

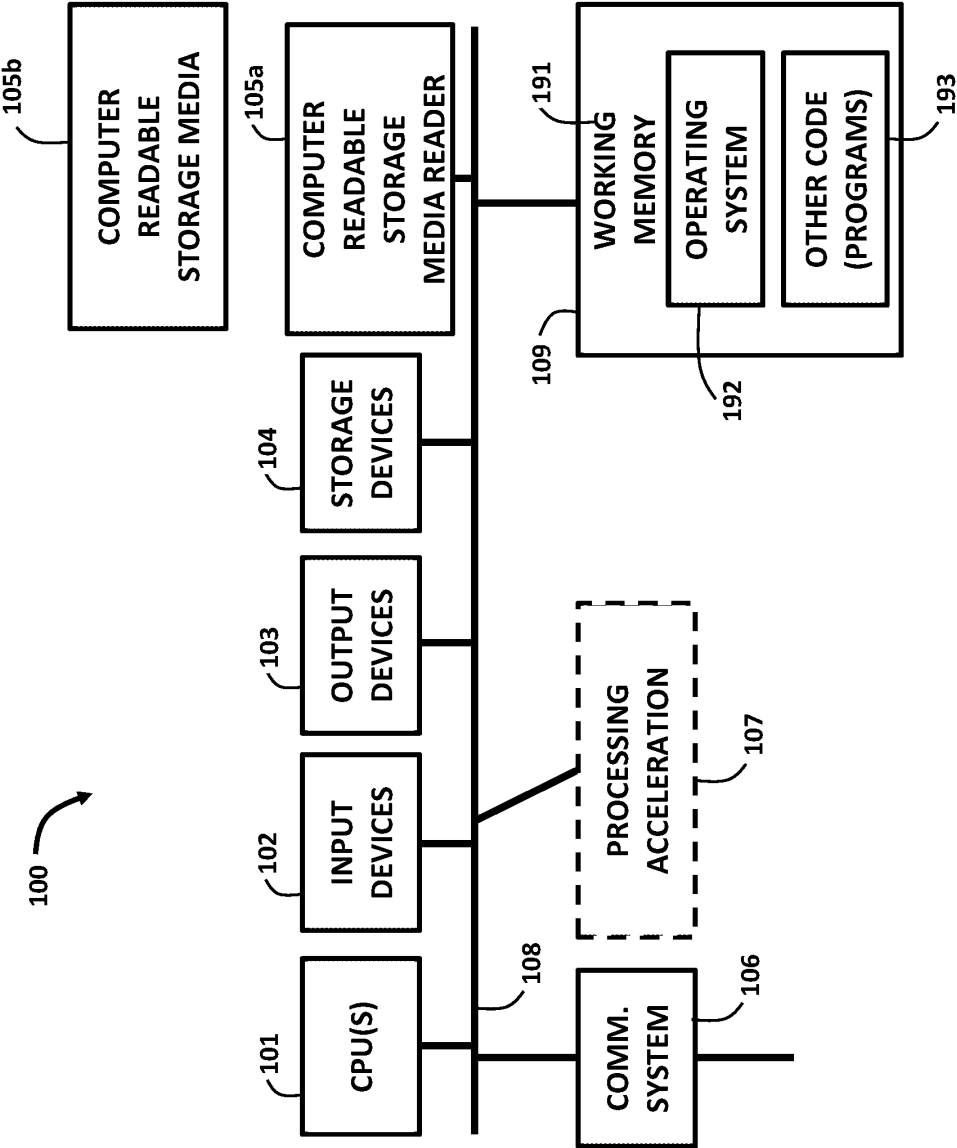
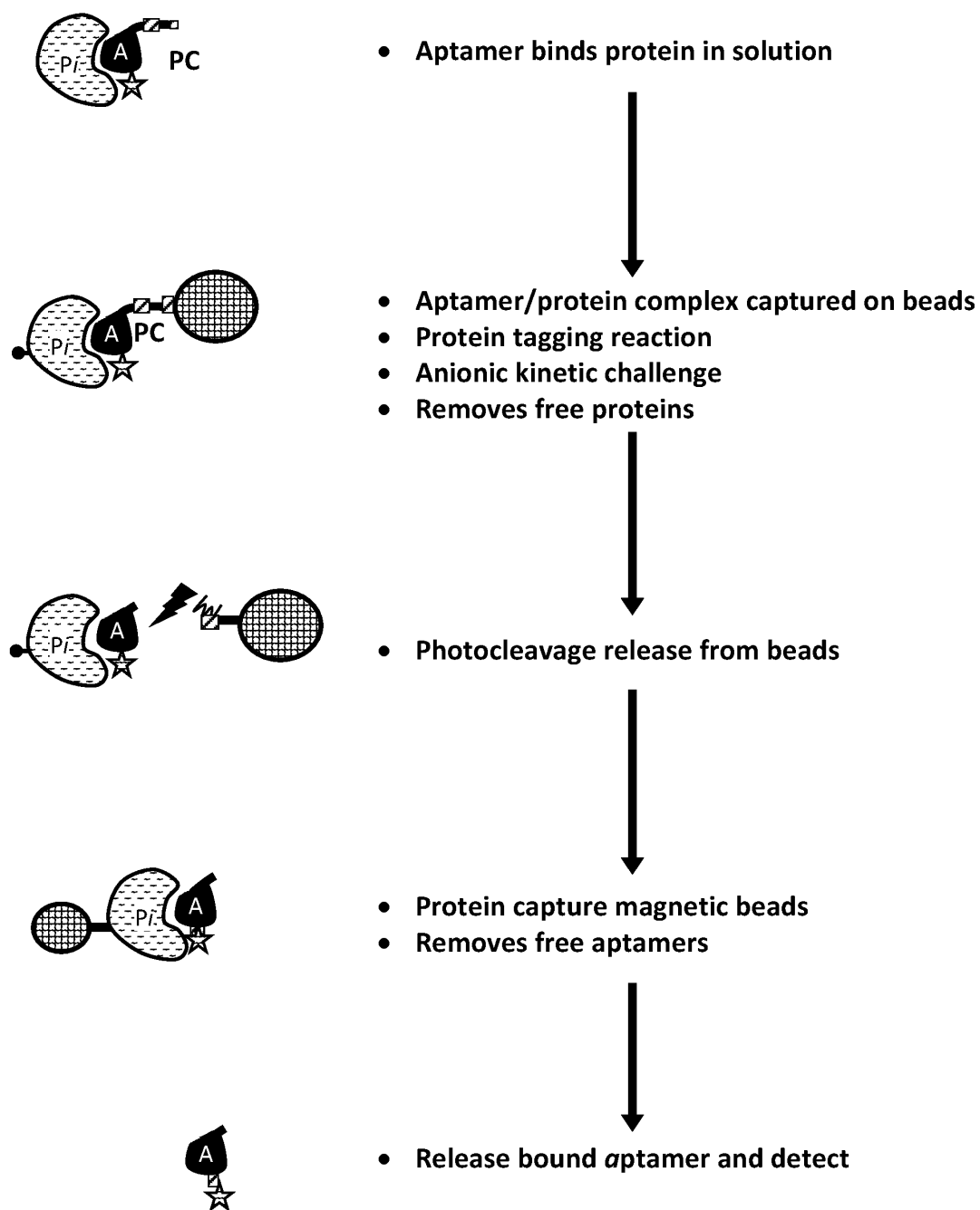
