



## ERIC HENDERSON

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### BACKGROUND

Eric received his Ph.D. degree (1984) in Molecular Biology under the tutelage of Dr. James A. Lake at UCLA. His research focus was the structure and function of ribosomes. Eric was a Damon-Runyon post-doctoral fellow with Nobel laureate Dr. Elizabeth Blackburn (1984-1987) at UC Berkeley. His research focus was the structure and function of telomeres.

### CURRENT POSITIONS

Professor of Genetics, Development and Cell Biology, Iowa State University  
President of Creodyne, llc (est. 2009)  
Founder of Henderbooks (est. 2014)  
Co-founder of Henderprise, llc (est. 2014)

### PAST POSITIONS

Assistant & Associate Professor, Iowa State University (1987-1996)  
Co-Founder, BioForce Nanosciences, Inc. (1994-2008)  
Co-Founder, Hello Holdings, Inc. (and subsidiaries)

### PATENTS (9 US, international counterparts not displayed)

US 5,763,768; "Analytical Method Using Modified Scanning Probes"  
US 5,935,339; "Decontamination Device and Method Thereof"  
US 6,146,899; "Height Referencing Biochemical Cassette"  
US 6,573,369; "Method and Apparatus for Solid State Molecular Analysis"  
US 6,716,578; "Methods for Solid State Genome Analysis"  
US 6,897,015; "Device and Method ... Detection and ... of Pathogens..."  
US 6,998,228; "Method and Apparatus for Solid State Molecular Analysis"  
US 7,008,769; "Nanoscale Molecular Arrayer"  
US 7,060,448; "Evaluating Binding Affinities by Force Stratification and Force Panning"

### REVIEWER

Acta Biomaterialia  
Biochemistry  
Biophysical Journal  
Biochimica et Biophysica Acta  
Chromosoma  
Electrophoresis  
Experimental Cell Research  
Genes and Development  
Journal of Membrane Biology  
Journal of Biological Chemistry  
Journal of Molecular Biology  
Journal of Molecular Phylogeny and Evolution  
Journal of Microscopy

Journal of Structural Biology  
Nanomedicine  
Nucleic Acids Research  
New England Journal of Medicine  
Plant Molecular Biology  
Physical Review  
Probe Microscopy  
Proceedings of the National Academy of Science  
Reviews of Modern Physics  
Science  
Scanning Microscopy  
Surface Science

