

DEPARTMENT OF GENETICS

About Us

Genetics is an important area of life science with a trans-disciplinary approach requiring close interactions with various disciplines including Chemistry, Statistics, Informatics, Medicine and Agriculture. The mission of the Department of Genetics is to promote excellence in education in the areas of classical genetics, human genetics, molecular genetics, bioinformatics, and Recombinant DNA technology. The Department is affiliated to University College of Science, Osmania University Hyderabad. The department aims to inspire and educate young minds in various branches of Genetics. Geneticists are important in major scientific revolutions of humankind, exploring into the past and providing an unprecedented knowledge of the biological world.

Department of Genetics aims to provide basic and applied genetic learning and training at the interface between biology, chemistry and medicine in order to have a profound effect in the future. In the last few decades, the science of genetics has pervaded all aspects of biology so that it has assumed a central position of great significance in biology as a whole. While on the one hand, genetics is used for a study of the mechanism of heredity and variation, on the other hand it has provided tools for the study of the fundamental biological processes. The science of genetics also had a tremendous impact in applied areas including medicine, agriculture, forestry, fisheries and having applicability in cancer research, assessing newborn defects, Nutrigenomics, DNA sample analysis, etc.

Our department offers a **B.Sc. BGC Course in Genetics** since academic session 2018-2019 at TSWRDC (W), Mahendra Hills. Course work includes full spectrum of genetics beginning with Classical Genetics, Human Genetics, bridging the concepts of Cell Biology, Molecular Biology, Microbial Genetics, Bioinformatics, Biostatistics, Population Genetics and Genetic Engineering etc. As part of the curriculum the student's talks, quiz competitions, flipped classes, laboratory sessions, research paper reading and assignments are designed to be highly challenging, which paves the way for the students to bring out their intellectual and interactive skills in analysing scientific problems.

In addition to these, the Department also plans to organise educational visits to various research institutes to introduce them to latest research developments. Students are always encouraged to think about their career goals, they will be mentored on how these goals can be achieved and how best to meet these goals. The faculty has strong expertise and research experience in cutting edge areas of Genetics and very productive national research collaborations.



Students delivering a lecture as part of the Flipped Class Program



Students attending Virtual Lab as part of curriculum for experimental demonstration



Students writing Slip Test as part of assessment program



Students writing practical Examination as part of UG curriculum



Poster Presentation of Vaishali and Varsha BGC III year at CCMB



First Prize for Best Oral Presentation in a National Seminar “*Immunology Talks on Public Health*” at CPMB hall, organised by Dpt of Genetics, OU, Hyd on 29/04/23.



Batch 2020-2023 Botany Genetics Chemistry (BGC)



Batch 2021-2024 Botany Genetics Chemistry (BGC)

RESEARCH PROJECT: 2023

SNo.	Name of the Faculty	Project Work
1.	Mohini Aiyengar T	Evaluation of Risk Factors for a) Diabetes/ b) Heart Diseases in Population of Telangana State of India, an Unmatched Case Control Study

Heart Diseases Project - Abnormalities or injuries to any or all parts of the cardiovascular system can result in serious health complications. Common conditions that can affect the cardiovascular system include coronary artery disease, heart attack, high blood pressure, and stroke. According to the 2011 census there are 700 million adults (of the total 1.21 billion) in India, of whom 450 million are in rural and 250 million in urban areas. There is an urgent need for public health and clinical interventions to prevent onset of hypertension and heart diseases. This study aims to ascertain the risk factors for heart diseases in rural Telangana as a measure to provide a guide to health care providers in adopting treatment and prevention strategies. Data on various parameters were obtained through a questionnaire from 32 patients and 32 controls. Data regarding various aetiological determinants and risk factors viz.: Genetic risk factor and few modifiable risk factors were collected. Chi-squared test was used for statistical analysis. In the present study we have performed an epidemiological survey based on sample questionnaire to estimate the prevalence and associated risk factors for the development of heart diseases in rural Telangana. The high burden of heart diseases in rural Telangana makes it a significant public health challenge for the State. In the current study, we found that the leading modifiable risk factors for stroke were in order, alcohol consumption, smoking. Generalized obesity as measured by BMI and lack of physical inactivity were also associated with heart disease. Among nonmodifiable risk factors, age is a leading risk factor followed by male gender. The age association could be due to the fact that advances in age are accompanied by an accretion of associated risk factors. The high prevalence of heart diseases in rural Telangana makes it an important public health challenge for the state. The identified risk factors need to be addressed at population level.

