Povilas Norvaišas │ Resume

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"For the robust, an error is information" - Nassim Nicholas Taleb

Education

PhD in Structural, Computational and Chemical Biology   **University College London**
Wellcome Trust funded scholarship at ISMB   *2014 – 2018*
PhD thesis "Interaction Between Host, Microbiota, Diet and Drugs in *C. elegans* and *E. coli*"

BSc Biophysics, GPA 9.8/10   **Vilnius University**
The Department of Nature Sciences   *2008 – 2012*
Exchange semester via Erasmus programme at University of Helsinki

Research & Professional Experience

BenevolentAI   **London**
Senior Bioinformatics Data Scientist   *2019*
Member of Precision Medicine Product Team, Multi-omics squad.

BenevolentAI   **London**
Bioinformatics Data Scientist   *2018 – 2019*
Member of Translational Medicine Squad.

Department of Structural and Molecular Biology, University College London   **London**
PhD student in Dr. Filipe Cabreiro & Dr. Kevin Bryson groups   *2014 – 2018*
Developed experimental and computational approaches to investigate Drug-Host-Microbiota-Diet interaction in *C. elegans-E. coli* model. Created data analysis, modelling and visualisation pipelines in R & Python for omics experiments.

Department of Biothermodynamics and Drug Design, Vilnius University   **Vilnius**
Research assistant in Dr. Vytautas Petrauskas group   *2013 – 2016*
Developed and maintained a ligand database based on ChemAxon JChem platform. Developed PDB structure internal cavity volume analysis and comparison methods.

Department of Nanomedicine, Houston Methodist Research Institute   **Houston, TX**
Visiting graduate research fellow in Dr. Arturas Ziemys lab   *2012 – 2013*
Analysed compatibility of drugs and their delivery systems in terms of physicochemical and pharmacokinetic properties and revealed tendencies for their most effective combinations. Investigated possible cancer prevention mechanisms of non-steroidal anti-inflammatory drugs using docking and pharmacophore comparison.

Department of Biothermodynamics and Drug Design, Vilnius University   **Vilnius**
Research assistant in Prof. Daumantas Matulis and Dr. Visvaldas Kairys groups   *2009 – 2021*
Investigated thermodynamics of cationic and anionic surfactant interaction as a model for hydrophobic effect. Virtual screening of carbonic anhydrase inhibitors using both industry standard and in-house tools.

Skills

Coding & data science: Extensive coding in Python & R, also use of tidyverse, Git, Bash, Jupyter, AWS, Oracle DB, MySQL, MatLab, Mathematica, LATEX.

Bioinformatics: Data analysis and interpretation for metabolomics and proteomics (GLM in R), transcriptomics in RNASeq & microarrays (fastQC, SAMtools, HISAT2, HTSeq2, DESeq2, edgeR, limma, Artemis), use of online resources and their API's (ENSEMBL, GEO, ArrayExpress, MetaCyc, RegulonDB, HMDB, ECMDB), bacterial genome assembly (SPAdes), PDB protein structure analysis (Biopython), Cytoscape.

Cheminformatics: Ligand docking using AutoDock, Schrödinger & LeadIT tools, compound data handling in ChemAxon InstantJChem, RDkit, Knime, openbabel, use of online resources (DrugBank, Zinc).

Machine learning: Semantic image segmentation using CNNs, use of tSNE, SVM, scikit-image, scikit-learn, Keras.

Pharmacology and drug design: Inhibitor binding affinity measurements using ITC, nano & micro drug delivery systems and their pharmacokinetics.

Experimental biology: Microbiology, bacterial phenotyping, DNA and RNA extraction.