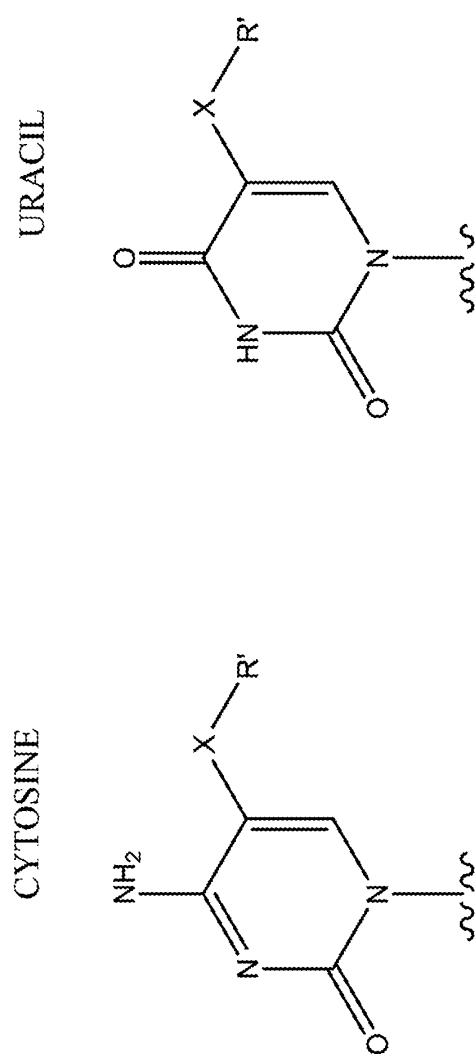


