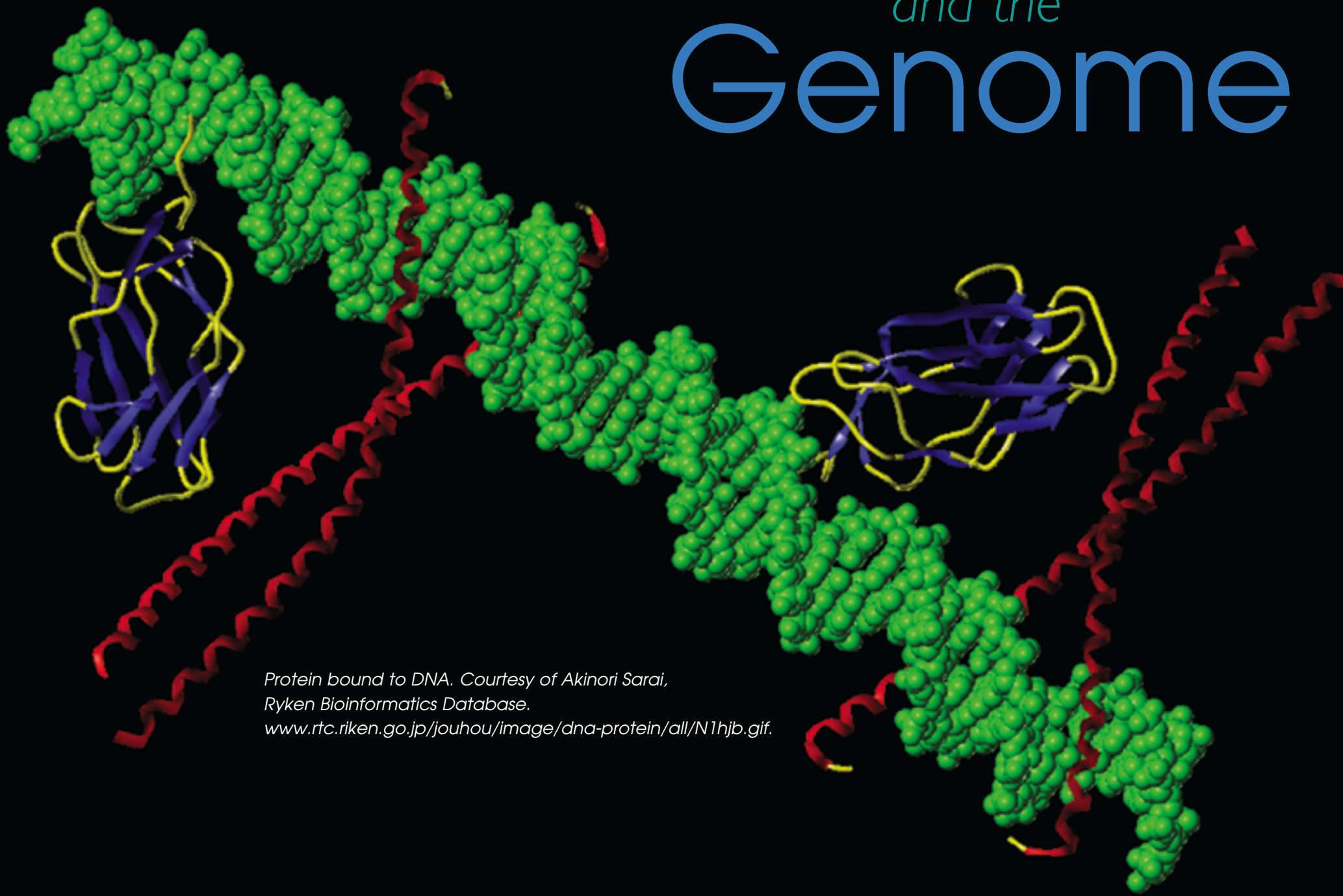


# Mathematics

and the

# Genome



Protein bound to DNA. Courtesy of Akinori Sarai, Ryken Bioinformatics Database. [www.rtc.riken.go.jp/jouhou/image/dna-protein/all/N1hjb.gif](http://www.rtc.riken.go.jp/jouhou/image/dna-protein/all/N1hjb.gif).

Mathematics makes possible the management and analysis of the Human Genome Project's massive database. Numerical analysis, statistics, and modeling play a significant role in mapping and sequencing our DNA—the blueprint for the genetic information that determines what makes each of us unique. Researchers predict that this fusion of mathematics and biology will result in a new era of molecular medicine, when the diagnosis, treatment, and prevention of disease will be individual-specific and thus more successful.

[www.mathforum.org/mam/02/](http://www.mathforum.org/mam/02/)

**DNA** the molecule of life

Trillions of cells

Each cell:

- 46 human chromosomes
- 2 meters of DNA
- 3 billion DNA subunits (the bases: A, T, C, G)
- Approximately 30,000 genes code for proteins that perform most life functions

Labels in diagram: cell, chromosomes, gene, DNA, protein

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Courtesy of U.S. Department of Energy Human Genome Program. [www.ornl.gov/hgmis](http://www.ornl.gov/hgmis).

# Mathematics Awareness Month

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