Dideoxycytosine (ddC) is a dideoxyribonucleoside, and is a synthetic analog of deoxycytosine. The difference between the two is that, in ddC, both the 2' and 3'-positions of the ribose have a hydrogen (-H) group substituted for the –OH group, whereas in dC, only the 2'-position is so substituted.

ddC is generally used in two applications. First, to block the 3'-end of oligonucleotides to prevent their extension by a polymerase in a PCR reaction or PCR-based assay. For example, 3'-ddC-blocked oligos have been used in microarray-based DNA re-sequencing (1). ddC is also used to block the 3'-end of 5'-adenylated oligos (5'-App) that are used as adapters in miRNA library generation. Blocking the 3'-end in this manner prevents the oligo from either circularization (by self-ligation) or concatemerization to other 5’-App oligos (2).

References