Sciences, University of Sri Jayawardenapura  
Dr. Sumadee De Silva, Senior Lecturer, IBMBB  
Dr. Nadeesha Lewke Bandara, Senior Lecturer, IBMBB  
Dr. Sudeshini Hewage, Senior Lecturer, IBMBB  
Dr. Sameera Samarakoon, Senior Lecturer, IBMBB  
Dr. Ruwandi Ranasinghe, Scientific Assistant, IBMBB  
Dr. Kanishka Senathilake, Postdoctoral Research Fellow, IBMBB  
Dr. Nilupa Gunaratna, Scientific Assistant, IBMBB  
Ms. Nishara Batagoda, Scientific Assistant, IBMBB  
Ms. Joanne Kotelawala, Temporary Assistant Lecturer, IBMBB  
Ms. Amali Fernando, Temporary Teaching Assistant, IBMBB



The following academics/visiting faculty contributed to teaching activities of **MSc in Cellular and Molecular Immunology**:

Prof. Shiroma Handunnetti, Professor of Immunology, IBMBB  
Prof. Kamani H Tennekoon, Senior Professor of Molecular Life Sciences, IBMBB  
Prof. Enoke Corea, Dept Microbiology, Faculty of Medicine, University of Colombo  
Prof Sharmini Gunawardena, Department of Parasitology, Faculty of Medicine, University of Colombo  
Prof. Sunil Premawansa, Emeritus Professor of Zoology, University of Colombo  
Prof. Shalini Sri Ranganathan, Professor in Pharmacology, Univ. of Colombo  
Prof. TLS Tirimanne, Professor in Plant Sciences, Dept of Plant Sciences, Faculty of Science, University of Colombo  
Dr. Dhanushka Dasanayake, Consultant Immunologist, Teaching Hospital, Kandy  
Dr. Narmada Fernando, Senior Lecturer, IBMBB  
Dr. Thusitha Gajanayake, Former Senior Lecturer, Horizon Campus, Malabe  
Dr. Baddhika Jayaratne, Consultant Haematologist, National Hospital Sri Lanka  
Prof. Kantha Lankathilake, Professor in Community Medicine, Faculty of Medicine, University of Colombo  
Dr. Nadeesha Lewke-Bandara, Senior Lecturer, IBMBB  
Dr. Kanthi Nanayakara, Consultant Virologist & Vaccinologist, Medical Research Institute, Colombo 8  
Dr. Sisira Pathirana, Senior Lecturer, IBMBB  
Dr. Preethi Perera, Former Senior Lecturer, Post-graduate Institute of Medicine, Colombo 8  
Dr Kanishka Senarath, Lecturer in Immunology, IBMBB  
Dr. Rajiva de Silva, Consultant Immunologist, Medical Research Institute, Colombo 8  
Dr. Dharshan de Silva, Senior Lecturer, Senior Lecturer, Kotelawala Defence University, Ratmalama  
Dr. Sumadee de Silva, Senior Lecturer, IBMBB  
Dr. Sujeewa Weerasinghe, Consultant Oncologist, National Cancer Institute, Maharagama  
Dr. Wasundara Fernando, Post-doctoral Fellow, Faculty of Medicine, Dulhousie University, Canada  
Dr. Harindra Sathkumara, Postdoctoral Research Fellow, IBMBB  
Mr. James Thambyrajah, Assistant Lecturer, IBMBB  
Mr. Kaushalya Anuradha, Teaching Assistant, IBMBB  
Ms. Dashika Gangani, Scientific Assistant, IBMBB

The following academics/visiting faculty took part in teaching in the **MSc in Bioinformatics**:

Dr. Ruwan Weerasinghe - Senior Lecturer, UCSC  
Prof. Kamani H Tennekoon - Senior Professor of Molecular Life Sciences, IBMBB  
Prof. Erik Bongcam Rudloff, Professor of Bioinformatics, Department of Animal Breeding and Genetics, Swedish University of Agricultural Sciences, Sweden  
Prof. Nimal Punyasiri - Professor of Biochemistry, IBMBB  
Prof. OVDSJ Weerasena – Professor in Molecular Biology, IBMBB





Dr. Nalin Ranasinghe - Senior Lecturer, UCSC  
Ms. Rupika Wijesinghe - Senior Lecturer, UCSC  
Dr. Hashendra Kathriarachchi - Senior Lecturer, Department of Plant Sciences, University of Colombo  
Dr. Sameera Viswakula - Senior Lecturer, Department of Statistics, University of Colombo  
Dr. Rasika Jayatillake - Senior Lecturer, Department of Statistics, University of Colombo  
Dr. Sumadee De Silva - Senior Lecturer, IBMBB  
Dr. Sudeshini Hewage - Senior Lecturer, IBMBB  
Dr. S.S.R. Samarakoon - Senior Lecturer, IBMBB  
Dr. Ruwandi Ranasinghe - Scientific Assistant, IBMBB  
Dr. Meran Ediriweera – Lecturer, Dept of Molecular Biology and Biotechnology, Faculty of Medicine, UOC  
Dr. Kanishka Senathilake - Postdoctoral Research Fellow, IBMBB  
Mr. Kanchana Senanayake - Assistant Network Manager, IBMBB  
Ms. Nishara Batagoda - Scientific Assistant, IBMBB  
Ms. Lakshika Jayasekera - Research Assistant, IBMBB  
Ms. Amali Fernando - Scientific/ Teaching Assistant, IBMBB

## **Revision of MSc Curricular, By-Laws and Regulations**

The application for UGC approval for the three revised/restructured curricular which were completed and approved by the Board of Management, IBMBB and Senate and Council of the University of Colombo were submitted for approval of the University Grants Commission in November 2021.

### **Academic Committee - 2021**

Prof. Shiroma Handunnetti, (Director & Chairperson upto August 2021); Professor of Immunology; Chairperson, BOS-CMI  
Prof. Prasanna Galhena, (Director & Chairperson) (from September 2021)  
Prof. Eric H Karunanayake, Emeritus Professor of Biochemistry, IBMBB  
Prof. Kamani H Tennekoon, Senior Professor of Molecular Life Sciences; Chairperson, BOS-MLS, IBMBB  
Prof. S Deraniyagala, Senior Professor in Organic Chemistry, Dept of Chemistry, Faculty of Science, UoC (until April 2021)  
Dr. Gayathri Silva, Senior Lecturer, Dept of Chemistry, Faculty of Science, UoC (from December 2021)  
Prof. OVDSJ Weerasena, Programme Coordinator, BOS-MLS; Professor in Molecular Biology, IBMBB  
Prof. Nimal Punyasiri, Professor of Biochemistry, IBMBB  
Prof. Sulochana Wijesundera, Professor in Biochemistry, Dept of Molecular Biology & Biotechnology, Faculty of Medicine, UoC (until October 2021)  
Dr. Meran Ediriweera, Lecturer, Dept of Biochemistry & Molecular Biology, Faculty of Medicine, UoC (From December 2021)



Prof. Kithmini Sirideva, Head/ Dept of Biochemistry & Molecular Biology, Faculty of Medicine, UoC

Prof. Sunil Premawansa, Emeritus Professor of Zoology, UoC

Prof. Enoka Corea, Dept of Microbiology, Faculty of Medicine, UoC

Dr. Ruwan Weerasinghe, Chairperson, BOS-BI; Senior Lecturer, UCSC, UoC

Dr. Sisira Pathirana, Programme Coordinator, CMI; Senior Lecturer, IBMBB

Dr. Ruwandi Ranasinghe, Co- Coordinator, BOS-BI; Scientific Assistant, IBMBB

Ms. Rupika Wijesinghe, Co- Coordinator, BOS-BI; Senior Lecturer, UCSC, UoC

Dr. Sumadee De Silva, Senior Lecturer, IBMBB (Secretary)

Dr. Narmada Fernando, Assistant Programme Coordinator, CMI; Senior Lecturer, IBMBB (upto October 2021)

Dr. Kanishka Senarath, Assistant Programme Coordinator, CMI; Lecturer, IBMBB (from October 2021)

Dr. Sudeshini Hewage, Assistant Programme Coordinator, MLS; Senior Lecturer, IBMBB

Dr. Rajiva De Silva, Consultant Immunologist, Dept. of Immunology, Medical Research Institute

Dr. Nalinda Silva, Senior Lecturer, Dept. of Physiology, Faculty of Medical Sciences, USJ

Dr. Nadeesha Lewke Bandara, Assistant Programme Coordinator, MLS; Senior Lecturer, IBMBB

#### **Board of Study - Molecular Life Sciences:**

Prof. Kamani Tennekoon - Senior Professor of Molecular Life Sciences (Chairperson)

Prof. Eric H Karunanayake - Emeritus Professor of Biochemistry, IBMBB

Prof. Nimal Punyasiri - Professor of Biochemistry, IBMBB

Prof. Ira Thabrew - Visiting Professor, IBMBB

Prof. Jagathpriya Weerasena – Professor in Molecular Biology, IBMBB (Coordinator)

Prof. Nilanthi Dassanayake - Professor in Botany, USJP

Dr. Sumadee De Silva – Senior Lecturer, IBMBB

Dr. Nadeesha Lewke Bandara- Senior Lecturer, IBMBB

Dr. Sudeshini Hewage – Senior Lecturer, IBMBB (Assistant Coordinator)

Dr. Sameera Samarakoon – Senior Lecturer, IBMBB

Dr. Ruwandi Ranasinghe - Scientific Assistant, IBMBB

Dr. Nalinda Silva – Senior Lecturer, Faculty of Medical Sciences, University of Sri Jayawardenapura

#### **Board of Study - Cellular and Molecular Immunology:**

Prof. Shiroma Handunnetti-Professor of Immunology (Chairperson)

Prof. Sunil Premawansa – Emeritus Professor of Zoology, University of Colombo

Dr. Sisira Lal Pathirana - Senior Lecturer, IBMBB (Coordinator)

Dr. Narmada Fernando - Senior Lecturer, IBMBB (Upto October 2021)

Dr. Kanishka Senarath – Lecturer, IBMBB (Assistant Coordinator) (From October 2021)

Prof. Enoka Corea - Department of Microbiology, UOC

Dr. Rajiva de Silva - Consultant Immunologist, Department of Immunology, MRI

Dr. Nadeesha Lewke Bandara – Senior Lecturer, IBMBB

Dr. Dhanushka Dassanayake - Consultant Immunologist, National Hospital, Kandy

Dr. Dharshan de Silva - Senior Lecturer, Sir John Kotelawala Defense University

Mr. James Thambyrajah - Assistant Lecturer, IBMBB

Mr. Kaushalya Anuradha- Teaching Assistant, IBMBB (on invitation)

Ms. Dhakshika Gangani - Scientific Assistant, IBMBB (on invitation)



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### **Board of Study - Bioinformatics:**

Dr. Ruvan Weerasinghe - Senior Lecturer, UCSC (Chairperson)  
Prof. Kamani Tennekoon - Senior Professor of Molecular Life Sciences (Deputy Chairperson)  
Prof. Shiroma Handunnetti - Director-IBMBB (Ex-officio Member)  
Prof. K P Hewagamage - Director-UCSC (Ex-officio Member)  
Prof. Eric H Karunanayake - Emeritus Professor of Biochemistry, IBMBB  
Prof. O V D S J Weerasena – Professor in Molecular Biology, IBMBB  
Dr. Nalin Ranasinghe - Senior Lecturer, UCSC  
Dr. M D T Attygalle - Senior Lecturer, Department of Statistics, UOC  
Dr. H S Kathriarachchi - Senior Lecturer, Department of Plant Science, UOC  
Dr. Sameera Viswakula - Senior Lecturer, Department of Statistics, UOC  
Ms. Rupika Wijesinghe - Senior Lecturer (Co-Coordinator-UCSC)  
Dr. Ruwandi Ranasinghe - Scientific Assistant (Co-Coordinator-IBMBB)  
Mr. Kanchana S Senanayake - Former IBMBB Co-Coordinator (On invitation)

### **Courses and Training Programmes:**

#### **i) Training Course in Advanced Certificate in Immunology – 2021**

The Advanced Certificate in Immunology – 2021 programme commenced in March 2021 with the participation of 16 registered students. The course was conducted for 500 notional learning hours to cover both theory and practical components under basic Immunology. The end-course examination was held in October 2021. Ten of the 12 students who successfully completed the course, obtained Distinction while other two students were able to secure Merit passes.

#### **ii) Training Course in Cell Culture Techniques**

The Training Course in Cell Culture Techniques was conducted for a duration of five days from 18 th to 22 nd January 2021 at IBMBB under the supervision of Dr. Sameera R Samarakoon and Prof. Kamani H Tennekoon. Nine participants were awarded certificates upon their successful completion of the course.



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## **Postgraduate Convocation**

The ceremonial postgraduate convocation 2021 was not held due to health restrictions pertaining social events because of the Covid-19 outbreak and it was re-scheduled for 2022.

### **Virtual Open Day: 8th November 2021**

The Open Day programme was organized virtually since most of the onsite activities were restricted due to health concerns raised upon the COVID-19 pandemic. Hence a virtual Open day was conducted on 8<sup>th</sup> November 2021. This was a successful event organized by the IBMBB. A total of 129 participants, including undergraduate and postgraduate students of science and other related streams, from government universities and private institutes as well as school leavers, participated and obtained information about MSc, Phil/PhD programmes and other short training courses conducted by IBMBB.

The programme provided detailed information about the post-graduate degree programmes, short-term courses and the training programmes that are offered by IBMBB. A virtual lab tour was streamed, and the event facilitated the participants to consult and discuss with the academic staff, research fellows and the senior students on courses offered by IBMBB. A total of 05 applicants pre-registered for the Masters degree programme by obtaining online applications at 50% discounted rate (application fee) offered on the open day.

Further, a student loan scheme on concessionary terms had been introduced by the Bank of Ceylon and Sampath Bank for the students who are enrolled on the Masters degree programme provided 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, Malaria, Melioidosis, Tuberculosis, SARS-CoV-2 and Viral Encephalitis) Molecular Medicine (Cancer and Cancer Stem Cells, human DNA variation and ancient DNA studies, Molecular studies on Genetic disorders) Plant Molecular Biology, Metabolomics, Molecular Immunology & immunodiagnosics (Genetics of Immunodeficiency, Immunodiagnosics), Medicinal Plants (anti-inflammatory, immunomodulatory and anti allergic effects, Anti-cancer effects of Medicinal plants) Industrial Applications, Molecular identification of animal species, Meditation & Health and Molecular identification of industrially important microorganisms. Each research programme has several projects which provide research training for MPhil/PhD and MSc students under the supervision of the 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. There were 21 research communications presented at scientific meetings including international abstracts.

Details of funds obtained by Academic Staff & Research Collaborators 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 diseases 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

One project was in progress in 2021

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)

PhD Student/IBMBB: Mr. Kanchana S. Senanayake

Funding: Swedish Links Grant.

PhD project was in progress in 2021.



## **B) Leptospirosis (rat fever)**

One research projects was in progress in 2021 with a Post-Doctoral Research fellow.

### Detection of genotypes and serotypes of *Leptospira* isolated from leptospirosis patients of different severities

Aimed to detect genotypes and serotypes of *Leptospira* isolated from leptospirosis patients and to study the probable associations with disease severity.

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

Post-doctoral Research Fellow/IBMBB: Dr. Harindra Sathkumara (from January –June 2021)

& Dr Roshan Perera (from August to November 2021)

Funding: National Research Council to Prof. Shiroma Handunnetti, IBMBB (NRC -17-098)  
One manuscript was in preparation for publication during 2021.

## **C) Dengue**

One MPhil/PhD projects and one MSc project was in progress in 2021. The MSc project was completed during year 2021.

### i) Development of a colourimetric reverse transcription Loop-mediated isothermal amplification (RT-LAMP) assay as a cost-effective, novel surveillance tool for differential detection of Dengue serotypes in Aedes mosquitoes

Aimed at developing a molecular tool to detect dengue virus in mosquitoes and to study bionomics of the vector to be used to develop control strategies.

Investigators: PI: Dr. Hasitha Thiserra, Director of the National Dengue Control Unit (NDCU) (Currently at the Epidemiology Unit of the Ministry of Health),

Prof. Shiroma Handunnetti (IBMBB), Dr. Narmada Fernando (IBMBB), Dr. OVDS Weerasena (IBMBB), Dr. Sisira Pathirana (IBMBB),

Dr. Subashini Aryaprema (University of Liverpool, UK), Dr. Rushika Perera (Colorado State University, USA)

MPhil/PhD Student (IBMBB): Ms. Sakunthala Janaki (Entomologist, NDCU)

Funding: National Research Council to Dr. H Thiserra (NRC-19-065)

MPhil/PhD programme was in progress during the year 2021. One manuscript was in preparation during 2021.



ii) Effect of aqueous plant extract of *Munronia pinnata* on interaction of dengue virus with endothelial cells

Investigators: Prof. Shiroma Handunnetti (IBMBB), Dr. Narmada Fernando (IBMBB), Ms. Loshini Ranaweera (IBMBB)

MSc Student: Mr. M P Celestin (Queen Elizabeth Commonwealth Scholar)

Funding: IBMBB (MSc studies)

MSc project work and Dissertation was completed in 2021.

## **D) Malaria**

One PhD project was completed in 2021.

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 AMC)

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

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

PhD programme was concluded with the submission of PhD dissertation in 2021.

One presentation was made at SLAAS.

## **E) Melioidosis**

One MSc project was completed in 2021.

Establishment of an immunodiagnostic assay for detection of acute melioidosis

Investigators: Prof. Enoka Corea (UOC), Dr. Narmada Fernando (IBMBB), Prof. Shiroma Handunnetti (IBMBB), Mr. James Thambyrajah

MSc student/IBMBB: Mr. Lahiru Perera

Funding: IBMBB (MSc studies)





## **F) Tuberculosis**

Two MSc projects were in progress in 2021.

i) In vitro evaluation of ion pump and ion channel modulators and vitamin D as anti-mycobacterial agents

Investigators: Dr. Sisira Pathirana (IBMBB), Dr. Nilanthi Senanayake (UoC), Prof. Shiroma Handunnetti (IBMBB)

MSc student/IBMBB: Dr. Thilini Abeyakone

Funding: IBMBB (MSc studies)

MSc project work was in progress in 2021.

ii) Immunomodulatory activity of ion transport modulators and vitamin D on THP-1 derived human macrophages stimulated by *Mycobacterium tuberculosis*

Investigators: Dr. Sisira Pathirana (IBMBB), Dr. Nilanthi Senanayake (UoC), Prof. Shiroma Handunnetti (IBMBB)

MSc student/IBMBB: Ms. Amila Nandesena

Funding: IBMBB (MSc studies)

MSc project work was in progress in 2021.

## **G) SARS-CoV-2**

One research projects was completed and another was in progress in 2021.

i). Proof of principle for development of an antigen detection rapid diagnostic test for the diagnosis of SARS-CoV-2 infections

Investigators : Dr. PPSL Pathirana (IBMBB) Prof. Shiroma Handunnetti (IBMBB), Dr. Narmada Fernando (IBMBB), Dr. Peshala Gunasekera (IBMBB), Prof. OVDS Weerasena (IBMBB), Dr. Rajiva de Silva (MRI), Dr. Dhanushka Dassanayake (MRI), Dr. Nadeeka Janage (MRI)

Funding: National Research Council Rapid Response Grant Scheme

The final report was submitted in 2021.

ii). Association of SARS-CoV-2 viral genotype with disease severity and antibody response assessed using in-house IgM and IgG ELISAs in Sri Lankan patients

Investigators: Dr. PPSL Pathirana (IBMBB), Prof. Inoka Perera (UOC), Prof. Shiroma Handunnetti (IBMBB), Dr. Narmada Fernando (IBMBB), Mr. James Thambyrajah (IBMBB), Ms. Dakshika Gangani (IBMBB), Prof. Sunil Premawansa (UOC), Prof. Senaka Rajapaksha (UOC), Ms. Thejane Perera (UOC), Mr. Sahan Siriwardena (UOC), Dr. Rajiva de Silva (MRI), Dr. Dhanushka Dasanayake (MRI), Dr. Suranga Manilgama (MoH),



Dr Rohitha Muthugala (MoH), Dr. Dhananja Namalie (MoH), Dr. Gayani Premawansa (MoH), Dr. Saranga Sumathipala (MoH), Prof. Andreas Nistche (Robert Koch Institute, Germany)

Post-Doctoral Research Fellow: Dr. Peshala Gunasekera (IBMBB) (up to October 2021).

Funding: IDEA Project funded by Robert Koch Institute, Germany

The research project was in progress in 2021.

## **H) Viral Encephalitis**

One MPhil/PhD project was in progress in 2021.

