

MEHAR SULTANA

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Current Position: **Equipment Manager in the center of CGSB-November 2014 to till date**
New York University Abu Dhabi UAE

- Operating Illumina systems like Hiseq 2500/ Nextseq 550 and Miseq and 10X Genomics
- Prepare/Sequence Genome, Transcriptome Library for next generation sequencing
- Analyze samples for group users with confocal Microscopy
- Manage and analyze samples for all FACS users using BD FACSAriaIII with sorting as well
- Provide training for new users on FACS technique /develop new protocols
- **Research Assistant** ▪ Riyadh ▪ Saudi Arabia | May 2005 to November 2014
- **King Faisal Specialist Hospital and Research Centre**
- Reporting to the Research Director and leading a team of 3 members. In charge of DNA and Tissue bank and Illumina Hiseq 2500 for Cancer Projects.
- Utilizing state of art technology DNA/RNA Affymetrix Gene Chip, Gene expression using Light cycler, ABI 7900
- Operating on Real time PCR
- Role involves collecting blood samples, tissue from Cancer patients for DNA extraction used in different projects. Expertise in isolating DNA from FFPE tissue, LCM-Laser capture microdissection slides.
- Prepare DNA library for whole genome and operate Hiseq 2500.

Professional Synopsis:

- An analytical and competent research professional with solid foundation in *Life Science* and **18 yrs** of rich experience in providing expertise in Molecular Biology especially in the area of cancer Research.
- Accustomed to managing day-to-day operations in conducting a research project, strictly complying with standard operating procedures and specific instructions
- Skilled in data gathering, collection, and management along with recording and documentation of research experiment results
- Possess excellent research and communication skills, with keen attention to detail

KEY DELIVERABLES

Molecular Biology:

Isolation of plasmid, Yeast and Human DNA from blood, tissues, FFPE Tissue, Isolation of RNA, Southern Hybridization, Northern Hybridization, Probe preparations, Ultra Centrifugation, Polymerase Chain Reaction, Electrophoresis, Sequencing, preparation of Hiseq DNA library, Screening and Cloning

Oligo Nucleotide Synthesis:

Synthesis of Oligo nucleotides, purification by column as well as HPLC (High Performance Liquid Chromatography), Fluorescent Oligo Nucleotides, Biotinalated Oligos and RNA Synthesis

Real time PCR, synthesize cDNA, cRNA in Affymetrix Gene Chip, Sequencing, Hybridization and Processing of DNA, RNA chips using Affymetrix Gene Chip

Microbiological work involving all types of Media preparations, Collection of Corneal scraping samples, Collection of Conjunctival samples for identification of different types of Bacteria & Fungi by chemical and microscopic examinations

Blood Bank techniques involving Blood drawing, Blood donor selection, Blood donor screening, Rh-typing, cross matching, Hepatitis B surface antigen test (ELISA and Rapid methods), Test for venereal disease, Test for AIDS, Operation of heavy duty cooling Centrifuge for frozen Plasma and packed red cells.

MOLECULAR BIOLOGICAL AND BIOCHEMICAL LABORATORY SKILLS

- Nucleic acid extraction (genomic DNA and RNA) from plant, bacterial and FFPE tissues including microscale preparations
- Gel electrophoresis (protein, RNA, DNA)

- PCR products cloning and transformation (bacterial and viral hosts)
- Polymerase chain reaction optimization from a range of template types
- Quantitative Real-time PCR (Taqman fluorescence assay) for measuring gene expression: assay design, calibration and validation, relative and absolute quantification
- Quantitative Real-time PCR using LightCycler (Roche) and SYBR Green chemistry
- DNA sequencing (ABI 3130xL capillary systems) from plasmids and PCR products including optimization and quality control of medium throughput library sequencing
- Mutation and Methylation
- Preparation of bacterial cultures, bacterial sensitivity tests, serological tests
- Preparation of DNA library for whole genome sequencing in Hi-Seq 2000, Illumina, Second generation of sequencing
- Affymetrix Genechip DNA/RNA
- Facilitating in analysis of data using PARTEK, Ensembl, Mutation t@ster
- Microbiology work-preparation of different types of media, maintaining stocks, cultures and staining work

WORK EXPERIENCE

Research Assistant ▪ Riyadh ▪ Saudi Arabia | May 2005 to November 2014.

