

# ONLINE HANDS ON TRAINING PROGRAMME ON PRIMER DESIGNING AND RECOMBINANT VECTOR CONSTRUCTION

ORGANIZED BY  
**SCHOOL OF BIOSCIENCES**



RESOURCE PERSON

## Stephen James, M.Tech.

Practising bioinformatician having more than 14 years of experience at Manipal University & MACFAST

13-14 JULY  
2020



RESOURCE PERSON

## Blessan Santhosh George, Ph.D.

An alumni of FRI Dehradun, having more than 10 years of experience in recombinant DNA technology

TOPICS

DAY I

Session 1 (FN) : Lecture 1: PCR and Primers  
Session II (AN) : Practical session in primer designing

DAY II

Session III (FN) : Lecture 2 : Vectors and Enzymes in recombinant technology  
: Lecture 3 : Software tools in recombinant vector construction  
Session IV (AN) : Practical session on enzyme database & restriction site in sequence  
Session V : On-line test

### FOR REGISTRATION CONTACT

Biju Dharmapalan  
Co-ordinator  
Head, School of Biosciences  
MACFAST,  
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### REGISTRATION FEES

Faculty members/ Research scholars: Rs.500  
Post graduate and undergraduate students: Rs.250  
Registration link : <https://forms.gle/RGJhS2cJd5WJHvPQ6>

### Mar Athanasios College For Advanced Studies Tiruvalla (MACFAST)

(Accredited by NAAC with 'A' grade and Recognized by DSIR, Govt. of India; Listed in the National Institutional Ranking Framework (NIRF) 2020 Rank Band: 151-200)

Kerala, India-689 101

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COURSES

M.Sc. Biochemistry  
M.Sc. Bioinformatics  
M.Sc. Bionanotechnology  
M.Sc. Biotechnology  
M.Sc. Food Technology & Quality Assurance  
M.Sc. Phytomedical Science & Technology  
M.Sc. Plant Biotechnology  
Master of Computer Applications (MCA)  
Master of Business Administration (MBA)



## School of Biosciences and IQAC, MACFAST

### Report on

## Hands-On Training Programme On Primer Designing & Recombinant Vector Construction

13th & 14th July 2020

The School of Biosciences in association with IQAC, MACFAST organized a two day online hands on training programme on Primer designing and recombinant vector construction on 13th & 14th July 2020 for faculty members, research scholars, B.Sc. and M.Sc. students. Sessions were handled by Mr. Stephen James, MSc., M. Tech and Dr. Blessan Santhosh George, PhD. The event was inaugurated by Fr. Dr. Cherian J Kottayil, Principal, MACFAST. Five sessions were included in the training programme. During the event, the resource person explained well about working principles of PCR and primers and based on that, a practical session also conducted in primer designing on first day. Two lecture classes based on vectors and enzymes in recombinant technology and software tools in recombinant vector construction and one practical session on enzyme data base restriction site in sequence were organized on the last day. The knowledge accrued by the participants also were evaluated by conducting an online test. The participants found this training programme highly knowledgeable and insightful well appreciated the resource persons. 182 participants were attended the session. The event was co-ordinated by Prof. Biju D HoD, School of Biosciences, MACFAST.

(Blessan Santhosh George)

Fr. Dr. CHERIAN J KOTTAYIL  
PRINCIPAL  
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## BLESSAN SANTHOSH GEORGE, PhD

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### PROFESSIONAL SUMMARY

Motivated teacher in Life Sciences with more than ten years of experience in University and college teaching and research.

Propensity for high quality education practices and for fundamental and society-centered research.

Experience in designing and revising post graduate programme syllabi, Chairperson of university PG programmes, Co-editor of quarterly science journal, Co-convenor of international conference, supervising postgraduate dissertation.

