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:

- **08/2019-7/2025, KRUK and PKDF Postdoctoral Researcher, Project: "Functionally characterize the transcriptomic and proteomic signatures altered in cellular and experimental models of ADPKD",** Prof Albert Ong. IICD, 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 antivascular 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, BOOK CHAPTERS and ABSTRACTS: ORCID iD 0000-0001-9156-866X and RID AAP-9004-2020

Publications

(1) Chen EWC, Chong J, **Valluru MK**, et al., (2024) **Combining genotype with height-adjusted kidney length predicts rapid progression of ADPKD.** Nephrol Dial Transplant (20%). **(2)** Miranda Durkie, Christopher M. Watson, Peter Winship, Anne-Cecile Hogg, Rodney Nyanhete, Sharon Cooley, **Manoj K. Valluru** et al., (2023) **The Common PKD1 p.(Ile3167Phe) Variant Is Hypomorphic and Associated with Very Early Onset, Biallelic Polycystic Kidney Disease**, Human Mutation (5%). **(3) Valluru MK** et al., (2023) **Genomics England Research Consortium. A founder UMOD variant is a common cause of hereditary nephropathy in the British population**. J Med Genet (60%). **(4)** Puppo M, **Valluru MK** et al., (2023) **MiR-662 is associated with metastatic relapse in early-stage breast cancer and promotes metastasis by stimulating cancer cell stemness**. Br J Cancer (35%). **(5)** 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* (20%). **(6)** 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* (3%). **(7)** 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* (40%). **(8)** 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)* (10%). **(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%). **(10)** Staton CA, Shaw LA, **Valluru M** *et al.,* (2011) **Expression of class 3 semaphorins and their receptors in human breast neoplasia**. *Histopathology* (10%). **(11) Valluru M** *et al.,* (2011) **Blood vessel characterisation in human dermal wound healing**. *Br J Dermatology* (80%). **(12)** 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* (30%).

Review Articles (1) Z Mao, **MK Valluru** *et al.,* (2021) **Drug repurposing in autosomal dominant polycystic kidney disease: back to the future with pioglitazone.** *Clinical Kidney Journal* (20%). **(2)** M Puppo, **MK Valluru** *et al.,* (2021) **MicroRNAs and Their Roles in Breast Cancer Bone Metastasis**. *Current osteoporosis reports* (15%). **(3)** Dardente H, English WR, **Valluru MK** *et al.,* (2020) **Debunking the myth of the endogenous *Vegfaxxxb* transcripts.** *Trends in endocrinology & metabolism* (20%)**. (4) Valluru M** *etal.,* (2011) **Transforming growth factor-β and Endoglin signaling orchestrate wound healing**. *Front. Physio* (90%).

Preprints and manuscripts in progress (1) 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* (80%). **(2) Valluru MK,** Ritchie J *et al.,* **Deconvoluting Callender Classification Cell-Type Signatures in Uveal Melanoma.** *Cancers (Basel)* (90%). **(3)** M Puppo, M Croset, D Ceresa, **MK Valluru** *et al.,* (2024) **Protective effects of miR-24-2-5p in breast-to-bone metastasis: a dual inhibitory action on cancer cells and bone-resorbing osteoclasts.** *Breast Cancer* (15%)**. (4)** J Fingret, K Sisley, **MK Valluru** *et al.,* (2024) **Surgical Interventions Improve Survival in Patients with Metastatic Uveal Melanoma.** British Journal of Ophthalmology (25%)**.**

Book Chapters (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 2022 (40%).

Conference abstracts (1) Kai Xin Chung N, **Valluru** M *et al.,* (2022) **MO030: Familial clustering of a rare UMOD variant in undiagnosed hereditary nephropathy suggests the presence of a common ancestral founder mutation.** *Nephrology Dialysis Transplantation*. **(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 Aguero, **M Valluru** *et al.,* (2019) **Prognostic significanceof 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.

TEACHING EXPERIENCE & AWARDS:

(1) STA at The University of Sheffield & Bioprocess design at KTH. **Teaching at The University of Sheffield (2022-present):** MED6003 Data analysis methods in genetic epidemiology and MED6071 RNA-seq File handling. Co-Supervisor: PhD student Linda Vidova (Rare Tumours Research Group). **(2)** MBB PhD Studentship Award (Sheffield, 2014) and Robert hill institute poster prize (Sheffield, 2015). **(3)** SciLifeLab (Stockholm, 2012), IRCC (Torino, 2011) travel and training award, EMBO travel grant (2022), FASEB full travel and conference grant (2022).

CONTINUING PROFESSIONAL DEVELOPMENT:

Training (1) Cancer research training, Cancer Cell Biology, IRCC - Institute for Cancer Research and Treatment, Turin, Italy. (3rd July – 23rd July 2011). **(2) Computational Methods for Massively Parallel Sequencing**, SciLifeLab – Uppsala University, Uppsala, Sweden (28th January – 3rd February 2012). **(3) Clinical bioinformatics: unlocking genomics in healthcare**, University of Manchester, UK (Further Learn, Dr A Davies, 09/18-10/18). **(4) The UNIX Workbench and Genomic Data Science**, Johns Hopkins Bloomberg School of Public Health (Coursera, Dr Jeffrey Leek, 10/18-12/18).

Workshops (1) Introduction to Identifying & Characterising Variants from NGS Data, University of Sheffield (Dr M Parker, 4th & 5th June 2018). **(2) Python Programming Workshop**, University of Sheffield (Dr Mark Quinn, July 2018). **(3) Analysis of RNA-seq data in R**, University of Sheffield (Dr M Dunning, 9th & 10th July 2018). **(4) Workshop on proximity labeling** (Ting Lab, November 2020). **(5) MaxQuant - Computational Mass Spectrometry-Based proteomics** (Max-Planck-Institute of Biochemistry, June 2021). **(6) HPC for Healthcare**, N8 CIR (Dr M Dunning and W Furnass, 12th July 2021). **(7) Deep Learning for microscopy image analysis**, Human Technopole (Dr Florian Jug, 22-26th Nov 2021). **(8) Spatial transcriptomics data analysis in Python**, Single Cell Omics Germany (May 23-24, 2022).

Peer review: Nature scientific rep, Frontiers Oncology and European Journal of Inflammation.

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)** PLA**,** STELLARIS smFISH, TFM, Live cell imaging, Immunocytochemistry, Immunohistochemistry on resin and paraffin-embedded sections. SEM, super-resolution confocal imaging and Fluorescence microscopy (Zeiss LSM 980 with Airyscan 2, Slide scanner and Celldiscoverer7, Olympus FV1000 and Leica THUNDER).

Data science (1) 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). **(2)** Genomic data wrangling and analysis, Databases: UKBB, 100K, TCGA, GTEx and CCLE. **(3)** High-Performance Computing: STANAGE (The Sheffield University HPC cluster). **(4)** Image analysis using Image J/Napari and other tools from GitHub. **(5)** Other statistics: R, Sigmaplot, Graphpad, and SPSS, Operating systems: Linux/UNIX (Ubuntu), Mac OS X, Windows.

Management (1) Medical School Athena swan data group – 2019 to 2020. **(2)** MDHRSA committee (Junior chair - Medical School Annual Research Meeting 2021). **(3)** Identifying new resources, working successfully with others, handle large amounts of data and presenting at weekly and monthly project meetings. **(4)** Contributing to grant applications.

MEMBERSHIPS:

(1) RNA Society: Bethesda, Maryland, US (2020-01-01 to present | Post Doc Membership)