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**Cover** A messenger RNA is descended on by numerous microRNAs that bind to a repeated sequence motif in its coding region. Short, highly repeated sequences with complementarity to microRNAs have arisen in a number of gene families as a result of evolutionary duplication processes. Genes with such repeats are frequently targeted by microRNAs outside of their 3' UTRs. (Cover illustration by Leslie Gaffney and Lauren Solomon, Broad Institute. [For details, see Schnall-Levin et al., pp. 1395–1403.]