PhD degree awarded by FRI(Deemed)University, Dehradun

Qualified NET & GATE

### TEACHING EXPERIENCE

#### **Mar Athanasios College for Advanced Studies Tiruvalla (MACFAST), Kerala – Assistant Professor**

FEBRUARY 2017 – PRESENT

- Postgraduate teaching - six M.Sc. programmes viz. Biochemistry, Biotechnology, Plant Biotechnology, Bionanotechnology, Bioinformatics and Phytomedical Science & Technology
- Member, PG Expert Committee in Biosciences, Mahatma Gandhi University, Kottayam
- Chairperson, M.Sc. Plant Biotechnology (2018-present), M.Sc. Phytomedical Science & Technology (2018-20)
- Co-editor, Journal of Science, Technology & Management (JSTM)
- Guest Editor, Indian Journal of Experimental Biology, Vol. 58(12)
- Co-convenor, International Conference on Advances in Food & Industrial Biotechnology, Biospectrum-2019
- Question paper setter for CUSAT, Kochi & MG University, Kottayam
- Additional and external & chief examiner of MG University
- Resource person, Online Hands on Training Programme in Primer Designing and Recombinant Vector Construction
- Resource person, Hands-on Training on Plant Tissue Culture Techniques sponsored by Kerala Biotechnology Commission
- Supervising student dissertations

**MACFAST, Kerala – Guest Faculty**

OCTOBER 2016 – JANUARY 2017

- Postgraduate teaching

**Central University of Kerala, Kasaragod – Guest Faculty**

SEPTEMBER 2014 – APRIL 2016

- Postgraduate teaching in Department of Biochemistry and Molecular Biology
- Question paper setter
- Supervised student dissertation

**RESEARCH EXPERIENCE**

**Institute of Forest Genetics and Tree Breeding (ICFRE institute), Coimbatore, Tamil Nadu – Senior & Junior Research Fellow**

NOVEMBER 2010 – MAY 2014

Primary goals of the assigned DBT-funded research project were gene isolation & functional characterization of recombinant protein using bacterial and plant systems.

**National Institute of Plant Genome Research, New Delhi – Summer Research Fellow**

JULY – SEPTEMBER 2010

Recombinant protein expression

**National Chemical Laboratory, Pune – Summer Internship**

MAY – JUNE 2009

Plant tissue culture and Phytochemical analysis

**Amrita School of Biotechnology, Amrita Vishwa Vidyapeetham, Kollam, Kerala – Summer Research Fellow**

APRIL – JUNE 2008

Phytochemical analysis

**SKILLS**

- PCR based techniques: routine PCR, RACE, RT-PCR
- Gene isolation
- Data mining from Transcriptome Data for Gene Expression Analysis –real time PCR
- Molecular cloning & Microbial genetic transformation (*E. coli*)
- Recombinant protein production, purification & characterization
  - Qualitative estimation by SDS-PAGE, Silver staining, Western blotting
  - Purification by chromatographic methods
  - Purification of target protein formed as inclusion bodies
- Plant genetic transformation (Tobacco)
  - Vector construction
  - *Agrobacterium*-mediated transformation
  - Plant tissue culture techniques
- Fungal bioassays
- Insect bioassays

## EDUCATION

**Ph.D. in Forestry (Forest Biotechnology)** – Forest Research Institute  
Deemed to be University, Dehradun

2019

Institute of Forest Genetics & Tree Breeding (ICFRE Institute), Coimbatore

Thesis title: "Isolation and Functional Characterization of Recombinant Lectin from *Withania somnifera* (L.) Dunal"

Research guide: Dr. Modhumita Dasgupta, Scientist-F

**M.Sc. in Biotechnology** – Bharathidasan University, Tiruchirappalli

2010 | 81.2%

Department of Biotechnology, Bharathidasan University

Dissertation title: "Studies on Direct Organogenesis and Genetic Transformation in Indian Cultivar of Soybean [*Glycine max* (L.) Merrill] using Cotyledonary Node as Explant"

Research guide: Prof. (Dr.) A. Ganapathi

**B.Sc. in Botany & Biotechnology (Restructured)** – University of Kerala

2008 | 81.3%

Mar Ivanios College, Thiruvananthapuram

**Senior School Certificate Examination (Class XII)** – CBSE

2004 | 81.2%

Arya Central School, Thiruvananthapuram

## AREAS OF INTEREST

Gene expression analysis in plants during stress conditions and identifying relevant genes henceforth for plant improvement by genetic transformation