### Studies on Immunological and molecular identification of medically important bat pathogens and viral encephalitis cases in Sri Lanka

Investigators: Prof. Inoka Perera, Prof. Wipula Yapa, Emeritus Professor Sunil Premawansa, Prof. Andreas Nitsche, Dr. Claudia Kohl, Dr. Gayani Premawansa, Prof. O.V.D.S.J. Weerasena, Prof. Shiroma Handunnetti,  
MPhil/PhD Student: Ms. Thejanee Perera

Funding: IDEA Project funded by Robert Koch Institute, Germany

MPhil/PhD programme was in progress 2021. One publication was submitted and also published as a Pre-print.

## **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, human DNA variation, molecular genetics of growth hormone deficiency, genetics of Cytomegalo virus 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 MPhil/PhD projects were in progress and one project was completed in 2021.



i) 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)  
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  
PhD examination was completed in 2021.

ii) Characterization of Mitochondrial DNA mutations in the D-loop and mtDNA haplogroups in Sporadic Breast Cancer

This project aims to identify potential biomarkers for sporadic cancer based on mitochondrial D loop polymorphisms.

Investigators: Ms. J.T. Kotelawala (PhD student), Prof. Kamani H Tennekoon (Principal supervisor), Dr. Ruwandi Ranasinghe (Co-supervisor), Dr. Kanishka De Silva (Co-supervisor, National Cancer Institute)

Funding: PhD scholarship obtained by Ms. Kotelawala  
PhD project was in progress in 2021.  
Two abstracts were presented at international conferences in 2021

iii) Mutations and polymorphisms of mitochondrial genes as risk factors for sporadic breast cancer in Sri Lankan patients of Sinhalese ethnicity

This project aims to identify potential biomarkers for sporadic cancer based on mitochondrial coding region polymorphisms.

Investigators: Prof. Kamani H Tennekoon (Principal supervisor), Dr. Ruwandi Ranasinghe (Co-supervisor), Dr. Kanishka De Silva (Co-supervisor, National Cancer Institute)  
MPhil/PhD student: Ms. L. Jayasekara

Funding: NRC Grant awarded to Prof. Kamani Tennekoon (NRC-17-020)  
MPhil/PhD project was in progress in 2021.  
One paper was accepted for publication in 2021.



iv) 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  
PhD dissertation was submitted for examination in 2021.

v) Genetic analysis for predictive markers for hepatocellular carcinoma (HCC) in non-alcoholic steatohepatitis (NASH) related cirrhosis

This project aimed to Analysis of genetic background for NASH related HCC in a Sri Lankan population

Investigators: Dr. Sudeshini Hewage (Principal supervisor), Prof. Rohan Siriwardena (Co-supervisor- University of Kelaniya), Prof. Kamani Tennekoon (Co-supervisor- IBMBB), Prof. Madunil Niriella (Co-supervisor- University of Kelaniya), Dr. Sumadee de silva (Co-supervisor- IBMBB)

Funding: NRC Grant awarded to Dr. Sudeshini Hewage (NRC-19-030)  
MPhil/PhD project was in progress 2021.

**B) Human DNA variations and ancient DNA studies**

Two MPhil/PhD projects were in progress in 2021.

i) Insight for molecular Anthropology of early people in Sri Lanka: Ancient human mtDNA and Molecular sex analysis of archeological skeletal remains at Udupiyangalge and Alugalge caves.

This project designed to analysis of mitochondrial DNA variations and molecular sex determination of several ancient human skeletal samples.

Investigators: Dr. Ruwandi Ranasinghe (Principal supervisor), Prof. Kamani H Tennekoon (Co-supervisor), Prof. Raj Somadeva (Co-supervisor, Postgraduate Institute of Archaeology, University of Kelaniya), Dr. Niraj Rai (Co-supervisor, BSIP, Lucknow, India)  
MPhil/PhD student: Ms. AS Fernando

Funding: NRC Grant awarded to Dr. Ruwandi Ranasinghe (NRC-17-042)  
One MPhil project was in progress in 2021.  
One manuscript is under review.



ii) Comprehensive analysis of the whole mitochondrial genome in Sinhalese, Sri Lankan Tamil and Vedda population in Sri Lanka

This project is designed to analysis the sequence variations of the complete mitochondrial genome in a cohort of Sinhalese, Sri Lankan Tamil and Vedda populations in order to understand the deeper maternal lineage and migration patterns.

Investigators: Dr. Ruwandi Ranasinghe (Principal supervisor), Prof. Kamani H Tennekoon (Co-supervisor)

MPhil/PhD student: Ms. Anjana Harshani Jayasinghe Welikala

Funding: Initial part of the Research has been progress with the Reaesrch Funds of Superviosrs. Further funding will be applied

One MPhil project was in progress in 2021.

One paper was accepted for publication in 2021.

**C) Molecular studies on Genetic disorders**

Two MSc projects were completed in 2021

I) Detection of hotspots regions of WT1 gene in a cohort of 46 XY DSD children in Sri Lanka.

Investigators: Dr. Sudeshini Hewage, Dr. Sumadee de Silva, Prof. Shamy de silva, Dr Navodha Attapattu

MSc student: Malith arambage

Funding: IBMBB (MSc studies)

One MSc project was completed in 2021.

II) Detection of large chromosomal deletion in WT1 gene in cohort of 46XY DSD cildren in Sri Lanka

Investigators: , Dr. Sumadee de Silva, Dr. Sudeshini Hewage, Prof. Shamy de silva, Dr Navodha Attapattu

MSc student: M.A.Nethmini Sashika

Funding: IBMBB (MSc studies)

One MSc project was completed in 2021. One research communication was presented Young Scientists' Conference Multidisciplinary Research (YSCMR) in 2021



### 3) Research Programmes on Plant Molecular Biology

Three MSc studies and another research project was in progress in 2021.

i) Profiling of Anthocyanins in Red Tea Accessions

Profiling of Anthocyanins of red tea accessions developed by Tea Research Institute of Sri Lanka. This project is in progress.

Investigators: Dr. M.A.B. Ranatunga (TRI), Mr. J.D. Kottawarachchi (TRI), Prof. Nimal Punyasiri

Funding: Tea Research Institute

ii) Development of species-specific molecular markers for Agarwood producing plant species in Sri Lanka

Investigator: Dr. Nadeesha Lewke Bandara  
MSc student: Sellachamy Priyankan

Funding: IBMBB (MSc studies)  
Final dissertation was submitted successfully in 2021.

iii) DNA barcoding and molecular taxonomy of threatened endemic orchids in Sri Lanka

Investigator: Dr. Nadeesha Lewke Bandara  
MSc student: Sara Ashroof

Funding: IBMBB (MSc studies)  
MSc project work was in progress in 2021.

iv) Effect of *Exobasidium vexans* infection in tea (*Camellia sinensis*) on expression of biosynthetic enzymes and biosynthesis of flavonoids

Investigators: Prof. O.V.D.S.J. Weerasena, Prof. Nimal Punyasiri, Dr. L.N.R. Gunaratna  
MSc student : Ms. K.A.M.J. Edirisinghe

Funding: IBMBB (MSc studies)  
MSc project work started and was in progress in 2021.



## 4) Metabolomics

Two projects were in progress in 2021.

### i) Amino Acid Analysis in Rice

Methods were developed for the quantification of amino acids in rice using High Performance Liquid Chromatography and LC-MSMS. These methods are being used to quantify the level of amino acids in rice including traditional rice varieties in Sri Lanka. This project is in progress. Six peer-reviewed articles were published from the project

Investigators: Vimarshi Liyanarachchi (ITI), Prof.K.R Mahanama (UOC), Dr.H.P.P.S Somasiri (ITI), Prof. Nimal Punyasiri

Funding: Industrial Technology Institute.

### ii) Drug Metabolism

Therapeutic drug monitoring (TDM) of Clozapine using HPLC in Sri Lankan Patients with Schizophrenia

Investigators: Dr.Thusitha Wickramasinghe and his team, Department of Clinical Biochemistry, Faculty of Medicine, University of Kelaniya & Prof. Nimal Punyasiri, IBMBB

Funding: University of Kelaniya

## 5) Research programmes on Molecular immunology & immunodiagnostics

### A) Genetics of immunodeficiency

One MSc project was in progress in 2021.

#### i) Genetic diagnosis of X-linked agammaglobulinemia in Sri Lanka: A pilot study

Investigators: Dr. Rajiva de Silva (MRI), Dr. Dhanushka Dassanayake (MRI), Mr. James Thambyrajah

MSc. student/IBMBB: Ms. Neranja Sandamini

Funding: IBMBB (MSc studies)

MSc project work was in progress in 2021.





## B) Immunodiagnostics

One MPhil/ PhD project was in progress and one MSc project was completed.

### i) Production of Monoclonal antibodies for diagnosis of *Leptospira* antigens of selected, most prevalent serovars/serogroups of *Leptospira* in Sri Lanka

Aimed to characterize the *Leptospira* antigens and rat immune responses against *Leptospira* antigens and also to produce rat monoclonal antibodies against *Leptospira* antigens with a final goal of developing a *Leptospira* (antigen) detection test.

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

Collaborator: Dr. Lilani Karunanayake (Medical Research Institute).

MPhil/PhD student/IBMBB: Ms. Dakshika Gangani

Funding: International Centre for Genetic Engineering and Biotechnology to Prof Shiroma Handunnetti, IBMBB (ICGEB-LKA-17-1)

One MPhil/PhD project was in progress in 2021. One oral presentation and one poster presentation was made at the 9<sup>th</sup> Biennial Scientific Sessions of the Allergy and Immunology Society of Sri Lanka.

### ii) Inhibition of histamine release by RBL cells in the presence of selected medicinal plant extract

Aimed to establish an *in vitro* immunoassay for detection of histamine release by basophils as a surrogate assay for determining anti-allergic effects of medicinal plant extracts.

Investigators: Dr. Sisira Pathirana (IBMBB), Ms. Rukshala Buthgama (IBMBB), Prof. Sunil Premawansa (UOC)

MSc student: Mr. Sumedha Kulathunga

Funding: IBMBB (MSc studies)

MSc project was completed in 2021.

## 6) Research Programmes on Medicinal plants

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

Two PhD dissertations/projects and two MSc studies were completed in 2021. Three MSc project in progress in 2021.

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)

PhD student/IBMBB: Ms. BA Dilani Rukshala

Funding: Ministry of Higher Education: Drug Leads from Medicinal Plants

One PhD dissertation was submitted for examination in 2021. One paper was published.

Two other manuscripts were in preparation for publication.

ii) Activity studied isolation of anti-inflammatory compounds from *Alpinia carcarata* rhizome and leaf

Aimed at isolation of anti-inflammatory compounds and value added products for inflammatory disease/conditions.

Investigators: Dr. Selvaluxmy Chelvendran (ITI), Prof. Shiroma Handunnetti (IBMBB), Dr. GAS Premakumara

PhD Student: Ms. Maduwanthi Chandrakanthan

Funding: National Research Council to Dr Selvaluxmy Chelvendran (NRC-12-081)

One PhD dissertation was submitted for examination. One manuscript was in preparation for publication in 2021.

iii) Study of immunomodulatory activity of *Erythroxylum species*

Investigators: Ms. Dilani Rukshala (IBMBB), Ms. Jayani Kariyawasam (IBMBB), Prof. S Handunnetti (IBMBB)

MSc student: Mr. Sajiv De Silva

Funding: IBMBB (MSc studies)

MSc project work was completed and submitted for examination in 2021.

iv) *In vitro* study on anti-inflammatory effect of selected plant derived components on phagocytes of psoriatic patients

Investigators: Dr. Narmada Fernando (IBMBB), Prof. Senaka Rajapakse (UoC), Dr. Janaka Akarawita (MoH), Dr. Chalukya Gunasekera (MoH)

MSc student: Ms. Fatema Shabbir Abbasbhoy

Funding: IBMBB (MSc studies)

One MSc study was completed in 2021.



v) In vitro immunomodulatory effects of ALE of *Vitex negundo* on THP-1 derived macrophages activated by hypertension-inducing angiotensin II

Investigators: Prof. Shiroma Handunnetti (IBMBB), Prof. Sunil Premawansa (UoC), Dr. Rajiva de Silva (MRI), Ms. Dilani Rukshala (IBMBB)  
MSc student: Mr. Boniface Nyamweya (QECS Scholar 2020)

Funding: IBMBB (MSc studies)  
MSc project work was in progress in 2021.

vi) In vitro effect of *Mikania cordata* leaf extracts on wound healing

Investigators: Dr. Kanishka Senarath (IBMBB), Dr. Narmada Fernando (IBMBB), Mr. Anuradha Kaushalya (IBMBB)  
MSc student: Ms. Naomi Navaneeta

Funding: IBMBB (MSc studies)  
MSc project work was in progress in 2021.

vii) In vitro study on immune mechanisms of anti-inflammatory activity of MDE of *Vernonia zeylanica*

Investigators: Dr. Narmada Fernando (IBMBB), Dr. Kanishka Senarath (IBMBB), Prof. Shiroma Handunnetti (IBMBB)  
MSc student: Mr. Kapila Mahawattta

Funding: IBMBB (MSc studies)  
MSc project work was in progress in 2021.

## **B) Anti-cancer effects of medicinal plants**

Two projects were in progress in 2021

i) In vitro and in vivo epigenetic investigations on anti-cancer and radio priming effects of different parts of *Mangifera indica* (India) and *Mangifera zeylanica* (Sri Lanka) and impact of green silver nanocomposites

Investigtaors: Prof. Kamani H Tennekoon, Dr. Sameera Samarakoon, Dr. Meran Ediriweera (IBMBB), Dr. N. Devipriya & Dr. V. Vadivel (India)  
MPhil student/IBMBB: Mr. A.A.D.N. Perera

Funding: Ministry of Science, Technology and Research under Indo-Sri Lanka bilateral agreement  
One MPhil student project was in progress in 2021.



## ii) Anti-cancer drug development

Investigators: Prof. Kamani Tennekoon, Dr. Sameera Samarakoon, Prof. Ira Thabrew, Prof. E Dilip De Silva, Prof. Nedra Karunaratne (UoP), Dr. A Adhikari (Nepal), Prof. Iqbal Chaudhry (Pakistan), Dr. Poorna Piyathilake (Wayamba University), Dr. Gomika Udugamasooriya, USA

Research Scientists: Dr. Kanishka Senathilake, Dr. Meran Ediriweera

MPhil/ students: Ms. Nimesha Wickramasinghe, Mr. J. Thushyanthan, Mr. Kelum Rathnayake

Volunteers and MSc students

Funding: National Science Foundation Grant - RPHS/2016-C07, PI Prof. Kamani Tennekoon and Dr. Sameera Samarakoon (Co-I)

Three MPhil/PhDs were in progress in 2021.

## 7) Research Programmes on Industrial Applications

One PhD study was in progress in 2021.

### i) Immunomodulatory activity of a polyherbal 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. O.V.D.S.J. Weerasena (IBMBB), Prof. A. Abeysekera, Link Natural Products Pvt Ltd.

PhD 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.

PhD research was in progress in 2021. One publication was in press for publication.

A second manuscript was in preparation for publication.

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

One MPhil/PhD study was in progress in 2021.

This study was aimed at identification of animal species found in Sri Lanka using 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



## 9) Research Programme on Meditation and Health

One MPhil/PhD study was in progress in 2021.

- i) Study on immunological, hormonal and biochemical parameters of the stress response in meditators.

Investigators: Prof. Shiroma Handunnetti (IBMBB), Dr. D.H. Warawitage, Prof. Dilshani Dissanayake (Faculty of Medicine, Colombo).

MPhil/PhD student: Mr. J.C. Thambyrajah

Funding: AHEAD project funded by the World Bank Grant No 6026 – LK/ 8743 – LK awarded to Prof. Dilshani Dissanayake.

One manuscript was submitted for publication and undergoing the review of R2 version. A second manuscript was in preparation for publication.

## 10) Research programmes on Molecular identification of industrially important microorganisms

Two MSc studies were in progress in 2021.

- i) Isolation and molecular identification of plant endophytes with potential anti-microbial activity

Investigators: Prof. O.V.D.S.J. Weerasena, Dr. L.N.R. Gunaratna

MSc student: Mr. Rishaban Sivaraj

Funding: IBMBB (MSc studies)

MSc project work was completed and submitted for examination in 2021.

- ii) Isolation and molecular identification of some selected fungi with lignin degradation activity

Investigators: Prof. O.V. D.S.J. Weerasena, Dr. L.N.R. Gunaratna

MSc student: Ms. R.S.G.T.N. Siriwardana

Funding: IBMBB (MSc studies)

Final dissertation was submitted successfully in 2021

- iii) Molecular characterization of *Rigidoporus* spp. causing white root rot disease of rubber

Investigators: Prof. O.V.D.S.J. Weerasena, Dr. L.N.R. Gunaratna, Dr. T.H.P.S. Fernando (Rubber Research Institute of Sri Lanka)

MSc student: Ms. H.W. Gammanpila

Funding: IBMBB (MSc studies)

MSc project work was completed and submitted for examination in 2021.



## Services – IBMBB

1. Provide services including
  - i)DNA sequencing
  - ii)Cell culture facility \*
  - iii)Genetic analysis for several human diseases such as cancer, developmental disorders and immunodeficiency diseases.
  - iv)HPLC facility to the public and private sector

[\*Available for non ATCC Cell lines]
2. Deliver professional consultancy in Research and Higher Education
3. Development of projects to facilitate the expansion of the knowledge of Molecular Biology and Biochemistry among Advanced Level students in rural, non-urban schools through conducting guest lectures, road shows and various other programmes.

## Activities carried out under BDU in 2021

### a)Signing non-disclosure agreement with Food and Nature (Pvt) Ltd- Fadna

BDU was involved in signing non disclosure agreement with Fadna to commercialize products (anti-cancer formulations) developed by IBMBB.

### b)Patentable outcomes of IBMBB research projects

BDU was involved in completion of the prior art search for two patent applications for patentable outcomes of IBMBB research projects and communicating the details of the inventions with University Business Linkage, preparation and submission of the non-disclosure agreement (between UBL and IBMBB) for the inventions of said patent applications, drafting PCT and local patent applications for the same inventions.

### c)Commercializable inventions of IBMBB and communication with UBL

A list of details on commercializable inventions of Dr. Sameera Samarakoon, Dr. Sisira Pathirana and Dr. Narmada Fernando was submitted to UBL for requesting funds from AHEAD and the Ministry of Higher Education, Technology and Innovation to commercialize the inventions of IBMBB.

### d)Virtual Open Day- 2021

BDU coordinated and organized the 9<sup>th</sup> Annual virtual open day of IBMBB held on 8<sup>th</sup> November 2021. All IBMBB academics were available to speak with guest students and researchers about ongoing research activities and post-graduate courses at IBMBB. Online visitors, who were interested in pursuing postgraduate courses and short courses, obtained information relevant to each course.

### e)MSc courses and short courses offered by IBMBB for 2021

BDU was involved in coordinating the preparation of advertisements/posters for MSc courses for 2021 intake and short course in cell culture techniques and Certificate Course in Advanced Immunology offered by IBMBB.



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## Quality Assurance Cell-IBMBB

### Summary of QA Cell Activities of IBMBB – 2021

- i) Dr Narmada Fernando continued to be the IBMBB Coordinator for QA activities.
- ii) Ms Dilani Rukshala was continued to be the Scientific Assistant, QA Cell for the year 2021.
- iii) Applications for all three restructured degree programmes were submitted for UGC approval in November 2021
- iv) The Domain Coordinators were reappointed in May 2021. Two status assessments were carried out in May and September to assess the actions taken in response to the recommendations given at the Institutional Review held in 2016.
- v) Actions were taken to improve the student engagement in quality assurance. Student feedback were obtained on all three degree programmes and on the learning environment. Students were given the opportunity to self-assess the plagiarism using Turnitin software and encouraged to improve the quality of their written submissions.
- vi) Profiles of academic and academic supportive staff were updated.
- vii) Teaching/learning and Research conducted in all three degree programmes during the year 2020 were mapped with the sustainable development goals. Based on the maps developed, a total of 5 submissions were made to University of Colombo to be developed as material for global impact ranking assessments.
- viii) Self-evaluation on extent of compliance in Qualification-Descriptors of SLQF level 8, 9 and 10 with of SLQF guidelines covering all postgraduate diploma and Masters degree programmes offered by IBMBB was initiated.





## Academic Visitors to the Institute - 2021

**Prof. Andreas Nitsche** from Robert Kitch Institute, Germany visited the IBMBB on 21<sup>st</sup> November 2021 to discuss the progress of the RKI funded IDEA project on “Evaluation of immune response against SARS-CoV-2 using in-house assays and genotyping”.