Fig. 1

*Fig. 2*



 – denotes attachment to backbone of nucleic acid molecules (e.g., phosphate deoxyribose backbone)

X – denotes a linker attached to the 5-position of the pyrimidine molecules (uracil or cytosine)

R' – denotes a moiety attached to the 5-position of the pyrimidine molecule via linker (X)

Fig. 3

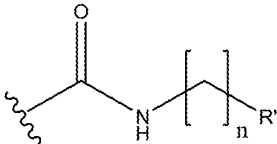
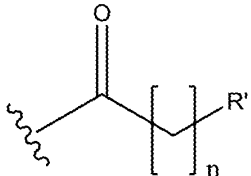
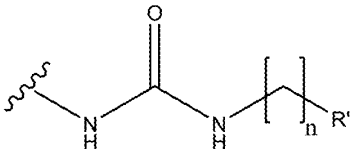
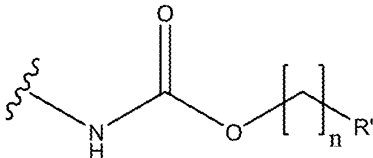
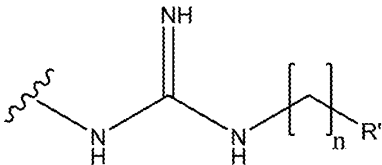
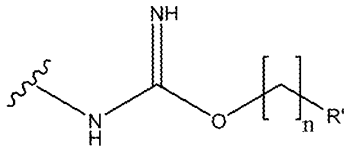
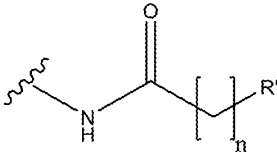
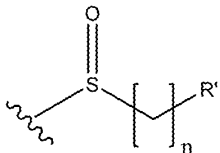
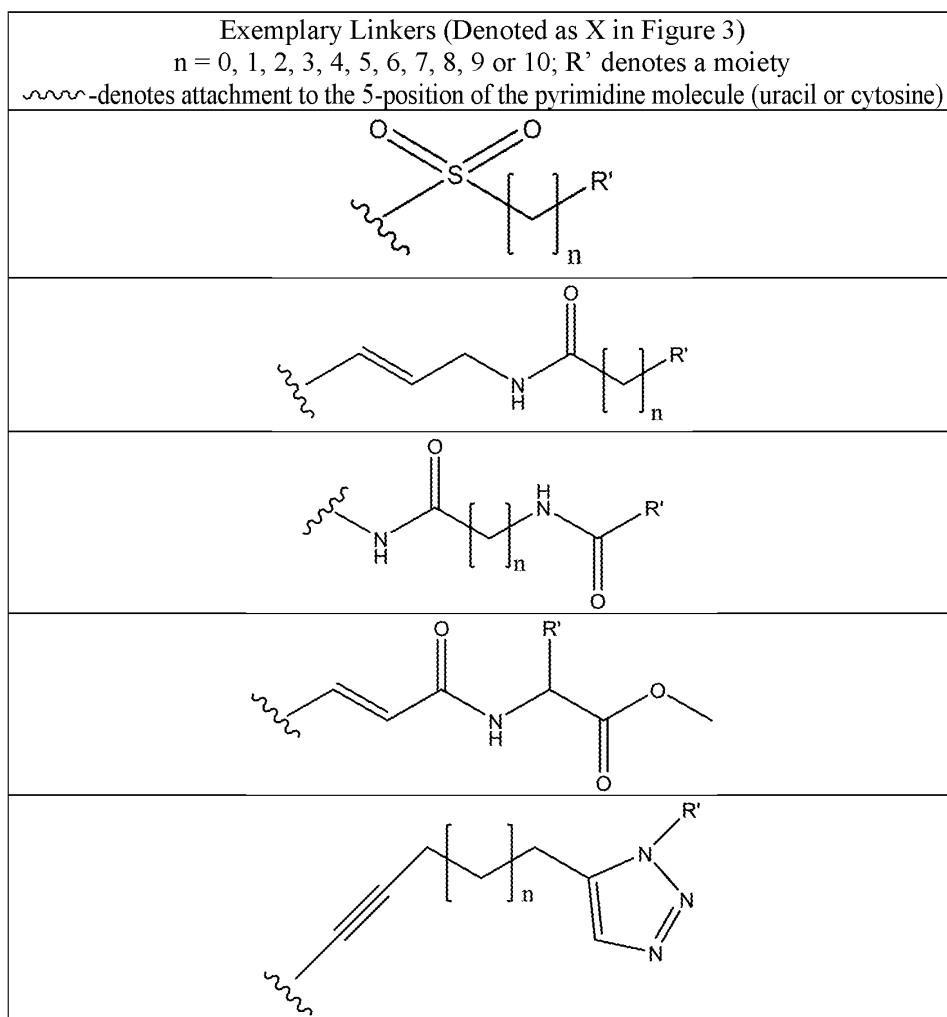
Exemplary Linkers (Denoted as X in Figure 3) n = 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 or 10; R' denotes a moiety ~~~~~denotes attachment to the 5-position of the pyrimidine molecule (uracil or cytosine)	
	
	
	
	
	
	
	
	

Fig. 3 (cont.)