**EDITOR** (*ad hoc*)

Proceedings of the National Academy of Science

**PUBLICATIONS**

1. Marquis, D.M., Fahnestock, S.R., Henderson, E., Woo, D. Schwinge, S., Clark, M.W. and Lake, J.A. (1981) The L7/L12 stalk, a conserved feature of the prokaryotic ribosome, is attached to the large subunit through its N terminus. *J. Mol. Biol.* 150, 121-132.
2. Lake, J.A., Henderson, E., Clark, M.W. and Matheson, A.T. (1982) Mapping evolution with ribosome structure: intralinear constancy and interlinear variation. *Proc. Natl. Acad. Sci. USA* 79, 5948-5952.
3. Henderson, E., Pierson, B. and Lake, J.A. (1983) *Chloroflexus auranticus* has 30S ribosomal subunits of the eubacterial type. *J. Bact.* 155(2), 900-902.
4. Henderson, E., Oakes, M., Clark, M.W., Lake, J.A., Matheson, A.T. and Zillig, W. (1984) A new ribosome structure. *Science* 225, 510-512.
5. Lake, J.A., Henderson, E., Oakes, M. and Clark, M.W. (1984) Eocytes: A new ribosome structure indicates a kingdom with a close relationship to eukaryotes. *Proc. Natl. Acad. Sci. USA* 81, 3786-3790.
6. Lake, J.A., Clark, M.W., Henderson, E., Fay, S., Oakes, M., Scheinmann, A., Thornber, J.P. and Mah, R.A. (1985) Eubacteria, halobacteria and the origin of photosynthesis: the photocytes. *Proc. Natl. Acad. Sci. USA* 82, 3716-3720.
7. Henderson, E. and Lake, J.A. (1985) Ribosomal collapse triggered by a DNA oligonucleotide., in *Proceedings of the 16th FEBS, Vnu Science Press, B.V. Utrecht, Netherlands.*
8. Oakes, M., Henderson, E., Scheinmann, A., Clark, M.W., and Lake, J.A. (1985) Mapping ribosomal RNA, protein, and functional sites in three dimensions. in *Structure, Function and Genetics of Ribosomes.* Springer-verlag Press, Spring Series in Molecular Biology.
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10. Lake, J.A., Henderson, E., Clark, M.W., Scheinman, A. and Oakes, M.I. (1986) Evolution mapped with the three dimensional ribosome structure. *Chemica Scripta* 26, 121-126.
11. Lake, J.A., Henderson, E., Clark, M.W., Scheinmann, A and Oakes, M. (1986) Mapping evolution with three dimensional ribosome structure. *System. Applied Microbiol.* 7, 131-136.
12. Oakes, M., Clark, M.W., Henderson, E. and Lake, J.A. (1986) DNA hybridization electron microscopy: ribosomal RNA nucleotides 1392-1407 are exposed in the cleft of the small subunit. *Proc. Natl. Acad. Sci. USA* 83, 275-279.
13. Henderson, E. Hardin. C.W., Wolk, S. Tinoco, I., Jr. and Blackburn, E.H. (1987) Telomeric DNA oligonucleotides form novel intramolecular structures containing guanine.guanine base pairs., *Cell* 51, 899-908.
14. Forney, J., Henderson, E.R. and Blackburn, E.H. (1987) Identification of the telomeric sequence of the acellular slime molds *Didymium iridis* and *Physarum polycephalum*. *Nucleic Acids Res.* 22, 9143-9152.
15. Henderson, E., Larson, D., Melton, W., Shampay, J., Spangler, E., Greider, C., Ryan, T. and Blackburn, E. (1988) Structure, synthesis and regulation of telomeres in eukaryotic DNA replication, Vol. 6. Bruce Stillman and Thomas Kelly, eds. Cold Spring Harbor Laboratory.
16. Henderson, E. and Blackburn, E.H. (1989) An overhanging G-rich strand is a conserved feature of eukaryotic telomeres. *Mol. and Cell Biol.* 9, 354-348.
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21. Ahmed, S. and Henderson, E. (1992) Formation of novel hairpin structures by telomeric C-strand oligonucleotides. *Nucleic Acids Research*, 20 (3) 507-511.
22. Henderson, E. (1992) Nanodissection of supercoiled plasmid DNA by atomic force microscopy. *Nucleic Acids Research*, 20 (3) 445-447.
23. Henderson, E. (1992) Atomic force microscopy of conventional and unconventional nucleic acid structures. *J. Microscopy*, 167, 77-84.
24. Henderson, E. and Larson, D. (1991) Telomeres - what's new at the end? in *Current Topics in Genetics and Development*, 1, 538-543.
25. Henderson, E., Haydon, P.G and Sakaguchi, D.A. (1992) Actin filaments dynamics in living glial cells imaged by atomic force microscopy. *Science*, 257, 1944-1946.
26. Tak, Yongsug, Hebert, K. R. and Henderson, E. (1992) Evolution of microscopic surface topography during passivation of aluminum. *Proc. Electrochem. Soc.*, Vol. 92-22.
27. Hoh, J. H. and Henderson, E. (1992) Biological Sample Preparation for Force Microscopy. *NanoTips*, 4, 2-3 (Digital Instruments, Inc., solicited newsletter article, not refereed).
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100. McCloskey M. A., Mosher, C. L., Henderson, E. R. (2017) Wind Energy Conversion by Plant-Inspired Designs. *PLoS ONE* 12(1): e0170022. doi:10.1371/journal.pone.0170022.

## CURRENT SUPPORT

NSF 1545028 (\$823,930)

PI Robyn Lutz; Co-PIs James Lathrop, Jack Lutz, Eric Henderson

Awarded September 16, 2015

Safety-Aware Cyber-Molecular Systems

The goal of this project is to explore the needs and solutions to creating safe cyber-molecular systems. Many of the planned future uses of cyber-molecular systems are safety-critical, such as biosensors to detect pollutants in water or disease markers in the body, and drug therapeutics to deliver a customized medicine only to the locations in the body where the disease has been detected.

## OTHER ACTIVITIES

### BOOKS

“Kiss” (Self-Published) - a biomedical science romance/thriller

“The Pleasure Pill” (Self-Published) - a thriller involving a drug scandal in the FDA

“Vibrations” (Self-Published) - a nanoscience murder mystery co-written with Tim Henderson

“Emergence” (Self-Published) - a science fiction twist on evolution and creation

“Cryptic Orchid” (pending) – biomedical romp involving a virus that specifically targets males

### MUSIC

#### Albums

“Double Helix Blues”(CD) - original songs co-written with Dr. Ira Herskowitz 1996

“Enter Pinubeus” (CD) - original songs 1999 BumbleFunk Music

“Simple City” (CD) - original songs 2008 BumbleFunk Music

“Word Play” (CD) - original songs 2010 BumbleFunk Music

“Black Notebook” (CD) - original songs performed by Joy 2004 BumbleFunk Music

“New Lexicon” (CD) - original songs performed by Baby Boy/LiL BB 2007 BumbleFunk Music

“Only I” (CD) - original songs performed by Izzy Dunfore 2008 BumbleFunk Music

“Dream Wit Me” (CD) - original songs performed by LiL BB 2008 BumbleFunk Music

### **Artists**

KENO, Tripp Marxx, Izzy Dunfore, UnKald4, Joy, LiL BB, Scalpshifter, Evergreen, D-Novas, D Money, Ann Whitaker, Tionna Poole, Bombardier, Trina, The Chess Club, The Gist, Hot Sauce Paradigm

### **MEMBERSHIPS**

AAAS (science)

ASCAP (music)

AARP

