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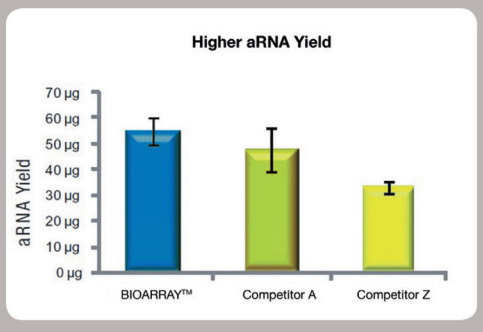

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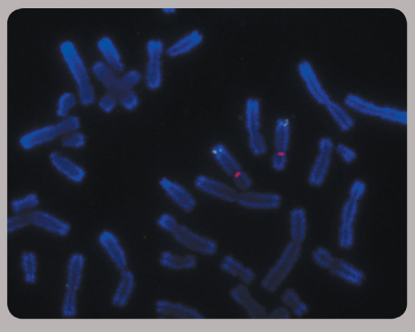

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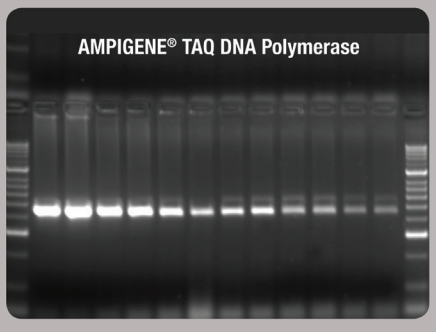

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During the passage from the shore to marine life penguins acquire a tremendous capability of survival in cold waters and experience corresponding morphological alterations. These are results of gene expression changes.[1]

[1] Teulier, L. et al. Proc Biol Sci. 279, 2464–2472 (2012).

The difference comes from changes in gene expression

Gene expression profile changes play significant role in life cycles of many organisms including penguins.

An essential life step for penguins is a passage from shore to marine life, a step towards nutrition independence. Penguins acquire exceptional capability to survive in cold water and morphological alterations happen. At the time of departure to sea, the thick down of juveniles is replaced by waterproof feathers (view photo). These differences come from changes in gene expression profile.

Lexogen is focusing on development of accurate and affordable tools for transcriptome analysis with RNA-Seq. QuantSeq is a dedicated kit for expression profiling. It is an easy protocol for generation of highly strand-specific NGS libraries from the 3′ end of polyadenylated RNA. Only one fragment per transcript is produced, directly linking the number of mapping reads to the gene expression values. Restricted length saves sequencing space and allows for high level of multiplexing, enabling cost-efficient and fast RNA-Seq experiment.

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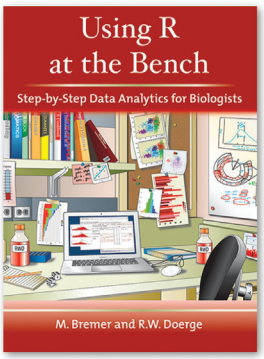
Using R at the Bench

Step-by-Step Data Analytics for Biologists

By Martina Bremer, *Department of Mathematics, San Jose State University, California*;
Rebecca W. Doerge, *Departments of Statistics and Agronomy, Purdue University, Indiana*



Using R at the Bench: Step-by-Step Data Analytics for Biologists is a convenient bench-side handbook for biologists, designed as a handy reference guide for elementary and intermediate statistical analyses using the free/public software package known as "R." The expectations for biologists to have a more complete understanding of statistics are growing rapidly. New technologies and new areas of science, such as microarrays, next-generation sequencing, and proteomics, have dramatically increased the need for quantitative reasoning among biologists when designing experiments and interpreting results. Even the most routine informatics tools rely on statistical assumptions and methods that need to be appreciated if the scientific results are to be correct, understood, and exploited fully.

While the original *Statistics at the Bench* is still available for sale and has all examples in Excel, this new book uses the same text and examples in R. There is a new chapter that introduces the basics of R (where to download, getting people connected to it, and some basic commands and resources). There is also a new chapter that explains how to analyze Next Generation Sequencing data using R (specifically, RNA-seq). R has many functions for these analyses and *Using R at the Bench: Step-by-Step Data Analytics for Biologists* is an excellent resource for those biologists who want to learn R. This book is an essential handbook for working scientists providing a simple refresher for those who have forgotten what they once knew, and an overview for those wishing to use more quantitative reasoning in their research. Statistical methods, as well as guidelines for the interpretation of results, are explained using simple examples. Throughout the book, examples are accompanied by detailed R commands for easy reference.

2015, 200 pages, illustrated (36 2C, 52 B&W), index
Hardcover $61

ISBN 978-1-621821-12-0

Contents

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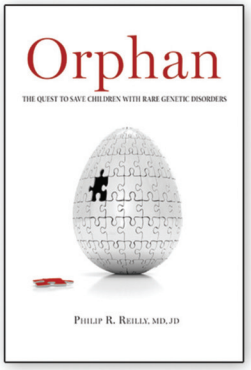
Orphan

THE QUEST TO SAVE CHILDREN WITH RARE GENETIC DISORDERS

By Philip R. Reilly, MD, JD



Orphan is about the struggle to save the lives of children who, because of an unlucky roll of the genetic dice, are born with any one of several thousand rare genetic disorders. Many are burdened with diseases that carry mysterious names, some of which you can read about for the first time in this book, along with compelling stories about the physicians, scientists, and parents who have taken them on. The diseases include phenylketonuria, sickle cell anemia, dystrophic epidermolysis bullosa, X-linked hypohidrotic ectodermal dysplasia, and Friedreich's ataxia—just a few of the more than 1000 genetic disorders that are well-described and many more that are not. Many manifest in infancy. Some show up in mid-childhood, others later in childhood, and still others among adults. They touch almost every extended family. *Orphan* is more than a book about disease and research—it gives voice to thousands of people who, all too often, have endured terrible illnesses, bravely faced arduous clinical trials, and, sometimes, have gained victories, almost always in silence. This book recounts extraordinary breakthroughs and hopes for the future. Many of the disorders that will end our lives are in some part genetically influenced. We really are all orphans, and this book is for all of us.