**Fig. 3 (cont.)**

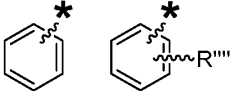
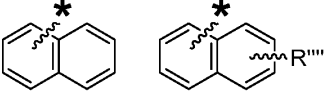
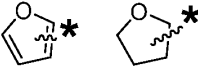
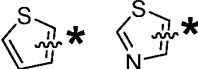
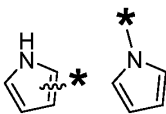
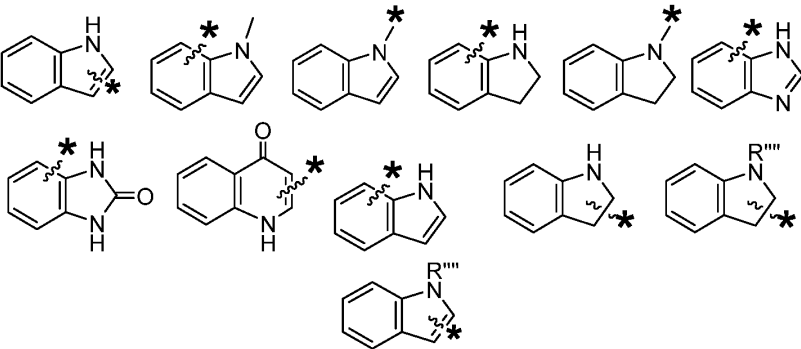
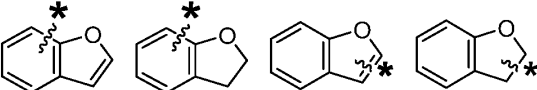
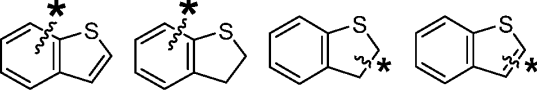
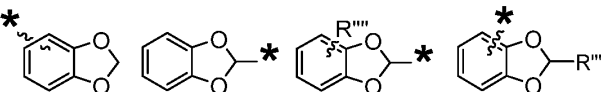
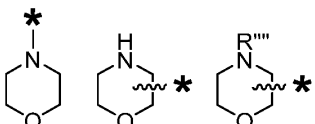
Group	R' Structures (* denotes the point of attachment of the R' group to X (linker))
I	
II	
III	
IV	
V	
VI	
VII	
VIII	
IX	
X	

Fig. 3 (cont.)

Group	R' Structures (* denotes the point of attachment of the R' group to X (linker))
XI	
XII	
XIII	
XIV	
XV	
XVI	
XVII	
XVIII	
XIX	
XX	

R'' and R''' are, independently, selected from a halogen (-F, -Cl, -Br, -I); nitrile (-CN); -NH₂; -OH; branched lower alkyl (C1-C20); linear lower alkyl (C1-C20); primary amide; secondary amide; tertiary amide; alkoxy group.

Fig. 3 (cont.)

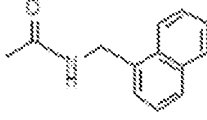
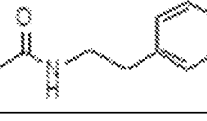
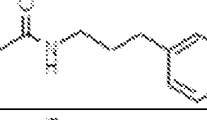
