Robinson Vidva

Translational Bioinformatics Scientist · M.S., M.B.A.

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SUMMARY

Translational bioinformatics scientist with 18 years of experience applying multi-omics, machine learning, and systems biology to questions in pediatric neurodevelopment, immuno-oncology, and drug discovery. Research integrates transcriptomics, metabolomics, genomics, and quantitative behavioral assessment to investigate disease mechanisms and evaluate therapeutic treatments — bridging molecular pathways to organism-level outcomes — with direct application to pediatric health and therapeutic development.

Career spans industry computational drug discovery at Cellworks Life, independent consulting at Digirobi Solutions, and current translational pediatric research at Children's National Hospital, with leadership of research teams of 10+ scientists and development of institutional standards for computational model validation.

Record to date: 5 USPTO patents (2 granted, 3 published applications), 7 peer-reviewed publications, 2 preprints, and 14 conference presentations, with 150+ citations.

RESEARCH INTERESTS

Pediatric and neonatal translational research; preterm neurodevelopmental injury (NEC, SIDS); behavioral phenotyping with physical therapy intervention; multi-domain clinical data analysis (MRI, ultrasound, neurodevelopmental assessments); open-source biomedical infrastructure; computational and immuno-oncology; digital drug-response modeling; cancer therapeutics and drug repurposing; hematologic malignancies (AML); systems-biology pathway modeling; autoimmune and inflammatory disease; emerging pediatric neuro-oncology; immune-modulated therapeutics.

EDUCATION

M.S., Data Analytics *Jul 2024 – Jan 2025*
Western Governors University, Salt Lake City, UT, USA

M.B.A., Project Management *Nov 2012 – Feb 2020*
Sikkim Manipal University (Distance Education), Gangtok, Sikkim, India

B.Tech., Biotechnology *Jul 2003 – Apr 2007*
Bharathidasan University, Tiruchirappalli, Tamil Nadu, India

PROFESSIONAL EXPERIENCE

Research Technician, Children's National Hospital *Mar 2025 – Present*
Kratimenos Lab, Sheikh Zayed Institute for Pediatric Surgical Innovation · Washington, DC

- Conduct multi-omics analyses (RNA-seq, metabolomics, genomics) of mouse and human datasets in Python, R, and SQL to identify differentially expressed genes, pathways, and GO terms underlying preterm cerebellar deficits in necrotizing enterocolitis (NEC), sudden infant death syndrome (SIDS), and related neurodevelopmental disorders.
- Quantify behavioral data from 250+ mice using DeepLabCut and B-SOiD to characterize the effects of physical therapy and environmental enrichment on preterm neurodevelopmental outcomes, including three-chamber

sociability assays.

- Develop statistical and machine-learning predictive models on Erasmus Ladder motor-coordination data from 160 preterm mice to identify gait and cerebellar deficits.
- Conduct longitudinal statistical analysis of multi-domain clinical/medical-record data from 200+ preterm infants — MRI, cranial ultrasound, Fenton growth charts, and neurodevelopmental scores — to characterize NEC developmental trajectories.

Founder & Lead Computational Biologist, Digirobi Solutions *Sep 2019 – Jun 2022*

Bengaluru, Karnataka, India

- Founded an independent computational biology consultancy supporting 5+ engagements (3 commercial, 2 academic) in cancer therapeutics and open-source scientific tooling.
- Developed cancer genomics, drug, and nutrition databases through targeted data mining of open and proprietary sources.
- Modeled the SRC kinase signaling pathway in MATLAB; contributed to a peer-reviewed publication on molecular signaling.
- Analyzed cancer nutrigenomics data; co-invented a USPTO-granted patent on a nutraceutical combination for cancer therapy.
- First-authored MyVivarium, an open-source animal colony management platform deployed at 3 partner laboratories (200+ animals), published in *Computational and Structural Biotechnology Journal* (2025).

Senior Lead Scientist, Cellworks Life *Nov 2017 – Sep 2019*

Bengaluru, Karnataka, India

- Led a multidisciplinary research team of 10+ scientists developing computational precision-medicine platforms for oncology; defined institutional standards for modeling reproducibility and validation.
- Designed and validated digital drug-response models achieving 80%+ correlation with experimental data across multiple solid and hematologic cancer types, integrating TCGA, MSK-IMPACT, and 10+ proprietary genomic, transcriptomic, and pharmacological datasets.
- Constructed a 500+ cancer cell-line database with associated IC50 drug-sensitivity profiles, supporting systematic validation of model predictions and peer-reviewed publications.
- Curated 15+ external clinical datasets used for training, validation, and benchmarking of predictive models.

