DEPARTMENT OF BIOCHEMISTRY & MOLECULAR BIOLOGY
SCHOOL OF BIOLOGICAL SCIENCES
CENTRAL UNIVERSITY OF KERALA
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CUK/SBS/BCMB/BOS/Minutes/Feb-2021 12.02.2021

Minutes of BOS Meeting held on 12th Feb 2021, 11 AM through online mode in the Department of Biochemistry and Molecular Biology, Central University of Kerala (Google Meet Link: https://meet.google.com/mdf-thev-vyh?hs=224)

Agenda:

1) Revision of the syllabus
2) Inclusion of online courses. Eg: MOOC
3) Any other items

Members attended the meeting

SI No	Name	Designation
1	Dr Rajendra Pilankatta, Head, BCMB, CUK	Chairperson
2	Prof. D Govinda Rao, Dean SBS, CUK	Member
3	Prof Annie Abraham, University of Kerala, Thiruvanathapuram	External Member
4	Prof Sathisha G J, Kuvempu University	External Member
5	Prof K Arunkumar, HOD, PLS, CUK	Member
6	Dr R Aswati Nair, Dept of BCMB, CUK	Member
7	Dr Thejaswini Venkatesh, Dept of BCMB, CUK	Member
8	Dr CN Ramchand Ph.D, CEO, Saskin Life Sciences Pvt Ltd	Special Invitee
9	Prof Karunagaran , IIT Madras, Chennai	Special Invitee
10	Dr B K Ajaikumar, IIT Guwahati.	Special Invitee
11	Dr Sameer Kumar VB, Dept of BCMB, CUK	Special Invitee

Chairperson, BOS welcomed the distinguished members of BOS and special invitees from Premier educational institutions of India and established industries. The Chairperson presented the agenda and the following resolutions were made

1. Revision of Syllabus:
   The draft syllabus of the revised version was circulated to the BOS members and special invitees on 10th Feb 2021 by email. The major highlights of modifications of syllabus resolved by the members are given below,

- The members approved the program outcomes, specific outcomes and course outcomes as detailed in the revised syllabus.
- BBM 5102: It was resolved to rearrange the Unit I and II along with the addition of Reverse Phase Chromatography
- BBM 5103: Ca2+ and Fe transport was added in the Unit II. A section on Connective tissue was added in Unit III.
- BBM 5104: Physiological Chemistry course was renamed as Molecular Physiology
- BBM 5191: Bioanalytical Technique section was added.
- BBM 5192: The course was renamed as Biomolecules and Cell Biology Lab, wherein quantitative analysis of Biomolecules was added. It wsa also resolved to include Apoptosis assay and Flow cytometric analysis in the course
- BBM 5201: Units were rearranged so as to favor the teaching the topic on oxidative phosphorylation after the completion of metabolism of carbohydrates section.
- BBM 5202: The credit for the course was reduced to 3 by removing the unit on Enzyme Technology.
- BBM 5203: The credit was increased to 4 by adding Tumor Immunology and Vaccines sections.
- BBM 5292: Immunocytochemistry practical component was added.
- BBM 5302: Previously existing course on Molecular Endocrinology was removed and a new course on skill based Molecular Diagnostics (3 Credit) was added. The course contains practical session on molecular diagnosis of cancer and viral infections. The sections on Mamaprint, Coloprint. Pharmacogenomics and personalized medicine were also incorporated.
- BBM 5303: Tet – on and Tet- Off systems were added. Use of TALEN, ZFN and CRISPR-CAS in genome editing was also incorporated.
- BBM 5304: Included Hedgehog signaling.
- BBM 5305: A new course on microbiology (3 Credit) was added.
- BBM 5006: The elective course was revised by including emerging and re-emerging viruses including SARSCoV2

- BBM 5018: ANIMAL MODELS IN BIOMEDICAL RESEARCH (3 Credit) was resolved to be included as elective.

