

## CURRICULUM VITAE

**Name:** Vincent J. VanBuren, Ph.D.  
**Date and Place of Birth:** June 12, 1971, Lansdale, Pennsylvania, USA  
**Citizenship:** USA  
**Marital Status:** Married - two children  
**Home Address:** 1830 Loch Shiel Road, Baltimore, Maryland 21234, USA  
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**Field of Specialization:** Computational Biology and Bioinformatics

### Education:

1994 Cedar Crest College, Allentown, PA B.S. Biology  
2002 Lehigh University, Bethlehem, PA Ph.D. Molecular Biology  
**Dissertation:** Computational Modeling of Microtubule Structure and Assembly  
**Advisor:** Lynne Cassimeris, Ph.D., Associate Professor of Molecular Biology,  
Department of Biological Sciences, Lehigh University  
**Co-Advisor:** David J. Odde Ph.D., Associate Professor of Chemical  
Engineering, Department of Biomedical Engineering, University of  
Minnesota

### Relevant Bioinformatics training and skills:

- Designed and developed a Web-based application for high-throughput probe selection using probe screening criteria for *in situ* hybridization (ISH) probe selection and a neural network-based scoring algorithm for DNA microarray probe selection.
- Designed and developed a computational model to estimate the energy of protein-protein interactions and elastic energy within microtubules
- Designed and developed a computational model that recapitulates microtubule dynamic instability
- Designed and developed a computational model that recapitulates the 3-dimensional shapes assumed by microtubules undergoing assembly or disassembly
- Expert programmer in MATLAB and Perl. Proficient in using UNIX/Linux, Wintell PCs, and Macintosh systems. Proficient with various statistical packages. Competence and strong interest in algorithm development.
- Expert in applying computational methods to biological problems. A solid understanding of bioinformatics algorithms. Experienced using BLAST, BLAT, RepeatMasker, CLUSTAL, FASTA, RASMOL, and SWISS-PDB Viewer, various statistics packages and others on various platforms (UNIX, Mac, Win2K).

**Positions:**

2002-Present	IRTA Postdoctoral Fellow, Laboratory of Genetics, National Institute on Aging, National Institutes of Health, Baltimore, MD
2001-2002	Research Assistant, Department of Biological Sciences, Lehigh University, Bethlehem, PA
2000-2001	Aventis Fellow (awarded by Aventis Pharmaceuticals, Inc.), Department of Biological Sciences, Lehigh University, Bethlehem, PA
1999-2000	Research Assistant, Department of Biological Sciences, Lehigh University, Bethlehem, PA
1998-1999	Dean's Fellow (awarded by College of Arts and Sciences, Lehigh University), Department of Biological Sciences, Lehigh University, Bethlehem, PA
1995-1998	Teaching Assistant [Genetics Laboratory (3 semesters), Histology Laboratory (2 semesters), Advanced Cell Biology Laboratory (1 semester)], Department of Biological Sciences, Lehigh University, Bethlehem, PA
1994-1995	Nursing Assistant, Pennsburg Manor, Pennsburg, PA

**Other Professional Experience:**

1998	Lecturer (faculty assignment), Human Genetics and Reproduction, Biological Sciences Department, Lehigh University
1998	Computer Consultant and Technician, Biological Sciences Department, Lehigh University

**Research Interests:**

- Novel data mining and analysis of DNA microarray experiments.
- Prediction of absolute transcript abundance from DNA microarray measured intensities.
- Probe design for high-throughput *in situ* hybridization and DNA microarrays.
- Computational analysis and modeling of biochemical networks.
- Computational analysis and modeling of microtubule structure and assembly.

**Honors:**

## Research Grants:

2002-Present	Intramural Research Training Award Postdoctoral Fellowship, NIA/NIH.
2003	Fellows Award for Research Excellence (FARE 2003), NIA/NIH.
2000	Travel Award, American Society of Cell Biology annual meeting.

## Scholarships:

2000-2001	Predocorral Fellowship, Aventis Pharmaceuticals, Inc., Lehigh University.
1998-1999	Dean's Predocorral Fellowship, Lehigh University College of Arts and Sciences.