King Faisal Specialist Hospital and Research Centre

Technical Assistant ▪ Hyderabad ▪ India | Nov 1996 to May 2005

Centre for Cellular and Molecular Biology

- Worked in one of the Premier Laboratories of the Council of Scientific & Industrial Research (CSIR), under the Ministry of Science & Technology, Govt. of India
- Reported to the Director CCMB, Hyderabad and head of Oligo Nucleotide Synthesis Facility
- Worked on Project entitled “*Characterization Sequencing and Molecular Organization of of human Y-chromosome in Yeast Artificial Chromosomes (YACS)*”
- Based on performance, selected for 2nd Project entitled “*A highly conserved human gene encoding a novel member of WD-repeat family of proteins (WDR13)*” Findings on this project has been mentioned below:

Identified and characterized in detail, a novel member of a WD repeat motif gene family, WDR13 which contains 9 exons and 8 introns as revealed by complete sequencing of cDNA and genomic clones. We have mapped the gene to the genomic locus Xp11.23 by fluorescent insitu hybridization and insilico mapping. Analysis of the open reading frame (ORF) has shown the presence of a continuous coding region, coding for 485 aminoacids. Analysis of this putative aminoacid sequence derived from the cDNA sequences has revealed the presence of 6 WD-motifs showing structural level similarities. This gene has been found to be expressed in all the tissues analyzed with significantly varied expression levels between the tissues. Sequencing of the EST Clones from various that showed significant homologyto WDR13 revealed that there is retention of first intron suggesting that this gene could be alternatively spliced. Further analysis of the gene in different human tissues identified two spliced products. Further, the presence of WD motifs indicates that the gene may be involved in protein-protein interactions

Special Mention

- Sequences reported in this paper have been submitted to the Genbank and assigned the following accession numbers: AF158978, AF149817, AF329819
- Synthesized over 80,000 primers and up to 96-mers in length, which are being used by the whole Institute

ACADEMICS & PROFESSIONAL DEVELOPMENT

- ⇒ **Master of Science (Life Sciences)**, (First division - 70%), Month 2004
⇒ Kakatiya University, Warangal, India
- ⇒ **Bachelor of Science (Microbiology and Genetics)**, (Distinction – 75%) Month 1995
⇒ Osmania University, Hyderabad, India
- ⇒ Trained in Illumina Hiseq 2000 by Illumina Inc Ltd, Riyadh, Saudi Arabia
- ⇒ Trained on Oligonucleotide Synthesis, CCMB, Hyderabad, India and on Ion Torrent and other Nano Technical instruments, ABI

⇒ Basic and Advanced training in Flow Cytometry (FACS AriaIII) 2017, : European Training Center, Belgium (Erembodegem)

CONFERENCES AND SYMPOSIA

- *Saudi Colorectal Surgery Forum, Riyadh, Kingdom of Saudi Arabia (2007)*
- *Symposium on Functional Genomics, Sixth ADNAT Convention, Feb23-24, CCMB, Hyderabad, India (2002)*
- *Workshop on Intellectual Property Rights in Biotechnology (Oct. 10-11, 2001), CCMB, Hyderabad, India (2001)*
- *"Perspectives in Genome Analysis" Fifth National Convention of ADNAT, Feb23-24, CCMB, Hyderabad, India (2001)*
- *XXVI Annual National Conference on Human Genetics: Human Genome and Beyond (Feb. 20-22, 2001), organized by Indian Society of Human Genetics, CCMB, Hyderabad, India (2001)*
- *XXIII All India Cell Biology Conference Nov 27-29, CCMB Hyderabad, India (1999)*
- *"Emerging Technologies for the next Millennium", third National Convention of ADNAT, Feb23-24, CCMB Hyderabad, India (1999)*
- *DNA Technologies: Forensic and Other Applications, Second National Convention of ADNAT, Feb 23-24, CCMB Hyderabad, India (1998)*
- *First National Convention of ADNAT, Apr 12-13, CCMB Hyderabad, India (1997)*

