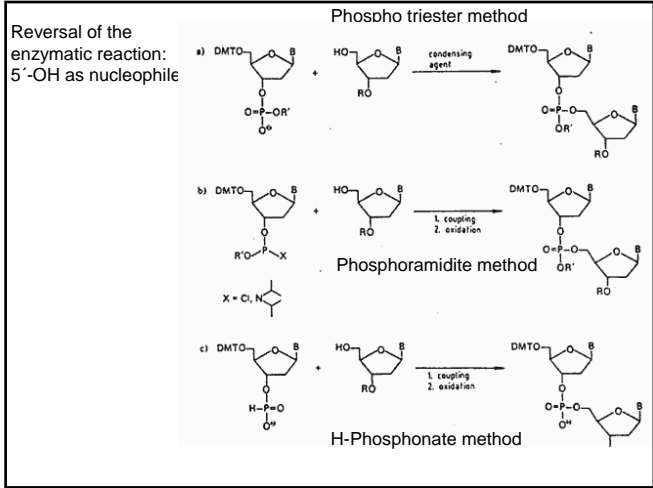
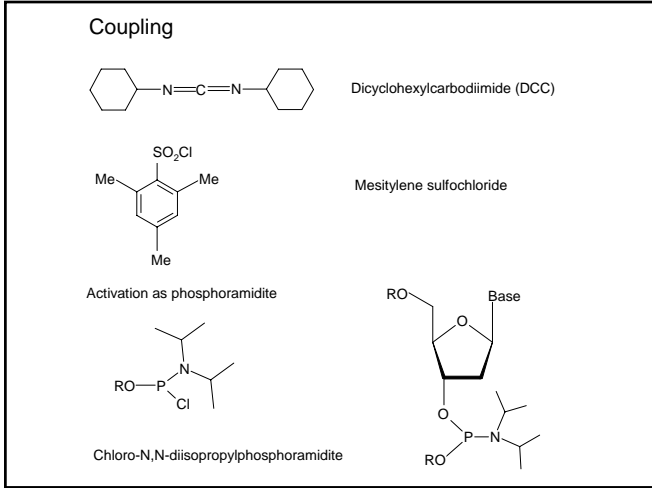
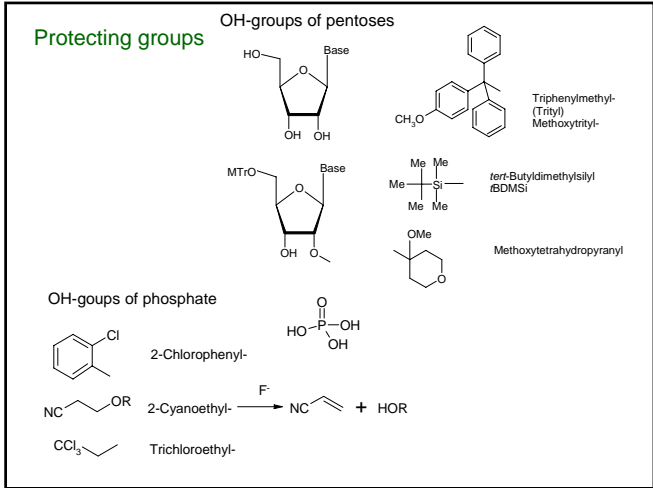
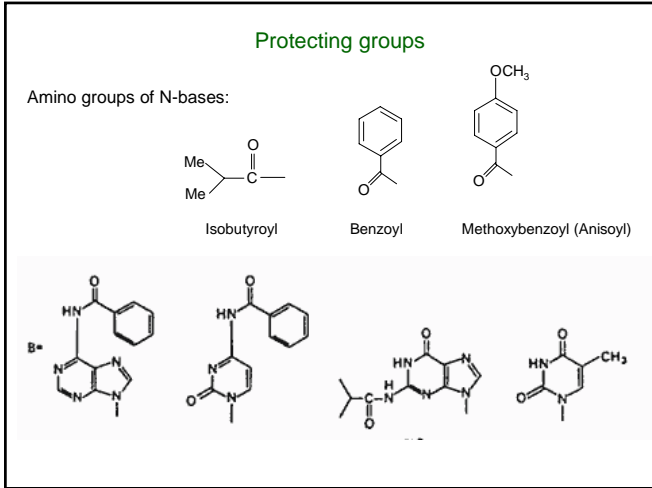


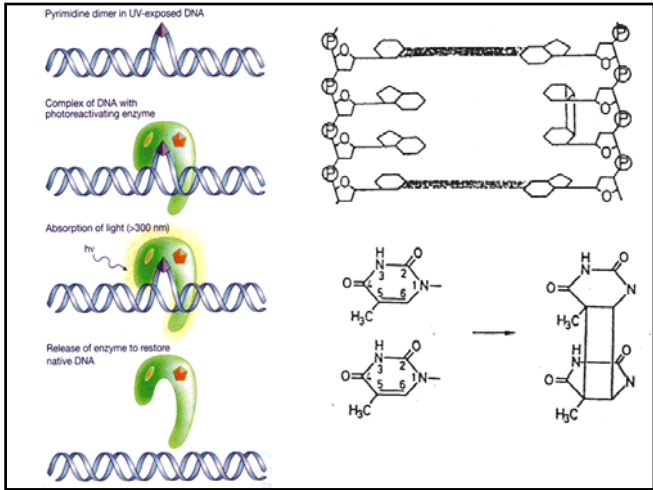
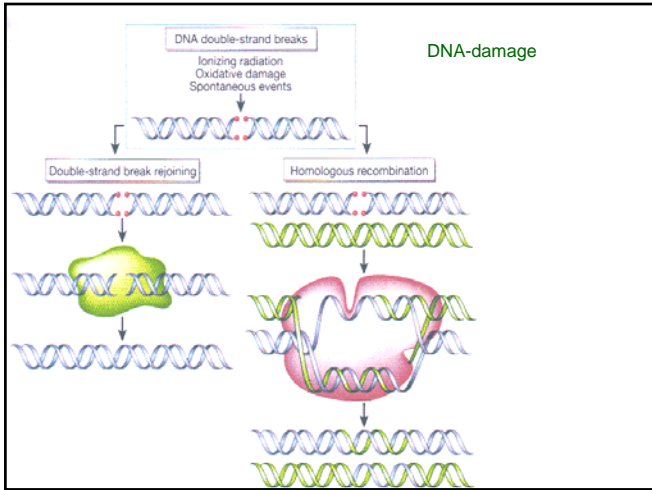
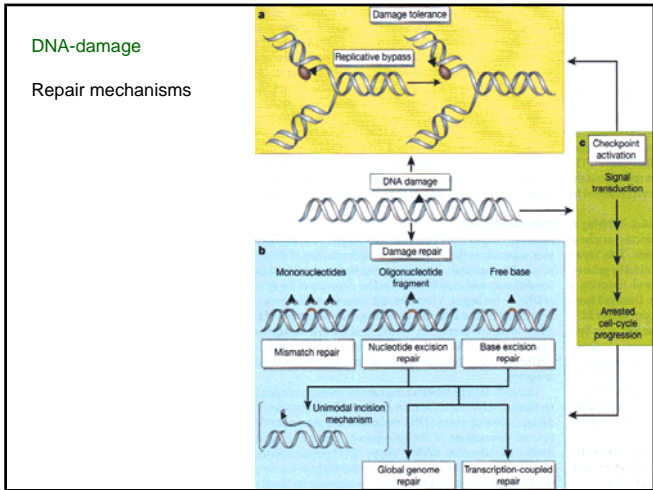
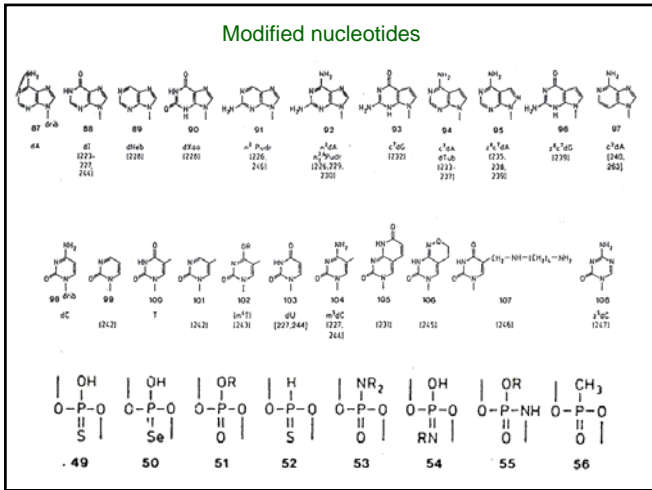
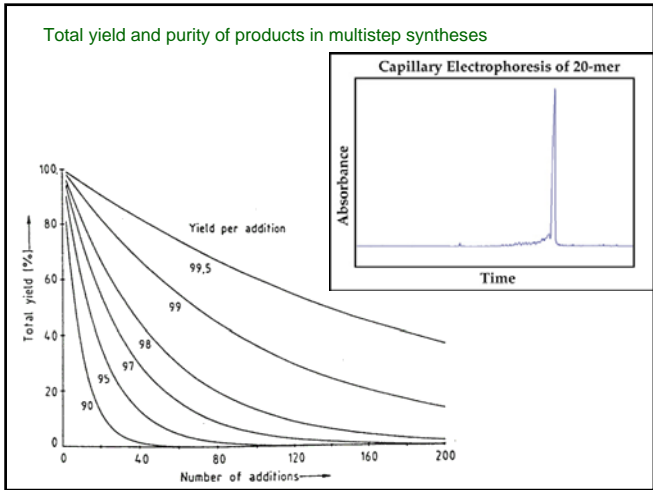
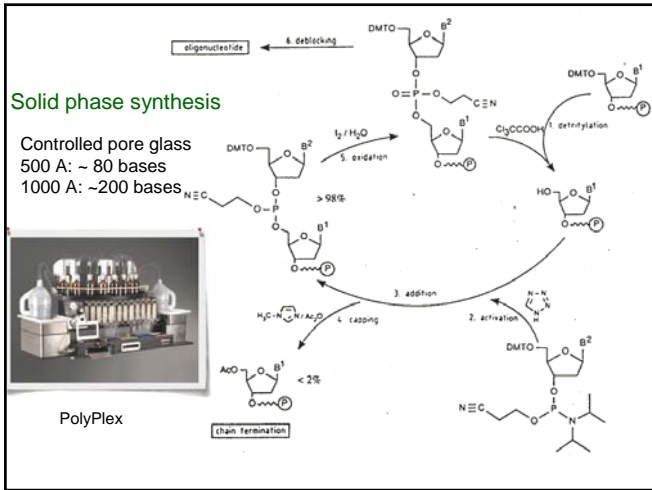
Chemical oligonucleotide synthesis

