

Focus on RNA interference

A user's guide



Of RNAi and petunias. Artistic interpretation by Erin Boyle.



RNA interference (RNAi) has exploded into a popular field of study and a major biology tool—both evolving very rapidly. The idea of this user guide came from conversations with researchers, which revealed that those interested in the tool face a confusing mass of literature from which it may be difficult to extract information about the state-of-the-art reagents and practices. We have asked users, would-be users and tool developers to help us identify the most common questions surrounding the use of RNAi. This Focus issue does not aim to be comprehensive, but tries to address these specific questions within the context of mammalian systems.

The dsRNAs that trigger specific silencing by RNAi in mammalian cells come in many flavors: synthetic small interfering RNAs (siRNAs), their enzymatically produced cousins (esiRNAs), and short hairpin RNAs (shRNAs), which can be within several types of expression cassettes. This Focus touches on all of these and is divided into two sections. The first section contains four Perspectives intended for researchers wishing to knock down the expression of their favorite gene. The second section will be of interest to those wishing to embark on functional genomic screens.

This second section is dedicated to RNAi libraries, which can be prepared enzymatically (as reviewed on p. 696) or purchased as shRNA-expressing viral vectors. Several major shRNA libraries are now available, and they cover most human and mouse genes. To provide a comparative analysis of these resources, we present Perspectives by their developers (p. 701, 707 and 715). Each article details a library's performance, rationale of design and examples of application, and also contains a Box synthesizing this information for comparison at a glance.

We invite you to visit our Focus website, which features a collection of relevant papers published in *Nature* titles within the past year, as well as a few 'classics'. We are indebted to all those who provided input on this Focus and helped define its scope, and to our authors and reviewers who generously put a lot of effort into making this Focus a practical and useful reference.

Veronique Kiermer

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