

Dr. Vivek K Singh, PhD

Dr. Vivek Singh is a scientist with expertise in bioinformatics, computational biology, cancer genomics, single-cell transcriptomics, structural bioinformatics, artificial intelligence and drug discovery. His research integrates large-scale multi-omics data, machine learning, systems biology and structure-based computational approaches to understand disease biology, identify biomarkers and therapeutic targets, and develop clinically relevant precision medicine strategies, particularly in hematological malignancies.

Research & Academic Interests

Dr. Singh's research program focuses on computational and data-driven approaches to cancer biology, with major interests in:

- **Computational Biology & Cancer Genomics:** Integration and analysis of genomic, transcriptomic, epigenomic and multi-omics datasets for molecular profiling, biomarker discovery, risk stratification and precision oncology.
- **Single-Cell & AI-Driven Biology:** Single-cell transcriptomics, systems biology, machine learning and AI for molecular subtyping, cellular-state characterization, tumor–immune interactions, prognostic modeling and discovery of disease-associated pathways.
- **Structural Bioinformatics & Drug Discovery:** Protein structure prediction, molecular modeling, virtual screening, molecular docking, computational drug repurposing and structure-guided identification and optimization of therapeutic targets.
- **Bioinformatics & Molecular Diagnostics:** Development of computational pipelines for NGS and long-read/Nanopore sequencing, variant and structural-variant analysis, gene-fusion detection, molecular diagnostics and genomic disease monitoring.

Academic & Translational Contributions

Dr. Singh has contributed to multidisciplinary research at the intersection of medicine, computational biology and cancer research, with applications in AML, multiple myeloma and other hematological malignancies. His work spans development of molecular prognostic signatures, single-cell and multi-omics analyses, computational target discovery, drug-repurposing strategies and sequencing-based diagnostic workflows.

His research aims to translate complex biological and genomic datasets into clinically meaningful biomarkers, therapeutic hypotheses and precision medicine approaches, combining computational discovery with experimental and clinical validation.

Areas of Expertise

**Bioinformatics | Computational Biology | Cancer Genomics | Multi-Omics | Single-Cell Biology |
AI & Machine Learning | Structural Bioinformatics | Molecular Modeling | Drug Discovery |
NGS & Nanopore Sequencing | Biomarker Discovery | Precision Oncology | Translational
Research**

Publications: Google Scholar

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