Pooran **Dewari**

Postdoc, University of Edinburgh

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Edinburgh, UK UK ILR work permit

Trained as a molecular cancer biologist and bioinformatician, I have developed CRISPR genome-editing pipelines for efficient and scalable tagging of genes in mammalian stem cells. Using ChIP-seq and RNA-seq approaches, I am currently investigating how neurodevelopmental transcription factors fuel proliferation of brain tumour stem cells. Keen on transitioning into bioinformatics job and work in team environment wherein I can apply my research skills and interests.

Skills

Bioinformatics	**ChIP-seq analysis** : QC and align reads to genome, peak calling, motif discovery, GO analysis, heatmap generation, data visualisation **RNA-seq analysis** : Align reads using STAR, DESeq differential expression analysis, data visualisation **R language** : tidyverse data wrangling, visualisation using ggplot2, analysis of RIME and ChIP-SICAP MS data using R packages, other packages : ChIPseeker, clusterProfiler **Programming languages** : Python (intermediate level) **Other software programs** : BEDTools, bamCoverage, Intervene, LaTeX, Snapgene, ImageJ, CellProfiler
NGS sample preparation	Perform ChIP pull-down and prepare barcoded libraries for sequencing
CRISPR genome-editing	Epitope and fluorescent reporter tagging in mammalian stem cells, gene knock-out
Protein partners	Identify protein partners using RIME
Other techniques	Fluorescence microscopy, Gibson and gateway cloning, real-time qPCR, DNA and RNA extraction, Western Blotting

Education and Professional Experience

2014 - present — **Postdoc, CRM-University of Edinburgh, UK**

- Identified genomic targets of key neurodevelopmental TFs in patient-derived glioma stem cells (GSCs) using ChIP-seq
- Computed overlap between TFs binding to chromatin and their intersection with evolutionary conservation (phyloP score) and gene expression (RNA-seq)
- Developed RNP-based CRISPR method and bioinformatics tool for scalable epitope knock-in in mammalian stem cells
- Identified protein partners of TFs in GSCs using RIME
- Scaled-up mCherry reporter knock-in in GSCs using CRISPR RNP approach (in collaboration with Twist Bioscience and Sphere Fluidics biotech companies)

2006-2014 — **PhD, Centre for Cellular and Molecular Biology, India**

- Identified role of yeast histone chaperone Asf1 in pol III transcription by ChIP-seq mapping
- Studied RNA pol III transcriptional regulation in budding yeast using genetics, biochemistry, and genomics approaches
- Purified core components of RNA polymerase III machinery- histones, chromatin assembly chaperone Asf1, yeast RNA polymerase III enzyme, yeast transcription factor C (TFIIIC), and developed assays to assemble chromatin in vitro

2004-2006 — **MSc, GB Pant University of Agriculture and Technology, India**

- Final-year research project on 'Development of novel protein and DNA-based markers for identification of bamboo cultivars'
- Modules included enzymology, intermediary metabolism, principles in genetic engineering, and techniques in molecular biology

2000-2003 | **BSc, Kumaun University Nainital, India**
› Major subjects : Zoology, Botany, and Chemistry

Publications

2020 **Dewari PS** et al. Systematic fluorescent reporter knock-in of human basal RNA polymerase II machinery using all-bespoke CRISPR approach. Manuscript in preparation

2020 Mccarten K, **Dewari PS**, Pollard SM et al. RNA binding protein MYEF2 is a SOX2 interactor and involved in the tumorigenicity of glioblastoma. Manuscript to be submitted

2018 **Dewari PS**, Southgate B, Mccarten K, Monogarov G, O'Duibhir E, Quinn N, Tyrer A, Leitner MC, Plumb C, Kalantzaki M et al. An efficient and scalable pipeline for epitope tagging in mammalian stem cells using Cas9 ribonucleoprotein. Elife 7

2017 Bressan RB, **Dewari PS**, Kalantzaki M, Gangoso E, Matjusaitis M, Garcia-Diaz C, Blin C, Grant V, Bulstrode H, Gogolok S et al. Efficient CRISPR/Cas9-assisted gene targeting enables rapid and precise genetic manipulation of mammalian neural stem cells. Development 144 : 635-648

2016 **Dewari PS**, Ajani F, Kushawah G, Kumar DS, Mishra RK. Reversible loss of reproductive fitness in zebrafish on chronic alcohol exposure. Alcohol 50 : 83-89

2014 **Dewari PS**, Bhargava P. Genome-wide mapping of yeast histone chaperone anti-silencing function 1 reveals its role in condensin binding with chromatin. PLoS One 9 : e108652

2011 Mahapatra S, **Dewari PS**, Bhardwaj A, Bhargava P. Yeast H2A.Z, FACT complex and RSC regulate transcription of tRNA gene through differential dynamics of flanking nucleosomes. Nucleic Acids Res 39 : 4023-4034

Guest Blogger at Addgene
Google Forums Round Up : First Impressions of NgAgo (2016)
Hassle-free 96-well Format Epitope Tagging Using Cas9 Ribonucleoprotein (2018)

Honours and Awards

2008-2011 Senior Research Fellowship awarded by Council of Scientific and Industrial Research, India
2006-2008 Junior Research Fellowship awarded by Council of Scientific and Industrial Research, India
2005-2006 University Teaching Assistant Fellowship during Masters
2003 Top-rank holder medal in Bachelor science faculty, Kumaun University, India

Conferences and talks

2018 Invited talk at The Roslin Institute, Edinburgh.
Talk title : A practical guide to using Cas9 ribonucleoprotein (RNP) for efficient knock-in of protein tags

2018 Part of the UK delegation to enhance collaboration with universities in Japan, Edinburgh–Tsukuba-Kumamoto meetings

2017 Invited talk at the Bristol Neuroscience Forum, University of Bristol, UK.
Talk title : An efficient and scalable CRISPR/Cas9 pipeline for epitope tagging in mammalian stem cells

2017 Short talk at Berlin Brain Tumor conference, Germany.
Talk title : An efficient and scalable CRISPR/Cas9 pipeline for epitope tagging in neural and glioma stem cells

2016 Short talk at Edinburgh CRISPR/Cas9 workshop, UK

2011 Attended two-day SciComm workshop organised by The Wellcome Trust-DBT India Alliance, India

Teaching and mentoring

Edinburgh University
Mentored and supervised four dissertation students in Steve Pollard's lab in my current postdoc position
Students learned tissue-culture techniques and CRISPR genome-editing in glioma stem cells
Closely collaborated with Masters student to develop web-based TAG-IN bioinformatics tool

CCMB, India
Supervised two Masters students during my PhD

University Teaching Fellow
Supervised and demonstrated elementary biochemistry experiments to undergraduate students during my Masters degree

References

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