Prospect of insect microbiome in pest management strategies

Better understanding of genetic disorders for improved diagnosis

## AWARDS/ FELLOWSHIPS

Indian Academy of Sciences' Summer Research Fellowship -2010

Indian Academy of Sciences' Summer Research Fellowship -2008

## COMPETITIVE EXAMS QUALIFIED

CSIR-UGC Test under Eligibility for Lectureship (NET-LS) in Life Sciences - 2010

GATE in Life sciences - 2010

## PUBLICATIONS

### International Journal Publications (Peer-reviewed):

1. **George, B. S.**, Silambarasan, S., Senthil, K., Jacob, J. P., & Dasgupta, M. G. (2020). Ectopic expression of WsMBP1 from *Withania somnifera* in transgenic tobacco shows insecticidal activity against teak defoliator *Hyblaea pueria* (Lepidoptera: Hyblaeidae). *Biologia*, 75, 2331-2339.
2. **George, B. S.**, Silambarasan, S., Senthil, K., Jacob, J. P., & Dasgupta, M. G. (2018). Characterization of an Insecticidal Protein from *Withania somnifera* against Lepidopteran and Hemipteran Pest. *Molecular Biotechnology*, 60(4), 290-301.
3. Ghosh Dasgupta M., **George, B. S.**, Bhatia, A. & Sidhu, O. P. (2014). Characterization of *Withania somnifera* Leaf Transcriptome and Expression Analysis of Pathogenesis - Related Genes during Salicylic Acid Signaling. *PLoS ONE*, 9(4): e94803. doi:10.1371/journal.pone.0094803 ISSN: 1932-6203

### Publications in International Conference Proceeding:

4. **George, B. S.**, Radha, V. & Ghosh Dasgupta, M. (2014). Isolation, Characterization and Expression Profiling of Glucanase from *Casuarina equisetifolia*. In: Nicodemus, A., Pinyopusarerk, K., Zhong, C.L., Franche, C. (Eds.), *Proceedings of Casuarina Improvements for Securing Rural Livelihoods: Fifth International Casuarina Workshop, Chennai, India, 3-7 February 2014* (pp.152-157). Coimbatore, India: Institute of Forest Genetics & Tree Breeding. ISBN: 978-93-82387-12-1
5. Shanthi, A., Vikashini, B., **George, B. S.** & Dasgupta, M. (2014). Identification of Cinnomoyl CoA Reductase (CCR) Gene in *Casuarina equisetifolia*. In: Nicodemus, A., Pinyopusarerk, K., Zhong, C.L., Franche, C. (Eds.), *Proceedings of Casuarina Improvements for Securing Rural Livelihoods: Fifth International Casuarina Workshop, Chennai, India, 3-7 February 2014* (pp.175-177). Coimbatore, India: Institute of Forest Genetics & Tree Breeding. ISBN: 978-93-82387-12-1

### Book Chapters:

6. Nambiar-Veetil, M., Selvaraj, P., **George, B. S.**, Ganesan, M., Raghunath, T. P. & Krishnakumar, N. (2015). Synchronous and Rhythmic Light Display by a Panoramic Congregation of Fireflies at Varagaliar, Anamalai Tiger Reserve. In K. P. Laladhas, O. V. Oommen & P.R. Sudhakaran (Eds.), *Biodiversity Conservation: Challenges for Future* (pp. 197-201) Bentham Science Publishers. ISBN: 978-1-68108-022-2.

### Other Publications in journals with ISSN number:

7. **George, B.S.** (2018). Plant Defense Arsenal against Insect Herbivores. *Journal of Science, Technology and Management*, 11(2), 133-144. (ISSN No. 0974-8334)
8. **George B. S.** & Dasgupta, M. G. (2017). How Do Plants Defend Themselves from their Natural Enemies? An Overview. *Journal of Science, Technology and Management*, 10(1), 28-41. (ISSN No. 0974-8334)