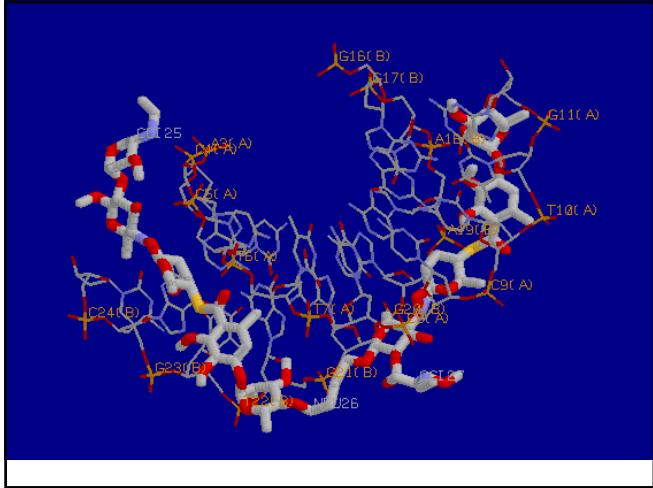
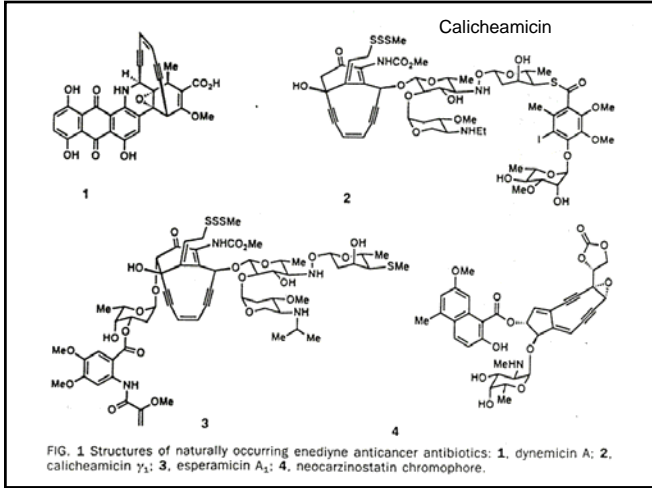
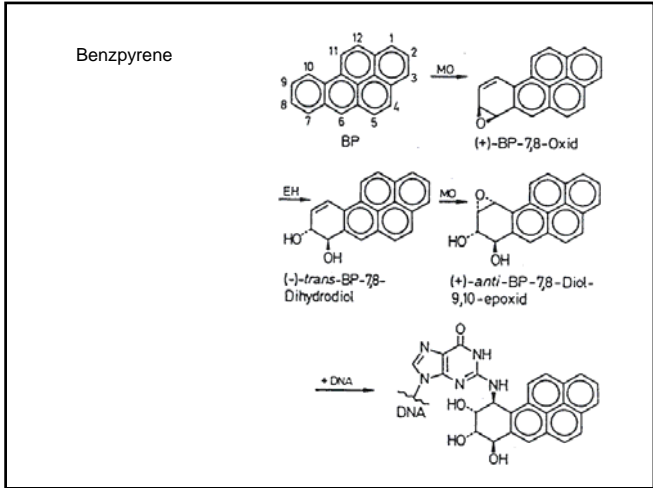
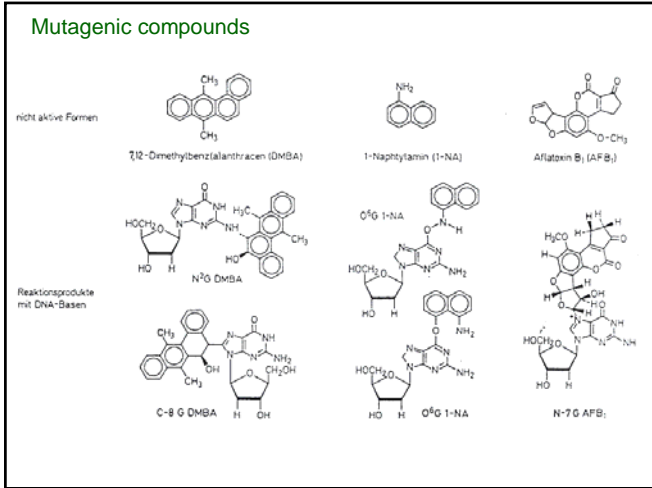
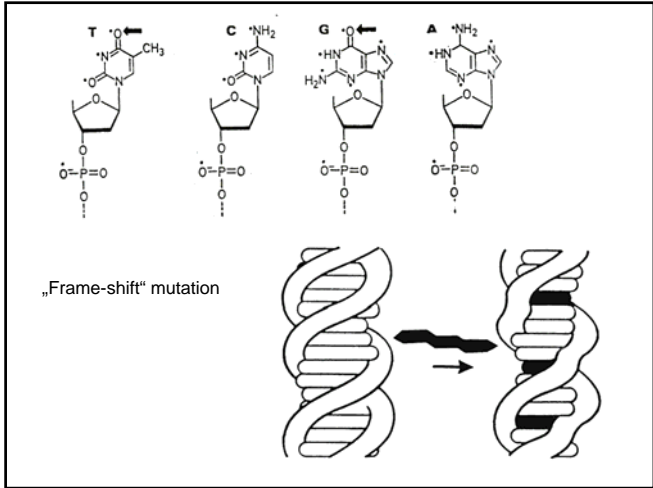
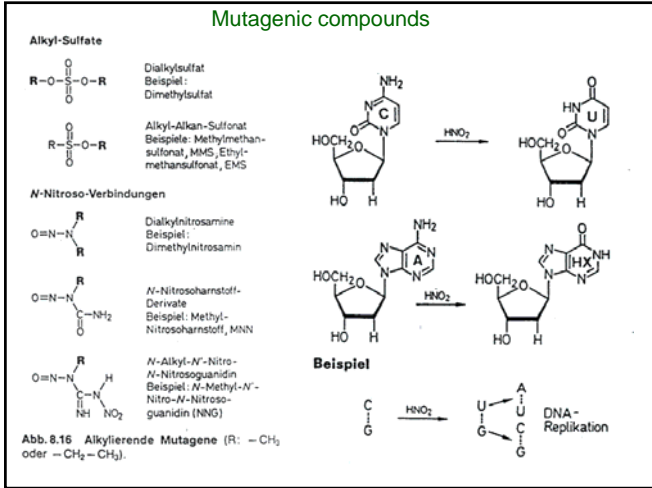
Elucidation of the genetic code
Synthesis of primers
Modification of DNA and RNA
Linker, Adapter for cloning experiments
„Antisense“ oligonucleotide, hybridisation probes for mRNA and cDNA
Gene synthesis

