

Basic Science Research Award



Noah A. Rosenberg, Ph.D., M.S.

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Ecology and Evolutionary Biology, and Biostatistics*

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Noah A. Rosenberg, Ph.D., M.S., collaborates with many fellow faculty members in his work in the areas of disease genetics, evolutionary biology and computational biology. Few do it better, say colleagues who nominated Rosenberg for the Basic Science Research Award.

“Dr. Rosenberg carries out interdisciplinary research that has a high impact in several areas, and his combination of mastery in evolution, mathematics, computer science and genetics are essential to push back the frontier of biomedical research,” writes Sally A. Camper, Ph.D., the James V. Neel Professor and chair of the Department of Human Genetics. “Stellar performers like Dr. Rosenberg do not come along very often.”

Rosenberg’s lab studies the evolutionary history of human migrations, the geographic distribution of human genetic variation, and the use of evolutionary approaches to advance the discovery and evaluation of genes that underlie complex human diseases. His long-term research goals are to understand the detailed genetic history of the human species and to maximize the potential of genetic mapping studies for extracting information about disease etiology from patterns of human genetic variation. To that end, he has developed novel statistical and computational methods for the analysis of worldwide human genetic variation.

“My research has benefited from an excellent environment for interdisciplinary work at the University,” says Rosenberg, who has had articles published in the *Proceedings of the National Academy of Sciences*, the *Journal of Computational Biology*, *Bioinformatics*, *Genetics*, the *New England Journal of Medicine*, *Evolution* and *Nature*. “I have enjoyed a series of great collaborations with faculty members from across the campus, and I have been very fortunate to have a wonderful group of talented and hard-working students and postdocs in my lab.”

A recent investigation published by Rosenberg and a team of University scientists, along with colleagues from the National Institute on Aging, produced one of the largest and most detailed worldwide studies of human genetic variation, which offered new insights into early migrations out of Africa and across the globe. The patterns revealed by this study support the idea that humans originated in Africa, then spread into the Middle East, followed by Europe and Asia, the islands of the Pacific Ocean, and finally to the Americas.

The results of Rosenberg’s study, published in *Nature*, bolster the notion of “serial founder effects” — as people began migrating eastward from East Africa about 100,000 years ago, each successive wave of migrants carried a subset of the genetic variation held by previous groups.

Alan R. Saltiel, Ph.D., the Mary Sue Coleman Director of the Life Sciences Institute and the John Jacob Abel Collegiate Professor in the Life Sciences, writes that the U-M has significantly benefitted from Rosenberg’s accomplishments during his tenure. His research has invigorated the statistical and population genetics side of human genetics and bioinformatics and has also helped bridge the gap between mathematics and biology, he adds.

“Noah is truly a brilliant scientist, scholar and emerging leader,” writes Saltiel. “He is impatiently curious about the natural world, and is as dedicated a scientist as I have ever met. His work has already transformed the fields of evolutionary biology and disease genetics, providing a better understanding into genetic susceptibilities to devastating health problems.”