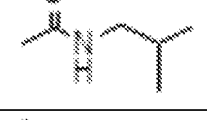
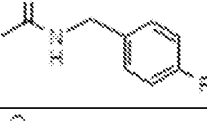
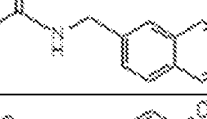
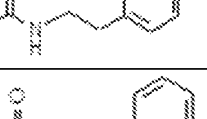
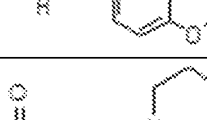
Abbreviation	5-dU Modification Attached via Amide Linkage	Chemical Structure
Bn	benzylmethyl	
Nap	<i>l</i> -naphthylmethyl	
PE	2-phenylethyl	
PP	3-phenylpropyl	
iBu	<i>iso</i> -butyl	
FBn	4-fluorobenzylmethyl	
2Nap	2-naphthylmethyl	
Tyr	tyrosyl	
NE	<i>l</i> -naphthylethyl	
MBn	3,4-methylenedioxy benzyl	
MOE	morpholinoethyl	

Fig. 4

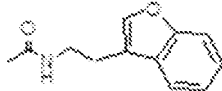
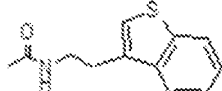
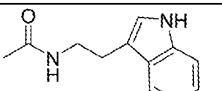
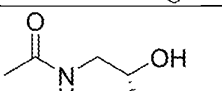
Abbreviation	5-dU Modification Attached via Amide Linkage	Chemical Structure
<i>BF</i>	3-benzofuranylethyl	 <chem>CC(=O)NCCc1ccc2c(c1)OCO2</chem>
<i>BT</i>	3-benzothiophenylethyl	 <chem>CC(=O)NCCc1ccc2c(c1)SCC2</chem>
<i>Trp</i>	3-indole-2-ethyl	 <chem>CC(=O)NCCc1c[nH]c2ccccc12</chem>
<i>Thr</i>	(R)-2-hydroxypropyl	 <chem>CC(=O)NCC[C@H](O)C</chem>

Fig. 4 (cont.)