PUBLICATIONS

- Bhupendra N. Singh, Amritha Suresh, Gogineni Uma Prasad, Subbaya Subramanian, **Mehar Sultana**, Sandeep Goel, Satish Kumar and Lalji Singh. *A highly conserved human gene encoding a novel member of WD-repeat family of Proteins (WDR13)*, (2003) GENOMICS 81 Pages 315-328
- Sunil Kumar Verma, Kasturi Prasad, Narayan Nagesh, **Mehar Sultana** and Lalji Singh. *Was elusive carnivore a panther? DNA typing of faeces reveals the mystery*, (2003) FORENSIC SCIENCE INTERNATIONAL 137 Pages 16-20
- Abdul K Siraj, Prashant Bavi, Jehad Abubaker, Zeenath Jehan, **Mehar Sultana**, Fouad Al-Dayel, Abdulrahman Alnuaim, Ali Alzahrani, Mohammed Ahmed, Osamah Al-Sanea, Shahab Uddin, Khawla S Al-Khuraya. *Genome-Wide Expression Analysis of Middle Eastern Papillary Thyroid Cancer Reveals c-MET As A Novel Target For Cancer Therapy*. The Journal Of Pathology, 2007 Oct;213(2):190-9
- Abubaker J, Jehan Z, Bavi P, Mehar Sultana, Al-Harbi S, Ibrahim M, Al-Nuaim A, Ahmed M, Amin T, AlFehaily M, Al-Sanea O, Al- Dayel F, Uddin S, Al-Kuraya KS
Clinico pathological analysis of papillary thyroid cancer with PIK3CA alterations in a Middle Eastern population. Clin Endocrinol Metab. 2008;93:611-618
- Bavi P, Abubaker J, Hussain A, **Sultana M**, Al-Dayel F, Uddin S, Al-Kuraya KS. *Reduced or absent cyclin H expression is an independent prognostic marker for poor outcome in diffuse large B-cell Lymphoma*. Hum Pathol. 2008 Jun; 39(6):885-94
- Jehan Z, Siraj AK, Abubaker J, Ruiz C, Simon R, **Sultana M**, Uddin S, Bavi P, Hussain A, Razack S, Ezzat A, Al-Dayel F, Sauter G, Al-Kuraya KS. *Distinct gene expression profiles: nodal versus extranodal diffuse large B-cell lymphoma*. Oncology. 2008; 75(1-2):71-80.

