

TABLE 2.9 Some of the bacterial toxins using ADP-ribosylation on host proteins ^[516,517].

Toxin	Source	Affected Protein(s)	Modified Residue	Molecular Effect	Physiological Effect
Pertussis (PTX)	<i>B. pertussis</i>	G _i ^{*a}	Cys	Lifting off inhibition of adenylate cyclase in different cell types, resulting in excessive production of cAMP	<ul style="list-style-type: none"> • Decreased phagocyte action • Lymphocytosis^{*e} • Low blood sugar levels • Hypotension
Cholera (CTX)	<i>V. cholerae</i>	G _s ^{*a}	Arg	Over-secretion of water and ions into intestinal lumen	<ul style="list-style-type: none"> • Diarrhea • Dehydration
Botulinum type C3 (BTX)	<i>C. botulinum</i>	rho ^{*b}	Asn	Inhibition of acetylcholine release at peripheral cholinergic synapses	<ul style="list-style-type: none"> • Flaccid muscular paralysis
Diphtheria (DT)	<i>C. diphtheriae</i>	eEF-2 ^{*c}	Diphthamide ^{*d}	Inhibition of protein synthesis	<ul style="list-style-type: none"> • Sore throat • Fever • Swelling of head and neck

^{*a}A type of G-protein, i.e., large heterotrimeric GTPases involved in signal transduction.

^{*b}A small monomeric GTPase.

^{*c}An elongation factor in eukaryotic protein translation.

^{*d}A chemical derivative of histidine.

^{*e}An increased number of circulating lymphocytes.