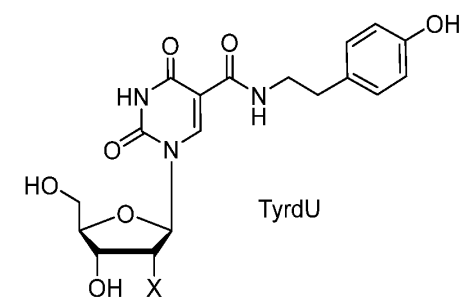
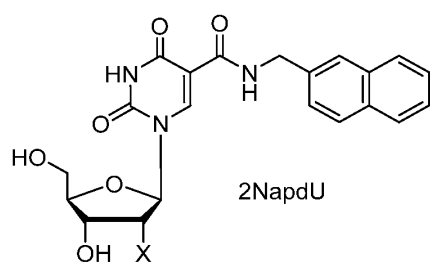
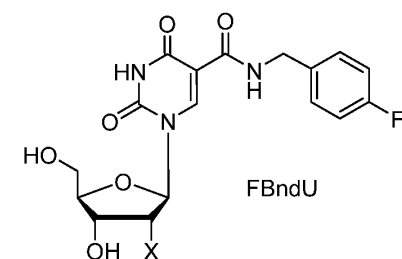
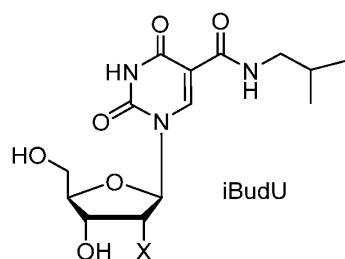
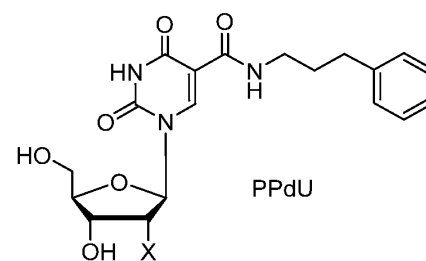
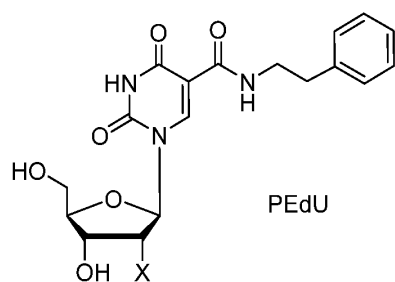
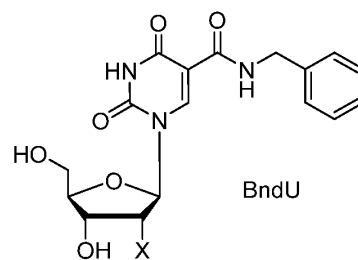
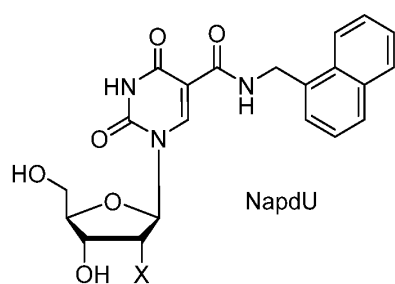


Fig. 4 (cont.)