**Invited Talks:**

December 2003	Department of Biochemistry, Robert Wood Johnson Medical School, Piscataway, NJ.
August 2001	Laboratory of Genetics, National Institute on Aging, NIH, Baltimore, MD
October 2000	Department of Biomedical Engineering, University of Minnesota, Minneapolis, MN

**Professional Activities:**

2001	Ex Officio Committee Member, Search Committee for a new faculty appointment in Molecular Modeling, Department of Biological Sciences, Lehigh University
1997-2001	Graduate Student Representative at departmental faculty meetings, Department of Biological Sciences, Lehigh University
1996-1997	Graduate Student Representative at Graduate Student Council Meetings

**Society Memberships:**

International Society for Computational Biology (ISCB)  
American Association for the Advancement of Science (AAAS)  
American Society for Cell Biology (ASCB)

## BIBLIOGRAPHY

1. **VanBuren, V.**, Odde, D.J., Cassimeris, L. (1999) Modeling Tube Tops: A Model for Tubulin-Tubulin Interactions in Microtubule Statics and Dynamics. *Mol Biol Cell* 10(S): 376a.
2. **VanBuren, V.**, Cassimeris, L., Odde, D.J. (2000) Static Modeling of Microtubular Structures. *Mol Biol Cell* 11(S): 357a.
3. **VanBuren, V.**, Odde, D.J., Cassimeris, L. (2002) Estimates of Lateral and Longitudinal Bond Energies within the Microtubule Lattice. *Proc Natl Acad Sci USA*, 99(9): 6035-40.
4. **VanBuren, V.**, Piao, Y., Dudekula, D.B., Qian, Y., Carter, M.G., Martin, P.R., Stagg, C.A., Bassegy, U.C., Aiba, K., Hamatani, T., Kargul, G.J., Luo, A.G., Kelso, J., Hide, W., Ko, M.S.H. (2002) Assembly, Verification, and Initial Annotation of the NIA Mouse 7.4K cDNA Clone Set. *Genome Research*, 12:1999-2003.
5. **VanBuren, V.**, Yoshikawa, T., Hamatani, T., Ko, M.S.H. (2003) Probe Design for Large-Scale Molecular Biology Applications. *IEEE CSB Proceedings (CSB2003)*. 502-503.
6. Sharov, A.A., Piao, Y., Matoba, R., Dudekula, D.B., Qian, Y., **VanBuren, V.**, Falco, G., Martin, P.R., Stagg, C.A., Bassegy, U.C., Wang, Y., Carter, M.G., Hamatani, T., Aiba, K., Akutsu, H., Sharova, L., Tanaka, T.S., Kimber, W.L., Yoshikawa, T., Jaradat, S.A., Pantano, S., Nagaraja, R., Boheler, K.R., Taub, D., Longo, D.L., Schlessinger, D., Keller, J., Klotz, E., Kelsoe, G., Umezawa, A., Vescovi, A.L., Rossant, J., Kunath, T., Hogan, B.L.M., Curci, A., D'Urso, M., Kelso, J., Hide, W., and Ko, M.S.H. (2003) Transcriptome analyses yield gene sets correlated with developmental potential in mouse stem cells and early embryos. *PLoS Biology*, 1(3): 410-419.
7. Carter, M.G., Piao, Y., Dudekula, D.B., Qian, Y., **VanBuren, V.**, Sharov, A.A., Tanaka, T.S., Martin, P.R., Bassegy, U.C., Stagg, C.A., Aiba, K., Hamatani, T., Ko, M.S.H. (2003) The NIA Mouse cDNA Project: Building a Gene Catalog of Mouse Stem Cells and Early Embryos. *CR Biologies*, 326 (10-11): 931-940.
8. **VanBuren, V.** and Ko, M.S.H. (2004a) Embryogenomics (invited encyclopedia section). *Encyclopedia of Molecular Cell Biology and Molecular Medicine*. Wiley-VCH, Berlin. Submitted.
9. **VanBuren, V.** and Ko, M.S.H. (2004b) Regulation of genome activity and genetic networks in mammals (invited book chapter). *Mammalian Genomics*. CAB International Publishing, Cambridge, Massachusetts. Submitted.
10. Tanaka, T.S., Akutsu, H., Yoshikawa, T., Sharova, L., **VanBuren, V.**, Stagg, C.A. and Ko, M.S.H. *Esg1* is required for self-renewal of pluripotent cells in mouse blastocysts and ES cells. Submitted.
11. **VanBuren, V.**, Cassimeris, L., Odde, D.J. A Chemico-mechanical Model for Microtubule Structure and Kinetics. In preparation.
12. **VanBuren, V.**, Yoshikawa, T., Hamatani, T., and Ko, M.S.H. Probe Selection using an Artificial Neural Network Trained with Oligo DNA Microarray Data. In preparation.

## REFERENCES

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