## CONFERENCES

1. **George, B. S.**, Soumya, S., Vijayan K.K., & Prasanth, G.K. (2016). Differential action of a synthetic coumarin derivative on E2 responsive genes. Poster presented at the 2nd International Conference on Structural and Functional Genomics, SASTRA University, Tanjore, India, 19-20 August, 2016.
2. **George, B. S.**, Ashna, O., Vijayan K.K., & Prasanth, G.K. (2016). BPA down-regulates *NR1P1* Gene. Poster co-presented at the 2nd International Conference on Structural and Functional Genomics, SASTRA University, Tanjore, India, 19-20 August, 2016.
3. **George, B. S.**, Prem, S., & Biju, D. (2007). A Brief Study on the Ethnic Food Habits of 'Kattunaickans' of Appankappu Village of Malappuram District. Poster presented at Biospectrum '07: International Symposium on Advances in Food Biotechnology and Nutrition, MACFAST, Kerala, 30 Nov- 1 Dec, 2007.
4. Das, A. K., **Blessan, S.**, Prem, S. & Biju, D. (2007). A Brief Study on the Ethnic Foods of Kani Tribes Settled in Puravimala of Western Ghats. Paper co-presented at Biospectrum '07: International Symposium on Advances in Food Biotechnology and Nutrition, MACFAST, Kerala, 30 Nov- 1 Dec, 2007.
5. Biju, D., Pradeep, D. P., Stalin & **Blessan S.** (2007). Effect of Media Strength in the Multiple Shoot Production of *Bacopa Monnieri* (L.) Pennell, an important medicinal plant. Paper co-presented at the National Seminar on Medicinal Plants, Govt. Ayurveda College, Thiruvananthapuram, Kerala, 14-15 March, 2007.

## SERVICE

- Coordinator, Forestry Club, MACFAST
- Editor, *Bulbul*, the Forestry Club Newsletter
- Member, NAAC Documentation Committee
- Member, Enterprise Resource Planning (ERP) development committee
- Coordinator, orientation programme for first-year students
- Active participation in developing contents for college website
- Regular contribution to 'Conserve for Future' column in JSTM
- Member of conference & workshop committees organized by college
- Member, Warblers & Waders, Trivandrum
- Executive Member, Center for Advancement of Life Sciences (CFAL), Trivandrum

## REFERENCES

### **Dr. Modhumita Dasgupta**

Scientist F, Plant Biotechnology  
Division, Institute of Forest  
Genetics & Tree Breeding,  
Coimbatore-2  
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### **Mr. Biju Dharmapalan**

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## CURRICULUM VITAE

### STEPHEN JAMES

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Changanacherry

### EDUCATIONAL QUALIFICATION

M. Tech -CS &IT, MCA, M Sc Bioinformatics, UGC NET (CS) - Lectureship

### WORK EXPERIENCE (13 years).

1. Worked as lecturer, at Kristu- Jyoti College for Management and Technology, Kerala from 15/5/05 to 10/9/07
2. Worked as Lecturer at Dept of Biotechnology, Manipal Life Science Center, Manipal University 20/9/07 to 10/3/09
3. Working as Asst. Professor, Post Graduate Department of Computer Applications & Post Graduate department of Bioinformatics, Mar Athanasios College for Advanced Studies Thiruvalla (MACFAST), Thiruvalla from 16/3/09 to present.

### HONORS

- M Sc Bioinformatics Second Rank holder, M.G.University, Kottayam, 2004
- M.Tech First Class with distinction (83%) , M. S. University , Tirunelveli
- UGC Net Qualified, 2012 December

### BOOKS PUBLISHED

- Database Management System for Business
- Information Technology for Office
- C programming
- Internet We Designing & Cyber Laws

### ACHEIVEMNETS

- Organized, ICMR, KSCSTE & APBIONET Sponsored International Symposium "Biospectrum 2013 – Computational Biology & Drug Design " July 2013

### OTHER POSITIONS

- Co-Invesrigator, DST Sanctioned Project "Database of Medicinal Macro Fungi"
- M Sc Bioinformatics Examination Chairman Semester 2 & 3, M.G.University, Kottayam



- Chairman, MSc Bioinformatics, Board of Examiners, M.G.University
- MCA Additional Examiner, S2, ,S3, S4 & S5 M.G.University, Kottayam

**PERSONAL INFORMATION**

Date of Birth	:	24/09/1979
Gender	:	Male
Religion & Caste	:	Syrian Christian, Roman Catholic
Mother tongue	:	Malayalam
Marital Status	:	Married
Father's Name	:	Thomas James
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Phone No	:	9746935363
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**DECLARATION**

I do hereby declare that the particulars of information and facts stated herein above are true, correct and complete to the best of my knowledge and belief.

**Place : Changanacherry**

**Date : 12/12/19**

**Signature**

Hands-on Training Program on Primer Designing and Recombinant Vector Construction  
School of Bioscience 13-14 July 2020

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