**Dr. Priyantha Herath**, Neurologist, Executive Director of Clinical Development at Capsida Biotherapeutics, leading their CNS gene therapy development, USA visited IBMBB on 16th November 2021 and delivered a lecture on Gene Therapy.

## Staff Development and Training -2021

One staff member received training and attended training course as described in the Table given below.

Name	Designation	Workshop / Training Course	Duration/Dates
Dr. Narmada Fernando	Senior Lecturer	CTHE Course	10 months



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## Constraints

Financial Resources were the major constraint in 2021 for implementing the activities stipulated in the Action Plan 2020 and the Corporate/ Strategic & Management Plan 2021-2025. The institute had estimated a capital expenditure of Rs 143 million Whereas the actual expenditure had to be limited to the government allocation of Rs. 9.065 million Further, IBMBB has not received funding for research from the UGC which is made available to the other faculties within the university system.

The COVID-19 restrictions had disrupted the on site academic, research and other activities. Although the teaching activities were converted to on blended mode, this was a constraint for conducting practical components. This has resulted in revising the academic calendar for year 2021. Further, the COVID-19 restrictions has been a major setback for achieving various activities and targets within the year 2021. The work arrangements on roster basis to ease out the on site activities has resulted in various delays and constraints. COVID-19 situation affected profoundly on all activities of IBMBB during the year 2021.

Recruitment process of some cadre positions has been initiated while some of the cadre position were still frozen and has created difficulty in the smooth function of the institute. With the resignation of Deputy Bursar in November 2020, the intitute had obtained services of a new Deputy Bursar on a contract basis for a period of one year from 1<sup>st</sup> December 2020 (a staff member from another University who was on her sabbatical leave). Again in December 2021, a new Deputy Bursar was appointed on contract basis for a period of six months. This appointment was also on sabbatical basis. Despite the repeated request by IBMBB for the appointment of permanant Deputy Bursar / Senior Assisant Bursar UGC could not entertain this request until end of year 2021. Also the Institute requested to create cadre positions for Assistant Bursar and Store Keeper for smooth functioning still request is under processing.

Appointment of three Management Assistant posts including Shroff, one Library Information Assistant post and two Technical Officer posts were finalized during the latter quarter of year 2021. Recruitment of a works aid was also not finalized in the year 2021.

During the first half of year 2021, three Post-Doctoral Research Fellow have been recruited. The PDRF posts were advertised again in order to fill the vacancies created due to resignation of two Post-Doctoral Research Fellows. At the end of year 2021, the institute was able to recruit only two PDRF for three available posts. Lack of financial resources indirectly affected staff training and development despite there is an urgent requirement for initiating CPD targeting newly recruited management assistants.



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## **Staff Development and Welfare Activities**

### **Health Insurance Scheme**

A Health Insurance policy was purchased from Sri Lanka Insurance Corporation for the employees at the IBMBB in 2021. The Board of Management of the Institute approved the policy be purchased on welfare basis that a 50% at the total sum insured to be borne by the Institute. Twelve employees at the IBMBB and 27 number of their family members were included in the Health Insurance Policy. A total of Rs. 119,323.80 was borne by the Generated funds of the Institute for this purpose in 2021.

### **Blood Donation Programme - 2021**

Due to COVID-19 restrictions in Colombo district being a high risk area, none of the social events were not conducted in 2021.



## Human Resources

### Employee Classification as at 31<sup>st</sup> December 2021

Service Category	Salary Code	Approved Cadre	Actual Cadre		Vacancies	Remarks
			Permanent	Temporary		
<b>Primary Level</b>						
Primary Grade-Unskilled	U- PL 1	01	00	01	01	Works Aide was appointed on Assignment Basis.
Primary Grade-Semi skilled	U- PL 2	03	03			
Primary Grade-Skilled	U- PL 3	01	01			
<b>Secondary Level</b>						
Management Assistant – non-Technical	U- MN 1	11	11		00	
Management Assistant - Technical	U- MT 1	04	04			
Associate Officers-Segment 2	U- MN 2	00	00			
Associate Officers-Segment 1	U- MN 3	00	00			
Staff Assistant/Supra & Senior Staff Assistant	U- MN 4	00	00			
<b>Tertiary Level</b>						
Academic Support – Segment 2	U- AS 1	06	04*	06	01	*DMS has approved four (04) posts of permanent Scientific Assistants, suppressing four (04) out of the approved six (06) no. of Temporary Scientific Assistant (contract)with fixed salaries. Five temporary Scientific Assistants were also appointed.
Junior Executive/Managers	U- EX 1	01	01			
Academic Support – Segment 1	U- AS 2	01	01			



<b>Senior Level</b>						
Medical Officer	U- MO 1	00	00			*Permanent employee has resigned from the post of Deputy Bursar w.e.f. 01st November 2020. Deputy Bursar of University of Moratuwa has agreed and assumed duties in the post of Deputy Bursar at IBMBB for a period of six months w.e.f. 01.12.2021 in her sabbatical leave period.
Chief Medical Officer	U- MO 2	00	00			
Middle Level Executives	U- EX 2	01	01			
Middle Level Executives*	U- EX 2 (a)	01	00	01	01	
Senior Executives	U- EX 3	00	00			
Lecturer	U- AC 3	11	07			**03 posts of Post-Doctoral Research Fellows and 02 posts of Temporary Assistant Lecturer have been approved by DMS. All 5 posts are with fixed salaries (contract appointment)
Associate Professors	U- AC 4		00			
Professors/ Senior Professors	U- AC 5		04			
Director						
Post- Doctoral Research Fellow	U-AC 5	01	01			
**	Fixed	03	00	01	02	**03 posts of Post-Doctoral Research Fellows and 02 posts of Temporary Assistant Lecturer have been approved by DMS. All 5 posts are with fixed salaries (contract appointment)
Temporary Assistant Lecturer	Fixed	02	00	02		
**						



## Research Publications

All authors affiliated to the IBMBB are indicated in bold font. Students registered at other HEIs and carrying out work at the IBMBB are given in bold italic.

### Research Publications in Peer-reviewed Journals - 2021

1. **Colamba Pathiranage V**, Lowe JN, **Rajagopalan U**, **Ediriweera MK**, **Senathilake K**, Piyathilaka P, **Tennekoon KH**, **Samarakoon SR**. Hexane extract of *Garcinia quaesita* fruits induces apoptosis in breast cancer stem cells isolated from triple negative breast cancer cell line MDA-MB-231. **Nutrition and Cancer**, 2021; 73:845-855.
2. **De Silva S**, **Tennekoon KH**, **Karunanayake EH**. Interaction of gut microbiome and host microRNAs with the occurrence of colorectal and breast cancer and their impact on patient immunity. **Onco Targets and Therapy**, 2021, 14:5115-5129.
3. **Hulangamuwa AC**, Ediriweera MK, **Rajagopalan U**, Karunaratne DN, **Tennekoon KH**, **Samarakoon SR**. Development of a new nanocarrier for dietary garcinol: characterization and *in vitro* efficacy evaluation using breast cancer stem cells grown in hypoxia, 2021, **Journal of Food Quality**, 2021/2/10.
4. **Mitini-Nkhoma SC**, **Fernando N**, **Ishaka GKD**, **Handunnetti SM**, **Pathirana SL**. Ion transport modulators differentially modulate inflammatory responses in THP-1-Derived macrophages. **Journal of Immunology Research**, 2021;, Article ID 8832586, 9 pages.
5. Muthiah N, Galagoda G, **Handunnetti S**, Peiris S, **Pathirana S**. Dynamics of maternally transferred antibodies against measles, mumps and rubella in infants in Sri Lanka. **International Journal of Infectious Diseases**, 2021, 107:129-134.
6. **Muthoni DK**, **Samarakoon SR**, Piyathilaka PC, **Rajagopalan U**, **Tennekoon KH**, **Ediriweera MK**. Identification of 3-O- $\alpha$ -l-arabinosyl oleanolic acid, a triterpenoid saponin, as a new breast cancer stem cell growth inhibitor. **Natural Product Research**, 2021, 1:1- 4.
7. **Nilootha R**, Karunanayake L, de Silva JH, Premawansa S, Rajapakse S, **Handunnetti S**. Development of in-house ELISAs as an alternative method for the serodiagnosis of leptospirosis, **International Journal of Infectious Diseases**, 2021, 105: 135-140.
8. **Ranaweera BVLR**, **Edward D**, Abeysekera AM, **Weerasena OVDSJ**, **Handunnetti SM**. Increased expression of co-stimulatory molecules and enhancement of the IgG response in rats orally administered with a polyherbal formulation. **Journal of Ayurveda and Integrative Medicine**, 2021 (Manuscript Number: JAIM-D-21-00303R2, In Press).
9. **Rukshala D**, **De Silva ED**, **Ranaweera BVLR**, **Fernando N**, **Handunnetti SM**. Anti-inflammatory effect of leaves of *Vernonia zeylanica* in lipopolysaccharide-stimulated RAW 264.7 macrophages and carrageenan-induced rat paw-edema model. **Journal of Ethnopharmacology**, 2021, 274: 114030.



10. **Samarasinghe SM, Sundralingam T, Hewage AS, de Silva KSH, Tennekoon KH.** Novel gross deletion at the LHX4 gene locus in a child with growth hormone deficiency. **Growth Hormone & IGF Research**, 2021, 16;62:101443. doi: 10.1016/j.ghir.2021.101443. Online ahead of print.PMID: 34971854.
11. Tennakoon M, **Senarath K**, Kankanamge D, Chadee DN, Karunarathne. A short C-terminal peptide in G $\gamma$  regulates G $\beta\gamma$  signaling efficacy. **Molecular Biology of the Cell**, 2021, 32(16):1446-1458.
12. Tennakoon M, **Senarath K**, Kankanamge D, Ratnayake K, Wijayaratna D, Olupothage K, Ubeyasinghe S, Martins-Cannavino K, Hébert TE, Karunarathne A, Subtype-dependent regulation of G $\beta\gamma$  signalling. **Cellular Signaling**, 2021; 82:109947.
13. Liyanaarachchi GVV, Mahanama KRR, Somasiri HPPS, **Punyasiri PAN**, Gunawardhana KVT, Kottawa-Arachchi JD.. Impact of parboiling and cultivars on the free and total amino acid composition of rice (*Oryza sativa* L.), **Journal of Food Processing and Preservation**, 2021, 00:e15763.
14. Liyanaarachchi GVV, Mahanama KRR, Somasiri HPPS, **Punyasiri PAN**, Wijesena KAK, Kottawa-Arachchi JD.. Profiling of amino acids in traditional and improved rice (*Oryza sativa* L.) varieties of Sri Lanka and their health promoting aspects. **Cereal Research Communications**, 2021, 49, 441– 448.
15. Ediriweera SS, Nanayakkara CM, **Weerasena OVDSJ**, Karunarathna SC, Wijesundera RLC, Piyatissa MASU. Morphology and phylogeny reveal nine new records of polypores from dry zone of Sri Lanka. **Chiang Mai Journal of Science**, 2021, 48(3) : 893-908.
16. **Karunarathna KHT**, Mewan KM, **Weerasena OVDSJ**, Perera SACN, Edirisinghe ENU. A functional molecular marker for detecting blister blight disease resistance in tea (*Camellia sinensis* L.). **Plant Cell Reports**. 2021, 40(2):351-359. doi: 10.1007/s00299-020-02637-6. Epub 2020 Nov 27. PMID: 33247387.
17. **Terensan S**, Fernando HNS, Silva JN, Perera SACN, Kottearachchi NS, **Weerasena OVDSJ**. *In silico* molecular and morphological analysis of rice blast resistant gene Pi-ta in Sri Lankan rice germplasm. **Journal of Genetic Engineering and Biotechnology**. 2021, 21;19(1):163. doi: 10.1186/s43141-021- 00239-7. PMID: 34676451; PMCID: PMC8531186.
18. Thushara N, Darshani T, **Samarakoon SR**, Perera IC, Fronczek FR, Sameera WMC, Perera T. Synthesis, characterization and biological evaluation of dipicolylamine sulfonamide derivatized platinum complexes as potential anticancer agents. **RSC Advances**, 2021, 11 (29); 17658-17668.

### Pre-prints

1. **Perera T**, Schwarz F, Muzeniek T, Siriwardana S, Ziaja BB, Perera IC, **Handunnetti S**, **Weerasena J**, Premawansa G, Premawansa S, Nitsche A, Yapa W, Kohl C. Molecular identification of bats from Wavulgalge cave, Wellawaya, Sri Lanka. **BioRxiv**, 2021, 12.19.473364; doi: <https://doi.org/10.1101/2021.12.19.473364>.



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## Papers Published in Conference Proceedings -2021

### Research Communications – 2021

(Abstracts published in Conference Proceedings)

### Research Communications (International) - 05

1. **Thambyrajah JC**, Warawitage DH, **Handunnetti SM**, Dissanayake WDN. High serum antioxidant enzyme activity among long-term meditators. PP14. **14th International Conference on Health Science, University of Sri Jayewardenapura**, 15th October 2021, pp 62.
2. **Thevasagayampillai S**, **Fernando N**, **Handunneti SM**, Premawansa S. Inhibition of *in vitro* induced IgE-independent rat basophil degranulation by Pomegranate and Green Tea. PP 66. **14th International Conference on Health Science, University of Sri Jayewardenapura**, 15th October 2021, pp 107-8.
3. **Kotelawala JT**, **Tennekoon KH**, Ranasinghe RAC, **Rodrigo HACIK**, De Silva GKS, Yoganathan ABN, Perera WAHA, Manatunga MRS, Dissanayake DMAS, Joseph N, Indranath K, Rajasooriyar C “A preliminary analysis of two mitochondrial poly-C tracts in sporadic breast cancer of Sri Lankan ethnicities” at **European Human Genetics Conference 2021** (Virtual conference - 28th - 31st August, 2021).
4. Ashroff S, **Lewke Bandara N**. DNA barcoding as a tool for conserving endemic Orchids in Sri Lanka. **International conference on applied and Pure Sciences 2021. University Of Kelaniya**. 29<sup>th</sup> October 2021.
5. Ratnayake RMCG, Gunawardana YINS, **Weerasena J**, Dassanayake RS (2021) Attempt to create a recombinant *Trichoderma reesei strai* to enhance its cellulase activity in search of bioethanol. **Proceedings of Peradeniya University International Research Sessions, Sri Lanka**, Vol.23, P133.





## Research Communications (Local) – 16

1. De Kostha YBNS, Pathirana SL, Handunnetti SM, Gunawardena S. Characterization of antigens of *Enterobius vermicularis* (pinworm) eggs. (OP2). **Proceedings of the 9th Biennial Scientific Sessions, Allergy and Immunology Society of Sri Lanka**, 26th March 2021, pp 16.
2. Gangani PD, Anuradha WGK, Fernando N, Tammitiyagodage MG, Karunanayake L, Rajapakse S, Premawansa S, Handunnetti SM. Identification of immunogens of *L. biflexa* serovar Patoc. (OP3). **Proceedings of the 9th Biennial Scientific Sessions, Allergy and Immunology Society of Sri Lanka**, 26th March 2021, pp 17.
3. Thambyrajah JC, Handunnetti SM, Dilanthi WH, Dissanayake WDN. Association between serum NOx levels and antioxidant capacity levels among long-term meditators: a preliminary study. (OP5). **Proceedings of the 9th Biennial Scientific Sessions, Allergy and Immunology Society of Sri Lanka**, 26th March 2021, pp 19.
4. Wijegunaratna KVC, Fernando N, Handunnetti SM, Premawansa S. Effect of pharmacological compounds and plant extracts on dengue virus induced rat basophil degranulation. (OP9). **Proceedings of the 9th Biennial Scientific Sessions, Allergy and Immunology Society of Sri Lanka**, 26th March 2021, pp 23.
5. Iddagoda IDJH, Gunasekara DLPE, Handunnetti SM, Jeewandara JMC, Karunathilaka C, Malavige GN, de Silva NR, Dasanayake WMDK. Identification of allergens in coconut milk and oil with 18 subjects in Sri Lanka: A preliminary study. (OP10). **Proceedings of the 9th Biennial Scientific Sessions, Allergy and Immunology Society of Sri Lanka**, 26th March 2021, pp 24.
6. Iddagoda IDJH, Gunasekara DLPE, Handunnetti SM, Jeewandara JMC, Karunathilaka C, Malavige GN, de Silva NR, Dasanayake WMDK. A pilot study on allergenicity of *Artocarpus heterophyllus*, *Moringa oleifera*, and *Trianthema portulacastrum* based on cases reported in Sri Lanka. (OP11). **Proceedings of the 9th Biennial Scientific Sessions, Allergy and Immunology Society of Sri Lanka**, 26th March 2021, pp 25.
7. Peiris TMR, Gunasekara DPLE, Handunnetti SM, Dasanayake WMDK, de Silva NR. Cross-reactivity of venom of Sri Lankan ant species with *Apis dorsata* and *Vespa affinis* venom, (OP12). **Proceedings of the 9th Biennial Scientific Sessions, Allergy and Immunology Society of Sri Lanka**, 26th March 2021, pp 26.
8. Thambyrajah JC, Dilanthi WH, Handunnetti SM, Dissanayaka WDN. **Adrenaline, Cortisol, Glucagon and Growth Hormone concentrations among long-term meditators**. Submitted to **Colombo Medical Congress - 2021, Faculty of Medicine, University of Colombo** on 25th November 2021.
9. Thambyrajah JC, Dilanthi WH, Handunnetti SM, Dissanayaka WDN. **Dopamine, Gamma-Aminobutyric Acid and Glutamate concentrations among long-term meditators**. Submitted to **Colombo Medical Congress - 2021, Faculty of Medicine, University of Colombo** on 25th November 2021.



10. **Gunasekera WM Kumudu TdeAW, Premaratne RG, Weerasena OVDSJ, Handunnetti SM, Premawansa S, Fernando DS.** Dynamics of microscopy, RDT and nPCR positivity during follow up of malaria patients. **77th Annual Scientific Sessions of SLAAS. 2021 (accepted for oral presentation).**
11. **Mahaliyanage DT, De Silva S, Punyasiri N, Jasinghe E.** Study of a cohort of children with Homocystinuria in Sri Lanka for selected variants in Methylenetetrahydrofolate reductase gene. **Proceedings of the Young Scientists' Conference Multidisciplinary Research (YSCMR). Young Scientists' Association, National Institute of Fundamental Studies, Sri Lanka. 2021.(ST 100).**
12. **Samarasinghe MHNJ, De Silva S, Punyasiri N, Jasinghe E.** Study of a cohort of children with Homocystinuria in Sri Lanka for selected variants in Cystathione beta synthase (CBS) gene. **Proceedings of the Young Scientists' Conference Multidisciplinary Research (YSCMR). Young Scientists' Association, National Institute of Fundamental Studies, Sri Lanka. 2021.(ST 86).**
13. **Sashika MAN, De Silva S, Hewage S, Atapattu N, de Silva KSH.** Detection of large deletions in WT1 gene in a cohort of 46, XY DSD children in Sri Lanka. **Proceedings of the Young Scientists' Conference Multidisciplinary Research (YSCMR). Young Scientists' Association, National Institute of Fundamental Studies, Sri Lanka. 2021 (OP 37).**
14. **Samarasinghe MHNJ, De Silva S, Punyasiri N, Jasinghe E.** Study of a cohort of children with Homocystinuria in Sri Lanka for selected variants in Cystathionine beta synthase (CBS) gene, **Young Scientists' Conference Multidisciplinary Research (YSCMR)-2021, Young Scientists' Association, National Institute of Fundamental Studies, Sri Lanka, 21st of October 2021.**
15. **Mahaliyanage DT, De Silva S., Punyasiri N, Jasinghe E.** Study of a cohort of children with Homocystinuria in Sri Lanka for selected variants in Methylenetetrahydrofolate reductase gene, **Young Scientists' Conference Multidisciplinary Research (YSCMR)-2021, Young Scientists' Association, National Institute of Fundamental Studies, Sri Lanka, 21st of October 2021.**
16. **Gammanpila HW, Weerasena OVDSJ, Gunaratna LNR, Fernando THPS** Molecular characterization and Genetic variability among isolates of *Rigidoporus* spp. causing white root disease of rubber (*Hevea brasiliensis*). **Proceedings of the young Scientist Conference on Multidisciplinary Research, 21st October 2021, pp44.**



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## **The Future Projection Report on activities to safeguard the environment and mitigate the negative impact on the environment based on Sustainable Development**

Institute of Biochemistry, Molecular Biology and Biotechnology (IBMBB), University of Colombo is a research institute which was established with the view to provide guidance, training, research, development and consultancy in Biochemistry, Molecular Biology, Biotechnology, Immunology, Bioinformatics and other allied fields. IBMBB directly contributes to the Goal 04 of Sustainable Development Goals; Quality Education. While the Institute contributes to the Quality of Education, Institute has given concern of safeguarding the environment and to mitigate the negative impact on the environment.

