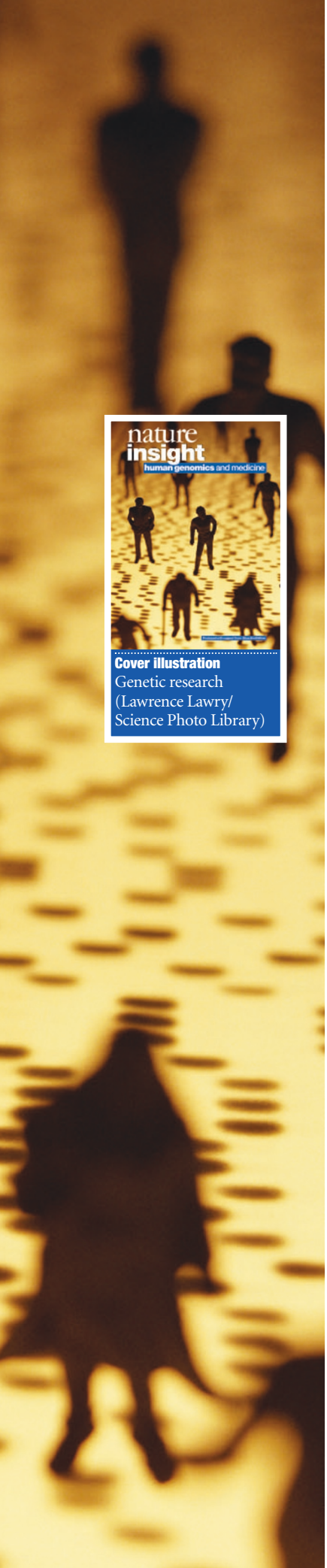

Cover illustration
Genetic research
(Lawrence Lawry/
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nature insight

human genomics and medicine

Last year the official completion of the human genome sequence was announced, capping years of hard work. Now that the flashbulbs have dimmed, scientists are taking a hard look at the results. Benefits of the sequence were prophesied to include 'magic bullet' therapeutics, individualized medicine, and the prediction of disease long before symptoms surface. But to realize these breakthroughs, we must fashion the four-letter code we all share into tools physicians can use, and ensure that these tools are readily available. Although one graduate student can now make huge strides with access to the Internet and basic molecular biology equipment, true success may demand nothing short of entirely new methods of clinical study and reorganization of existing academic structures.

As the articles in this *Nature* Insight demonstrate, the intersection of genomics and clinical practice is a busy and fascinating place. The road to treatments based on genomic information has not been smooth, but clinical trials are underway for a number of new therapies. New methods of mutation screening are emerging, both for the genome and for the 'epigenome' layered onto it. An understanding of the many mutations that underlie complex diseases and adverse drug reactions is now in our sights, aided by a large international effort to define the differences between our individual genomes. And the availability of genome sequence from our close and far evolutionary relatives is helping us to decipher the signals of genes and regulatory elements from the noise of background DNA, which is not yet fully understood.

The genome community's strong tradition is a rich debate of ideas; we have captured some of them in this collection and hope to stimulate more. We are pleased to acknowledge the financial support of GlaxoSmithKline in producing this Insight. As always, *Nature* carries sole responsibility for all editorial content and peer review. You'll find our comprehensive human genome resource at http://www.nature.com/nature/focus/humangenome, including the papers published in this very issue on the sequences of human chromosomes 9 and 10.

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