TABLE 11-2

SUMMARY OF PROTECTIVE SCAVENGING AGENTS

Mechanism and Agent	Level of Protection	Side Effects and Therapeutic Index*	Deliverability	Advantages	Disadvantages
WR-2721	DRF>2.0 Duration of effect >3 hr	Nausea, vomiting hypotension, hypocalcemia, behavioral changes TI = 1.4 (DRF = 2.7) TI = 3.5 (DRF = 1.2)	Dose** = 400mg/kg Route*** i.v. or i.p. Time: 30 minutes before irradiation	Very high DRFs possible; DRF = 1.2 at behaviorly non-toxic dose in human clinical trials	Large doses (> 200 mg/kg); ineffective p.o; high DRFs only at doses that produce serious side effects
WR-159243	DRF = 1.3	Unknown side effects TI = 7.5	Dose = 40 mg/kg Route: p.o. Time: 30 minutes before irradiation	Effective p.o.; fairly low dose (< 50 mg/kg); large TI (>5.0)	Unknown
WR-76841	DRF = 1.19	Unknown side effects TI = 5.1	Dose = 175 mg/kg Route: p.o. Time: 30 minutes before irradiation	Effective p.o.; large TI (>50.0)	Fairly large doses (> 100 mg/kg); DRF < 1.2
WR-1551	DRF = 1.3	Unknown side effects TI = 3.0	Dose = 100 mg/kg Route: p.o. Time: 30 minutes before irradiation	Effective p.o.;	Unknown
WR-3302	DRF = 1.39	Unknown side effects TI = 6.0	Dose = 5 mg/kg Route: i.p. Time: 30 minutes before irradiation	Low doses (≤ 20 mg/kg); large TI (> 5.0)	Oral effectiveness not established
WR-2926	DRF = 1.7	Unknown side effects TI = 2.5	Dose = 50 mg/kg Route: i.p. Time: 30 minutes before irradiation	DRF > 1.5	Oral effectiveness not established; TI < 3.0
WR-1607	DRF = 1.4	Nausea, vomiting TI = 3.4	Dose = 5 mg/kg Route: i.p. Time: 30 minutes before irradiation	Low doses (> 20 mg/kg); mitigates performance decrement	Oral effectiveness not established
Mercapto-propionyl glycine (MPG)	DRF = 1.4	Unknown side effects TI = 100.0	Dose = 20 mg/kg Route: i.p. or i.v. Time: 30 minutes before irradiation	Low doses (≤ 20 mg/kg); extremely high TI in clinical use (Japan); effective after irradiation	Oral effectiveness not established; protection at 20 mg/kg is difficult to reproduce
Vitamin E	DRF = 1.1	Unknown side effects	Dose = 3 x dietary requirement Route: p.o. Feeding Regimen: 1 week before irradiation 4 weeks after irradiation	Effective p.o.; naturally occurring dietary component	Dietary regimen may be impractical for field use; single dose effectiveness not established; DRF < 1.2; conflicting reports in literature effectiveness
Vitamin A	DRF = 1.26	Unknown side effects	Dose = 28 x dietary requirement Route: p.o. Feeding Regimen: 1 week before irradiation (3 x dietary requirement) 4 weeks after irradiation (28 x dietary requirement)	Effective p.o.; naturally occurring dietary component	Dietary regimen may be impractical for field use; single dose effectiveness not established; large vitamin dose required

* Therapeutic index (TI): ratio of toxic LD_{50} to the drug dose required to produce the DRF specified in the table

** Dose: dosage of drug required to produce the DRF indicated under "Level of Protection"

*** Routes of administration: i.v. (intravenous), i.p. (intraperitoneal), p.o. (oral), s.c. (subcutaneous)

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