### **I.Reduce paper work**

IBMBB is in the process of digitization of paper based document to reduce paper usage. Document Management System for the IBMBB is planned to introduce in 2022. Currently, inter-division work flow is carried out in the Teams platform enhancing the work out come and reducing the paper use. Further, emails are used for the internal and external communications to reduce paper works and toner usage within the Institute.

### **II. Polythene Free Zone**

Institute of Biochemistry, Molecular Biology and Biotechnology is located at a Polythene free zone and the Institute has taken action to maintain it.

### **III.Tree planting campaign**

Institute organizes a tree planting project annually to celebrate the Anniversary of the Institute and a tree planting campaign has been planned to celebrate the 17<sup>th</sup> Anniversary of the Institute in June 2021.

### **IV.Wastage Management System**

IBMBB, University of Colombo has state of the art laboratories for postgraduate teaching and training purposes that are well equipped with safety precautions required for handling human donor blood samples and cell lines which are used in laboratories. Standard safety procedures are practiced and are being continued in handling and disposal of biohazard material. All necessary laboratory procedures are taken and are being continued to minimize environmental risk of handling and disposal of hazardous chemicals and reagents.



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#### **V. Move to environmental friendly power generation**

A feasibility study has been done to cover 40% of power consumption of the Institute by utilizing solar panels by 2023. Due to the lack of space on the roof of the IBMBB building, full power consumption cannot be covered by the solar power. Therefore, Institute is looking forward to collaborate with competent industrial partner to installed solar panel on BOO basis.

#### **VI. Move to environmental friendly lighting accessories**

It has been planned to move to the LED lighting accessories which are energy efficient and environmental friendly than traditional lighting systems such as fluorescent by 2024. LED lights are not cause for the environmental pollution when disposed of in landfill waste since its contain no toxic elements.



**Table 1: MPhil/PhD Degrees in Progress and New Registrations – Year 2021**

	<b>Index Number</b>	<b>Name of the student</b>	<b>Date of registration</b>	<b>Source(s) of funds</b>	<b>Tentative Title</b>	<b>Supervisors</b>
01	IBMBB/ PhD/13/ 001	Ms. BA Dilani Rukshala	2013.05.01	Ministry of Higher Education	Drugs leads from medicinal plants in Sri Lanka- Investigation on immunomodulatory / anti – allergic activity	Prof. Shiroma Handunnetti Prof. E Dilip de Silva
02	IBMBB/ PhD /13/ 008	Ms. M Chandhra-kanthan	2013.10.25	NRC Grant	Activity guided separation of anti-inflammatory compounds from <i>Alpinia calcarata</i> rhizome and leaf	Dr. Selvaluxmy Chelvendran Prof. Shiroma Handunnetti Dr. GA Sirimal Premakumara
03	IBMBB/ PhD /15/ 001	Mr. Kanchana S Senanayake	2015.02.01	Swedish Research Links International collaborative research grant – The Swedish Research Council	Analysis of <i>Setaria digitata</i> Genome using NGS Technologies: Identification of potential drug targets in <i>Setaria digitata</i>	Dr. Erik Bongcam Rudloff Prof. EH Karunanayake Prof. KH Tennekoon
04	IBMBB/ PhD /15/ 002	Ms. WM Kumudu T de AW Gunasekara	2015.02.01	National Science Foundation	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 Prof. Jagathpriya Weerasena Dr. Risintha Premaratne



	<b>Index Number</b>	<b>Name of the Student</b>	<b>Date of registration</b>	<b>Source(s) of funds</b>	<b>Tentative Title</b>	<b>Supervisors</b>
05	IBMBB/PhD/15/005	Ms. Umapriya-tharshini Rajagopalan	2015.03.01	National Research Council	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. Kamani H Tennekoon Prof. E Dilip de Silva
06	IBMBB/PhD/16/001	Mr. Saman B Kotigala	2016.06.01	NSF/Self funding	Screening of Sri Lankan endemic plants for anticancer 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. Sameera R Samarakoon
07	IBMBB/PhD/16/002	Ms. Joanne T Kotelawala	2016.06.01	NSF Research Scholarship	Characterization of Mitochondrial DNA mutations in the D-loop and mtDNA haplogroups in Sporadic Breast Cancer.	Prof. Kamani H Tennekoon Dr. Kanishka De Silva
08	IBMBB/PhD/16/003	Ms. BV Loshini R Ranaweera	2016.08.01	Link Natural Products (Pvt) Ltd – Sri Lanka	Study on immunostimulatory activity and underlying immune mechanisms of a herbal formulation in the Sri Lankan market	Prof. Shiroma Handunnetti Prof. OVDSJ Weerasena Prof Ajith Abeysekera
09	IBMBB/PhD/16/004	Mr. Poorna W Balasooriya	2016.11.01	National Science Foundation	Application of indigenous soil micro flora as biological control measures for white root disease of rubber growing lands in Sri Lanka	Dr. THPS Fernando Prof. OVDSJ Weerasena



10	IBMBB/ PhD/17/ 001	Ms. Suvanthini Terensan	2017.06.01	Self funded	Genomic diversity of rice blast pathogen <i>Magnaporthe oryzae</i> in Sri Lanka and mapping of host resistance in rice germplasm	Prof. OVDSJ Weerasena. Prof. Nisha S Kottearachchi
11	IBMBB/ PhD/17/ 002	Ms. M Nimesha S Wickramaratne	2017.06.01	National Science Foundation	Isolation structural and functional characterization of active antibreast cancer metabolites from endophytic fungi of plants and selected endemic/ medicinal plants of Sri Lanka	Prof. Kamani H Tennekoon Dr. Samera R Samarakoon Prof. Nedra Karunaratne
12	IBMBB/ PhD/17/ 003	Mr. Jeyaraj Thusyanthan	2017.06.01	National Science foundation	Screening of selected endophytic fungi and endemic plants for anticancer activity using hepatocellular carcinoma (HepG2) cell line and isolation of active compounds	Prof. Kamani H Tennekoon Dr. Sameera R Samarakoon Prof. Ira Thabrew
13	IBMBB/ PhD/17/ 004	Ms. BM Lakshika P Jayasekara	2017.09.01	National Research Council	Mutations and polymorphisms of mitochondrial genes as risk factors for sporadic breast cancer in Sri Lankan patients of Sinhalese ethnicity	Prof. Kamani H Tennekoon Dr. Ruwandi Ranasinghe Dr. Kanishka De Silva
14	IBMBB/ PhD/17/ 005	Mr. RMR Kalum Rathnayake	2017.10.01	National Science foundation	Screening of compound libraries on a cancer cell panel and development of a synthetic anti-cancer compound and isolation of active compounds	Prof. KH Tennekoon Dr. Sameera R Samarakoon Dr Dinara Gunasekara
15	IBMBB/ PhD/18/ 002	Ms. HI Thejane Perera	2018.02.01	Research Funds from Robert Koch Institute, Germany	Immunological and molecular identification of medically important bat viral and bacterial pathogens and viral encephalitis cases in Sri Lanka	Prof. Wipula Yapa Prof. Andreas Dr. Claudia Kohl Prof. Sunil Premawansa Prof. Shiroma Handunnetti Prof. O.V.D.S.J. Weerasena



16	IBMBB/ PhD/18/ 003	Ms. P Dakshika Gangani	2018.04.01	International Center for Genetic Engineering and Biotechnology	Production of Monoclonal antibodies for diagnosis of Leptospira antigens of selected most prevalent Serovars/ Serogroups of <i>Leptospira</i> in Sri Lanka	Prof. Shiroma Handunnetti Prof. Senaka Rajapakse Prof. Sunil Premawansa
17	IBMBB/ PhD/18/ 004	Ms. Amali S Fernando	2018.04.01	National Research Council	Insight for molecular anthropology of peopling in Sri Lanka. Ancient human mtDNA and molecular sex analysis of archeological skeletal remains at Udupiyangalage and Alugalge caves	Prof. Kamani Tennekoon Dr. Ruwandi Ranasinghe
18	IBMBB/ PhD/18/ 005	Ms. Nethu Wickramasinghe	2018.07.01	Self-financed	Molecular Systematics of the blind snakes (serpentes: Scolecophidia) of Sri Lanka	Dr. David Gower Prof. Kamani H. Tennekoon Dr. Sameera R Samarakoon
19	IBMBB/ PhD/18/ 006	Mr. AAD Nirmal Perera	2018.10.01	Indo-Sri Lanka Grant	Evaluation of anti-cancer effects of <i>Mangifera zeylanica</i> plant extracts on non-small lung cancer cell lines	Prof. Kamani Tennekoon Dr. Sameera R Samarakoon Dr. Meran K Ediriweera
20	IBMBB/ PhD/19/ 001	Ms. MD Sakunthala Janaki	2019.01.01	National Research Council	Development of a colourimetric reverse transcription loop mediated isothermal amplification (RT- LAMP) assay as a cost effective, novel surveillance tool for differential detection of dengue serotypes in <i>Aedes</i> mosquitoes	Prof. O.V.D.S.J. Weerasena Prof. S.M. Handunnetti Dr. P.P.S.L. Pathirana Dr. Hasitha Tissera Dr. P.H.K.V.S. Aryaprema
21	IBMBB/ PhD/19/ 002	Ms. Sivagini Kumarasamy	2019.02.01	National Science Foundation	Molecular Phylogeny of marine macro algae (sea weeds) present in Sri Lankan coasts and isolation of anti-cancer compounds to target oral cancers from marine macro algae	Dr. M.A. Poorna C. Piyathilaka Prof. Kamani H Tennekoon Dr. Ruwandi Ranasinghe Dr. Sameera R Samarakoon





22	IBMBB/ PhD/20/ 001	Ms. SA Saumya M Samarasinghe	2020.09.01	National Research Council	Genetic analysis for predictive markers for hepatocellular Carcinoma (HCC) in non-alcoholic Steatohepatitis (NASH)	Dr. Asanka Sudeshini Hewage Prof. Rohan Siriwardena Prof. Kamani H. Tennekoon Prof. Madunil Anuk Niriella
23	IBMBB/ PhD/20/ 002	Ms. Anjana HJ Welikala	2020.10.01	Already available to the supervisors (Dr. Ruwandi Ranasinghe, Prof. Kamani Tennekoon)	Comparative analysis of the whole mitochondrial genome in Sinhalese, Sri Lankan Tamil and vedda population in Sri Lanka	Dr. Ruwandi Ranasinghe Prof. Kamani H. Tennekoon
24	IBMBB/ PhD/20/ 003	Mr. James C Thambyrajah	2020.07.01	AHEAD Grant (6026-LK/8743- LK)	A cross sectional comparative study on selected immunological, hormonal and biochemical parameters of the stress response in experienced buddhist meditators and non-meditators	Prof. Shiroma Handunnetti Dr. Dilanthi Warawitage Prof. Dishani Dissanayake



**Table 2 : Student Registered in other Higher Educational Institutions & carrying a part of study in the IBMBB Laboratories – 2021**

No.	Name of student	Degree registered	Affiliation	Source of funds	Tentative title of thesis	Names of Supervisors
1	Dr. D Padmasiri A Dissanayake	PhD	Indigenous Medicine, Uni. of Colombo	HETC-Institute of Indigenous Medicine	Anti-inflammatory potential of decoctions of <i>Cyathulla prostrata</i> , <i>Acyranthus aspera</i> and <i>Asparagus racemosus</i>	Prof. HMA Thisera Prof. Shiroma Handunnetti* Dr. S Sivaganesh
2	Ms. Keshani Silva	PhD	Rubber Research Institute Agalawatte	Rubber Research Institute of Sri Lanka	Genetic Diffrentiation of Sri Lankan rubber isolates of <i>Phellinus noxius</i> and characterization of the enzymes produced	Prof. Jagath Weerasena* Prof. Chandrika Nanayakkara Dr. Sarojini Fernando

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



**Table 3: Research Funding -2021**

[Names of IBMBB researchers are given in bold font.]

Grantee	Name of the Project	Funding Agency	Grant No	Funds available (Rs)
<b>Prof Kamani Tennekoon (PI)</b> <b>Dr Sameera Samarakoon (CoI)</b>	<i>In vitro and in vivo</i> epigenetic investigation on anticancer and radiopriming effects of different parts of <i>Mangifera indica</i> (India) and <i>Mangifera zeylanica</i> (Sri Lanka) and impact of green silver nanocomposites.	Ministry of Science Technology and Research	MSTR/TRD/A GR/3/2/08	62,220.00
<b>Prof Kamani Tennekoon (PI)</b> <b>Dr. Ruwandi Ranasinghe (Co-I)</b> Dr. Kanishka De Silva (Co-I)	Mutations and polymorphisms of mitochondrial genes as risk factors for sporadic breast cancer in Sri Lankan patients of Sinhalese ethnicity	National Research Council	NRC 17-020	(Funds are handled by NRC)
<b>Prof Kamani Tennekoon (PI)</b> <b>Dr Sameera Samarakoon</b> <b>(Chief Co-Investigator)</b>	Development of anticancer compound libraries	National Science Foundation	RPHS/2016/C-07	312,750.00
<b>Ms Joanne Kotelawala -</b> <b>(PhD student)</b> <b>Prof Kamani Tennekoon -</b> <b>Principal Supervisor</b> <b>Dr Ruwandi Ranasinghe (Co-S)</b> Dr Kanishka De Silva (Co-S)	Characterization of mitochondrial DNA mutations in the D-loop and mtDNA haplogroups in sporadic Breast cancer	National Science Foundation	NSF/SCH/2016 /04	430,419.00
<b>Prof Shiroma Handunnetti (PI)</b> <b>Prof OVDSJ Weerasena (Co-I)</b> Prof Senaka Rajapakse (Co-I) Dr. Lilani Karunanayake (Co-I) Prof. Sunil Premawansa (Co-I)	Detection of genotypes and serotypes of <i>Leptospira</i> isolated from leptospirosis patients of different severities	National Research Council	NRC-17-098	(Funds are handled by NRC)
<b>Prof Shiroma Handunnetti (PI)</b> <b>Prof OVDSJ Weerasena (Co-PI)</b>	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		(Funds are handled by Link Natural Products Pvt Ltd )
<b>Prof Shiroma Handunnetti (PI)</b> Prof. Sunil Premawansa (Co-I) Prof Senaka Rajapakse (Co-I)	Development of an antigen-based immunodiagnostic test for leptospirosis.	International Centre For Genetic Engineering and Biotechnology	CRP/LKA17-01 – Contract No. CRP/18/008	1,967,843.00
<b>Dr Ruwandi Ranasinghe (PI)</b> Prof Raj Somadeva (Co-I) <b>Prof KH Tennekoon (Co-I)</b> <b>Prof EH Karunanayake (Co-I)</b>	Insight for molecular anthropology of early people in Sri Lanka: Ancient human mtDNA and Molecular sex analysis of archeological skeletal remains at Udupiyangalge and Alugalge caves	National Research Council	NRC-17-042	Funds are handled by NRC



<b>Dr MAPC Piyathilaka (PI)</b> <b>Prof KH Tennekoon (Co-I)</b> <b>Dr Sameera R Samarakoon (Co-I)</b> <b>Dr Ruwandi Ranasinghe (Co-I)</b>	Molecular phylogeny of marine macro algae (sea weeds) present in Sri Lankan coasts and isolation of anti-cancer compounds to target oral cancers from marine macro algae	National Research Council (NRC)	NRC Grant No 17-074	Funds are handled by NRC
<b>Dr Hasitha Thissera (PI)</b> <b>Prof Shiroma Handunnetti (Co-PI)</b> <b>Prof OVDSJ Weerasena (Co-PI)</b> <b>Dr Sisira Pathirana (Co-PI)</b> <b>Dr Narmada Fernando –Co-PI</b> Ms Sakuntahla Janaki – Investigator & PhD Trainee	Development of a colourimetric reverse transcription Loop-mediated isothermal amplification assay as a cost-effective, novel surveillance tool for differential detection of Dengue serotypes in <i>Aedes</i> mosquitoes	National Research Council	NRC-19-065	Funds are handled by NRC
<b>Dr Sudeshini Hewage (PI)</b> Prof Rohan Siriwardan (Co-PI) <b>Prof Kamani Tennekoon (Co- PI)</b> Prof. Madunil Niriella(Co- PI) <b>Dr Sumadee de silva (Co- PI)</b>	Genetic analysis for predictive markers for hepatocellular carcinoma (HCC) in non-alcoholic steatohepatitis (NASH) related cirrhosis	National Research Council	NRC-19-030	Funds are handled by NRC
<b>Total funds available from Research Grants in year 2021</b>				<b>3,676,770.00</b>



**Table 4: PhD/MPhil Thesis submitted for Examination in year 2021**

Name of the Student	Gender	Year of entry	Thesis submitted for examination	Degree Programme	Title of the Dissertation/Thesis	Year of Award of Degree
Ms. Maduwanthi Chandrakanthan	F	2013	2021.06.30	PhD/ IBMBB	Bioactivity guided separation of anti-inflammatory compounds from <i>Aipinia calcarata</i> Roscoe rhizome and leaf and its industrial product development	Thesis under examination
Ms. Suvanthini Terensan	F	2017	2021.09.09	PhD/ IBMBB	Assessment of pathogeography and pathogenicity of the blast and brown spot diseases in rice ( <i>Oryza sativa</i> L.) using phenetic, molecular and digital image sensing approaches	Thesis under examination
Ms. Umapriyatharshini Rajagopalan	F	2015	2021.09.15	PhD/ IBMBB	Screening of Selected 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	Thesis under examination
Ms. B.A. Dilani Rukshala	F	2013	2021.10.11	PhD/ IBMBB	Drug leads from medicinal plants in Sri Lanka: Investigations on immunomodulatory and anti-allergic activity	Thesis under examination
Ms. W.M.K.T. De Alwis Wickramasinghe Gunasekera	F	2015	2021.11.01	PhD/ IBMBB	Comparison of parasitological and molecular diagnostic methods used for malaria diagnosis and molecular characterization of malaria infections in the phase of prevention of reintroduction of malaria in Sri Lanka	Thesis under examination
Mr. Poorna Wishwajith Balasooriya	M	2016	2021.12.31	MPhil/ IBMBB	Application of indigenous soil micro flora as biological control measures for White Root disease of rubber growing lands in Sri Lanka	Thesis under examination



**Table 5: Completion of PhD in year 2021**

Name of the Student	Gender	Year of entry	Thesis submitted for examination	Degree Programme	Title of the Dissertation/Thesis	Year of Award of Degree
Ms. Vahinipriya Manoharan	F	2015	2020.11.24	PhD/ IBMBB	Analysis of somatic mutations and protein expression of <i>TP53</i> gene in selected cancers in a cohort of Sri Lankan patients	2020



**Table 6: MSc Dissertations: Cellular & Molecular Immunology- Submitted for examination in year 2021**

Index No	Name	Title	Supervisors	Year of award of the degree
CMI-18-001	Mr. W.G.K. Anuradha	Comparison of antigen profiles of most prevalent serovars of <i>Leptospira</i> spp in Sri Lanka	Prof. Shiroma Handunnetti Dr. Narmada Fernando	2021
CMI-18-005	Ms. R.M.R. Peiris	Study on cross-reactive antibodies to venom components of <i>Apos dorsata</i> and <i>Vespa affinis</i> in patients allergic to ant venom in Sri Lanka	Dr. Rajiva De Silva Dr. Dhanushka Dassanayake Prof. Shiroma Handunnetti Dr. Peshala Gunasekara	2021
CMI-19-001	Mr. P.C. Munezero	Effect of aqueous plant extract of <i>Munronia pinnata</i> on interaction of dengue virus with endothelial cells	Prof. Shiroma Handunnetti Dr. Narmada Fernando Ms. Loshini Ranaweera	2021
CMI-19-002	Ms. F Shabbir	Preliminary study on <i>in vitro</i> effect of selected Sri Lankan medicinal plant derived components in downregulating inflammation in psoriasis	Dr. Narmada Fernando Prof. Senaka Rajapakse Dr. Janaka Akarawita Dr. Chalukya Gunasekera	2021
CMI-19-003	Mr. KGSSB Kulatunge	Inhibition of histamine release by RBL cells in the presence of selected medicinal plants	Dr. Sisira Pathirana Prof. Sunil Premawansa Ms. Dilani Rukshala Prof. Shiroma Handunnetti	2021
CMI-19-006	Mr. HSL Perera	Establishment of an immunodiagnostic assay for detection of acute melioidosis	Prof. Enoka Corea Dr. Narmada Fernando Prof. Shiroma Handunnetti	2021