2015, 408 pages, illustrated (12 page insert of B&W images), index
Hardcover $29
ISBN 978-1-621821-37-3

Contents

About the author: Philip R. Reilly earned his undergraduate degree at Cornell University, studied human genetics at the University of Texas Graduate School of Biomedical Sciences, and graduated from Yale Medical School in 1981. He did his medical residency at Boston City Hospital. He earned board certification in internal medicine and clinical genetics, and a law degree at Columbia University. He has served on the Board of Directors of the American Society of Human Genetics, and he is a Founding Fellow of the American College of Medical Genetics. He twice served as President of the American Society of Law, Medicine, and Ethics. During the 1990s, Reilly was the Executive Director of the Eunice Kennedy Shriver Center for Mental Retardation in Waltham, Massachusetts, a nonprofit that worked on understanding childhood and adult neurological disorders. Dr. Reilly has held faculty positions at Harvard Medical School and Brandeis University. Since 2009 he has worked as a venture partner at Third Rock Ventures in Boston where he focuses on helping to start companies to develop innovative therapies for orphan genetic diseases. Over the years he has published six books and many articles about the impact of advances in genetics. Reilly frequently works with patient groups who are concerned with rare genetic disorders.

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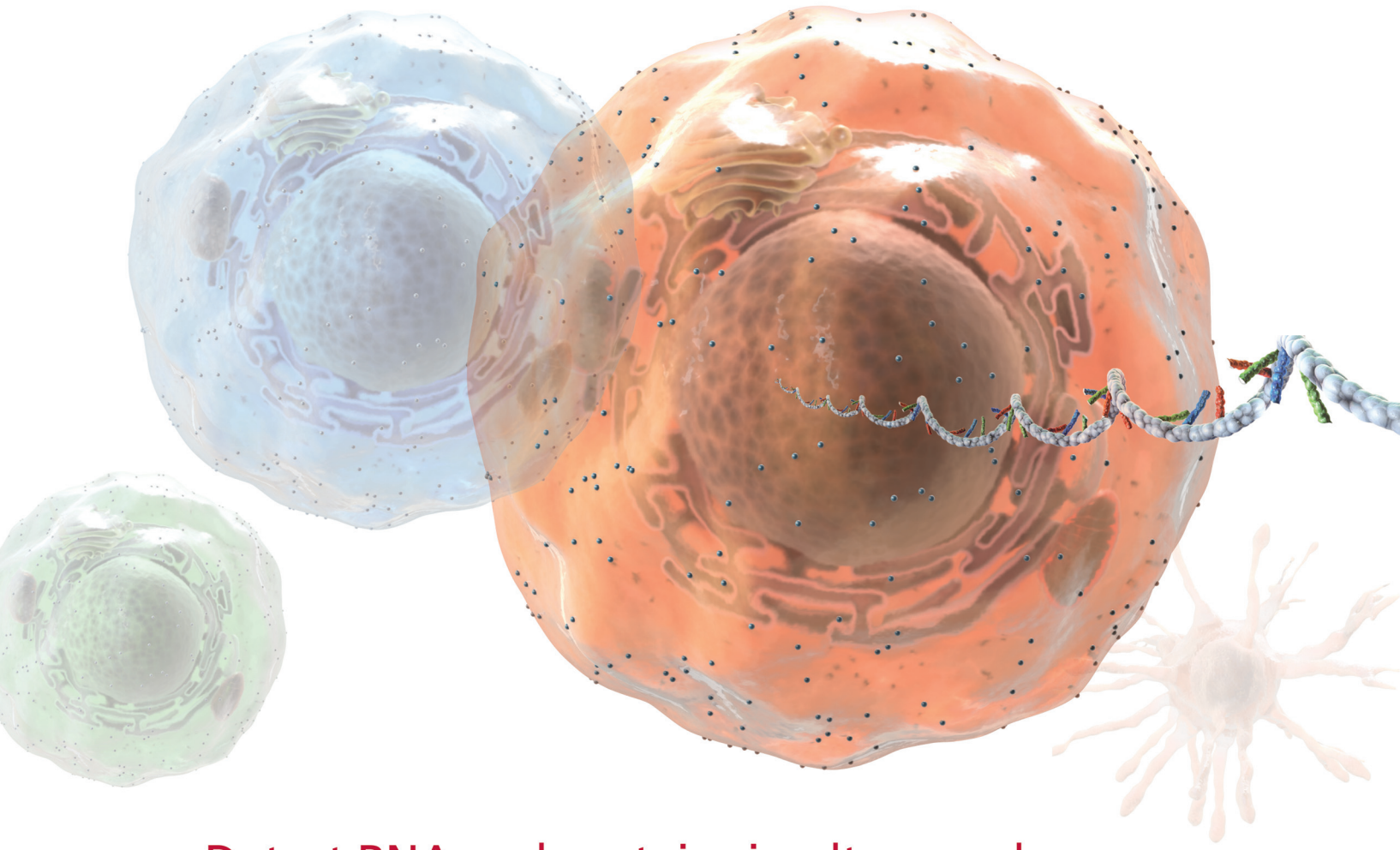

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