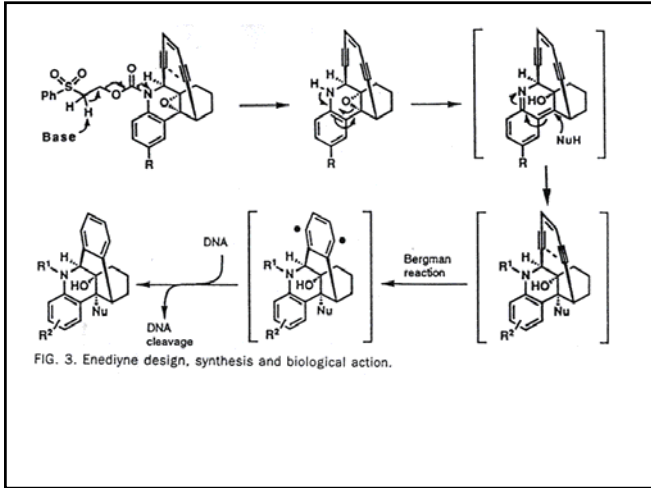
Challenges:
Formation of 3'-5' phosphodiester, protecting groups for other nucleophilic sites (phosphate, base, pentose)
Activation needed for phosphodiester formation – in high yields

Protecting groups:
Ideally quantitative introduction and cleavage
Stable at various reaction conditions
Solid phase synthesis on polymers









CYTOTOXICITIES OF DESIGNED ENEDIYNE 7 AGAINST 19 TUMOUR CELL LINES (TOP) AND FOUR NORMAL CELL LINES (BOTTOM)

