Appendix: Tables

Table 1. Overview of Nucleoside Analog DNA Methyltransferase 1 Inhibitors

	Current Trial Phase	Structure/ Mechanism	Strengths	Weaknesses
Chemical name:	5-aza-2'-deoxycytidine			
Decitabine	FDA approved for MDS (myelodysplastic syndromes)	Deoxyribonucleoside (DN) analog) Incorporated into DNA	Effective against MDS	Poor oral bioavailability, poor stability and short half-life due to hydrolysis, and exhibit cytotoxicity
Chemical name:	5-aza-cytidine			
Azacitidine	FDA approved for MDS, CMML (chronic myelomonocytic leukemia), and AML (acute myeloid leukemia)	Ribonucleoside (RN) analog Incorporated mainly into RNA, minorly into DNA	Effective against hematological cancers	Similar profile to decitabine
Chemical name:	5-aza-4'-thio-2'-deoxycytidine			
NTX-301/ aza-TdCd	Clinical Phase I (in process)	DN-analog	Stronger anticancer effect than azacitidine at lower doses	Few weaknesses currently known
Chemical name:	4'-thio-2'-deoxycytidine			
TdCyd	Clinical Phase I (terminated early)	DN-analog	Greater DNA incorporation and less toxicity than decitabine	Halted due to excessive instances of pulmonary infection and one treatment-related death 36
Chemical name:	SGI-110			
Guadecitabine	Clinical Phase III	DN-analog	Longer half-life than decitabine	Greater frequency of adverse effects febrile neutropenia and pneumonia than decitabine Not found to have greater efficacy than decitabine10
Chemical name:	5-fluoro-2(')-deoxycytidine			
FCdR	Clinical Phase I (terminated early)	DN-analog	Effective in vitro	Unstable alone, requires combination with stabilizing drug Poor response rate in clinical trial caused early termination [43]

Chemical name:	4-Deoxyuridine			
Zebularine	Preclinical	DN-analog Cytidine deaminase inhibitor	Minimal cytotoxicity and sustained demethylation at extended administration periods Improved oral bioavailability	Preferentially demethylates CpG-poor regions over CpG-rich regions, causing cell to retain methylation at CpG islands Less potent than decitabine and azacitidine
Chemical name:	5-aza-2'-2'-difluorodeoxycytidine			
NUC013	Preclinical	DN-analog Ribonucleotide reductase inhibitor	More potent anticancer effect than decitabine [9]	Similarity to guadecitabine has impeded further investigation
Chemical name:	3',5'-di-trimethylsilyl-2',2'-difluoro-5-azadeoxycitidine			
NUC041/NUC013 prodrug	Preclinical	Constructed with hydrophobic groups, protecting it from deamination and hydrolysis until it reaches bloodstream (when injected intramuscularly) 44	Improves upon short half-life of NUC013	Similarity to guadecitabine has impeded further investigation

Note: The cells in Table 1 are shaded in alternating green and blue solely for visual clarity and ease of differentiation. The coloration does not convey any specific meaning or significance.

Table 2. Overview of Non-Nucleoside DNA Methyltransferase 1 Inhibitors

	Current Trial Phase	Structure/ Mechanism	Strengths	Weaknesses
MG98	Clinical Phase II	Antisense Oligonucleotide Inhibitor	High binding specificity Effective in vitro with low toxicity	Very short half-life (2 hours), requiring frequent redosing Inconsistent levels of demethylation across patients Failed to sustain DNMT1 suppression over the full course of treatment
SGI-1027	Preclinical	Quinoline-based small molecule	Notably low toxicity even at high doses Effective antitumor agent	Nonspecific to DNMT1, inhibits DNMT1, 3a, and 3b
Analogs:	GSK-3484862,	GSK-3482364,	etc.	
GSK analogs	Preclinical	Dicyanopyridine analogs	Low toxicity High binding specificity Stronger antitumor effect than azacitidine and decitabine	Mechanism of toxicity may be similar to azacitidine and decitabine