

Table 3: Activity of 21 antineoplastic agents against 4 groups of pathogenic microorganisms, expressed in semiquantitative terms

Antineoplastic Agent	Activity against indicated type of organism			
	Gram-positive bacteria	Gram-negative bacteria	Anaerobic bacteria	Yeasts
Alkylating agents				
Carmustine	0	0	0	±
Chlorambecil	0	0	±	±
Neoplatin	0	+	ND	0
No activity shown by busulphan, cyclophosphamide, dibromomannitol, and melphalan.				
Antimetabolites				
Aminopterin*	++ / ±	±	++	±
Azathioprine	0	0	+	0
5-fluorouracil*	+++ / +++	±	+	+
Methotrexate*	++ / ±	0	0	±
Thioguanine	±	±	±	0
No activity shown by cytarabine, mercaptopurine.				
Inhibitors of cell division				
Etoposide	+	0	+	0
Vinblastine	±	0	ND	±
No activity shown by vincristine.				
Antibiotics				
Doxyrubicin	0	0	+	0
Mitomycin C	++++	++	++++	0
Miscellaneous				
Dacarbazine	±	±	+	0
Hydroxyurea	0	±	0	0
Procarbazine	±	0	0	0
Key: + + + + represents MIC in the range 0.01 – 0.1 mg/ml				
+ + +	0.1 – 1			
+ +	1 – 10			
+	10 – 100			
±	100 – 1000			
0	>1000			
ND	not determined			

*Aminopterin, methotrexate and 5-fluorouracil showed significantly higher activity against *Strep faecalis* than against staphylococci, hence two scores in "Gram-positive" category.

Minimum inhibitory concentrations (MIC) of four antineoplastic compounds against different groups of bacteria

Compound	MIC against bacteria (ug ml) Range of values observed			
	Gram-positive		Gram-negative	Anaerobes
	Staphylococci	Streptococcus faecalis		
Mitomycin C	0.06 – 0.25	0.06	0.5 – 8	0.05 – 0.5
5-fluorouracil	0.5 – 8	0.13 – 0.25	≥256	10 – 100
Aminopterin	256 – 1024	8	256 – 512	1 – 10
Methotrexate	64 – 1024	8 – 16	>1024	>100

Source: J.M.T. Hamilton-Miller. Antimicrobial Activity of 21 Anti-neoplastic Agents, *Br. J. Cancer* 1984;49:367–369.