Cell type	Cell line	IC ₅₀ (M)	Cell type	Cell line	IC ₅₀ (M)
Melanoma	SK-Mel-28	3.1×10^{-6}	Lung carcinoma	UCLA P-3	9.8×10^{-8}
Melanoma	M-14	1.6×10^{-6}	Pancreatic carcinoma	Capan-1	3.1×10^{-9}
Melanoma	M-21	1.6×10^{-6}	T-cell leukaemia	TCAF	1.1×10^{-9}
Colon carcinoma	HT-29	1.6×10^{-6}	Multidrug resistant T-cell leukaemia	TCAF-DAX	1.7×10^{-9}
Ovarian carcinoma	Ovar-3	7.8×10^{-7}	Myeloma	RPMI-8226	7.7×10^{-9}
Astrocytoma	U-87 UG	7.8×10^{-7}	Mouse leukaemia	P-388	4.6×10^{-9}
Glioblastoma	U-251 MG	3.9×10^{-7}	Mouse leukaemia	L-1210	1.3×10^{-9}
Breast carcinoma	MCF-7	7.8×10^{-7}	Promyelocytic leukaemia	HL-60	3.6×10^{-11}
Lung carcinoma	H-358	2.0×10^{-7}	T-cell leukaemia	Molt-4	2.0×10^{-14}
Lung carcinoma	H-522	9.8×10^{-8}			
Bone marrow	HNBM	5.0×10^{-5}	Normal human dermal fibroblast	NHDF	5.0×10^{-6}
Human mammary epithelial cells	HMEC	6.3×10^{-6}	Chinese hamster ovary	CHO	3.1×10^{-6}