**Table 7: MSc Dissertations: Molecular Life Sciences – Submitted for examination in year 2021**

Index No	Name of the Student	Title of the Dissertation	Supervisors / Co-supervisors	Year of Award of Degree
MLS/18/007	Mr. S. Priyankan	DNA barcoding and assessment of possibility to use DNA barcodes to develop species specific molecular markers in <i>Gyrinops walla</i>	Dr. Nadeesha L. Bandara	2021
MLS/18/008	Mr. R. Sivaraj	Isolation and molecular identification of plant endophytes with potential anti-microbial activity	Prof. O.V.D.S.J. Weerasena Dr. Nilupa Gunarathna	2021
MLS/17/006	Ms. R.S.G.T. N. Siriwardena	Isolation and molecular identification of fungi with lignin degradation activity	Prof. O.V.D.S.J. Weerasena Dr. Nilupa Gunarathna	2021
MLS/19/001	Mr. M.K. Arambage	Detection of hotspot regions of <i>wt1</i> gene in a cohort of 46, xy DSD children in sri lanka	Dr. Sudeshini Hewage Dr. Sumadee De Silva Dr. Navoda Atapattu Prof. KSH de Silva	2021
MLS/19/008	Ms. M.A.N. Sashika	Detection of large deletions in WT1 gene in a cohort of 46,XY DSD children in Sri Lanka	Dr. Sumadee De Silva Dr. Sudeshini Hewage Dr. Navoda Atapattu Prof. KSH de Silva	2021





**Table 8 (a): Completion of Master Degrees in 2021**

<b>Name of the Student</b>	<b>Gender</b>	<b>Year of entry</b>	<b>Degree Awarded</b>	<b>SLQF Level</b>	<b>Effective Date of the Degree</b>
Ms. G.P.C. Weerasooriya	Female	2019	Master of Molecular Life Sciences	9	2020.08.01
Ms. M.R.F. Rizkha	Female	2019	Master of Cellular and Molecular Immunology	9	2021.02.01
Mr. M.A.A. Fahim	Male	2019	Master of Bioinformatics	9	2020.11.01
Ms. L.S. Jayasekara	Female	2019	Master of Bioinformatics	9	2020.11.01
Ms. L.L.T. Madushani	Female	2019	Master of Bioinformatics	9	2020.11.01
Ms. A.G.K. Naranja	Female	2019	Master of Bioinformatics	9	2020.11.01
Ms. M.M.K. Peiris	Female	2019	Master of Bioinformatics	9	2020.11.01
Ms. H.S.N. Peiris	Female	2019	Master of Bioinformatics	9	2020.11.01
Mr. D.P.R.A. Perera	Male	2019	Master of Bioinformatics	9	2020.12.01
Ms. G.L.T.M. Premathilaka	Female	2019	Master of Bioinformatics	9	2020.11.01
Ms. W.K. Saniduni	Female	2019	Master of Bioinformatics	9	2020.11.01
Ms. H.O.T.O. Perera	Female	2019	Master of Bioinformatics	9	2021.09.01
Mr. M.J.M. Zarafath	Male	2019	Master of Bioinformatics	9	2021.09.01



**Table 8 (b): Completion of Postgraduate Diploma in 2021**

<b>Name of the Student</b>	<b>Gender</b>	<b>Year of entry</b>	<b>Degree/ Diploma Awarded</b>	<b>SLQF Level</b>	<b>Effective Date of the Degree</b>
Ms. S.A. Hapuarachchi	Female	2019	Postgraduate Diploma in Molecular Life Sciences	8	2021.02.01
Ms. E.P.D.Y.D.Z. Dissanayake	Female	2019	Postgraduate Diploma in Bioinformatics	8	2020.12.01
Mr. T. Gajanan	Male	2019	Postgraduate Diploma in Bioinformatics	8	2021.09.01



**Table 9: Research Collaborators**

Prof. Marie Allen	Professor, Genetics and Pathology, University of Uppsala, Sweden
Prof. Goran Andersson	Professor, Swedish Agricultural University, Sweden
Prof. Preethika Angunawela	Former Professor in Pathology, Faculty of Medicine, UoC
Prof. Erik Rudloff-Bongcam	Professor, Swedish Agricultural University, Sweden
Prof. Iqbal Chaudhury	Director, HEJ Research Institute, University of Karachi, Pakistan
Prof. Ranil Dassanayake	Professor in Chemistry, Faculty of Science, UoC
Prof. E. Dilip De Silva	Former Professor of Organic Chemistry, Faculty of Science, UoC
Prof. Janaka De Silva	Professor of Medicine, Faculty of Medicine, UoK
Prof. Shamy De Silva	Professor in Paediatrics, Department of Paediatrics, UoC
Prof. Tuly De Silva	Emeritus Professor, Link Natural Products Pvt Ltd
Prof. Deepika Fernando	Professor in Parasitology, Faculty of Medicine, UoC
Prof. Shamini Gunawardena	Professor in Parasitology, Faculty of Medicine, UoC
Prof. Saroj Jayasinghe	Professor of Clinical Medicine, Faculty of Medicine, UoC
Prof. Nisha Kottearachchi	Professor in Biotechnology, Wayamba University
Prof. Needra Karunaratne	Professor in Biochemistry, University of Peradeniya
Prof. Veranja Karunaratne	Professor of Chemistry, UoP
Prof. Neelika Malavige	Director, Dengue Research Center, USJP
Prof. Keethesan Nathkunam	Professor in Immunology, University of New England, Australia
Prof. Andreas Nitsche	Professor in Virology, Robert Koch Institute, Germany
Prof. Andrew Nguyen	Professor in Molecular Biology, City University of New York, USA
Prof. Madunil Anuk Niriella	Professor in Gastroenterology, Faculty of Medicine, UoK
Prof. Alessio Papini	Director, Tropical Herbarium, University of Florence, Italy
Prof. Sunil Premawansa	Professor Emeritus, University of Colombo
Prof. Senaka Rajapakse	Director PGIM, Professor in Clinical Medicine, Faculty of Medicine, UoC
Prof. Sree Rajeev	Professor in Veterinary Science, University of St Kitts, West Indies
Prof. Maanasa Raghavan	Neubauer Family Assistant Professor, Department of Human Genetics, University of Chicago, USA
Prof. W D Ratnasooriya	Professor Emeritus, University of Colombo
Prof. Suranjith Seneviratne	Professor in Immunology, Royal Free Hospital & University College London Centre for Immunodeficiency, UK
Prof. Alessandro Sette	Professor in Immunology, La Jolla Institute for Allergy and Immunology, USA
Prof. Rohan Siriwardana	Professor in Gastroenterology and Hepatobiliary Surgery, Faculty of Medicine, UoK
Prof. Raj Somadeva	Senior Professor of Archeology, Postgraduate Institute of Archeology, University of Kelaniya
Dr. K Thangaraj	Director, Centre for DNA Fingerprinting and Diagnostics (CDFD), Hyderabad. Senior Principle Scientist, Center for Cellular & Molecular Biology (CCMB), Hyderabad, India
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. Janaka Akrawita	Consultant Dermatologist, NHSL
Dr. Navodha Atapattu	Consultant Paediatric Endocrinologist, LRH
Prof. Enoke Corea	Professor of Microbiology, Faculty of Medicine, UoC
Prof. Dilshani Dissanayake	Faculty of Medicine, UoC
Dr. Dilanthi Warawitage	Faculty of Medicine, UoC
Dr. Selvaluxmy Chelvendran	Industrial Technology Institute
Dr. Dhanushka Dassanayake	Consultant Immunologist, Teaching Hospital, Kandy
Dr. Dharshan De Silva	Senior Lecturer, Kotelawala Defence University, Ratmalama
Dr. Kanishka De Silva	Consultant Oncological Surgeon, National Cancer Institute
Dr. Rajiva De Silva	Consultant Immunologist, Medical Research Institute
Dr. N. Devipriya	SASTRA University, India
Dr. Kumudu Fernando	Former Director, Agri Biotechnology Centre, UoP
Dr. Geethani Galagoda	Consultant Virologist, Lanka Hospital
Dr. Chalukya Gunasekera	Consultant Dermatologist, NHSL
Dr. Dinara Gunasekera	Senior Scientists, Sri Lanka Institute of Nanotechnology
Dr. Peshala Gunasekera	Research Scientist, SLIB
Dr. Nadeeka Janage	Consultant Virologist, Medical Research Institute, Colombo 8
Dr. Eresha Jasinge	Consultant Chemical Pathologist, LRH
Dr. Jude Jayamaha	Consultant Virologist, Medical Research Institute
Dr. Lilani Karunanayake	Consultant Microbiologist, Medical Research Institute
Dr. Suranga Manilgama	MO, Ministry of Health
Dr. Rohitha Muthugala	Consultant Virologist, Ministry of Health
Dr. Dhananja Namalie	Ministry of Health
Prof. Inoka Perera	Senior Lecturer, Department of Zoology, UoC
Dr. GA Sirimal Premakumara	Director General, Industrial Technology Institute
Dr. Gayani Premawansa	Consultant Physician, North Colombo Teaching Hospital
Dr. Risintha Premaratne	Scientist, WHO-SEARO, WHO
Dr. Niraj Rai	Scientist "C", The Birbal Sahni Institute of Palaeosciences, India
Dr. Radhika Samarasekera	Director General, Industrial Technology Institute
Dr. Asitha Siriwardena	Scientist, Sri Lanka Institute of Nanotechnology
Dr. Saranga Sumathipala	MO, Ministry of Health
Dr. Hasitha Thisera	Ministry of Health
Dr. V Vadivel	SASTRA University, India
Mr. D Kottawa-Arachchi	Research Officer, Tea Research Institute, Talawakele
Mr. U.I.K. Galappatti	Senior Lecturer, University of Ruhuna
Mr. Mendis Wickremasinghe	Chairman, Sri Lanka Herpetological Society



## Annual Financial Report

**INSTITUTE OF BIOCHEMISTRY, MOLECULAR BIOLOGY & BIOTECHNOLOGY**  
**UNIVERSITY OF COLOMBO**  
**STATEMENT OF FINANCIAL POSITION AS AT 31ST DECEMBER 2021**  
(Figures adjusted to the Nearest Rupee)

	Note	2021 Rs.	2020 Rs.	% change
<b><u>ASSETS</u></b>				
<b><u>CURRENT ASSETS</u></b>				
Bank Balances	Note - 02	19,415,189	18,028,530	8
Other Receivables	Note - 03	2,866,070	4,857,466	(41)
Advances	Note - 04	70,063	13,425	422
Staff Loans	Note - 05	973,257	1,247,337	(22)
Investments	Note - 06	38,741,037	18,842,393	106
Chemicals & Glassware		1,365,871	3,690,480	(63)
		<b>63,431,486</b>	<b>46,679,631</b>	<b>36</b>
<b><u>NON CURRENT ASSETS</u></b>				
Property Plant & Equipment	Note - 07			
Building		29,228,161	35,067,394	(17)
Motor Vehicles		2,577,502	3,093,002	(17)
Library Books and Periodicals		380,813	1,133,572	(66)
Lab and Teaching Equipments		12,521,232	27,057,471	(54)
Computers		5,830,391	6,245,773	(7)
Office Furniture & Equipments		12,473,031	13,329,847	(6)
Staff Loans	Note - 05	1,591,090	2,101,498	(24)
Investments	Note - 06	37,373,172	34,173,243	9
		<b>101,975,392</b>	<b>122,201,800</b>	<b>(17)</b>
<b>TOTAL ASSETS</b>		<b>165,406,878</b>	<b>168,881,430</b>	<b>(2)</b>
<b><u>LIABILITIES</u></b>				
<b><u>CURRENT LIABILITIES</u></b>				
Provision for Gratuity	Note - 09.01	9,774,675	634,799	1,440
Refundable Tender Deposit		66,412	66,412	-
Refundable Laboratory Deposits		5,992,635	4,474,573	34
Accrued Expenditure And Other Payables	Note - 08	7,515,124	6,822,089	10
		<b>23,348,847</b>	<b>11,997,873</b>	<b>95</b>
<b><u>NON CURRENT LIABILITIES</u></b>				
Provision for Gratuity	Note - 09	28,466,310	30,222,309	(6)
Provision for Audit Fees		1,178,517	1,288,517	(9)
Research Grants	Note - 10	6,403,432	7,710,013	(17)
Deferred Income	Note - 11	4,763,984	1,031,227	362
		<b>40,812,243</b>	<b>40,252,066</b>	<b>1</b>
<b>TOTAL LIABILITIES</b>		<b>64,161,090</b>	<b>52,249,939</b>	<b>23</b>
<b>NET ASSETS</b>		<b>101,245,788</b>	<b>116,631,492</b>	<b>(13)</b>



**INSTITUTE OF BIOCHEMISTRY, MOLECULAR BIOLOGY & BIOTECHNOLOGY**  
**UNIVERSITY OF COLOMBO**  
**STATEMENT OF FINANCIAL POSITION AS AT 31ST DECEMBER 2021 (Contd..)**

(Figures adjusted to the Nearest Rupee)

Note	2021 Rs.	2020 Rs.	% change
<b><u>EQUITY / NET ASSETS</u></b>			
<b><u>CAPITAL</u></b>			
Capital Grant Spent	Note - 20 (32,092,188)	(8,906,970)	260
Capital Grant Committed	12,017,171	6,958,503	73
Gifts & Donations	122,247,858	122,247,858	-
	<u>102,172,841</u>	<u>120,299,391</u>	<u>(15)</u>
<b><u>ACCUMULATED FUND</u></b>			
Retained Earnings A/C	(65,728,602)	(66,662,886)	(1)
Revaluation Surplus/(Deficit)	38,564,539	38,564,539	-
	<u>(27,164,063)</u>	<u>(28,098,347)</u>	<u>(3)</u>
<b><u>RESTRICTED FUNDS</u></b>			
Institute Development Fund	10,040,599	8,323,415	21
Endowment Fund	3,531,171	3,221,903	10
Asset Replacement Fund	12,665,242	12,885,130	(2)
	<u>26,237,011</u>	<u>24,430,448</u>	<u>7</u>
<b>TOTAL EQUITY / NET ASSETS</b>	<u><b>101,245,788</b></u>	<u><b>116,631,492</b></u>	<u><b>(13)</b></u>

Prepared & Certified by  
23.02.2022

  
.....  
Deputy Bursar

  
.....  
Senior Asst. Registrar

The Accounting policies on pages 6 to 10 and other Notes on pages 11 to 15 form an integral part of these Financial Statements. The Board of Management is responsible for the preparation and presentation of these Financial Statements.

  
.....  
Board Member

  
.....  
Director /Board Member





**INSTITUTE OF BIOCHEMISTRY, MOLECULAR BIOLOGY & BIOTECHNOLOGY**  
**UNIVERSITY OF COLOMBO**  
**STATEMENT OF FINANCIAL PERFORMANCES**  
**FOR THE YEAR ENDED 31ST DECEMBER 2021**

		2021 Rs.	2020 Rs.	% change
<b>INCOME</b>				
Govt. Grant for Recurrent Expenditure		109,000,000	95,100,000	15
Govt. Grant for Rehabilitation of Capital Assets		1,926,897	2,824,714	(32)
Amortization of Fixed Assets		25,383,977	24,789,600	2
Research Grants	<b>Note - 12</b>	2,745,408	4,861,593	(44)
Generated Income	<b>Note - 13</b>	17,615,789	15,962,443	10
Interest Income		4,165,080	5,556,852	(25)
Other Income	<b>Note - 14</b>	227,058	262,592	(14)
		<b>161,064,209</b>	<b>149,357,793</b>	<b>8</b>
<b>Less : EXPENDITURE</b>				
Personnel Emoluments	<b>Note - 15</b>	92,807,849	84,463,850	10
Travelling		194,677	64,892	200
Supplies	<b>Note - 16</b>	8,618,940	13,030,002	(34)
Maintenance Expenditure	<b>Note - 17</b>	3,511,029	4,298,646	(18)
Contractual Services	<b>Note - 18</b>	14,829,997	14,693,792	1
Other Recurrent Expenses	<b>Note - 19</b>	3,876,252	2,969,905	31
Gratuity		8,297,720	10,387,254	(20)
Depreciation		27,270,542	26,630,815	2
		<b>159,407,006</b>	<b>156,539,156</b>	<b>2</b>
<b>Surplus/Deficit of Income over Expenditure</b>		<b>1,657,203</b>	<b>(7,181,363)</b>	<b>(123)</b>



**INSTITUTE OF BIOCHEMISTRY, MOLECULAR BIOLOGY & BIOTECHNOLOGY**  
**UNIVERSITY OF COLOMBO**  
**CASH FLOW STATEMENT**  
**FOR THE YEAR ENDED 31ST DECEMBER 2021**

	Rs.	Rs.
<i>Surplus for the year</i>		1,657,203
<b>Add : Adjustments for items not involving movement of Funds</b>		
Provision for Gratuity	8,297,720	
Adjustment to the Retained Earnings	(754,590)	
Provision for Audit Fees	400,000	
Amortization of Fixed Assets	(25,383,977)	
Depreciation	27,270,542	
Loss from Disposal of Assets	39,094	
Provision for Restricted Funds	2,145,776	
Underestimate of Stock Adjustment	31,670	
<b>Operating Surplus before working capital changes</b>	<b>12,046,236</b>	
<b>Changes of Working Capital</b>		
Increase/Decrease in Other Receivables	1,991,396	
Increase/Decrease in Advances	(56,638)	
Increase/Decrease in Staff Loans	784,488	
Increase/Decrease in Investments	(23,098,572)	
Increase/Decrease in Chemicals & Glassware	2,324,609	
Increase/Decrease in Refundable Laboratory Deposits	1,518,062	
Increase/Decrease in Accrued Expenditure and Other Payables	693,036	
Increase/Decrease in Research Grants	(1,306,581)	
Increase/Decrease in Deferred Income	3,732,756	
Audit Fees paid	(510,000)	
Gratuity Paid	(913,842)	(2,795,050)
<b>NET CASH FLOW FROM OPERATING ACTIVITIES</b>		<b>(1,137,847)</b>
<b>CASH FLOWS FROM INVESTING ACTIVITIES</b>		
Government Grant for Capital Expenditure	9,065,000	
Government Grant for Rehabilitation	(1,926,897)	7,138,103
<b>CASH FLOWS FROM FINANCING ACTIVITIES</b>		
Acquisition of Fixed Assets	(4,422,459)	
Assets Purchased from Replacement Fund	(219,888)	
Proceeds from Selling of Disposals	28,750	(4,613,597)
<b>Net Increase in Cash &amp; Cash Equivalents</b>		<b>1,386,659</b>
Cash & cash equivalents at the beginning of 01/01/2021		18,028,530
<b>Cash &amp; cash equivalents at the end of 31/12/2021</b>		<b>19,415,189</b>





**INSTITUTE OF BIOCHEMISTRY, MOLECULAR BIOLOGY & BIOTECHNOLOGY**  
**STATEMENT OF CHANGES IN EQUITY/NET ASSETS FOR THE YEAR ENDED 31/12/2021**

Description	Accumulated Fund	Asset Replacement Reserve	Institute Development Fund	Endowment Fund	Capital Grant Spent	Capital Grant Committed	Gift & Donations	Revaluation Reserve	Total
	Rs.	Rs.	Rs.		Rs.	Rs.	Rs.		Rs.
Balance as at 31st December 2020	(66,662,886)	12,885,129	8,323,415	3,221,903	(8,906,970)	6,958,503	122,247,858	38,564,539	116,631,492
Surplus / Deficit for the period	1,657,203								1,657,203
Capital Grant Received						9,065,000			9,065,000
Purchase During the Year		(219,888)			2,079,435	(2,079,435)			(219,888)
Transfer to Restricted Funds			1,836,508	309,268					2,145,776
Transfer to Welfare Fund									-
Interest for Restricted Funds									-
Transfer to Research Fund									-
Accrued Interest Income									-
Capital Grant Spent /Committed During the Year									-
Transfer to Rehabilitation						(1,926,897)			(1,926,897)
Transfer to Income									-
Prior Year Adjustment	(754,590)								(754,590)
Increase in Specific Internal Funds									-
Transfers	31,670								31,670
Amortization Adjustments			(119,324)		(25,264,653)				(25,383,977)
Balance as at 31st December 2021	(65,728,602)	12,665,241	10,040,599	3,531,171	(32,092,188)	12,017,171	122,247,858	38,564,539	101,245,788
% Change	(1)	(2)	21	10	260	73	-	-	(13)



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

**Notes to the Financial Statement**

**Note - 01**

**1. Significant Accounting Policies**

**1. Reporting Entity**

Institute of Biochemistry, Molecular Biology and Biotechnology (IBMBB) has been incorporated under the Ordinance No. 1285/25 and gazetted on 23<sup>rd</sup> April 2003. The main administration is at No 90, Cumaratunga Munidasa Mawatha, Colombo 03. The Financial Statements of the IBMBB are prepared for the year ending 31/12/2021.