Lead Scientist, Cellworks Life *Jan 2014 – Oct 2017*

Bengaluru, Karnataka, India

- Developed an integrated drug knowledge repository of ~200 compounds, cataloging target profiles, mechanisms of action, pharmacokinetic parameters, and resistance/activity biology to support therapeutic discovery.
- Translated computational findings into peer-reviewed publications and intellectual property; contributing inventor on US 10,098,880 B2 (PTEN/TP53-targeted cancer combination therapy), with responsibility for claim drafting and patent prosecution.
- Evaluated computational therapeutic candidates and contributed to collaborative research with pharmaceutical partners.
- Mentored junior scientists and led 25+ training sessions on computational biology and data analytics.

Associate Lead Scientist, Cellworks Life *Jun 2008 – Dec 2013*

Bengaluru, Karnataka, India

- Developed a systems-biology model of rheumatoid arthritis incorporating 8 distinct cell types with comprehensive in vivo validation.

- Identified 2 synergistic drug combinations through systematic computational screening; advanced candidates for clinical collaboration.
- Contributions resulted in 2 patent applications and presentations at the American College of Rheumatology; collaborative work on inflammatory skin disorders yielded peer-reviewed publications.
- Established institutional quality standards for computational model development and validation.

Associate Biomodeling Scientist, Cellworks Life *Jul 2007 – May 2008*

Bengaluru, Karnataka, India

- Constructed mechanistic models of immunological signaling in macrophages, incorporating 20+ interconnected pathways and gene-regulatory networks.
- Developed systematic validation frameworks through perturbation analyses, establishing foundational methodology for the organization's computational biology platform.

PEER-REVIEWED PUBLICATIONS

1. Giannopoulos K, Karikis I, Byrd C, Sanidas G, Wolff N, Triantafyllou M, Simonti G, **Vidva R**, Koutroulis I, Theocharis S, Kratimenos P. Eph/Ephrin-Mediated Immune Modulation: A Potential Therapeutic Target for Skin Cancer. *Frontiers in Immunology.* 2025;16:1539567.
2. **Vidva R**, Raza MA, Prabhakaran J, Sheikh A, Sharp A, Ott H, Moore A, Fleisher C, Netherton H, Goldstein E, Pitychoutis PM, Nguyen TV, Sathyanesan A. MyVivarium: A cloud-based lab animal colony management application with real-time ambient sensing. *Computational and Structural Biotechnology Journal.* 2025;27:612–623.
3. Kratimenos P, Vij A, **Vidva R**, Koutroulis I, Delivoria-Papadopoulos M, Gallo V, Sathyanesan A. Computational analysis of cortical neuronal excitotoxicity in a large animal model of neonatal brain injury. *Journal of Neurodevelopmental Disorders.* 2022;14(1):26.
4. Fischer CL, Bates AM, Lanzel EA, Guthmiller JM, Johnson GK, Singh NK, Kumar A, **Vidva R**, Abbasi T, Vali S, Xie XJ, Zeng E, Brogden KA. Computational Models Accurately Predict Multi-Cell Biomarker Profiles in Inflammation and Cancer. *Scientific Reports.* 2019;9(1):10877.
5. Drusbosky LM, **Vidva R**, Gera S, Lakshminarayana AV, Shyamasundar VP, Agrawal AK, Talawdekar A, Abbasi T, Vali S, Tognon CE, Kurtz SE, Tyner JW, McWeeney SK, Druker BJ, Cogle CR. Predicting response to BET inhibitors using computational modeling: A BEAT AML project study. *Leukemia Research.* 2019;77:42–50.
6. Borgwardt DS, Martin AD, Van Hemert JR, Yang J, Fischer CL, Recker EN, Nair PR, **Vidva R**, Chandrashekaraiah S, Progulske-Fox A, Drake D, Cavanaugh JE, Vali S, Zhang Y, Brogden KA. Histatin 5 binds to Porphyromonas gingivalis hemagglutinin B (HagB) and alters HagB-induced chemokine responses. *Scientific Reports.* 2014;4(1):3904.
7. Harvey LE, Kohlgraf KG, Mehalick LA, Raina M, Recker EN, Radhakrishnan S, Prasad SA, **Vidva R**, Progulske-Fox A, Cavanaugh JE, Vali S, Brogden KA. Defensin DEFB103 bidirectionally regulates chemokine and cytokine responses to a pro-inflammatory stimulus. *Scientific Reports.* 2013;3(1):1232.