- Hussain AR, Ahmed M, Al-Jomah NA, Khan AS, Manogaran P, **Sultana M**, Abubaker J, Plataniias LC, Al-Kuraya KS, Uddin S. *Curcumin suppresses constitutive activation of nuclear factor- κ B and requires functional Bax to induce apoptosis in Burkitt's. Lymphoma cell lines. Mol Cancer Ther.* 2008 Oct; 7(10):3318-29
- Jehan Z, Bavi P, **Sultana M**, Abubaker J, Bu R, Azhar Hussain A, Alsbeih G, Al-Sanea N, Abduljabbar A, Ashari LH, Alhomoud S, Al-Dayel F, Uddin S, Al-Kuraya KS. *Frequent PI3K Gene Amplification and Its Clinical Significance in Colorectal Cancer.* J of Path 2009
- Abubaker J, Bavi P, Al-Haqawi W, **Sultana M**, Al-Sanea N, Abduljabbar A, Ashari LH, Alhomoud S, Al-Dayel F, Uddin S, Al-Kuraya KS. *Prognostic significance of KRAS alteration in colorectal cancer.* J of Path 2009
- Hussain AR, Uddin S, Ahmed M, Bu R, Ahmed SO, Abubaker J, **Sultana M**, Ajarim D, Al-Dayel F, Bavi PP, Al-Kuraya KS. *Prognostic significance of XIAP expression in DLBCL and effect of its inhibition on AKT signalling.* J Pathol. 2010 Oct;222(2):180-90
- Bavi P, Uddin S, Ahmed M, Jehan Z, Bu R, Abubaker J, **Sultana M**, Al-Sanea N, Abduljabbar A, Ashari LH, Alhomoud S, Al-Dayel F, Prabhakaran S, Hussain AR, Al-Kuraya KS. *Bortezomib stabilizes mitotic cyclins and prevents cell cycle progression via inhibition of UBE2C in colorectal carcinoma.* Am J Pathol. 2011 May; 178(5):2109-20
- Siraj AK, Khalak HG, **Sultana M**, Al-Rasheed M, Bavi P, Al-Sanea N, Al-Dayel F, Uddin S, Alkuraya FS, Al-Kuraya KS. *Colorectal cancer risk is not associated with increased levels of homozygosity in Saudi Arabia.* Genet Med. 2012 Apr 5. doi: 10.1038/gim.2012.27. PMID:22481135
- Beg S, Siraj AK, Prabhakaran S, Bu R, Al Rasheed M, **Sultana M**, Qadri Z, Al-Assiri M, Sairafi R, Al Dayel F, Al- Sanea N, Uddin S, Al- Kuraya KS. *Molecular markers and pathway analysis of colorectal carcinoma in the Middle East Cancer.* 2015 Nov 1;121(21):3799-808. doi: 10.1002/cncr.29580. Epub 2015 Jul 28. PMID:26218848
- Fu W, Chaiboonchoe A, Khraiweh B, **Sultana M**, Jaiswal A, Jijakli K, Nelson DR, Al-Hrout A, Baig B, Amin A, Salehi-Ashtiani K. *Intracellular spectral repositioning of light enhances algal photosynthetic efficiency.* Sci Adv. 2017 Sep 1;3(9):e1603096. doi: 10.1126/sciadv.1603096. eCollection 2017 Sep. PMID:28879232
- Nelson DR, Chaiboonchoe A, Fu Weiqi, Hazzouri KM, Huang Z, Jaiswal A, Daakour S, Mystikou A, Arnoux M, **Sultana M**, Salehi-Ashtiani K. *Potential for Heightened Sulphur Metabolic Capacity in Coastal Subtropical Microalgae.* IScience 2019 Jan 25;11;450-465. Doi; 10.1016/j.isci.2018.12.035.

ABSTRACTS

- Uddin S, Hussain AR, Al-Jomah N, **Sultana M**, Ahmed M, Al-Kuraya K, *Proteasome inhibitor induces apoptosis in primary effusion lymphoma.* AACR 2007 Annual Meeting, April 14-18, 2007, Los Angeles, California, USA
- Abubaker J, Jehan Z, Bavi P, **Sultana M**, Al-Harbi S, Ibrahim M, Al-Nuaim A, Ahmed M, Amin T, Al-Fehaily M, Al-Sanea O, Al-Dayel F, Uddin S, Al-Kuraya K. *Clinicopathological analysis of papillary thyroid cancer with PIK3CA alterations in a Middle Eastern population.* Annual Research Meeting at KFSH & RC, Riyadh, Saudi Arabia
- Abubaker J, Jehan Z, Bavi P, **Sultana M**, Ibrahim M, Al-Nuaim A, Ahmed M, Amin T, Al-Fehaily M, Al-Sanea O, Al-Dayel F, Uddin S, Al-Kuraya K. *Clinicopathological analysis of papillary thyroid cancer with*

PIK3CA alterations in Middle Eastern population. AACR Annual Meeting 2008, April 12-16, 2008, San Diego Convention Center, San Diego, California, USA

- Hussain A, Ahmed M, Al-Jomah N, Khan A, Ahmed S, **Sultana M**, Manogaran P, Abubaker J, Plataniias L, Al-Kuraya K. *Curcumin requires constitutive activation of NF κ B and functional Bax to induce apoptosis in Burkitt's lymphoma cell lines. AACR Annual Meeting 2008, April 12-16, 2008, San Diego Convention Center, San Diego, California, USA*