**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 Sector Accounting Standards (SLPSAS). 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)**

According to the information given by University of Colombo the acquisition date of the building is 01.01.2007 and this was presented in the financial statements w.e.f. 01<sup>st</sup> January 2020. The value of the land has not been included in the PPE 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.



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

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.



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

**Rates of Depreciation**

• Building	-	5% per annum
• 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
• Library Books and Periodicals	-	20% per annum

**2.3.7. 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.

Stocks in stores have been valued at cost using First In First Out (FIFO) basis.

**2.3.8. Receivables**

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

**2.3.9. Cash & cash equivalents**

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

**2.3.10. Current Assets**

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

**2.3.11. 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.





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

**2.3.12. 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 completing one year of employment on the assumption that all employees intend to continue in employment to at least five years.

The provision for the obligations under the Act is determined based on the present value method in accordance with LKAS 19 using the discount rate equal to the government bond rate.

Year	Bond Rate
2021	11%
2020	8%

According to the instructions given by UGC – Commission Circular No: 05/2019, Academic allowance and Monthly Compensatory Allowance had been taken into calculation of Gratuity for Academic staff members and Non-academic staff members w.e.f. 01.06.2019.

**(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. 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.



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

**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. Based on the availability of data, course fees are recognized on accrual basis and income received for future period is recognized as deferred income.

**(e) Investment Income**

Interest income on Investments is accounted on accrual basis.

**2.5. 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.

**3. Disclosures**

**3.1. General**

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

**3.1.2.** Gratuity has paid Rs. 913,842.00 during the year 2021. Provision for the gratuity was updated current year for one staff member who resigned during the year 2020.

**3.1.3.** The investments incurred for 3 months period value Rs. 19,741,273.35 was classified as current assets based on the duration of the investment.

**3.1.4.** The interest earned from investment of Endowment fund has reinvested and added to the carried forward balance of the Endowment Fund.



**Institute of Biochemistry, Molecular Biology & Biotechnology -University of Colombo**  
**Notes to the Financial Statements - 2021 (Contd..)**

**Note - 02**

<b>Bank Balances</b>	<b>2021</b>	<b>2020</b>	<b>% change</b>
	<b>Rs.</b>	<b>Rs.</b>	
<b>People's Bank - Thimbirigasyaya</b>			
Account No.			
86100121189723	2,892,444	3,778,883	(23)
86100151192314	3,199,490	1,376,765	132
86100211189723	4,895,159	6,252,873	(22)
86100301189723	883	579,923	(100)
86100491189723	164,404	2,974,407	(94)
86200101189723	3,703,707	2,505,482	48
86100131189671	434,338	434,338	0
<b>Bank of Ceylon - Thimbirigasyaya</b>			
84885727*	4,124,764	125,860	3,177
	<b>19,415,189</b>	<b>18,028,530</b>	<b>8</b>

\*Rs. 4Mn has been proceed to invest in Treasury Bills at the date of 22.12.2021. The proceed was completed in investment in Treasury Bills on 07.01.2022.

<b>Note - 03</b>	<b>2021</b>	<b>2020</b>	<b>% change</b>
	<b>Rs.</b>	<b>Rs.</b>	
<b>Other Receivables</b>			
Receivable Course Income	351,667	1,073,333	(67)
Pre Payment	955,223	1,857,180	(49)
Refundable Deposit for Fuel	50,000	50,000	-
Refundable Deposit for Dogle	1,000	1,000	-
Refundable Deposit for CO2 Cylinders	83,500	83,500	-
Interest Receivable	1,424,680	1,792,453	(21)
	<b>2,866,070</b>	<b>4,857,466</b>	<b>(41)</b>

<b>Note - 04</b>	<b>2021</b>	<b>2020</b>	<b>% change</b>
	<b>Rs.</b>	<b>Rs.</b>	
<b>Advances</b>			
Miscellaneous Advances	70,063	13,425	422
	<b>70,063</b>	<b>13,425</b>	<b>422</b>

<b>Note - 05</b>	<b>2021</b>	<b>2020</b>	<b>% change</b>
	<b>Rs.</b>	<b>Rs.</b>	
<b>Staff Loans - Current</b>			
Distress Loans	905,557	1,155,577	(22)
Computer Loans	45,000	75,000	(40)
Vehicle Loan	16,690	8,350	100
Staff Loans	5,610	5,610	-
Special Advance	400	2,800	(86)
	<b>973,257</b>	<b>1,247,337</b>	<b>(22)</b>

<b>Staff Loans - Non current</b>			
Distress Loans	1,483,395	1,987,873	(25)
Computer Loans	65,000	92,500	(30)
Vehicle Loan	35,725	10,755	232
Staff Loans	6,970	10,370	(33)
Special Advance	-	-	-
	<b>1,591,090</b>	<b>2,101,498</b>	<b>(24)</b>
	<b>2,564,347</b>	<b>3,348,835</b>	<b>(23)</b>

<b>Note -06</b>	<b>2021</b>	<b>2020</b>	<b>% change</b>
	<b>Rs.</b>	<b>Rs.</b>	
<b>Investments - Current FDs and TBs</b>			
Institute Development Fund	-	-	-
Generated Funds	29,741,082	18,842,393	58
Treasury Funds	8,999,955	-	-
	<b>38,741,037</b>	<b>18,842,393</b>	<b>58</b>

<b>Investments - Non Current FDs and TBs</b>			
Endowment Fund	5,915,188	4,975,870	19
Institute Development Fund	5,677,882	5,286,959	7
Generated Funds	25,780,102	23,910,413	8
Treasury Funds	-	-	-
	<b>37,373,172</b>	<b>34,173,243</b>	<b>34</b>
	<b>76,114,208</b>	<b>53,015,636</b>	<b>92</b>



Institute of Biochemistry, Molecular Biology & Biotechnology - University of Colombo  
Notes to the Financial Statements - 2021(Contd.)

Note - 07

Non current Assets

Description	Building	Vehicle	Furniture & Office Equipment	Computers	Lab and Teaching Equipment	Library books and Periodicals	Total
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Balance as at 01 01 2021	116,864,648.71	5,155,002.76	20,008,698.89	14,940,650.75	74,923,747.54	3,766,842.84	235,659,591.49
Adjustments to Opening balance due to duplication of Assets	-	-	-	-	-	-	-
Additions	-	-	1,265,184.67	2,693,764.00	463,510.00	-	4,422,458.67
Disposals	-	-	(96,250.00)	(171,241.00)	(550,500.00)	(6,500.00)	(824,491.00)
Balance as at 31 12 2021	116,864,648.71	5,155,002.76	21,177,633.56	17,463,173.75	74,836,757.54	3,760,342.84	239,257,559.16
Change %	-	-	5.84	16.88	(0.12)	(0.17)	
Rate of Depreciation	5%	10%	10%	20%	20%	20%	
Accumulated Depreciation as at 01 01 2021	81,797,254.45	2,062,000.58	6,678,852.87	8,694,877.35	47,866,278.45	2,633,270.00	149,732,533.70
Adjustments to Opening balance due to duplication of Assets	-	-	-	-	-	-	-
Disposals	-	-	(47,451.98)	(159,827.94)	(542,957.12)	(6,410.02)	(756,647.06)
Depreciation for 2021	5,839,232.91	515,500.00	2,073,201.72	3,097,733.06	14,992,204.61	752,670.14	27,270,542.44
Accumulated Depreciation as at 31.12.21	87,636,487.36	2,577,500.58	8,704,602.61	11,632,782.47	62,315,525.94	3,379,530.12	176,246,429.08
WDV 31. 12. 21	29,228,161.35	2,577,502.18	12,473,030.95	5,830,391.28	12,521,231.60	380,812.72	63,011,130.08





**Institute of Biochemistry, Molecular Biology & Biotechnology - University of Colombo**  
**Notes to the Financial Statements - 2021 Contd..)**

<b>Note - 08</b>	<b>2021</b>	<b>2020</b>	<b>% change</b>
<b>Accrued Expenditure And Other Payable</b>	<b>Rs.</b>	<b>Rs.</b>	
Accrued	7,497,460	6,796,684	10
Payable for Tax	17,664	21,531	(18)
Payable for Stamp duty	-	3,874	(100)
	<u>7,515,124</u>	<u>6,822,089</u>	<u>10</u>
<b>Note - 09</b>	<b>2021</b>	<b>2020</b>	<b>% change</b>
<b>Provision for Gratuity</b>	<b>Rs.</b>	<b>Rs.</b>	
Opening Balance 01.01.2021	30,857,108	20,469,854	51
Provision During the year	8,297,720	10,387,254	(20)
Paid During the year	(913,842)	-	-
Closing Balance 31.12.2021	<u>38,240,985</u>	<u>30,857,108</u>	<u>24</u>
<b>Note - 09.01</b>			
<b>Provision for Gratuity - To be paid during the year 2022</b>			
Prof. K.H. Tennekoon	9,774,675	-	-
Ms. S.D. Premadasa	-	49,607	(100)
Ms. M.K. Kahawita	-	585,192	(100)
	<u>9,774,675</u>	<u>634,799</u>	<u>1,440</u>
<b>Provision for Gratuity - Non Current</b>	<u>28,466,310</u>	<u>30,222,309</u>	<u>(6)</u>
<b>Note - 10</b>	<b>2021</b>	<b>2020</b>	<b>% change</b>
<b>Research Grants - 2022</b>	<b>Rs.</b>	<b>Rs.</b>	
RPC - 2022	6,912	6,912	0
IPICS - 2022	352,602	352,602	-
NSF Grant III-2022	48,458	48,458	-
Dept.of Ayurvedic Grant-2022	2,543	2,543	-
Swedish Research Grant .2022	1,383,001	1,383,001	0
Individual Reasurch Votes -2022	327,729	313,550	5
Start-up Research Grant (UGC)2022	-	56,244	(100)
C/R Grant- Ms.D.V.D. Hemalika-2022	66,466	66,466	-
Research Collaboration Grant- Dr Andrew-2022	89,653	89,653	-
NSF/SCH/2016/04 2022	111,819	430,419	(74)
NSF/RPHS/2016/C 07-2022	16	312,750	(100)
CRP/LKA 17- 01 2022	1,967,843	2,871,381	(31)
MSTR/TRD/AGR/3/02/08 (INDO) 2022	514,744	62,220	727
Subsidies for Reagents	1,183,596	1,183,596	-
ICGEB Course (W/SRI/2019-01) - 2022	45,754	227,923	(80)
Immunodiagnosics 2022 - Prof. S.M. Handunnetti	125,000	125,000	-
Collaborative Research 2022 - Dr. S.S.R. Samarakoon	177,296	177,296	-
	<u>6,403,432</u>	<u>7,710,013</u>	<u>(17)</u>
<b>Note - 11</b>	<b>2021</b>	<b>2020</b>	<b>% change</b>
<b>Deferred Income</b>	<b>Rs.</b>	<b>Rs.</b>	
MSc in CMI 2020	325,000	150,000	117
MSc in MLS 2020	893,750	83,333	973
MSc in CMI 2021	333,333	-	-
MSc in MLS 2021	414,400	525,000	(21)
MSc in Bioinformatics 2021	2,797,500	272,894	925
	<u>4,763,984</u>	<u>1,031,227</u>	<u>362</u>
<b>Note -12</b>	<b>2021</b>	<b>2020</b>	<b>% change</b>
<b>Research Grants</b>	<b>Rs.</b>	<b>Rs.</b>	
RPC - 2021	-	42,916	(100)
Swedish Research Grant .2021	-	11,146	(100)
Start-up Research Grant (UGC) 2021	-	16,604	(100)
NSF/SCH/2016/04 2021	858,600	307,110	180
NSF/RPHS/2016/C 07-2021	312,734	2,921,598	(89)
CRP/LKA 17- 01 2021	903,538	181,770	397
MSTR/TRD/AGR/3/02/08 (INDO) 2021	307,451	763,056	(60)
ICGEB Course (W/SRI/19-01) - 2021	363,085	369,688	(2)
Immunodiagnosics 2021 - Prof. S.M. Handunnetti	-	75,000	(100)
Collaborative Research 2021 - Dr. S.S.R. Samarakoon	-	172,704.00	(100)
	<u>2,745,408</u>	<u>4,861,593</u>	<u>(44)</u>



**Institute of Biochemistry, Molecular Biology & Biotechnology - University of Colombo**  
**Notes to the Financial Statements - 2021 (Contd..)**

<b>Note - 13</b>	<b>2021</b>	<b>2020</b>	<b>% change</b>
<b>Generated Income</b>	<b>Rs.</b>	<b>Rs.</b>	
Annual Session Sponsorships	53,975	-	-
Examination fees	1,190,500	486,561	145
MSc Course Fee	13,467,413	13,142,021	2
Certificate Course	1,575,000	-	-
Application Fee	1,110,492	1,354,746	(18)
Internship Income	-	60,000	(100)
Sample collection Charges	11,450	765,975	(99)
Hall Hiring Charges	15,000	-	-
Library Fee	45,000	-	-
Liquidated Damages	146,959	153,140	(4)
	<b>17,615,789</b>	<b>15,962,443</b>	<b>10</b>

<b>Note - 14</b>	<b>2021</b>	<b>2020</b>	<b>% change</b>
<b>Other Income</b>	<b>Rs.</b>	<b>Rs.</b>	
Computer loan Interest	5,077	5,903	(14)
Staff Loan Interest	609	759	(20)
Transcript Fee	78,000	35,131	122
Distress Loan Interest	95,926	127,248	(25)
Vehicle Loan Interest	2,224	1,560	43
Special Advance Interest	-	573	(100)
Other Sundry Income	45,223	91,418	(51)
	<b>227,058</b>	<b>262,592</b>	<b>(14)</b>

<b>Note - 15</b>	<b>2021</b>	<b>2020</b>	<b>% change</b>
<b>Personnel Emoluments</b>	<b>Rs.</b>	<b>Rs.</b>	
Salaries & Wages	32,779,468	28,263,205	16
U.P.F	5,188,278	4,781,095	9
Pension	3,462,781	3,373,011	3
E.T.F.	1,929,061	1,829,405	5
E.P.F	795,393	803,935	(1)
Academic Allowance	22,360,885	20,707,141	8
Cost of Living Allowances	3,171,077	3,172,188	(0)
Over Time and Holiday Payment	78,159	167,192	(53)
Other Allowances	9,690,157	10,115,221	(4)
Acting Pay	-	733,029	(100)
Research Allowances	5,105,144	5,275,237	(3)
Allowances	7,085,093	4,233,581	67
Visiting Lecturer Fee	1,137,952	935,500	22
Property Loan Interest	24,400	74,113	(67)
	<b>92,807,849</b>	<b>84,463,850</b>	<b>10</b>

<b>Note - 16</b>	<b>2021</b>	<b>2020</b>	<b>% change</b>
<b>Supplies</b>	<b>Rs.</b>	<b>Rs.</b>	
Stationery & Office Requisites	487,164	455,485	7
Fuel and Lubricant	268,155	259,948	3
Uniforms	-	22,015	(100)
Mechanical & Electrical Goods	12,600	-	-
Chemicals & Glasware	7,851,022	12,261,979	(36)
Other	-	30,576	(100)
	<b>8,618,940</b>	<b>13,030,002</b>	<b>(34)</b>

<b>Note -16.1</b>			
<b>Chemicals &amp; Glassware</b>			
Opening Balance	3,722,150	6,797,539	(45)
Purchase During the Year	5,494,742	9,154,919	(40)
	9,216,892	15,952,458	(42)
Closing Balance	(1,365,871)	(3,690,480)	(63)
	<b>7,851,022</b>	<b>12,261,979</b>	<b>(36)</b>



**Institute of Biochemistry, Molecular Biology & Biotechnology - University of Colombo**  
**Notes to the Financial Statements - 2021 (Contd..)**

<b>Note - 17</b>	<b>2021</b>	<b>2020</b>	<b>% change</b>
<b>Maintenance Expenditure</b>	<b>Rs.</b>	<b>Rs.</b>	
Rehabilitation & Maint. Of Capital Assets	2,010,485	2,942,776	(32)
Plant, Machinery Equipment	144,279	228,859	(37)
Buildings & Structures	503,217	374,422	34
Office Equip. Maintenance	781,337	410,825	90
Other	71,711	341,763	(79)
	<b>3,511,029</b>	<b>4,298,646</b>	<b>(18)</b>

<b>Note - 18</b>	<b>2021</b>	<b>2020</b>	<b>% change</b>
<b>Contractual Services</b>	<b>Rs.</b>	<b>Rs.</b>	
Transport	494,793	105,082	371
Telecommunication	1,784,931	1,783,400	0
Postage	62,017	52,760	18
Security Service	2,181,005	1,752,144	24
Electricity	6,880,310	7,149,350	(4)
Water	234,075	200,775	17
Cleaning Service	1,822,465	2,295,214	(21)
Rates, Taxes & Local Authorities	199,584	199,584	-
Printing, Advertising etc.	1,150,022	692,843	66
Other	20,795	462,641	(96)
	<b>14,829,997</b>	<b>14,693,792</b>	<b>0.93</b>

<b>Note - 19</b>	<b>2021</b>	<b>2020</b>	<b>% change</b>
<b>Other Recurrent Expenditure</b>	<b>Rs.</b>	<b>Rs.</b>	
Special Services - Board Meeting & Committees	1,037,039	391,562	165
Workshops, Seminars	-	-	-
Academic Research	319,882	188,905	69
Staff Development	575,373	163,575	252
Entertainment Expenses	89,647	26,745	235
Contribution & Membership Fee	517,179	633,636	(18)
Bank Charges	73,733	30,003	146
Holiday Warrants & Season Tickets	40,860	59,100	(31)
Convocation	-	68,000	(100)
Examination Expenses	373,242	791,731	(53)
Audit Fee	400,000	400,000	-
Certificate Course Expenses	252,071	-	-
Disposal Loss	39,094	144,575	(73)
Medical Insurance	128,971	49,199	162
Employee Welfare	29,163	-	-
Other	-	22,875	(100)
	<b>3,876,252</b>	<b>2,969,905</b>	<b>30.52</b>

<b>Note - 20</b>	<b>2021</b>	<b>2020</b>	<b>% change</b>
<b>Capital Grant Committed</b>	<b>Rs.</b>	<b>Rs.</b>	
Treasury	(32,580,833)	(9,395,615)	247
Blended	278,951	278,951	-
Generated	110,394	110,394	-
SIDA SAREC	99,302	99,302	-
Research Grants	-	-	-
	<b>(32,092,186)</b>	<b>(8,906,968)</b>	<b>260</b>



Institute of Biochemistry, Molecular Biology and Biotechnology - University of Colombo				
Statement of Comparison - Income 2021				
Recurrent	Budgeted 2021	Total Income 2021	Variation	% of Variation
<b>Government Grant</b>				
Recurent	110,000	109,000	(1,000)	-1%
Capital	10,000	9,065	(935)	-9%
<b>Total</b>	<b>120,000</b>	<b>118,065</b>	<b>(1,935)</b>	<b>-2%</b>
<b>Internal Revenue</b>				
Registration Fees	601	1,110	509	85%
Tution Fees	4,017	13,467	9,450	235%
Examination Fees	713	1,191	478	67%
Services Rendered to Outsiders	591	15	(576)	-97%
Other	458	1,832	1,374	300%
<b>Total</b>	<b>6,380</b>	<b>17,616</b>	<b>11,236</b>	<b>176%</b>
<b>Other Grants</b>				
NSF/SCH/2016/04	-	859	859	0%
NSF/RPHS/2016/C 07-2021	-	313	313	0%
CRP/LKA 17- 01 2021	-	904	904	0%
MSTR/TRD/AGR/3/02/08 (INDO) 2021	2,740	307	(2,433)	-89%
ICGEB Course (W/SRI/19-01) - 2021	-	363	363	0%
<b>Total</b>	<b>2,740</b>	<b>2,745</b>	<b>5</b>	<b>0%</b>
<b>Grand Total</b>	<b>129,120</b>	<b>138,426</b>	<b>9,306</b>	<b>7%</b>