PREPRINTS

1. Sanidas G, Simonti G, Ghaemmaghami J, Woyshner K, Wolff N, Byrd C, Triantafyllou M, Lowe C, Salisbury H, Goldstein E, Sathyanesan A, **Vidva R**, Koutroulis I, Stein-O'Brien G, Sidiropoulos DN, Gallo V, Kratimenos P. Prematurity Insults Remodel Cerebellar Development and Behavior. *bioRxiv.* 2025.
2. Sanidas G, Simonti G, Ghaemmaghami J, Woyshner K, **Vidva R**, Wolff N, Triantafyllou M, Lowe C, Vij A, Pettersen HS, Chandereng T, Koutroulis I, Stein-O'Brien G, Sidiropoulos DN, Gallo V, Kratimenos P. Intrinsic gestational timing governs human cerebellar development after preterm birth. *bioRxiv.* 2025.

PATENTS

Granted

1. Vali S, Abbasi T, Stopka T, Minarik L, Singh NK, Usmani S, Radhakrishnan S, Sikora H, **Vidva R**, Pimkova K. Use of scientifically matched plant supplements combined with antineoplastic compounds for the treatment of hematological malignancies. US Patent No. 11,478,444 B2 (issued Oct 25, 2022). Assignee: Brio Ventures LLC.
2. Vali S, Usmani S, Sultana Z, Kumar A, Abbasi T, **Vidva R**. Combination of nelfinavir, metformin and rosuvastatin for treating cancer caused by aberrations in PTEN/TP53. US Patent No. 10,098,880 B2 (issued Oct 16, 2018). Assignee: Cell Works Group Inc.

Published Applications

1. Vali S, Abbasi T, Fernandes P, Rajagopalan S, Alam A, **Vidva R**, Nair PR, Kapoor S, Radhakrishnan S, Sultana Z, Ramanujan KS, Tiwari KK, Kumar A, Singh NK, Agrawal AK, Talawdekar AA, Usmani S, Singh R. System and method for development of therapeutic solutions. US Patent Application Pub. No. 2015/0302167 A1 (published Oct 22, 2015). Assignee: Cell Works Group Inc.
2. Vali S, **Vidva R**, Nair PR, Fernandes P, Abbasi T, Radhakrishnan S. Compositions, process of preparation of said compositions and method of treating inflammatory diseases. US Patent Application Pub. No. 2015/0098993 A1 (published Apr 9, 2015). Assignee: Cell Works Group Inc.
3. Vali S, **Vidva R**, Nair PR, Fernandes P, Abbasi T, Radhakrishnan S. Compositions, process of preparation of said compositions and method of treating inflammatory diseases. US Patent Application Pub. No. 2014/0127295 A1 (published May 8, 2014). Assignees: Cellworks Research India Pvt Ltd; Cell Works Group Inc.

CONFERENCE PRESENTATIONS

1. Sanidas G, Lowe C, Byrd C, **Vidva R**, Simonti G, Chandereng T, Gallo V, Kratimenos P. Necrotizing Enterocolitis Selectively Disrupts Pontine Development in the Preterm Brain. Society for Neuroscience (SfN) 2025. Poster #PSTR103.21.
2. Simonti G, **Vidva R**, Sanidas G, Byrd C, Lowe C, Triantafyllou M, Wolff N, Chandereng T, Koutroulis I, Gallo V, Kratimenos P. Early postnatal rehabilitation mitigates motor, growth, and social deficits in perinatal brain injury. Society for Neuroscience (SfN) 2025. Poster #PSTR019.10.
3. Cogle CR, Abbasi T, Singh NK, Sauban M, Raman RK, **Vidva R**, et al. AraC-Daunorubicin-Etoposide (ADE) Response Prediction in Pediatric AML Patients Using a Computational Biology Modeling (CBM) Based Precision Medicine Workflow. *Blood.* 2018;132:4034.
4. Tyner JW, Druker BJ, Tognon CE, Kurtz SE, Drusbosky LM, Sahu D, **Vidva R**, et al. Predicting Response to Dasatinib Using a Computational Model and Its Validation: A Beat AML Project Study. *Blood.* 2018;132:1541.
5. Tyner JW, Druker BJ, Kurtz SE, Tognon CE, Drusbosky LM, **Vidva R**, et al. Predicting Response to BET Inhibitor in Combination with Palbociclib/Sorafenib Using a Computational Model: A Beat AML Project Study. *Blood.* 2018;132:1540.
6. Drusbosky LM, Turcotte M, Castillo P, **Vidva R**, et al. Predicting Response to CDK4/6 Inhibitors and Combinations Using a Computational Biology Model: A Beat AML Project Study. *Blood.* 2017;130:3909.
7. Drusbosky LM, **Vidva R**, et al. Predicting Response to BET Inhibitors Using a Computational Model and Its Validation: A Beat AML Project Study. *Blood.* 2017;130:3908.
8. Drusbosky LM, **Vidva R**, et al. Predicting Response to IDH1/IDH2 Inhibitors Beyond IDH Mutations Using a Computational Model: A Beat AML Project Study. *Blood.* 2017;130:3907.
9. Drusbosky L, Abbasi T, Vali S, Radhakrishnan S, Singh NK, Usmani S, Parashar D, **Vidva R**, et al. A Genomic Signature Predicting Venetoclax Treatment Response in AML. *Blood.* 2016;128(22):1713.
10. Fischer C, Abbasi T, Vali S, Nair P, **Vidva R**, Tiwari K, Brogden KA. A Predictive Model of an Oral Inflammatory Response. *Journal of Dental Research.* 2014;93(Spec Iss A):1369.
11. Harvey L, Recker E, Raina M, Radhakrishnan S, Prasad S, **Vidva R**, Cavanaugh J, Vali S, Brogden KA. HBD3 Both Enhances, Attenuates Dendritic Cell MAPK Responses to HagB. *Journal of Dental Research.* 2013;92(Spec Iss A):2820.
12. Singh G, **Vidva R**, Nair P, Radhakrishnan S, Fernandes P, Abbasi T, Refino C, Cruz JD, Vali S. Predictive Software-Based Mathematical Modeling: A Novel Approach to Development of Oral Therapies for Rheumatoid Arthritis – Validation in a Murine Collagen Induced Arthritis Model. *Arthritis and Rheumatism.* 2012;64(10 Suppl):S149–S150.

