Mariam Konaté, Ph.D.
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PROFESSIONAL PROFILE

Recent Ph.D. graduate with over 10 years academic research experience in translational Bioinformatics, Functional Genomics and Biochemistry. Strong analytical, statistical and problem solving skills. Solid record of applying biological data analysis methods to model biomedical systems. Expertise in infectious disease drug discovery and drug target identification against public health threats including HIV, Tuberculosis and Malaria. Demonstrated the ability to work as part of a multi-disciplinary team and to communicate technical material effectively in oral and written form to different audiences. Ability to assume a leadership role in organizing and managing a project.

Seeking to relocate to the Washington DC Metro Area. United States of America and France dual-citizenship.

EDUCATION

Ph.D., Pharmacology, Columbia University (October 2014)
Dissertation: *Structure-Based Genome Scale Function Prediction and Reconstruction of the* Mycobacterium tuberculosis *metabolic network*
Advisor: Dr. Dennis Vitkup

M.A., Pharmacology, Columbia University (October 2008)
Project: *Are Stem Cells Anti-Arrhythmic?*

B.Sc., Chemistry, Virginia Polytechnic Institute and State University (May 2006)

RESEARCH EXPERIENCE

Columbia University New York, NY
Postdoctoral Research Scientist; Advisor: Dr. Dennis Vitkup (2014 – Present)

- Built a constraint-based model for *Mycobacterium tuberculosis* linking 1,000 metabolites with 1,300 metabolic reactions. Interrogated this model with physiological data to gain a better understanding of bacterial persistence.

Columbia University New York, NY
Ph.D. Candidate and Graduate Researcher; Advisor: Dr. Dennis Vitkup (2009 – 2014)

- Developed a computational probabilistic algorithm to reconstruct and curate the metabolic network of the human pathogen *Mycobacterium tuberculosis*.
- Identified over 80 promising candidate targets for anti-tuberculosis drug development.
- Wrote 2 manuscripts for peer-reviewed scientific journals and contributed to a successful NIH grant application.

Columbia University New York, NY
Pre-Doctoral Summer Rotation; Advisor: Dr. Virginia Cornish (Summer 2008)

- Synthesized a fluorescent chemical tag for selective protein imaging inside live cells.

Computer-Aided Drug Design Group, National Institute of Health Frederick, MD
Summer Intern; Advisor: Dr. Marc Nicklaus (Summer 2007)

- Investigated the mechanism of activation of the oncogene c-Met by building a homology model of the open conformation, and computationally screened hundreds of potential inhibitors.

Department of Biochemistry, Virginia Polytechnic Institute and State University Blacksburg, VA
Post-Baccalaureate Fellow; Advisor: Dr. Dave Bevan (2006 – 2007)

- Probed specificity of sugar hydrolyzing enzymes through docking and nanoscale molecular dynamics simulations.

Laboratory of Organic Chemistry, Helsinki University of Technology Espoo, Finland
Summer intern; Advisor: Dr. Petri Pihko (Summer 2006)

- Synthesized ortho-substituted anilines organic catalysts, and characterized by Nuclear Magnetic Resonance.

Department of Chemistry, Virginia Polytechnic Institute and State University
Blacksburg, VA

Undergraduate Research Assistant; Advisor: Dr. Paul Deck (2003 – 2006)

- Synthesized and studied reactivity of organometallic catalysts for industrial polymerization reactions.

OTHER RELEVANT EXPERIENCE

United Nations Volunteer (Online) (2011 – Present)
Translate and edit material from French to English for sustainable human development organizations belonging to the United Nations Volunteer network.

Data Club Coordinator, Department of Pharmacology, Columbia University (2011 – 2012)
Organized monthly seminars for 10-15 Pharmacology students. Scheduled and publicized events, managed budget.

Job-Raising Coordinator, Virginia Tech Chapter of the International Association for the Exchange of Students for Technical Experience **(**2005 – 2006)
Recruited Science and Technology professors to join the IAESTE network and welcome international exchange students for short to medium-term internships. Assisted in the planning of the National Conference of Fall 2005 with fundraising, setting up the conference space and organizing social activities.

YMCA Volunteer Tutor, Blacksburg, Virginia (2002 – 2006)
Tutored 2 students at Blacksburg Middle School in Algebra and Science. Assisted an elementary school teacher with her 2nd grade class. Mentored students requiring additional help in reading and Mathematics.

SKILLS AND CERTIFICATIONS

Pharmaceutical Industry Strategy Workshop, New York Academy of Sciences 2014

Gene Expression Data Analysis Workshop, Ingenuity Qiagen 2014

Fundamentals of Health Care Systems in Developing Countries, Mailman School of Public Health 2012

Drug Development and Commercialization Workshop, Columbia Business School 2011

Ethical Conduct of Research, Columbia University 2008

Computer: Unix, Perl, Python, C++, Matlab, Microsoft Word, Excel, PowerPoint.

Bioinformatics: NCBI Blast, Clustal (alignment), AutoDock (docking), Modeller (homology modeling), Pymol (visualization).

Languages: English (bilingual), French (native), Spanish (proficient).

HONORS AND AWARDS

National Institute of Health Pre-Doctoral Fellowship 2010-2014

National Science Foundation Pre-Doctoral Fellowship Honorable Mention 2009

Who's Who Among Students in American Universities 2005-2006

Undergraduate Research Award, **Virginia Polytechnic Institute and State University** 2005

Dean's List, Virginia Polytechnic Institute and State University 2002, 2004, 2005

PUBLICATIONS

- Konate M. M., Plata G., Kondrashov F. A., Vitkup D. Conservation of molecular function limits divergent protein evolution on planetary timescales **(In preparation)**
- Konate M.M., Plata G., Fuhrer T., Sauer U., Vitkup, D. Mapping parasite vulnerabilities through curation and expansion of the *Mycobacterium tuberculosis* metabolic network. **(In preparation)**
- Gallagher S. S., Jing C., Peterka D. S., Konate M., *et al.* A Trimethoprim-Based Chemical Tag for Live Cell Two-Photon Imaging. *ChemBioChem* **2010**, 11: 782–784.
- Deck, P. A., Konate, *et al.* C-F Activation Reactions of (Pentafluorophenyl) cyclopentadiene and 3-(Pentafluorophenyl)indene with Tetrakis(dimethylamido)titanium(IV). *Organometallics* **2004**, 23*(5)*: 1089-97.