ABSTRACT

Defined multi-conjugate oligonucleotides can have predetermined sizes and compositions. In various embodiments, defined multi-conjugate oligonucleotides can have advantageous properties. For example, defined multi-conjugate siRNA (i.e., including two, three or more siRNA) can have enhanced intracellular delivery and/or multi-gene silencing effects. In various embodiments, the defined multi-conjugate oligonucleotides can be synthesized via new synthetic intermediates and methods. The defined multi-conjugate oligonucleotides can be used, for example, in reducing gene expression, biological research, treating or preventing medical conditions, or to produce new or altered phenotypes in cells or organisms.