appears in need of qualification in light of recent events.

More disappointing is what is left out of the book. Watson's views on his leadership role at the dawn of the Human Genome Project and his abrupt departure four years later are either covered scantily or not at all. There is no mention of the controversy in 1998, when a typically brash quote by Watson on the front page of the *New York Times* predicting an imminent cure for cancer sent the stock of an unknown biotech company into orbit. (Watson later complained that he had been misquoted.) And it would have been fascinating to have Watson's thoughts on the commercialization of the Human Genome Project.

But despite these omissions, *A Passion for DNA* is a thoroughly engaging book, full of fascinating reminiscences and far-reaching projections. It makes me yearn for the long-rumoured autobiography, which Watson says he started 20 years ago under the working title *Calculated Madness*. Meanwhile, a sequel of sorts to *The Double Helix* on the genetic code—entitled *Genes, Girls, and Gamow*—is said to be in the works. The sooner the better, for as Watson famously said of his former partner, "Even though he was a physicist, he knew that important biological objects come in pairs." □

# New tricks with pond scum

## Methods in Cell Biology: Tetrahymena thermophila
**Edited by David J. Asai & James D. Forney**

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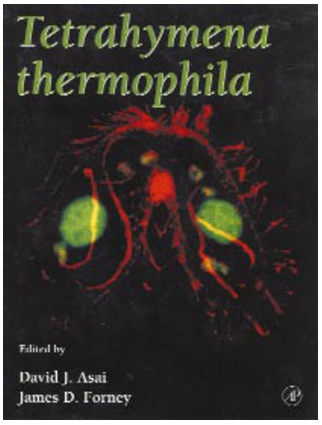
In explaining his choice of experimental system, Nobel laureate Thomas Cech recently described *Tetrahymena thermophila* as "weird". Few would dispute this; rather, *T. thermophila* biologists generally revel in the unique features that have facilitated the many fundamental discoveries made using this large, single-celled eukaryote. *T. thermophila* is a ciliated protozoan, a relative of those swimming cells observed by Robert Hooke and Antonie van Leeuwenhoek. *T. thermophila* has become the ciliate of choice for biological studies, due to its excellent cytology, rapid growth to high density, readily controlled vegetative and sexual lifestyles, and ease of transformation. Like all ciliates, *T. thermophila* segregates the functions of germline maintenance and somatic gene expression into two nuclei: a more canonically structured, mostly transcriptionally silent, micronucleus; and a highly fragmented, amplified, transcriptionally competent macronucleus. This nuclear dualism has expedited discoveries including the original identification of self-splicing RNA and telomerase. *T. thermophila* also contributes prominently to studies of cytoskeleton, transcription, chromatin and chromosome maintenance.




The most recent volume of *Methods in Cell Biology*, *Tetrahymena thermophila*, is an essential how-to manual, especially for those new to the system. The book is organized in four sections, starting with a comprehensive overview of the features of *T. thermophila* biology that make this ciliate interesting evolutionarily and experimentally. The second section contains basic methods such as strain growth and storage, analysis by microscopy and gene mapping. Also included are a large number of tricks for separately manipulating the micronuclear and macronuclear genomes. These allow such feats as the expression of varied doses of an essential gene and the maintenance of a lethal mutation in the germ line without somatic expression. Because the mitotic micronucleus is dispensable for vegetative growth and the macronucleus divides amitotically, it is possible to study mutants deficient in mitotic chromosome maintenance without adverse effects on viability.

The third section, dedicated to techniques for the study of specific research questions, covers varied topics ranging from sophisticated cellular electrophysiology to biochemical analysis of purified proteins. Each of these protocols will be of value only to a narrow set of experimenters, but together they illustrate the wide scope of *T. thermophila* experimental biology.

The volume concludes with a set of optimized protocols for molecular genetic manipulations. This section, although short, will be heavily used. Many laboratories have invested years of effort developing and improving techniques for the transformation of either nucleus. These techniques have already been shared, as is typical in the *T. thermophila* community, but their presentation in a collected form will make starting up easier for newcomers.

The chief weaknesses of the text are not surprising. With over 50 contributors, the composition of the chapters varies in style and quality. As a whole, the volume speaks to the power of *T. thermophila* as an experimental system, but concise arguments for the use of this organism are hidden at the ends of the introductory chapters. More problematic, considering that the volume strives to be a current source of reference, is that some of the protocols are already dated and some new efforts, such as genomics, go unmentioned. Considering the use of nonstandard codons in *T. thermophila*, a chapter describing heterologous expression methods, including the construction of synthetic genes, would have been useful.

The editors accomplish their primary goal: presenting a comprehensive manual for the use of *T. thermophila* in the laboratory. Most importantly, they consolidate classical and molecular techniques into a single presentation, facilitating use of complementary tools and thus generating a whole more valuable than the sum of its parts. Yet, in a sense, the greatest achievement of this volume is its ability to inform and remind all biologists of the power of *T. thermophila* as an experimental system. Some of the leaders in the *T. thermophila* community work diligently to increase awareness of the usefulness of this organism. These missionaries would be wise to share this new volume with the broader biological community, for it demonstrates many times over that the effectiveness of *T. thermophila* as a model system is enhanced by its unique features. □