

SUPPLEMENTAL MATERIAL

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The following lists of titles are of JGP articles that substantively address the mechanism of a toxin. They have been sorted by action of the toxin studied.

The articles were curated from the thousands identified by searching with the following terms: toxin* venom* alkaloid* glycoside hemolysin strychnine ouabain paxilline nicotine caffeine quinine cocaine tubocurarine curare muscarine ryanodine veratridine batrachotoxin cevadine bicuculline aconitine tetrodotoxin TTX saxitoxin STX dendrotoxin conotoxin agatoxin iberiotoxin charybdotoxin hanatoxin SgTx VsTx guangxitoxin thapsigargin capsaicin resiniferatoxin.

Table S1. Voltage-gated Na⁺ channel toxins

Year	Title
1919	Antagonism between alkaloids and salts in relation to permeability
1922	Effect of cocaine on the growth of <i>Lupinus albus</i> . A contribution to the comparative pharmacology of animal and plant protoplasm
1924	The locus of the action of veratrin
1951	On the effect of cocaine upon sodium-deficient frog nerve
1953	Low level impedance changes following the spike in the squid giant axon before and after treatment with “veratrine” alkaloids
1959	The influence of high hydrostatic pressure on cocaine and veratrine action in a vertebrate nerve
1960	Interactions of veratrum alkaloids, procaine, and calcium with monolayers of stearic acid and their implications for pharmacological action
1962	Delayed rectification and anomalous rectification in frog’s skeletal muscle membrane
1964	Tetrodotoxin blockage of sodium conductance increase in lobster giant axons
1964	The effect of aconitine on the giant axon of the squid
1965	Voltage clamp studies on internally perfused axons
1965	Analysis of spike electrogenesis and depolarizing K inactivation in electroplaques of <i>Electrophorus electricus</i> , L.
1965	Electrical activity in the chemoreceptors of the blowfly. 3. Dendritic action potentials
1966	The action of tetrodotoxin on electrogenic components of squid giant axons
1965	After-potentials and large depolarizations of single nodes of Ranvier treated with veratridine
1966	Differences in Na and Ca spikes as examined by application of tetrodotoxin, procaine, and manganese ions
1966	The membrane components of crustacean neuromuscular systems. I. Immunity of different electrogenic components to tetrodotoxin and saxitoxin
1966	Blockage of sodium conductance increase in lobster giant axon by tarichatoxin (tetrodotoxin)
1967	Interactions of veratrum alkaloids, procaine, and calcium with monolayers of stearic acid and their implications for pharmacological action
1967	Comparison of tetrodotoxin and procaine in internally perfused squid giant axons
1968	Effect of low sodium, tetrodotoxin, and temperature variation upon excitation
1968	Further study of the relationship between pre- and postsynaptic potentials in the squid giant synapse
1968	Pharmacological modifications of the sodium channels of frog nerve
1969	Changes in membrane properties of chick embryonic hearts during development
1969	Current- and voltage-clamped studies on <i>Myxicola</i> giant axons. Effect of tetrodotoxin
1969	Increase in PNa and PK of cultured heart cells produced by veratridine
1970	Equilibrium and kinetic properties of the interaction between tetrodotoxin and the excitable membrane of the squid giant axon
1970	Ionic channels and nerve membrane lipids. Cholesterol-tetrodotoxin interaction
1971	Effects of batrachotoxin on membrane potential and conductance of squid giant axons
1972	Ionic channels and nerve membrane constituents: Tetrodotoxin-like interaction of saxitoxin with cholesterol monolayers
1973	Tetrodotoxin desensitization in aggregates of embryonic chick heart cells
1975	Repetitive spikes in photoreceptor axons of the scorpion eye. Invertebrate eye structure and tetrodotoxin
1976	Kinetic and pharmacological properties of the sodium channel of frog skeletal muscle
1976	Sodium flux through the sodium channels of axon membrane fragments isolated from lobster nerves
1976	Grayanotoxin, veratrine, and tetrodotoxin-sensitive sodium pathways in the Schwann cell membrane of squid nerve fibers
1976	Density and distribution of tetrodotoxin receptors in normal and detubulated frog sartorius muscle
1976	Binding of tetrodotoxin to squid nerve fibers. Two kinds of receptors?
1977	Effects of strychnine on the sodium conductance of the frog node of Ranvier
1978	Effects of veratridine on Ca fluxes and the release of oxytocin and vasopressin from the isolated rat neurohypophysis
1979	Binding of scorpion toxin to receptor sites associated with sodium channels in frog muscle. Correlation of voltage-dependent binding with activation
1979	Comparison of ionic selectivity of batrachotoxin-activated channels with different tetrodotoxin dissociation constants
1980	Sodium channels in presynaptic nerve terminals. Regulation by neurotoxins
1981	Local anesthetics QX 572 and benzocaine act at separate sites on the batrachotoxin-activated sodium channel
1981	Tetrodotoxin block of sodium channels in rabbit Purkinje fibers. Interactions between toxin binding and channel gating
1981	Saxitoxin binding in nerves from walking legs of the lobster <i>Homarus americanus</i> . Two classes of receptors
1981	Effects of deuterium oxide on the rate and dissociation constants for saxitoxin and tetrodotoxin action. Voltage-clamp studies on frog myelinated nerve
1982	Biphasic regulation of development of the high-affinity saxitoxin receptor by innervation in rat skeletal muscle
1982	Modified kinetics and selectivity of sodium channels in frog skeletal muscle fibers treated with aconitine
1983	Differential expression of sodium channel activities during the development of chick skeletal muscle cells in culture
1983	Effect of sea anemone toxins on the sodium inactivation process in crayfish axons
1984	Current-dependent inactivation induced by sodium depletion in normal and batrachotoxin-treated frog node of Ranvier
1984	Structural determinants of the affinity of saxitoxin for neuronal sodium channels. Electrophysiological studies on frog peripheral nerve
1984	Batrachotoxin-activated Na ⁺ channels in planar lipid bilayers. Competition of tetrodotoxin block by Na ⁺
1984	Voltage-dependent blockade of muscle Na ⁺ channels by guanidinium toxins
1985	Kinetic analysis of the action of <i>Leiurus</i> scorpion alpha-toxin on ionic currents in myelinated nerve
1985	Kinetics of intramembrane charge movement and conductance activation of batrachotoxin-modified sodium channels in frog node of Ranvier
1986	Electrophysiological comparison of insecticide and alkaloid agonists of Na channels
1986	Voltage-dependent gating of veratridine-modified Na channels
1986	Batrachotoxin-modified sodium channels in planar lipid bilayers. Ion permeation and block
1986	Sodium channels in planar lipid bilayers. Channel gating kinetics of purified sodium channels modified by batrachotoxin
1986	Na channel distribution in vertebrate skeletal muscle
1986	Rapid voltage-dependent dissociation of scorpion alpha-toxins coupled to Na channel inactivation in amphibian myelinated nerves
1986	Kinetics of veratridine action on Na channels of skeletal muscle
1986	Trimethyloxonium modification of single batrachotoxin-activated sodium channels in planar bilayers. Changes in unit conductance and in block by saxitoxin and calcium