BOS members noted the valuable suggestions made by Prof. Sateesh C Raghavan, Special Invitee from Dept of Biochemistry, IISc, Bnagalore *in absentia.* Necessary incorporation was made in the syllabus as per the suggestion. However, BOS members resolved to retain the courses such as Biostatistics as well as Ecology and Evolution as elective courses.

The committee assessed that there was a revision of the content of the syllabus more than 20 percent.

Revised syllabus has been appended as (**Annexure I**)

2) Inclusion of online courses. Eg: MOOC

The committee discussed in detail regarding the courses available in the online platforms for the students of MSc Biochemistry such as MOOC and NPTEL etc. The list of MOOC courses given in the end of the syllabus as "Annexure II" has been approved by the committee. Further, the committee entrusted the faculty council for adding new MOOC courses as per the requirement.

The meeting was ended by the Vote of thanks by Dr Thejaswini Venkatesh.

Sd
HOD, BCMB

(Dr. D. Govinda Rao)

(Dr. R. ASWATI NAIR)

(Dr. V.B. Sambasivam)

(Dr. Thejaswini V.)

BBM 5302 MOLECULAR DIAGNOSTICS (2-1-1- 3)

Course Outcomes:
Students will be able to:

1: Acquire knowledge about chromosomal based disease identification methods

2: Understand the various genetic diseases and the techniques discretely used for their diagnosis

3: Acquire knowledge on use of antibodies in cancer therapeutics

4: Acquire laboratory skill in the molecular diagnosis of cancer and viral infections

UNIT-I

Connecting genes with diseases. Detection of genetic defects- tracking disease genes using linked markers, direct tests for disease genes, expression screening, oligonucleotide screening, cloning of chromosome breakpoints, identification of candidate genes. Cloning disease genes. Karyotyping.

UNIT-II

Nucleic acid analysis for diagnosis of diseases. PCR/OLA, analysis of mutations. DNA fingerprinting. Molecular diagnosis of genetic diseases – mutation scanning, gene dosage analysis. Molecular profiling in cancer. Mamaprint, Coloprint. Pharmacogenomics and personalized medicine,

UNIT-III

Genetic disease probes: Analysis of human disease genes. DNA analysis in Duchene muscular dystrophy. X linked chromosomal probes for prenatal diagnosis of X linked retinitis pigmentosa.

UNIT-IV

Monoclonal antibodies for tumor diagnostics, myeloid leukemia, thyroid carcinoma, ELISA, western blotting and PCR for diagnosis of infectious diseases. Enzymes in clinical analysis and marker enzymes.

Molecular Diagnostics Lab Exercise

1. PCR based detection of BCR-ABL-1 fusion in B Cell lymphoma
2. RT-PCR mediated detection of PSA and PSMA for diagnosis of prostate cancer
3. RT-PCT multiplexing analysis of Ck20, CEA and EGFR genes for stagging cancer
4. RT- PCR based detection of Dengue viral infection
5. RT- PCR based detection of Chikungunya viral infection

6. RT- PCR based detection of Adeno viral infection
7. ELISA based detection of NS-1 for detection of Dengue viral infection
8. ELISA of PSA for detection of prostate cancer/ CA-125 for ovarian cancer.

Suggested Readings

1.PCR based diagnostics in infectious diseases. ;Gath DD et al., Blackwell Scientific .1994.
2.Molecular Basis of inherited diseases.;Davies and Read, IRL Press.
3.Molecular diagnostics; Rapley and Walker. Blackwell Scientific.
1997. 4.Molecular Biotechnology; Glick and Pasternak. PanimaPub.
2002.
5.Molecular Diagnosis of genetic diseases. EllestMountford, Humana Press. 2004.
6.Molecular Diagnosis of infectious diseases..Decker and Reischl, Humana Press. 2004.
7.Molecular Diagnostics. ; Patrinos and Ansorge,Elsevier/Academic Press.2005.
8.Molecular Medicine ;R.J.Trent, Elsevier/Academic Press.2005.