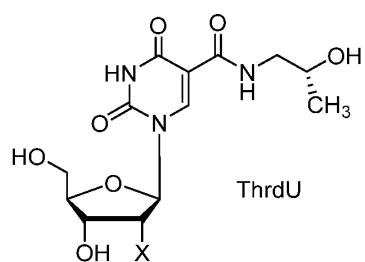
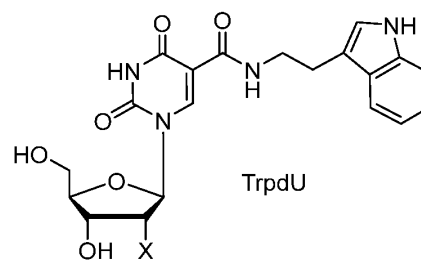
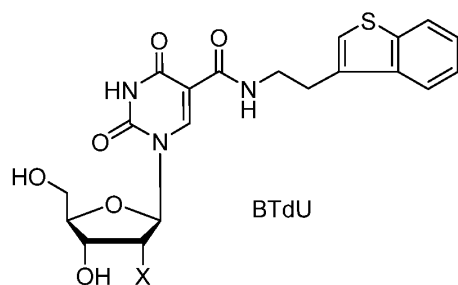
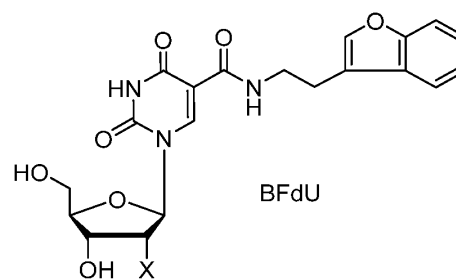
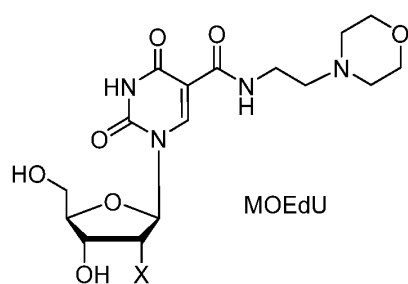
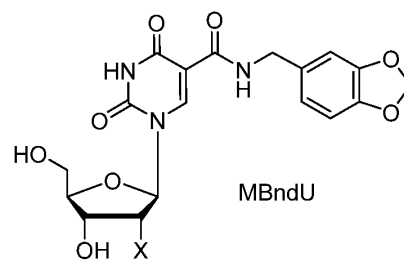
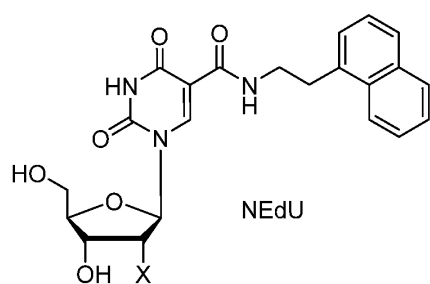


Fig. 4 (cont.)