Diabetes Project- Diabetes is a complex metabolic disorder consisting of two main types: type 1, comprising approximately 5% of diabetes, and type 2, comprising 90%–95%. The prevalence of diabetes, especially type 2 diabetes, is rising in the United States, associated with increased prevalence of obesity, vulnerable minorities, and aging, in the setting of polygenic risk. many people are expected to acquire DM2 in the future as a result of impaired glucose tolerance (IGT). In conclusion, there is high and/or increasing prevalence of diabetes in most countries. This study aims to ascertain the risk factors for Diabetes in rural Telangana as a measure to provide a guide to health care providers in adopting treatment and prevention strategies. Data on various parameters were obtained through a questionnaire from 32 patients and 32 controls. Data regarding various aetiological determinants and risk factors viz.: Genetic risk factor and few modifiable risk factors were collected. Chi-squared test was used for statistical analysis. In the present study we have performed an epidemiological survey based on sample questionnaire to estimate the prevalence and associated risk factors for the development of Diabetes in rural Telangana. In the present study we have performed an epidemiological survey based on sample questionnaire to estimate the prevalence and associated risk factors for the development of heart diseases in rural Telangana. The high burden of Diabetes in rural Telangana makes it a significant public health challenge for the State. In the current study, we found that the leading modifiable risk factors for stroke were in order, alcohol consumption, smoking. Generalized obesity as measured by BMI and lack of physical inactivity were also associated with disease. Among nonmodifiable risk factors, age is a leading risk factor followed by male gender. The high prevalence of Diabetes in rural Telangana makes it an important public health challenge for the state. The identified risk factors need to be addressed at population level.



Students collected demographic and base line data of the study population using a standard proforma under the supervision of a clinical and medical practitioner



DEPARTMENT OF GENETICS & BIOTECHNOLOGY
UNIVERSITY COLLEGE OF SCIENCE
OSMANIA UNIVERSITY

Invites all science enthusiasts to the
“OPEN DAY” celebrations themed
“GENOMYSTICS -2.0”
2023

25TH APRIL 2023

VENUE : DEPT. OF GENETICS & BIOTECHNOLOGY
LINK FOR REGISTRATION
<https://forms.gle/8eeMrmW3BVUAhbGp9>
REGISTRATION FEE : Rs 100/-
SPOT REGISTRATION FEE : Rs 200/-
(registration only for participants of competition)

COMPETITIONS

- QUIZ
- ELOCUTION
- FLASH TALK
- ESSAY WRITING
- MODEL PRESENTATION

CERTIFICATES FOR PARTICIPANTS & WINNERS OF COMPETITIONS

COME AND EXPLORE

FOR QUERIES: genomysticsou@gmail.com
COORDINATOR : Dr. S. Prashant (9849667490)
HOD : Prof. H. Surekha Rani (9866620067)



As part of Students Field Trip and Educational Tour, students pursuing under graduation in Genetics, Biotechnology were taken to OPENDAY celebrations at Osmania University. Students visited various laboratories such as Animal Genetics, Human Molecular Genetics, Immunogenetics, Plant tissue culture and cell culture laboratory. Several cutting-edge technological research topics have been explained very well to the students. There was student professor interaction were lot of knowledge exchange as possible. Many high-end equipment and instruments were demonstrated to students along with applications of the tools in current research. At the end of the students answered several questions in the quiz program and enjoyed the event.

Faculty Details

Name of the Faculty: Mrs. Mohini Aiyengar T

Designation: Lecturer

Department: Genetics

Qualification: PhD, M.Sc. Genetics, SET 2013.

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