Institute of Biochemistry, Molecular Biology and Biotechnology - University of Colombo				
Statement of Comparison - Expenditure 2021				
Recurrent	Budgeted 2021	Total Expenditure 2021	Variation	% of Variation
<b>Note 1 - Personal Emoluments</b>				
Salaries & Wages	30,248	32,779	2,531	8%
U.P.F.	5,488	5,984	495	9%
Pension	3,436	3,463	26	1%
E.T.F.	1,827	1,929	102	6%
Academic Allowance	20,070	22,361	2,291	11%
Cost of Living Allowances	3,104	3,171	67	2%
Research Allowance 35%	5,295	5,105	(190)	-4%
Special Allowance 20%	4,987	4,886	(101)	-2%
Monthly Compensatory Allowance - 45%	5,182	4,642	(540)	-10%
Overtime	183	78	(105)	-57%
Holiday Payments	-	-	-	0%
Other Allowances (Please specify)	-	-	-	0%
Acting Pay	60	-	(60)	-100%
Equalization Allowance	75	-	(75)	-100%
Entertainment Allowance	210	162	(48)	-23%
Adjustment Allowances	-	-	-	0%
Other Allowances	7,402	7,085	(317)	-4%
Visiting Lecture Fees	680	1,138	458	67%
Gratuity Payments	9,752	914	(8,838)	-91%
<b>Total</b>	<b>98,000</b>	<b>93,697</b>	<b>(4,302)</b>	<b>-4%</b>
<b>Note 2 - Traveling Expenses</b>				
Domestic	70	195	125	178%
Foreign	50	-	(50)	-100%
<b>Total</b>	<b>120</b>	<b>195</b>	<b>75</b>	<b>62%</b>
<b>Note 3 - Supplies</b>				
Stationery and Office Requisites	292	487	195	67%
Fuel and Lubricants	230	268	38	17%
Uniforms	24	-	(24)	-100%
Mechanical and Electrical goods	-	13	13	0%
Chemical & Glassware	2,953	7,851	4,898	166%
Medical Supplies	-	-	-	0%
Other (Please specify)	3	-	(3)	-100%
<b>Total</b>	<b>3,502</b>	<b>8,619</b>	<b>5,117</b>	<b>146%</b>
<b>Note 4 - Maintenance Expenditure</b>				
Vehicles	230	72	(158)	-69%
Plant, Machinery Equipments	44	144	100	228%
Buildings & Structures	440	1,285	845	192%
Furniture	-	-	-	0%
Others (Please specify)	7	-	(7)	-100%
<b>Total</b>	<b>721</b>	<b>1,501</b>	<b>780</b>	<b>108%</b>





Institute of Biochemistry, Molecular Biology and Biotechnology - University of Colombo				
Statement of Comparison - Expenditure 2021				
Recurrent	Budgeted 2021	Total Expenditure 2021	Variation	% of Variation
<b>Note 5 - Contractual Services</b>				
Transport	525	495	(30)	-6%
Telecommunication	1,225	1,785	560	46%
Postal Charges	100	62	(38)	-38%
Electricity	6,704	6,880	176	3%
Water	189	234	45	24%
Rates and Local Taxes	218	200	(18)	-8%
Rental and Hire charges	-	-	-	0%
Security Services	1,443	2,181	738	51%
Cleaning Services	1,599	1,822	223	14%
Printing Advertising etc.	615	1,150	535	87%
Other Contractual Services (Please specify)	8	21	13	160%
<b>Total</b>	<b>12,627</b>	<b>14,830</b>	<b>2,203</b>	<b>17%</b>
<b>Note 6 - Others (Please specify)</b>				
Travel grants to University Teachers	-	-	-	0%
Special Services - Council & Committees	453	1,037	584	129%
-Do- Professional & Other Fees	-	-	-	0%
Workshops, Seminars	-	-	-	0%
Academic Research & Publications	-	320	320	0%
Staff Development (Training for Teachers, Administrators & Other Employees)	145	575	430	297%
Postgraduate Research & Scholarships	-	-	-	0%
Course Materials for Students & Learning Quality Improvement	-	-	-	0%
Industry Internships, Practical & Career Guidance	-	-	-	0%
Students' Development Initiatives & Community Relations	-	-	-	0%
University Sports Activities	-	-	-	0%
Student Welfare, Student Councils & Social Harmony	-	-	-	0%
Employee Welfare & Medical Assistance	-	29	29	0%
Corporate Planning, Governance & Outreach	-	-	-	0%
Grants to other Organizations	-	-	-	0%
Interest subsidy on property loan	50	24	(26)	-51%
Holiday Warrants Season Tickets	65	41	(25)	-38%
Convocation Expenses	74	-	(74)	-100%
Entertainment Expenses	4	90	86	2141%
Bank Charges	-	74	74	0%
Awards & Indemnities	-	-	-	0%
Contributions & Membership Fees	300	517	217	72%
Examination Expenses	295	373	78	27%
Other	24	820	796	3317%
<b>Total</b>	<b>1,410</b>	<b>3,901</b>	<b>2,490</b>	<b>177%</b>
<b>Grand Total Recurrent</b>	<b>116,380</b>	<b>122,742</b>	<b>6,363</b>	<b>5%</b>



Institute of Biochemistry, Molecular Biology and Biotechnology - University of Colombo				
Statement of Comparison - Expenditure 2021				
Capital	Budgeted 2021	Total Expenditure 2021	Variation	% of Variation
<b>Note 7 - Rehabilitation &amp; Improvement of Capital Assets</b>				
Building and Structures	990	1,012	22	2%
Plant, Machinery & Equipment	930	215	(715)	-77%
Vehicles	225	-	(225)	-100%
Furniture, Lab. & Office Equipment	475	153	(322)	-68%
Others (Please specify)	380	631	251	66%
<b>Total</b>	<b>3,000</b>	<b>2,010</b>	<b>(990)</b>	<b>-33%</b>
<b>Note 8 - Acquisition of Fixed Assets</b>				
Plant, Machinery & Equipment	1,000	-	(1,000)	-100%
Furniture, Lab. & Office Equipment	2,350	1,729	(621)	-26%
Building and Structures	-	-	-	0%
Vehicles	-	-	-	0%
Sports Goods	-	-	-	0%
Books & Periodicals	1,150	-	(1,150)	-100%
IT	250	-	(250)	-100%
Others (Please specify)	250	2,694	2,444	978%
<b>Total</b>	<b>5,000</b>	<b>4,422</b>	<b>(578)</b>	<b>-12%</b>
<b>Note 9 - Construction Projects</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Note 10 - Budget Proposals</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Note 11 - Human Capital Development Projects (Please specify)</b>				
Business Consultancy Units	250	-	(250)	-100%
Student Centered Learning	225	-	(225)	-100%
Annual Scientific Session	200	-	(200)	-100%
International Research Symposium	325	-	(325)	-100%
<b>Total</b>	<b>1,000</b>	<b>-</b>	<b>(1,000)</b>	<b>-100%</b>
<b>Note 12 - Research and Development (Please specify)</b>				
3D bioprinting of tumour models for anti cancer drug screening	125	-	(125)	-100%
Development of Diagnostic for Venom Allergy	75	-	(75)	-100%
Development of Nature Products	100	-	(100)	-100%
Isolation, Identification and Utilization of Microbes with Potential Industrial Applications and Management	200	-	(200)	-100%
Development of an in-house diagnostic assay for detection of SARS - Cov-2	150	-	(150)	-100%
Development of diagnostic tests for selected infectious diseases	200	-	(200)	-100%
Development of anti-cancer formulations and synthesized compounds	150	-	(150)	-100%
<b>Total</b>	<b>1,000</b>	<b>-</b>	<b>(1,000)</b>	<b>-100%</b>
<b>Grand Total Capital</b>	<b>10,000</b>	<b>6,433</b>	<b>(3,567)</b>	<b>-36%</b>



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## **Review on Internal Audit Functions in the Year 2021**

### **Introduction**

The Audit Committee is one of the main Committees of the institute of Biochemistry, Molecular Biology and Biotechnology, University of Colombo, Sri Lanka. The three - member Committee meets quarterly in every year and discusses the Institute's financial, administrative, human assets and academic administration. Its membership, terms of office, responsibilities, powers, and electoral procedures are governed by the Treasury of Sri Lanka through University Grants Commission and Board of Management of the Institute.

### **Term of Reference for the Audit Committee**

- i. Determination of the responsibilities of the Internal Audit Division of University of Colombo in relation to the IBMBB and review of the annual audit plans
- ii. Review and evaluate internal control systems for all activities of the Institute
- iii. Preview and recommend the annual Internal Audit Plan and the work programme prepared by the Internal Auditor.
- iv. Review performance at regular intervals for cost effectiveness and to eliminate wasteful expenditure etc.
- v. Liaise with external auditors and follow up on Auditor General's/ external auditors Management Letters. (Audit Report)
- vi. Ascertain whether statutes, regulations, rules and circulars are complied with.
- vii. Review financial statements to ensure compliance with Sri Lanka Public Sector Accounting Standards. (SLPSAS)
- viii. Review internal audit/external audit reports, Management Letters for remedial action
- ix. Review and implementation of recommendations/ directives of the Committee on Public Enterprises
- x. Prepare report on the findings of the Committee for inclusion in the Annual Report





## Composition of the Audit Committee – Year 2020

Name of the Members/Observers	Designation
<b>Members</b>	
Prof. KP Hewagamage	Chairman
Prof. Ramani Wijesekara	Member
Ms. Padmini Ranaweera	Member
<b>Observers</b>	
Prof. Prasanna Galhena	Director/ IBMBB (from 31 <sup>st</sup> August 2021)
Prof. SM Handunnetti	Former Director/IBMBB (Up to 30 <sup>th</sup> August 2021)
Mr. DM Weerasekara	Treasury Representative
Ms. KVTN Sinhaghosha -	Superintendent of Audit
Mr. MMJR Bogamuwa	Internal Auditor/ UGC

## Meetings

As per the Public Enterprise circular No PED/31, the committee is required to meet at least four times in a year. During the year under review, the Committee has met four times. Details of the meetings are given below.

S. No	Meeting Number	Date of Meeting
1	59 <sup>th</sup> Audit Committee Meeting	24 <sup>th</sup> March 2021 -Physical
2	60 <sup>th</sup> Audit Committee Meeting	16 <sup>th</sup> June 2021- Zoom
3	61 <sup>st</sup> Audit Committee Meeting	29 <sup>th</sup> August 2021- Zoom
4	62 <sup>nd</sup> Audit Committee Meeting	03 <sup>rd</sup> November 2021- Zoom

## Internal Audit

The internal audit activities of the Institute of Biochemistry, Molecular Biology and Biotechnology has been conducted by the Internal Audit Division of the University of Colombo. The Internal auditors has carried out following post & pre audit activities as included in the audit plan for 2021.



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### **Post Audit Activities**

- i. Planning
- ii. Academic Activities
- iii. Resources Utilization
- iv. Formalizing the Administration of the staff
- v. Receipts, Expenses & Advance
- vi. Cash Imprest Balance & Bank Reconciliation
- vii. Security and Cleaning Services
- viii. Stores & Stocks

### **Pre-Audit Activities**

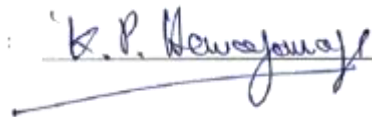
- i. Releasing of University Provident Fund
- ii. Releasing of Gratuity of the Employees
- iii. Releasing of University Pension Funds
- iv. Examining of bills on major construction projects
- v. Inspection on arrears payments

### **Other Audit Activities**

- i. Special investigation carried out on the request of Vice-Chancellor
- ii. Coordination of answers for the audit queries with relevant officers

### **Review of Chairman/ Audit Committee on Internal Audit Function in the Year - 2021**

The Audit Committee satisfied with the active participation of the Committee members and their commitment towards the good governance of the Institute. The Committee satisfied with the internal audit functions of the internal audit division. The Committee while satisfied with the follow up action taken and the progress achieved regarding the recommendations given by the Committee, continue to emphasize the implementation of good governance, transparency, proper financial, administrative, and academic performance.



Chairman  
Audit Committee of the IBMBB



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## Limitations – 2021

The academic and research programmes were adversely disrupted due to outbreaks of COVID-19 and Island wide lock down during the year 2021. The actual impact was further escalated due to restrictions in procurements and late deliveries of committed purchases. Accordingly, deadlines for MSc student project completions and dissertation submission had to be extended. The MSc programme of 2019 intake was very much delayed and this has led to the situation where the course completions of 2019 intake of students could not be achieved by December 2020 and got extended to the year 2021. Such delayed in delivery schedule made year 2021 as a challenging year since teaching for three batches of Molecular Life Sciences and Cellular and Molecular Immunology had to be carried out simultaneously.

In addition, research commitments for those funded by external funding agencies such as the National Science Foundation, National Research Council and International Center for Genetic Engineering and Biotechnology (ICGEB), Italy also got delayed to the same reason. Other programmes such as the short training course on Molecular Biology and Cell Culture Techniques and Advanced Certificate in Immunology were also postponed. Further, the ACU (Commonwealth) Scholars also faced certain difficulties arising by visa expiration caused by COVID-19 pandemic situation.

During the year 2021, it was noted that the laboratory infrastructure as one of the constraining factors in implementing some of the key activities identified in the strategic plan 2021 -2025.

Although new cadre positions for support staff were received in the 3<sup>rd</sup> quarter of 2017, four non-academic cadre positions were vacant up to month of November 2021. However, in December 2021 recruitment of all non-academic cadre positions was completed except the position for work aide.

Although IBMBB has four technical officer cadre positions, only one permanent technical officer (TO) was available during the first quarter of year 2021 and the second TO was unable to attend to work due to COVID-19 restrictions following maternity leave. The two vacant TO positions were filled during the fourth quarter of year 2021.



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## Plan of work for 2022

### Teaching:

- Initiate new postgraduate programme in IBMBB
- Design and demonstrate online course materials
- Upgrade and sustain LMS
- Continue/strengthen existing MPhil and PhD programmes
- Implement biannual student feedback on teaching, learning and assessments
- Strengthening student mentoring program
- Complete self-evaluation for compliance with SLQF qualification descriptors
- Establishment and maintenance of a comprehensive resource pool of Faculty
- Align teaching learning assessments with learning outcomes
- Strengthening modern teaching / learning methods
- Introduce/ continue novel student-centered teaching learning activities (eg: Coursera, PBL, SDL)
- Introduce student internships/industrial training through collaborations with industry

### Research:

- Recognize and implement nationally relevant three key research themes
- Implement an appropriate mechanism to review the periodical progress of research activity
- Establish new and strengthen the existing collaborative assignments with the industry
- Enact memoranda of understanding with Research Institutes/ Private sector Institutes
- Complete Patent Applications and Non-Disclosure Agreements
- Commercialize the research findings
- Strengthen collaborative research programmes with health sector
- Expand the scope of the PhD Programmes
- New admissions to MPhil/PhD programmes, Training of professionals/ technocrats in the applications of Molecular Life Sciences
- Generating new knowledge through research programmes
- Encourage and assist in obtaining National/ International competitive research grants by faculty members/ collaborators
- Strengthen cooperation with other Faculties/ Universities and private sector Educational Institutes
- Dissemination of Knowledge/ Research Findings



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### **Service:**

- Develop collaboration with Industry/Private sector
- Conduct awareness programme targeting relevant social segments
- Enriching teaching and learning activities targeting advance level students following Biology/ Technology stream
- Organize annual blood donation camp
- Carryout annual event at Apeksha Hospital
- Conduct annual school programme targeting resource limited Advance Level students
- 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
- 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
- Development and implementation of new laboratory establishment policy by addressing the current and future demands
- Acquisition and upgrading of IT infrastructure facilities
- 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
- Conduct an International research symposia
- Encourage and assist in participation at International conferences by faculty members/collaborators/ students to present research carried out at the IBMBB

### **Governance:**

- Development of a Training Policy and Guidelines
- Code of Ethics for staff and students
- Compliance with accepted norms of Accounting standards
- Develop SOP Manual of procedure for Administrative activities
- Provide regular training for staff members



# Summary of Annual Report and Accounts – 2021

## 1. Details of Resources & Students:

Faculty	Course	Total Students	Total Academic Staff	Total Non Academic Staff
IBMBB, UOC	Master of MLS/ MSc in MLS	42	11	26*(+1^)
	Master of CMI/MSc in CMI	24		
	Master of BI/ MSc in BI	21		
	MPhil	24		
	PhD			
	Registered for MPhil/PhD in other Institutions and carried out a comporment research work	02		
	Exposure on Molecular Biology & Immunology	25		
Total		138	11	27

\* Include 05 Academic Support Staff members (01 - Assistant Network Manager & 04 Scientific Assistants)

<sup>^</sup> Deputy Bursar (On Contract)

## 2. Details of Academic Staff:

Faculty	Subject	Medium	Senior Prof	Professor	Senior Lecturer	Lecturer	Asst. Lecturer (contract)	Post - Doctoral Research Fellow
IBMBB, UOC	Molecular Life Sciences	English	1	-	-	-	-	-
	Cellular & Molecular Immunology	English	-	1	2	1	1	-
	Molecular Biology	English	-	1	-	-	1	1
	Biochemistry and Molecular Biology	English	-	1	1	-	-	-
	DNA Diagnostics	English	-	-	1	-	-	-
	Cell Biology	English	-	-	1	-	-	-
	Plant Molecular Biology	English	-	-	1	-	-	-
<b>Total</b>			1	3	6	1	2	1



### 3. Details of Administrative & Non-Academic Staff:

Faculty/ Branch	Most Senior	Senior Staff	Junior Staff	Minor Employees
IBMBB			1- Assistant Network Manager 4- Scientific Assistants	
	1-Senior Assistant Registrar 1- Deputy Bursar (on Contract) 1- Assistant Registrar		1- Technical Officer, Gr.I 1-Technical Officer, Gr.II seg B 2-Trainee Technical Officers	3- Laboratory Attendants
			7- Management Assistants 1- Management Assistant (Book Keeping) 1-Management Assistant (Shroff) 1-Library Information Assistant	1- Driver
			1- Telephone Operator cum Receptionist	
<b>Total</b>	<b>3</b>		<b>20</b>	<b>04</b>

### 1. Details of Research, Innovation and Publications:

Subject	Published	Commercialized	Presented
a. No of Researches			
MSc Dissertations	11		
PhD Thesis	06		
MPhil	-		
b. No of Innovations			
c. No of Journals			
d. No of Books			
e. No of News paper articles			
e. No of Articles –Full Papers in Journals	18		
f. Other (Research , Communications)			21
<b>Total</b>	<b>35</b>		<b>21</b>



## 5. Details of Programme, Seminars & Workshops:

Subject	Offered	Completed	Offered	Completed
	2020		2021	
a. No of Postgraduate Degree Programme	2	2	3	19
b. No of Postgraduate Diploma Programme	2	1	3	3
c. Training Short Courses/workshops/ demonstrations etc.	4	4	2	25
d. Annual sessions	1	1	-	-
e. International Conference (with 4 Symposia)	-	-	-	-
Demonstration on Molecular Biology and Immunology practical demonstrations				
• Demonstration on DNA Sequencing (Biotechnology specialized students, Wayamba University)	1	1	-	-
• One day practical demonstration on Restriction Enzyme digestion (University College London students)	1	1	-	-
• Practical demonstration on Real Time PCR (Wayamba University students)	-	-	-	-
<b>Total</b>	11	10	08	47

\*duration of one degree programme is 18/36 months

## 6. Details of Awards Received:

Subject	No of Awards	No of Academics	No of Students	No of Awards	No of Academics	No of Students
	2020			2021		
a. Local awards	1	2	2	-	-	-
b. National Awards	9	9	-	5	5	-
c. International Awards	1	1	1	-	-	-
d. Travel Awards	-	-	-	-	-	-
<b>Total</b>	11	12	3	5	5	0

## 7. Details of Recurrent Expenditure: 2021

	Subject	2020 (Rs.)	2021 (Rs.)
a.	Personal emoluments	94,851,104	101,105,568
b.	Travelling	64,892	194,677
c.	Supplies	13,030,002	8,618,940
d.	Maintenance	4,298,646	3,511,029
e.	Contractual Services	14,693,792	14,829,997
f.	Other (including depreciation)	29,600,720	31,146,795
	<b>Total</b>	156,539,156	159,407,006





## 8. Details of Capital Expenditure:

	Subject	2020 (Rs.)	2021 (Rs.)
a.	Acquisition of furniture & Office Equipment	416,416	1,265,185
b.	Acquisition of Machineries (Computers & Lab Equip.)	5,041,086	3,157,274
c.	Acquisition of Building & Structures	0	0
d.	Other (Library Books)	0	0
e.	Vehicle	0	0
	<b>Total</b>	<b>5,457,502</b>	<b>4,422,459</b>

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

Name	Exp in 2020 (Rs.)	Cummulative Exp from 2020 to 2021 (Rs.)	Cumulative Exp as at 31.12.2021
Grants	4,833,843	2,745,408	7,579,251
IFS	0	0	0
IPIC	0	0	0
Swedish Research Grant	11,146	0	11,146
Start-up Research Grant (UGC)	16,604	0	16,604
<b>Total</b>	<b>4,861,593</b>	<b>2,745,408</b>	<b>7,607,001</b>

