Rohit Farmer

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Research Summary

Over eight years experience in interdisciplinary research, applying computational methods at the intersection of biology, chemistry and medicine. Currently I am working on the application of deep learning in clinical and molecular studies. I have extensive experience in protein structure/complex prediction, modelling protein-protein interactions, molecular dynamics simulations and virtual screening.

Teaching & Research Experience

2018-*now*	Postdoctoral Research Associate	Washington University in St. Louis Department of Pathology and Immunology
2015-2018	Assistant Professor	Sam Higginbottom University of Agriculture, Technology and Sciences (SHUATS) Department of Computational Biology and Bioinformatics (CBBI)
2008-2011	Assistant Professor	SHUATS CBBI
2016-2018	Associate Editor	The Allahabad Journal of Science and Technology (Formerly The Allahabad Farmer)

Administrative Experience

2015-2016	International Training Associate	SHUATS Directorate of International Education and Training

Education

2011-2015	Philosophy Doctorate (Ph.D.) Biosciences	University of Birmingham, UK
2008-2010	Master of Technology (M.Tech.) Bioinformatics *CGPA 9.35/10; Silver Medal*	SHUATS
2004-2008	Bachelor of Technology (B.Tech.) Biotechnology *CGPA 8.41/10*	Allahabad Agricultural Institute

Certifications

2017	Algorithms for DNA Sequencing	Johns Hopkins University Coursera
2017	Python for Genomic Data Science	Johns Hopkins University Coursera

Awards & Achievements

2014	Travel grant, 28th Annual Symposium of The Protein Society, USA	Biochemical Society
2013	Travel grant, 15th EMBL PhD Symposium, Germany	EMBL
2013	Travel grant, ISMB/ECCB'13, Germany	National Science Foundation
2013	George Parks travel grant, Molecular Perspectives On Protein-Protein Interactions, Poland	University of Birmingham
2012	Travel grant, ECCB12, Switzerland	Swiss Foundation for Excellence and Talent in Biomedical Research
2011-2014	PhD scholarship	The Darwin Trust of Edinburgh, UK
2010	Silver medal in M.Tech. Bioinformatics	SHIATS

Key Scientific Skills

Computational Biology: Molecular structure prediction, molecular docking, molecular dynamics simulation, bioinformatics

Exp. Biology: PCR, Gibson assembly, restriction digestion, plasmid transformation, microbiology techniques, HPLC

Computer Languages (Proficient): Python, Perl

Computer Languages (Familiar): C++, R, LaTeX, HTML, CSS, Java Script

Data Science and ML Tools: Pandas, SciPy, NumPy, Matplotlib, Seaborn, Plotly, Scikit Learn, Keras, TensorFlow

Database: SQLite, Neo4J

Operating Systems: Linux, Mac OS X, MS Windows

HPC: Singularity, SLURM, PBS

Transferable Skills Training

2012	Leading Academics, Leadership development program	University of Birmingham, UK
2012	One day course on Poster Presentations: Planning the Content	University of Birmingham, UK
2012	Talent Pool, Training program on entrepreneurship	University of Birmingham, UK
2012	One day course on Speed Reading	University of Birmingham, UK
2011	One day course on Time Management	University of Birmingham, UK

Conferences Attnded & Organised

2015	National Conference on Bioinformatics Panorama in Agriculture and Health, India	Sponsor Liaison
2014	1st RSG-UK Student Symposium on Computational Biology and Life Sciences, UK	Secretary
2014	Synthetic Biology of Antibiotic Production II, Spain	Short Talk
2014	The 28th Annual Symposium of the Protein Society, USA,	Poster Presentation
2013	15th EMBL PhD Symposium, Germany	Short Talk
2013	ISMB/ECCB'13, Germany	Poster Presentation
2013	Molecular Perspectives On Protein-Protein Interactions, Poland	Poster Presentation
2012	11th European Conference on Computational Biology, Switzerland	Poster Presentation
2012	3rd BEAR Postgraduate Conference on Research Computing, UK	Secretary and Sponsor Liaison
2010	The Eighth Asia Pacific Bioinformatics Conference, India	Poster Presentation
2009	National Workshop on Functional Genomics and Proteomics, India	
2009	International Conference on Open Source for Computer Aided Drug Discovery, India	Poster Presentation

Professional Memberships

2013-2014	The Protein Society
2012-2015	International Society for Computational Biology (ISCB)
2012-2015	Biochemical Society

Extra Curricular Positions Held

2013-2014	Co-Founder and Secretary, Regional Student Group, UK	Student Council, ISCB
2011-2012	Secretary, Bharat Parivar, Guild of Students	University of Birmingham
2009-2010	Vice president for Society of Biotechnology	SHUATS

Publications

Rohit Farmer. Modelling polyketide synthases and related macromolecular complexes. *PhD Thesis. University of Birmingham,* 2015. `http://etheses.bham.ac.uk/5909/`

Book Chapter

Farmer R.*, Thomas C.M., Winn P.J. Modelling Polyketide Synthases and Similar Macromolecular Complexes. *In: Wadhwa G., Shanmughavel P., Singh A., Bellare J. (eds) Current trends in Bioinformatics: An Insight. Springer, Singapore,* 2018, 121-144. `https://doi.org/10.1007/978-981-10-7483-7_7`

Refereed Journal Articles

Google Scholar: h-index 8, i10-index 6

14. K. Dhusia, P.K. Yadav, **Farmer, R.**, and P.W. Ramteke. Inhibition of polyamine biosynthesis for toxicity control in *Serratia marcescens* strain WW4 by targeting ornithine decarboxylase: A structure-based virtual screening study. *International Journal of Computational Biology and Drug Design*, 11(1-2), 2018.