Scholarships

- Wellcome Trust funded PhD at ISMB, UCL, London, 2014-2018
- Lithuanian Science Council funding, 2014-2016
- The BAFF Professional Internship Program in the USA, 2012-2013
- President Kazys Grinius memorial scholarship for academic excellence, 2011-2012
- Lithuanian Science Council Student Research Fellowship award, 2011-2012
- Erasmus scholarship for studies in University of Helsinki, 2010
- Lithuanian Science Council Student Summer Research Fellowship award, 2010

Certificates & Training

- Introduction to Machine Learning, UCL, March 2017
- SysMIC Module I, September-July 2016
- Gene Expression Workshop at University of Liverpool, CGR, March 2016
- Synthetic Biology Workshop at Oxford University, DTC, February 2016

Posters & talks

- Poster "Amyotrophic Lateral Sclerosis endotype detection using Bayesian biclustering", Glastonbury C. & Norvaisas P. et al., NeurIPS, Vancouver, December 2019
- Poster "Host-Microbe-Drug-Nutrient interactions - A 4-way high-throughput screening approach", Norvaisas P. et al., New Approaches and Concepts in Microbiology, EMBL, Heidelberg, June 2017
- Best poster award - "Drug Delivery Systems: systematic analysis of physicochemical, pharmacokinetic and therapeutic properties", Norvaisas P. & Ziemys A., Pharmaceutica-2013, Chicago, April 2013
- Best poster award - "Thermodynamics of cationic and anionic surfactant interaction", Norvaisas P., Pertrauskas V. & Matulis D., XVII Conference of ISBC, Leipzig, June 2012

Publications

- Norvaisas P. & Cabreiro F. "Host-Microbe-Drug-Nutrient Screen Identifies Bacterial Effectors of Metformin Therapy", Cell, vol. 178, pp. 129-1312. Sep. 2019.
- Scott, T. A., Quintaneiro, L. M., Norvaisas, P., Lui, P. P. et al. "Host-Microbe Co-metabolism Dictates Cancer Drug Efficacy in *C. elegans*", Cell, vol. 169, no. 40, pp. 1–15. Apr. 2017.
- Hastings J. et al. "WormJam: A consensus *C. elegans* Metabolic Reconstruction and Metabolomics Community and Workshop Series", Worm, vol. 6, no. 2, e1373939, Apr. 2017.
- Skvarnavicius G. et al., "High pressure spectrofluorimetry – a tool to determine protein-ligand binding volume", Journal of Physics Conference Series 2017, col. 950, no. 4, pp. 42001, 2017.
- Norvaisas P. et al., "The protein kinase promiscuities in the cancer-preventive mechanisms of NSAIDs", European Journal of Cancer Prevention, vol. 25, no. 1, pp. 77-84, Jan. 2016.
- Zubrienė A. et al., "Intrinsic thermodynamics of 4-substituted-2,3,5,6-tetrafluorobenzenesulfonamide binding to carbonic anhydrases by isothermal titration calorimetry", Biophysical Chemistry, vol. 205, no. 8, pp. 51-65, Oct. 2015.
- Timm D. et al., "Intrinsic Thermodynamics-Structure Correlation of Carbonic Anhydrase Inhibitors", Biophysical Journal, vol. 108, no. 2, pp. 217, Jan. 2015.
- Dudutiene V. et al., "Discovery and characterization of novel selective inhibitors of carbonic anhydrase IX", Journal of Medicinal Chemistry, vol. 55, no. 22, pp. 9435-9446, Nov. 2014.
- Norvaisas P. & Ziemys A., "The role of payload hydrophobicity in nanotherapeutic pharmacokinetics", Journal of Pharmaceutical Sciences, vol. 103, no. 7, pp. 2147-56, Mar. 2014.
- Norvaisas P., Kojic M., Milosevic M. & Ziemys A. "Prediction and analysis of drug delivery systems: from drug-vector compatibility to release kinetics", CRS Newsletter, vol. 30, no. 5, pp. 14-15, Sep. 2013.
- Norvaisas P. & Kisdi É., "Revisiting Santa Rosalia to unfold a degeneracy of classic models of speciation", The American Naturalist, vol. 180, no. 3, pp. 388-393, Sep. 2012.
- Norvaisas P., Petrauskas V., & Matulis D., "Thermodynamics of cationic and anionic surfactant interaction", The Journal of Physical Chemistry B, vol. 116, no. 7, pp. 2138-44, Feb. 2012.