13. Vali S, Refino C, Cruz JD, **Vidva R**, Nair P, Radhakrishnan S, Fernandes P, Abbasi T, Singh G. Novel Combination Therapy of Existing Repurposed Therapies Designed by Predictive Software Modeling Shows Profound Impact on Disease Progression in a Murine Collagen Induced Arthritis Model. *Arthritis and Rheumatism.* 2012;64(10 Suppl):S148.
14. Vali S, Hegedus C, Bhattacharjee C, **Vidva R**, Schmelzer K, Inceoglu B, Hammock BD. Insights into the Anti-inflammatory Action of the Soluble Epoxide Hydrolase Inhibitor through Systems Biology based in silico Modeling Approach. *FASEB Journal.* 2008;22(1_supplement):479.13.

SOFTWARE & OPEN-SOURCE

MyVivarium — open-source, cloud-based lab animal colony management platform with real-time ambient sensing. First-author publication (*Computational and Structural Biotechnology Journal*, 2025); deployed at 3 partner laboratories supporting 200+ animals; ongoing development. github.com/robinson-vidva

TEACHING & MENTORING

Mentored 10+ junior scientists and engineers across Cellworks Life and Digirobi Solutions; designed and delivered 25+ training sessions in computational biology, data analytics, and modeling methodology.

TECHNICAL SKILLS

Programming: Python, R, SQL, MATLAB, C/C++, Unix shell, HTML/CSS/JavaScript, PHP.

Software & web development: full-stack web development; Git, GitHub, Jira, CI/CD; database design; server and Linux/Unix administration; domain and DNS management; high-performance and cloud computing (LSF, AWS); IoT integration.

Bioinformatics & multi-omics: bulk and single-cell RNA-seq, metabolomics, genomics, spatial transcriptomics; pathway and cell–cell communication analysis; multi-domain clinical data integration (MRI, ultrasound, neurodevelopmental scoring).

Computational & mathematical modeling: mechanistic network modeling; ODE-based and stochastic pathway modeling; systems biology; predictive modeling and machine learning; generalized linear, longitudinal/mixed-effects, and survival models.

Behavioral phenotyping: DeepLabCut, B-SOiD, BONSAI; three-chamber sociability and Erasmus Ladder analysis; motor and gait phenotyping.

ML & deep-learning frameworks: scikit-learn, TensorFlow, Keras, PyTorch.

Visualization & analytics: Tableau, matplotlib, seaborn, ggplot2; scientific reporting and dashboards.

CERTIFICATIONS

- Cancer Biology Specialization — Johns Hopkins University (Coursera)
- Drug Development Product Management Specialization — University of California San Diego (Coursera)
- Genomic and Precision Medicine; Design and Interpretation of Clinical Trials — UCSF / Johns Hopkins University (Coursera)
- DL-101 General Course on Intellectual Property; DL-204 Biotechnology and Intellectual Property — World Intellectual Property Organization (WIPO)
- Advanced Data Modeling; Data Analytics Fundamentals; Data Preparation — Western Governors University (2024)
- Demystifying Biomedical Big Data: A User's Guide — Georgetown University (edX, 2020)

PROFESSIONAL MEMBERSHIPS & LANGUAGES

Memberships: International Society for Computational Biology (ISCB), 2024–Present.

Languages: English (fluent), Tamil (native), Kannada (conversational).

REFERENCES

Available upon request.