## 10. Details of Financial Progress (Expenditure):

	Subject	Provision in 2021 Rs.	Exp in 2021 Rs.	Savings/Excess Rs.
a.	Recurrent (Except Project)		156,661,598	
b.	Capital (Except Project)		4,422,459	
c.	Project-Local funded –NSF Grant		2,745,408	
	<b>Total</b>		<b>163,829,465</b>	

\*Depreciation not Considered      \* Included Expenditures from Generated Income

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

## 11. Details of Financial Progress (Generated Income) :

	Source of Revenue	Provision in 2021 (Rs.)	Collection in 2021 (Rs.)	Deficit/ Surplus (Rs.)
a.	Undergraduate Studies	not relevant	not relevant	
b.	Postgraduate Studies		17,615,789	-
c.	Consultancies		0	
d.	Other		4,392,138	
	<b>Total</b>		<b>22,007,927</b>	



## 12. Financial Performance Analysis-2021:

Rs'000

	Actual 2013	Budgeted 2014	Estimate 2015	Estimate 2016	Estimate 2017	Estimate 2018	Estimate 2019	Estimate 2020	Estimate 2021
<b>No. of Students</b>	<b>MSc 34</b>	<b>MSc 41</b>	<b>MSc 60</b>	<b>MSc 60</b>	<b>MSc 33</b>	<b>MSc 34</b>	<b>MSc 52</b>	<b>MSc 78</b>	<b>MSc 87</b>
	MLS 16	MLS 23	MLS 30	MLS 30	MLS 19	MLS 21	MLS 19	MLS 37	MLS 42
	CMI 07	CMI 07	CMI 15	CMI 15	CMI 14	CMI 13	CMI 14	CMI 22	CMI 24
	BI 11	BI 11	BI 15	BI 15	BI -	BI -	BI 19	BI 19	BI 21
	<b>MPhil/PhD 25</b>	<b>MPhil/PhD 21</b>	<b>MPhil/PhD 25</b>	<b>MPhil/PhD 33</b>	<b>MPhil/PhD 29</b>	<b>MPhil/PhD 32</b>	<b>MPhil/PhD 27</b>	<b>MPhil/PhD 26</b>	<b>MPhil/PhD 24</b>
<b>Recurrent Cost per Student</b>	<b>MSc</b> Rs. 463,720/=	<b>MSc</b> Rs. 306,490/=	<b>MSc</b> Rs. 361,553 /=	<b>MSc</b> Rs. 458,716 /=	<b>MSc</b> Rs. 488,266/=	<b>MSc</b> Rs. 617,445 /=	<b>MSc</b> Rs. 578,748 /=	<b>MSc</b> Rs. 431,177 /=	<b>MSc</b> Rs. 405,890 /=
	<b>MPhil/PhD</b> Rs.1,319,107/=	<b>MPhil/PhD</b> Rs.897,580/=	<b>MPhil/PhD</b> Rs.1,301,592/=	<b>MPhil/PhD</b> Rs.1,063,388/=	<b>MPhil/PhD</b> Rs.1,287,607/=	<b>MPhil/PhD</b> Rs.1,078,930 /=	<b>MPhil/PhD</b> Rs.1,779,107 /=	<b>MPhil/PhD</b> Rs.2,010,954 /=	<b>MPhil/PhD</b> Rs.2,257,440 /=
<b>Capital Cost per Student</b>	<b>MSc</b> Rs. 117,266/=	<b>MSc</b> Rs. 117,073/=	<b>MSc</b> Rs. 91,000/=	<b>MSc</b> Rs.108,831/=	<b>MSc</b> Rs.159,493/=	<b>MSc</b> Rs. 184,402/=	<b>MSc</b> Rs. 145,990/=	<b>MSc</b> Rs. 136,568/=	<b>MSc</b> Rs. 125,382/=
	<b>MPhil/PhD</b> Rs.239,224/=	<b>MPhil/PhD</b> Rs.342,857	<b>MPhil/PhD</b> Rs.327,600/=	<b>MPhil/PhD</b> Rs.252,291/=	<b>MPhil/PhD</b> Rs.272,237/=	<b>MPhil/PhD</b> Rs. 294,173/=	<b>MPhil/PhD</b> Rs. 421,750/=	<b>MPhil/PhD</b> Rs. 614,557/=	<b>MPhil/PhD</b> Rs. 681,764/=

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

\*\* Not included Security, Electricity, Water.

\*\*\* Amount of Research Grants can be calculated at the end of the year.

\*\*\*\* MPhil/ PhD per student cost will be varied based on Research Grant.



## Cumulative Summary of Students by Year MSc & MPhil/PhD Programmes from 2019-2021

Degree			2019	2020	2021
Master of Molecular Life Science	Intake	New Intake	10	15	20
		Continuing	-	03	02
		Discontinued	01	01	03
		Total	09	17	19
	Output	PG Dip	-	-	01
		Master	-	02	01
		Total	-	02	02
Master of Cellular and Molecular Immunology	Intake	New Intake	07	07	18
		Continuing	-	02	01
		Discontinued	01	01	02
		Total	06	08	17
	Output	PG Dip	-	01	-
		Master	-	-	01
		Total	-	01	01
Master of Bioinformatics	Intake	New Intake	19	-	19
		Continuing	-	18	01
		Discontinued	01	-	02
		Total	18	18	18
	Output	PG Dip	-	-	02
		Master	-	-	11
		Total	-	-	13
Master of Science in Molecular Life Science	Intake	New Intake	-	04	12
		Continuing	15*	15*	11
		Total	15	19	23
	Output	MSc	05	06	-
Master of Science in Cellular and Molecular Immunology	Intake	New Intake	-	04	06
		Continuing	09*	09*	01
		Total	09	13	07
	Output	MSc	02	06	06
Master of Science in Bioinformatics	Intake	New Intake	-	-	03
		Continuing	-	-	-
		Total	-	-	03
	Output	MSc	-	-	-
MPhil/PhD	Intake	New Intake	02	03	-
		Continuing	24	23	24
		Total	26	26	24
	Output	Graduates	09	02	01

\*student registered in 2017/2018 (refer the cumulative summary 2005-2018)



## Cumulative Summary of Students by Year - MSc & MPhil/PhD Programmes From 2005 to 2018

		2004 June to Dec	2005*	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
MSc *(commenced in 2005)	Total	-	8	18	25	24	24	33	34	34	34	42	33	34	34	31	
	New intake	-	8	10	11	13	12	19	10	22	11	18	12	21	11	19	197
	Continuing	-	-	8	14	11	12	14	24	12	23	24	21	13	23	12	
	Output	-	-	-	3	11	10	8	8	17	11	8	18	17	12	15	138
MPhil/PhD	Total	3	0	8	8	13	13	12	13	18	17	24	27	28	28	32	
	New intake	3	0	5	1	5	1	1	1	11	7	6	3	4	6	5	59
	continuing	-	-	3	7	8	12	11	12	6	10	18	24	23	22	27	
	Output	-	-	-	1	0	0	1	1	1	3	1	0	1	6	3	18
MSc (indirect)	Total	2	6	3	1	-	-	-	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	4	7	
	New intake	-	1	0	3	-	4	0	1	0	0	1	-	-	1	0	11
	Continuing	7	5	4	3	5	4	6	2	1	6	3	5		3	4	
	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	66	70	
	New intake	5	13	16	15	18	17	20	13	33	18	25	15	25	18	24	275
	Continuing	7	10	17	25	24	28	31	38	19	39	45	50	-	48	43	
	Output	1	1	6	4	13	10	9	12	20	14	12	19	19	18	18	176
Staff: Student ratio		1:12	1:08	1:08	1:10	1:14	1:15	1:17	1:17	1:17	1:14	1:14	1:13	1:13	1:11	1:08	

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

Summary 2004-2018	MSc	MPhil/PhD	Total	
Direct Output	138	18	156	176
Indirect Output	7	13	20	
Direct Intake	197	59	256	275
Indirect Intake	8	11	19	



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## **Auditor General Report & Responses**

My No. : HED/B/IBMBB/2021/FA/03

Your No: Date: 23<sup>rd</sup> May 2022

Director

Institute of Biochemistry, Molecular Biology and Biotechnology.

Report on the Auditor General on the Financial Statements and other legal and monitoring requirements of Institute of Biochemistry, Molecular Biology and Biotechnology affiliated to the University Of Colombo for the year ended 31<sup>st</sup> December 2021 in terms of section 12 of the National Audit Act, No. 19 of 2018.

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The aforesaid report has been sent herewith.

WPC Wickramaratne

Auditor General

Copies:

1. Secretary – Ministry of Education
2. Secretary – Ministry of Finance
3. Chairman – University Grants Commission
4. Vice Chancellor - University of Colombo



My No.} HED/B/IBMBB/2021/FA/03      Your No.}      Date} 23<sup>rd</sup> May 2022

Director,  
Institute of Biochemistry, Molecular Biology and Biotechnology.

Report on the Auditor General on the Financial Statements and other legal and monitoring requirements of Institute of Biochemistry, Molecular Biology and Biotechnology affiliated to the University Of Colombo for the year ended 31<sup>st</sup> December 2021 in terms of section 12 of the National Audit Act, No. 19 of 2018.

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## **1. Financial Statements**

### **1.1 Qualified Opinion**

The audit of Financial Statements of the of Institute of Biochemistry, Molecular Biology and Biotechnology affiliated to the University Of Colombo for the year ended 31<sup>st</sup> December 2021 comprising the Statement of Financial Position as at 31<sup>st</sup> December 2021 and the Statement of Financial Performance and Statement of Changes in Equity and Cash Flow Statement for the year then ended and a summary of significant accounting policies and other explanatory notes were carried out under my direction in pursuance of provisions laid down in section 17 of the Ordinance of Institute of Biochemistry, Molecular Biology and Biotechnology No. 1 of 2003 vested upon by section 18 and subsection 107 (5) and Article 108 (1) of the Universities Act No. 16 of 1978 which should be read in conjugation with Article 154 (1) of the Constitution of the Democratic Socialist Republic of Sri Lanka and section 12 of the of the National Audit Act, No. 19 of 2018. My report will be tabled in the parliament in due course in terms of Article 154 (6) of the Constitution.

In my opinion, except of the matters described in the paragraph on “Basis for Qualified Opinion” of this report the Financial Statements give a true and fair view of the financial position of the Institute as at 31 December 2021 and its Financial Performance and Cash Flows for the year then ended in accordance with Sri Lanka Public Sector Accounting Standards.

### **1.2 Basis for Qualified Opinion**

- a) The assessment value of the building received as a donation had been accounted at Rs. 116,564,649. The depreciation value of the same building amounting to Rs. 11,694,463 for the years 2020 and 2021 had been debited to the account of capital Grant Spent instead of been debited to the account of Gifts and Donations, thus over accounting and under accounting the aforesaid accounts respectively by the same amount.



- b) Although there should have been a credit balance in the Capital Grants Spent Account, there was an abnormal debit balance of Rs. 32,092,188 in it as of 31<sup>st</sup> December 2021.

I conducted my audit in accordance with Sri Lanka Auditing Standards. My responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of my report. I believe that the audit evidence I have obtained is sufficient and appropriate enough to provide a basis for my qualified opinion.

### **1.3 Other Information available in the Annual Report of the Institute**

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Other information refers to the information obtained by me before the date of this report that are included in the annual report of the Institute - 2021, yet not available in my audit report. The management is responsible for this other information.

My opinion of the Financial Statements does not cover this other information and I do not confirm or express an opinion regarding that.

My responsibility regarding the auditing of the Financial Statements is to read the above recognized other information and to consider whether other information materially contradict with my knowledge obtained through the Financial Statements, auditing or in any other means.

In case I conclude that this other information is materially misstated based on the other information obtained by me prior to the date of this audit report and work performed by me, I am required to report that fact. I have nothing to report in this regard.

### **1.4 Responsibility of Management and Controlling Parties for the Financial Statements**

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Management is responsible for the preparation and fair presentation of these Financial Statements that give a true and fair view in accordance with Sri Lanka Public Sector Accounting Standards and for determining the internal controls which are necessary to enable the preparation of Financial Statements that are free from material misstatements whether due to fraud or error.

It is the responsibility of the management to decide on the going concern ability of the entity in preparation of Financial Statements. It is also a responsibility of the management to keep accounts on a going concern basis and disclosure of the facts in relation to the going concern of the entity except in case the management intends to liquidate the institution or it is intended to cease operation in the absence of any other option.

Those charged with governance are responsible for overseeing the Institute's financial reporting process.



As per the subsection 16 (1) of the National Audit Act, No. 19 of 2018, the institute is required to maintain proper books and records of all its income, expenditure, assets and liabilities, to enable annual and periodic Financial Statements to be prepared of the institute.

### **1.5. Auditor's Responsibility for the audit of Financial Statements**

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My objective is to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud and error, and to issue an auditor's report that includes my opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Sri Lanka Auditing Standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As a part of an audit in accordance with Sri Lanka Auditing Standards, I exercise professional judgment and maintain professional skepticism throughout the audit. I also,

- Obtaining sufficient and appropriate audit evidence to avoid risks caused by fraud or error by designing appropriate audit procedures that are appropriate in the circumstances in recognizing and evaluating possible misstatements that may occur in Financial Statements due to fraud or error is the basis of my opinion. Fraud will have a higher impact than that of material misstatements and collusion, forgery, intentional avoidance and override of internal controls may result in fraud.
- The auditor considered internal controls relevant to the institute 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 internal controls of the institution.
- The audit included evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management as well as the suitability of the related disclosures made by the management.
- The relevance of using the going concern basis for accounting purpose was determined based on the audit evidence obtained on whether there is a sufficient contingency on the going concern of the university due to events or circumstances. In case I conclude that there is a sufficient contingency, my audit report should attend to the related disclosures in the Financial Statements and my opinion must be modified in case the disclosures are not sufficient enough. However, going concern may end due to future events or circumstances.





- Presentation, structure and content of the Financial Statements with disclosures was assessed and underlying transactions and events were evaluated for whether they were included in the Financial Statements in an appropriate and reasonable manner.

The Governing authority will be made aware of the important audit findings, major internal control weaknesses and other facts recognized in the audit.

## **2. Report on other Legal and Monitoring Requirements**

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- 2.1 Special provisions are included regarding the following requirements in the National Audit Act, No. 19 of 2018.
- 2.1.1. I have obtained all the information and explanations required for the audit according to the requirements of section 12 (a) of National Audit Act, No. 19 of 2018, except for the impact of matters described in the paragraph “Basis for Qualified Opinion” of this report. As seen in my investigation the university had maintained proper financial reports.
- 2.1.2. According to the requirements of section 6 (I) (d) (iii) of National Audit Act, No. 19 of 2018, the Financial Statements presented by the university are in consistent with the preceding year.
- 2.1.3. According to the requirements of section 6 (I) (d) (iv) of National Audit Act, No. 19 of 2018, the recommendations made by me in previous year have been included in the presented Financial Statements.
- 2.2. According to of the procedures followed, evidence obtained and within the restriction of the quantitative matters, nothing caught my attention that was sufficient to make the following statements.
- 2.2.1. According to the requirements of section 12 (d) of National Audit Act, No. 19 of 2018, any member of the council of the university has any direct or indirect interest in any contract entered by the university that is outside the normal business arrangement.
- 2.2.2. According to the requirements of section 12 (f) of National Audit Act, No. 19 of 2018, the auditee entity has not complied with any applicable written law or other general or special directions issued by the governing body of the auditee entity.
- 2.2.3. According to the requirements of section 12 (g) of National Audit Act, No. 19 of 2018, the Institute has not performed according to its powers, functions and duties.
- 2.2.4. According to the requirements of section 12 (h) of National Audit Act, No. 19 of 2018, the resources of the auditee entity had been procured and utilized



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economically, efficiently and effectively within the time frames and in compliance with the applicable laws.

### **2.3. Other observations**

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- a) Ten (10) research grants aggregating to Rs. 3,435,527 as at 31<sup>st</sup> December 2021 had not been utilized for the relevant work.
- b) Eighty five (85) items aggregating to Rs. 549,616 that were available in the balance stock as at 31<sup>st</sup> December 2020 lay idle in the stores without being utilized even in 2021.

WPC Wickramaratna  
Auditor General.



25.07.2022

Auditor General,  
Auditor General's Department,  
306/72,  
Polduwa Road,  
Baththaramulla.

Dear Sir,

**Report on the Auditor General on the Financial Statements and other legal and monitoring requirements of Institute of Biochemistry, Molecular Biology and Biotechnology affiliated to the University Of Colombo for the year ended 31<sup>st</sup> December 2021 in terms of section 12 of the National Audit Act, No. 19 of 2018.**

This is with reference to your letter bearing no. HED/B/IBMBB/2021/FA/03 on the above heading. The relevant information regarding the pertaining matters given in the report is attached herewith.

Thank you.

Professor Prasanna Galhena  
Director

Copies:

1. Secretary – Ministry of Education
2. Secretary – Ministry of Finance
3. Chairman – University Grants Commission
4. Vice Chancellor - University of Colombo



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## 1. Financial Statements

### 1.2. Basis for the Qualified Opinion

(a) Action will be taken to rectify the amount of Rs. 11,694,463 debited to the Capital Grants as the Amortization of the building in 2020 and 2021. This will be done in preparing the Financial Statements for the year 2022.

(b) The Capital Depreciation method adjustment that resulted in negative balance of Rs. 32,092, 188 in the capital grant will be rectified in preparing the Financial Statements for the year 2022.

## 2. Report on other Legal and Monitoring Requirements

### 2.3. Other observations

(a) The principle investigators of the 10 research grants underutilized in 2021 have started to utilize these grants by now.

(b) The unutilized stock items mentioned in the audit report are currently being utilized.



## Summary of the Audit Report and Remedial Actions

Chapter No.	Chapter	Observations
1.2 (a)	The assessment value of the building received as a donation had been accounted at Rs. 116,564,649. The depreciation value of the same building amounting to Rs. 11,694,463 for the years 2020 and 2021 had been debited to the account of capital Grant Spent instead of been debited to the account of Gifts and Donations, thus over accounting and under accounting the aforesaid accounts respectively by the same amount.	Amortization of the building was started in 2020 and it was observed that it had been adjusted to Capital Grants without adjusting it to the relevant asset (Gift and Donations). The same accounting policy followed till 2020 was carried forward. The adjustment will be rectified in the year 2022.
(b)	Although there should have been a credit balance in the Capital Grants Spent Account, there was an abnormal debit balance of Rs. 32,092,188 in it as of 31 <sup>st</sup> December 2021.	The capital grant balance for the year 2021 shows a negative balance of Rs. 32,092, 188 through Capital Depreciation method. The adjustment followed till 2020 was carried out in the same way in 2021 as well, which resulted in this classification error in double entry book keeping. Action will be taken to rectify this error in the final account for the year 2022.
2.3 (a)	Ten (10) research grants aggregating to Rs. 3,435,527 as at 31 <sup>st</sup> December 2021 had not been utilized for the relevant work.	Due to the Corona pandemic in the year under review, the use of individual research grants is made under very limited circumstances. Therefore, the expenses for the related grants have been minimal during the above period. However those expenses will be carried out properly under normalcy during the next year. These researches were postponed to 2022 due to the inability to obtain samples from the relevant fields and inability to obtain the necessary chemicals from the suppliers. The research carried out with Swedish Research Grants was postponed as the foreign scientists were unable to reach Sri Lanka.



(b)	<p>Eighty five (85) items aggregating to Rs. 549,616 that were available in the balance stock as at 31<sup>st</sup> December 2020 lay idle in the stores without being utilized even in 2021.</p>	<p>There were nonmoving items in the stores due to the following reasons. About 80% of them were kept due to the following reasons. In 2022, they were utilized for the research activities under normalcy.</p> <ul style="list-style-type: none"><li>• For some students (MLS &amp;CMI) stocks will have to be produced at the beginning of the project and they are non - expirable materials. They should remain for the particular student till the completion of the academic project. The money provided by the sponsors should be spent only on respective person. Those items cannot be purchased time to time as the quality of the material is hard to find.</li><li>• Some academic projects had to be postponed. In such occasions, the stock will be kept till the completion of the academic project. The list provided by you has changed by now as academic activities are taking place under normalcy (unlike the previous three years) in the country.</li><li>• Certain items are purchased for the respective staff in order to implement their own research. Since these activities were not carried out at present, the research material had to be retained in bulk. Some materials have been purchased in bulk due to their high cost and difficulty in finding them in the market.</li></ul> <p>However, The stock balance provided by you has been utilized as the academic activities and studies have been restarted under normalcy and the stocks are being utilized for the study purposes. The list of stock available at present has been attached.</p>
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