*Table I. Mono-ADP-ribosylation: enzymes and substrates

ENZYMES	SOURCE	SUBSTRATE/AMINO ACID	EFFECT OF THE REACTION	REFERENCES
Viruses:				
ALT	Bacteriophage T4	RNA polymerase/Arg265	Enhances viral transcription	(Goff, 1974)
Mod A	Bacteriophage T4	RNA polymerase/Arg265	Enhances viral transcription	(Seifert *et al.*, 1969)
Mod B	Bacteriophage T4	RNA polymerase/Arg265, S1 ribosomal protein/Arg	Enhances viral transcription	(Tiemann *et al.*, 1999)
Prokaryotes:				
Toxins:				
Diphtheria	*Corynebacterium diphtheria*	EF-2/diphtamide715	Inhibits protein synthesis	(Lee and Iglewski, 1984)
Exotoxin A	*Pseudomonas aeruginosa*	EF-2/diphtamide715	Inhibits protein synthesis	(Foley *et al.*, 1995)
Exotoxin S	*Pseudomonas aeruginosa*	Ras family/Arg41	Disrupts actin microfilaments	(Henriksson *et al.*, 2002)
Cholera	*Vibrio cholera*	$G\alpha_s$, $G\alpha_t$/Arg187	Inhibits GTPase activity	(Moss and Vaughan, 1977)
LT1, LT2	*Escherichia coli*	$G\alpha_s$, $G\alpha_t$/Arg187	Inhibits GTPase activity	(Dallas and Falkow, 1980)
Pertussis	*Bordetella pertussis*	$G\alpha_i$, $G\alpha_o$, $G\alpha_t$/Cys351	Uncouples receptor and G protein	(Katada and Ui, 1982)
C2, iota t	*Clostridium botulinum*	Actin	Prevents actin polymerisation	(Vandekerckhove *et al.*, 1988)
C3	*Clostridium botulinum*	Rho, Rac/Asn41	Disrupts actin cytoskeleton	(Aktories and Hall, 1989)
C3-like	*Clostridium limosum*	Rho, Rac/Asn41	Disrupts actin cytoskeleton	(Just *et al.*, 1992)
EDIN	*Staphylococcus aureus*	Rho/Asn41	Disrupts Golgi apparatus	(Wilde *et al.*, 2001)
VIP2	*Bacillus cereus*	Rho/Asn41	Disrupts actin cytoskeleton	(Han *et al.*, 1999)
SpvB	*Salmonella enterica*	Actin	Prevents actin polymerisation	(Otto *et al.*, 2000)
Mtx	*Bacillus sphaericus*	Unknown	Unknown	(Thanabalu *et al.*, 1993)
Intracellular:				
DRAT	*Rodospirillum rubrum*	Dinitrogenase reductase/Arg101	Inhibits dinitrogenase reductase	(Ludden, 1994)
Eucaryotes:				
Ectoenzymes:				
ART1	Human, rat, mouse	Integrin, defensin/Arg	Inhibits substrate activity	(Zolkiewska *et al.*, 1992)
ART2(A,B)	Rat, mouse	Unknown/Arg	Role in T cell proliferation	(Koch-Nolte *et al.*, 1997)
ART3	Human, rat, mouse	Unknown	Unknown	(Koch-Nolte *et al.*, 1999)
ART4	Human, rat, mouse	Unknown	Unknown	(Koch-Nolte *et al.*, 1999)
ART5	Human	Unknown/Arg	Unknown	(Koch-Nolte *et al.*, 1999)
ART6(A,B)	Chicken	p33/actin/Arg28-206	Inhibits substrate activity	(Tsuchiya *et al.*, 1994)
ART7	Chicken	Unknown	Inhibits substrate activity	(Davis and Shall, 1995)
Intracellular:				
Sir2p	Yeast	Histones/Sir2p/acetyl-lysine	Involved in histone deacetylation	(Tanner *et al.*, 2000; Tanny *et al.*, 1999)
Sirtuin2	Human	Albumin/acetyl-lysine	Involved in histone deacetylation	(Frye, 1999)
Pierisin1,2	Cabbage butterfly	DNA	Cytotoxic	(Matsushima-Hibiya *et al.*, 2000)
Arginine-specific	Hamster, human	$G\beta$/Arg129	Inhibits substrate activity	(Lupi *et al.*, 2000)
Cysteine-specific	Human	GDH/Cys	Inhibits substrate activity	(Herrero-Yraola *et al.*, 2001)

*The table shows some of the well-defined ADP-ribosylation reactions. See text for additional examples, references and details.

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