13. A.K. Konda, **Farmer, R.**, K.R. Soren, S. P.S., and A. Setti. Structural modelling and molecular dynamics of a multi-stress responsive WRKY TF-DNA complex towards elucidating its role in stress signalling mechanisms in chickpea. *Journal of Biomolecular Structure and Dynamics*, 2017.

12. S.S. Lodhi, **Farmer, R.**, Y.K. Jaiswal, and G. Wadhwa. In Silico Structural, Virtual Screening and Docking Studies of Human Cytochrome P450 2A7 Protein. *Interdisciplinary Sciences: Computational Life Sciences*, 7(2), 2015.

11. F. Khanim, N. Davies, P. Veliça, R. Hayden, J. Ride, C. Pararasa, M.G. Chong, U. Gunther, N. Veerapen, P. Winn, **Farmer, R.**, E. Trivier, L. Rigoreau, M. Drayson, and C. Bunce. Selective AKR1C3 inhibitors do not recapitulate the anti-leukaemic activities of the pan-AKR1C inhibitor medroxyprogesterone acetate. *British Journal of Cancer*, 110(6), 2014.

10. S.S. Lodhi, **Farmer, R.**, A.K. Singh, Y.K. Jaiswal, and G. Wadhwa. 3D structure generation, virtual screening and docking of human Ras-associated binding (Rab3A) protein involved in tumourigenesis. *Molecular Biology Reports*, 41(6), 2014.

9. A.S. Haines, X. Dong, Z. Song, **Farmer, R.**, C. Williams, J. Hothersall, E. Płoskoń, P. Wattana-Amorn, E.R. Stephens, E. Yamada, R. Gurney, Y. Takebayashi, J. Masschelein, R.J. Cox, R. Lavigne, C.L. Willis, T.J. Simpson, J. Crosby, P.J. Winn, C.M. Thomas, and M.P. Crump. A conserved motif flags acyl carrier proteins for β-branching in polyketide synthesis. *Nature Chemical Biology*, 9(11), 2013.

8. S. Singh, G. Sablok, **Farmer, R.**, A.K. Singh, B. Gautam, and S. Kumar. Molecular dynamic simulation and inhibitor prediction of cysteine synthase structured model as a potential drug target for trichomoniasis. *BioMed Research International*, 2013, 2013.

7. S. Kumar, **Farmer, R.**, A.P. Turnbull, N.K. Tripathy, and B.A. Manjasetty. Structural and functional conservation profiles of novel cathepsin L-like proteins identified in the *Drosophila melanogaster* genome. *Journal of Biomolecular Structure and Dynamics*, 31(12), 2013.

6. B. Paital, S. Kumar, **Farmer, R.**, and G.B.N. Chainy. In silico prediction of 3D structure of Mn superoxide dismutase of *Scylla serrata* and its binding properties with inhibitors. *Interdisciplinary Sciences: Computational Life Sciences*, 5(1), 2013.

5. S. Kumari, S. Shridhar, D. Singh, P. Priya, **Farmer, R.**, J. Hundal, P. Sharma, K. Bavishi, K. Schrick, and G. Yadav. The role of lectins and HD-ZIP transcription factors in isoprenoid based plant stress responses. *Proceedings of the Indian National Science Academy*, 78(4), 2012.

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4. S.S. Lodhi, **Farmer, R.**, A.K. Singh, M. Wadhwa, Y.K. Jaiswal, and G. Wadhwa. Statistical analysis of differential gene expression profile for colon cancer. *Indian Journal of Biotechnology*, 11(4), 2012.

3. M.H.U.T. Fazil, S. Kumar, **Farmer, R.**, H.P. Pandey, and D.V. Singh. Binding efficiencies of carbohydrate ligands with different genotypes of cholera toxin B: Molecular modeling, dynamics and docking simulation studies. *Journal of Molecular Modeling*, 18(1), 2012.

2. B. Paital, S. Kumar, **Farmer, R.**, N.K. Tripathy, and G.B.N. Chainy. In silico prediction and characterization of 3D structure and binding properties of catalase from the commercially important crab, *Scylla serrata*. *Interdisciplinary Sciences: Computational Life Sciences*, 3(2), 2011.

1. **Farmer, R.**[†], B. Gautam, S. Singh, P. K. Yadav, and P. A. Jain. Virtual screening of AmpC/β-lactamase as target for antimicrobial resistance in *Pseudomonas aeruginosa*. *Bioinformation*, 4(7):290–4, 2010.

Preprint

Hassan, M., Rahman, F., **Farmer, R.**, Das, S., Vayani, F. Highlights of the 1st Student Symposium of the ISCB RSG UK. *F1000Research*, 4, 2015. `https://doi.org/10.12688/f1000research.6616.1`

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