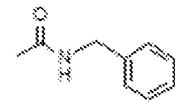
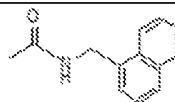
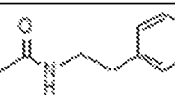
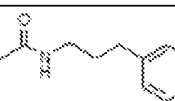
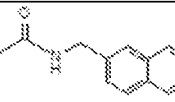
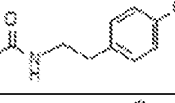
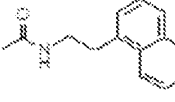
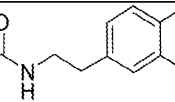
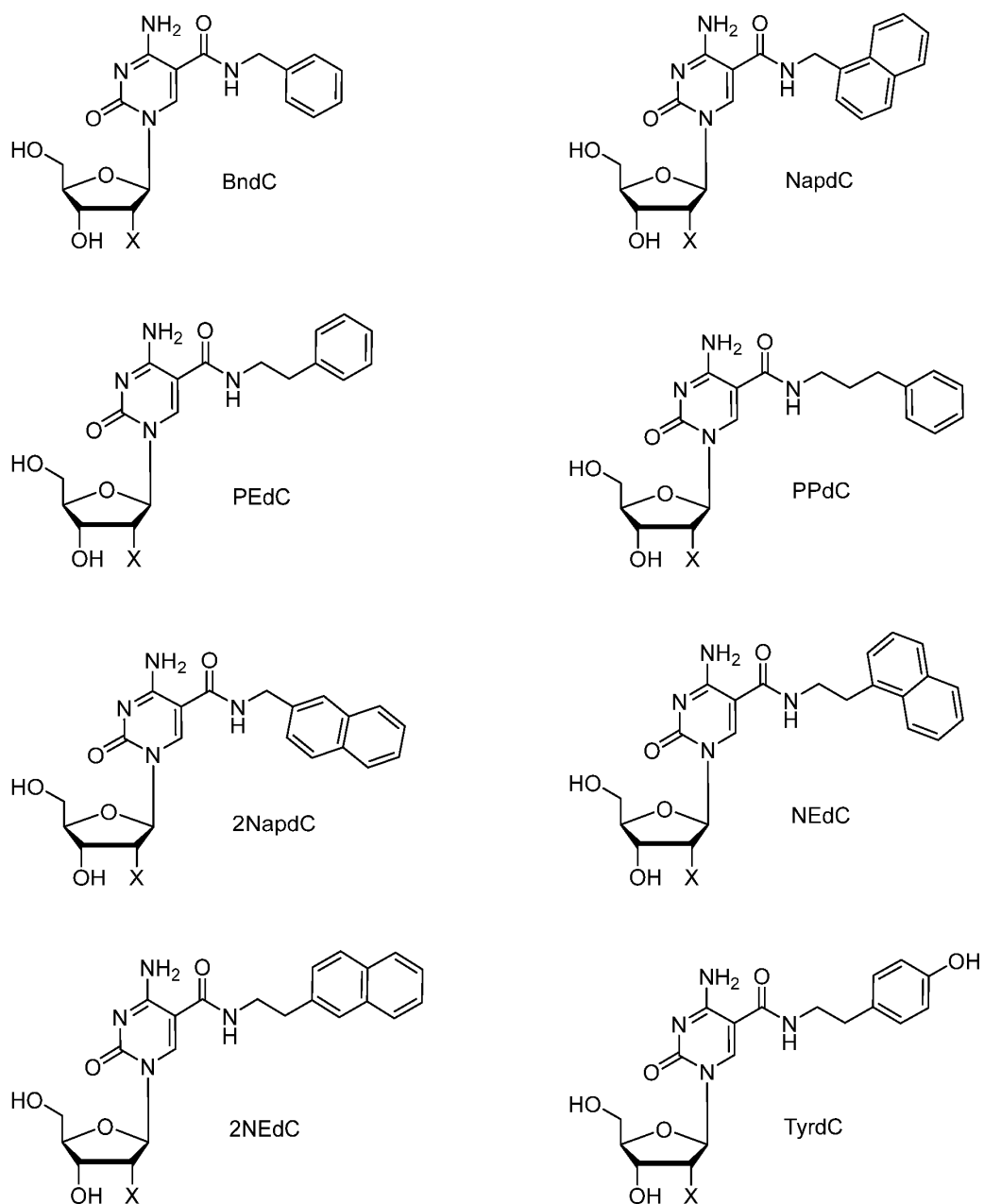
Abbreviation	5-dC Modification Attached via Amide Linkage	Chemical Structure
Bn	benzylmethyl	
Nap	<i>l</i> -naphthylmethyl	
PE	2-phenylethyl	
PP	3-phenylpropyl	
2Nap	2-naphthylmethyl	
Tyr	tyrosyl	
NE	<i>l</i> -naphthylethyl	
2NE	2-naphthyl-2-ethyl	

Fig. 5

**Fig. 5 (cont.)**