Table S1. Voltage-gated Na⁺ channel toxins (Continued)

Year	Title
1987	Veratridine modifies open sodium channels
1987	Purified and unpurified sodium channels from eel electroplax in planar lipid bilayers
1987	The properties of batrachotoxin-modified cardiac Na channels, including state-dependent block by tetrodotoxin
1987	Gating of Na channels. Inactivation modifiers discriminate among models
1987	Single Na ⁺ channels activated by veratridine and batrachotoxin
1987	Electrophysiological comparison of insecticide and alkaloid agonists of Na channels
1987	Batrachotoxin-modified sodium channels in planar lipid bilayers. Characterization of saxitoxin- and tetrodotoxin-induced channel closures
1988	Cocaine-induced closures of single batrachotoxin-activated Na ⁺ channels in planar lipid bilayers
1989	Batrachotoxin-modified sodium channels from squid optic nerve in planar bilayers. Ion conduction and gating properties
1989	Rapid and slow gating of veratridine-modified sodium channels in frog myelinated nerve
1989	Veratridine modification of the purified sodium channel alpha-polypeptide from eel electroplax
1989	Modification of Na channel gating by an alpha scorpion toxin from <i>Tityus serrulatus</i>
1990	Binding affinity and stereoselectivity of local anesthetics in single batrachotoxin-activated Na ⁺ channels
1990	Zn ²⁺ -induced subconductance events in cardiac Na ⁺ channels prolonged by batrachotoxin. Current-voltage behavior and single-channel kinetics
1991	BTX modification of Na channels in squid axons. I. State dependence of BTX action
1991	Divalent cation selectivity for external block of voltage-dependent Na ⁺ channels prolonged by batrachotoxin. Zn ²⁺ induces discrete substates in cardiac Na ⁺ channels
1991	Actions of chiriquitoxin on frog skeletal muscle fibers and implications for the tetrodotoxin/saxitoxin receptor
1991	Quaternary ammonium compounds as structural probes of single batrachotoxin-activated Na ