



Dr Manoj Kumar Valluru

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EDUCATION AND QUALIFICATIONS:

- **01/2014-03/2018, PhD Molecular Biology and Biotechnology**, Project: “**The role of microRNAs in development**”, [Dr K Sorefan](#). Department of Molecular biology and Biotechnology, University of Sheffield, UK.
- **2007-2008, MSc Stem Cell and Regenerative Medicine (Merit)**, Project: “**Sodium butyrate and compressive loading regulated osteogenesis through ERK pathway in human mesenchymal stem cells cultured in 3D scaffolds**”, Kroto Research Institute, [Prof G Reilly](#). Department of Biomedical Science, University of Sheffield, UK.
- **2003-2007, B.Eng Biotechnology (First)**, Project: **IL-2 in multiple myeloma**, [Prof R. A. Nazeer](#). School of Bioengineering, SRM University, Chennai, INDIA.
- **2001-2003, Zoology, Botany, Physics, Chemistry & English (First)**, Hindu Higher Secondary School, Chennai, INDIA.

RESEARCH EXPERIENCE:

- **08/2019-Present, Postdoctoral Research Associate**, Project: “**Functionally characterize the transcriptomic and proteomic signatures altered in cellular and experimental models of ADPKD**”, [Prof Albert Ong](#). Infection, Immunity & Cardiovascular Disease, University of Sheffield, UK.
- **04/2018-07/2019, Bioinformatician**, Project 1: “**VEGFA isoform switch in different cancer subtypes**”, [Dr W R English](#). Project 2: “**Cell-Type Signatures in Uveal Melanoma**”, [Dr K Sisley](#). Project 3: “**miRNAs in invasive breast cancer bone metastasis**”, [Prof P Clézardin](#). Department of Oncology and Metabolism, University of Sheffield, UK.
- **04/2013-12/2013, Research Assistant**, Project: “**Genetic engineering of ovarian cancer cells to investigate resistance mechanisms to antivasular agents**”, [Dr WR English](#) and Prof GM. Tozer. Department of Oncology, University of Sheffield, UK.
- **11/2011-12/2012, Research Engineer**, Project: “**Neurosphere and Human embryonic stem cell bioprocessing**”, [Dr V Chotteau](#). Biotechnology Department, KTH Royal Institute of Technology, Stockholm, SWEDEN.
- **04/2009-12/2010, Research Technician**, Project: “**Regulation of Angiogenesis Initiation and Regression in Wound Healing**”, [Dr CA Staton](#), Prof NJ Brown and [Prof MWR Reed](#). Department of Oncology, University of Sheffield, UK.

PUBLICATIONS & PREPRINTS: ORCID ID <https://orcid.org/0000-0001-9156-866X>

(1) Durkie M, Chong J, Valluru MK *et al.*, (2021) Biallelic inheritance of hypomorphic PKD1 variants is highly prevalent in very early onset polycystic kidney disease. *Genet Med.* (2) Z Mao, MK Valluru *et al.*, (2021) Drug repurposing in autosomal dominant polycystic kidney disease: back to the future with pioglitazone. *Clinical Kidney Journal.* (3) M Puppo, MK Valluru *et al.*, (2021) MicroRNAs and Their Roles in Breast Cancer Bone Metastasis. *Current osteoporosis reports.* (4) Magayr TA, Song X, Streets AJ, Vergoz L, Chang L, Valluru MK *et al.*, (2020) Global microRNA profiling in human urinary exosomes reveals novel disease biomarkers and cellular pathways for autosomal dominant polycystic kidney disease. *Kidney Int.* (5) Lannoy M, Valluru MK *et al.*, (2020) The positive effect of selective prostaglandin E2 receptor EP2 and EP4 blockade on cystogenesis in vitro is counteracted by increased kidney inflammation *in vivo*. *Kidney Int.* (6) Dardente H, English WR, Valluru MK *et al.*, (2020) Debunking the myth of the endogenous *Vegfxxx* transcripts. *Trends in endocrinology & metabolism.* (7) Doherty RE, Bryant HE, Valluru MK *et al.*, (2019) Increased Non-Homologous End Joining Makes DNA-PK a Promising Target for Therapeutic Intervention in Uveal Melanoma. *Cancers (Basel).* (8) MK Valluru & K Sorefan. (2019) Control of stem cell niche and fruit development in *Arabidopsis thaliana* by AGO10/ZWL requires the bHLH transcription factor INDEHISCENT. *Development biology.* bioRxiv. (9) Simonini S, Deb J, Moubayidin L, Stephenson P, Valluru M *et al.*, (2016) A non-canonical auxin-sensing mechanism is required for organ morphogenesis in *Arabidopsis*. *Genes & Dev.* (10) Valluru M *et al.*, (2011) Transforming growth factor- β and Endoglin signaling orchestrate wound healing. *Front. Physio.* (11) Staton CA, Shaw LA, Valluru M *et al.*, (2011) Expression of class 3 semaphorins and their receptors in human breast neoplasia. *Histopathology.* (12) Valluru M *et al.*, (2011) Blood vessel characterisation in human dermal wound healing. *Br J Dermatology.* (13) Staton CA, Valluru M *et al.*, (2010) Angiopoietin-1, angiopoietin-2 and Tie-2 receptor expression in human dermal wound repair and scarring. *Br J Dermatology.*

TEACHING EXPERIENCE & AWARDS:

(1) Mentoring and training junior lab members (The University of Sheffield & KTH). (2) Robert hill institute poster prize (Sheffield, 2015). MBB PhD Studentship Award (Sheffield, 2014). SciLifeLab (Stockholm, 2012) and IRCC (Torino, 2011) travel and training award. Recognition Award from Dr Helen Bryant (2019).

BOOK CHAPTERS, CONFERENCE ABSTRACTS & PEER REVIEWS:

(1) M Puppo, M K Valluru, P Clézardin. Chapter 33, **MicroRNAs and bone metastasis: how small RNAs regulate secondary tumour formation and progression in the skeleton**. Dominique Heymann (ed.) Bone Cancer 3E. Elsevier 2020. (2) M Puppo, MK Valluru *et al.*, (2021) **Functional studies on miRNAs with a potential role in breast cancer bone metastasis**. RNA 2021, P3-36. (3) MK Valluru *et al.*, (2019) **VEGFA isoform switching in soft tissue sarcoma is associated with decreased survival**. International journal of experimental pathology. 100 (4), A41-A41. (4) BL Agüero, M Valluru *et al.*, (2019) **Prognostic significance of soluble and ECM associated VEGFA isoforms in high-grade serous ovarian cancer**. International journal of experimental pathology. 100 (4), A8-A9. (5) Carolina Å, Linn W, Erika H, Manoj V. *et al.*, “**Longitudinal Study of Neurosphere Metabolism in Bioreactor Culture for Scalable Production of Human Embryonic Stem Cell-Derived Neurons**”. 4th International Conference on Stem Cell Engineering (2014). American Institute of Chemical Engineers. (6) Valluru M *et al.*, (2010) **Class 3 semaphorins and their plexin receptors in human dermal wound healing & Class 3 semaphorins inhibit angiogenic activity in vitro**. *Microcirculation* 17:485 PC50&51. (7) Peer review 2019 – 2020: Nature scientific reports.

SKILLS:

Wet lab (1) Plant and mammalian cell culture (Stem cells, primary cells and cell lines) on scaffolds and using bioreactors. **In vitro assays**: BioProfile FLEX (culture analysis), MTS and BrdU assay (Cell proliferation), scratch assay (Cell migration), capillary tubule formation assay on Matrigel and Aortic ring assay (angiogenesis methods). **In vivo**: Home office certificate (2010, Mouse: Modules 1 to 4). CD-1 mouse: Incisional Wound Healing. (2) Molecular cloning, DNA and RNA prep, QRT-PCR, PCR, Gene knockin using ZFNs, Protein expression (*E.coli*), Protein biotinylation, Western blotting, ELISA, Pull-down assay, ChIP, RNC and EMSA. (3) STELLARIS smFISH, Immunocytochemistry, Immunohistochemistry on resin and paraffin-embedded sections. SEM, super-resolution confocal imaging and Fluorescence microscopy (Zeiss Airyscan2, Olympus FV1000, Zeiss slide scanner). Image analysis using Image J and other tools from Github. **Bioinformatics** (4) Programming languages: Bash, Python and R (intermediate), able to run different data analysis pipelines, e.g., sRNA-seq, RNA/RNC-seq, fRIP/CLIP-seq, RNA structural motif, RNA splicing, APA, Proteomic data analysis, Protein structure modelling etc. (conda environment, bash script). High-Performance Computing: ShARC (Sheffield Advanced Research Computer) and Helix (Genomics England High-Performance Computing Cluster). (5) Genomic data wrangling and analysis, Databases: [100K](#), [TCGA](#), [GTEx](#) and [CCLE](#). Other statistics: Sigmaplot, Graphpad, and SPSS, Operating systems: Linux/UNIX (Ubuntu), Mac OS X, Windows. What about communication. **Management** (6) Medical School Athena swan data group – 2019 to 2020. (7) MDHRSA committee (Junior chair - Medical School Annual Research Meeting 2021). (8) Identifying new resources, working successfully with others, handle large amounts of data and presenting at weekly and monthly project meetings. (9) Contributing to grant applications.

TRAINING & WORKSHOPS:

(1) **Cancer research training**, Cancer Cell Biology, IRCC - Institute for Cancer Research and Treatment, Turin, Italy. (3rd July – 23rd July 2011). **Computational Methods for Massively Parallel Sequencing**, SciLifeLab – Uppsala University, Uppsala, Sweden (28th January – 3rd February 2012). **Clinical bioinformatics: unlocking genomics in healthcare**, University of Manchester, UK (Further Learn, Dr A Davies, 09/18-10/18). **The UNIX Workbench and Genomic Data Science**, Johns Hopkins Bloomberg School of Public Health (Coursera, Dr Jeffrey Leek, 10/18-12/18). (2) **Introduction to Identifying & Characterising Variants from NGS Data**, University of Sheffield (Dr M Parker, 4th & 5th June 2018). **Python Programming Workshop**, University of Sheffield (Dr Mark Quinn, July 2018). **Analysis of RNA-seq data in R**, University of Sheffield (Dr M Dunning, 9th & 10th July 2018). **Workshop on proximity labeling** (Ting Lab, November 2020). **MaxQuant - Computational Mass Spectrometry-Based proteomics** (Max-Planck-Institute of Biochemistry, June 2021). **HPC for Healthcare**, N8 CIR (Dr M Dunning and W Furnass, 12th July 2021).

MEMBERSHIPS:

(1) **RNA Society**: Bethesda, Maryland, US (2020-01-01 to present | Post Doc Membership), (2) **British Society for Genetic Medicine**: London, GB (2020-01-01 to present | BSGM Membership), (3) **Northern Bioinformatics User Group** (Northern BUG): GB (2018-01-01 to present | Member).