

TABLE 11-3

SUMMARY OF DETOXIFICATION AGENTS, REGENERATION AGENTS, AND OTHER AGENTS OF UNDEFINED ACTION

Mechanism and Agent	Level of Protection	Side Effects and Therapeutic Index*	Deliverability	Advantages	Disadvantages
DETOXIFICATION AGENTS					
Selenium	DRF \leq 1.1	Unknown	Dose** = 4ppm in drinking water Route: *** p.o. Regimen: 2 months before irradiation Dose = 1.6 mg/kg Route = i.p. Time: 24 hours before irradiation	Effective p.o.; naturally occurring dietary component	Oral regimen may be impractical for field use; single p.o. dose effectiveness not established; DRF < 1.2
Superoxide dismutase	DRF = 1.56	Unknown side effects	Dose and Time = 200 mg/kg (1 hour before irradiation) and 35 mg/kg (1 hour after irradiation) Route: i.v.	DRF > 1.5; effective as single doses given 1 hour before irradiation	Oral effectiveness not established; large molecular size
REGENERATION AGENTS					
Glucan F	DRF \leq 1.2	Unknown side effects	Dose = 250 mg/kg Doses > 250 mg/kg provide no increased protection Route: i.v. Time: 24 hours before irradiation	Effective after irradiation	Oral effectiveness not established; DRF < 1.2 Optimum protection at 20 hours after irradiation is impractical for field use
Trehalose dimycolate (TDM)	70% survival at LD ₁₀₀	Unknown side effects	Dose \cong 1.7 mg/kg Route: i. p. Time: 2 hours after irradiation delivered as a squalene emulsion	Effective after irradiation; low dose (\leq 20 mg/kg)	Oral effectiveness not established; DRF unknown
Interleukin-1 (IL-1)	DRF = 1.25	Unknown side effects	Dose = 0.004 mg/kg Route: i.p. Time: 20 hours before irradiation	Extremely low doses (\leq 0.01 mg/kg)	Oral effectiveness not established; optimum protection at 20 hours after irradiation is impractical for field use; effectiveness is strain dependent
Tumor-necrosis factor (TNG)	DRF = 1.16	Unknown side effects	Dose \cong 0.2 mg/kg Route: i.p. Time: 20 hours before irradiation	Very low doses (<0.5 mg/kg); effectiveness is not strain dependent	Oral effectiveness not established; optimum protection at 20 hours before irradiation is impractical for field use
AGENTS OF UNDEFINED ACTION					
16, 16-Dimethyl prostaglandin E ₂ (DiPGE ₂)	DRF = 1.72	Diarrhea; decreased ambulation	Dose = 1.6 mg/kg Route: s.c. Time: 5-15 minutes before irradiation	Low doses (\leq 20 mg/kg); DRF > 1.5	Oral effectiveness not established; severe diarrhea at protective doses
Leukotriene C _f (LTC _f)	DRF = 1.9	Unknown side effects	Dose = 0.4 mg/kg Route: s.c. Time: 5 minutes before irradiation	Very low doses (<0.5 mg/kg); DRF > 1.5	Oral effectiveness not established
Platelet-activating factor (PAF)	DRF = 1.9	Unknown side effects	Dose = 0.3 mg/kg Route: s.c. Time: 5-10 minutes before irradiation	Low doses (<20 mg/kg) DRF > 1.5	Oral effectiveness not established

* Therapeutic index (TI): ratio of toxic LD₅₀ 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)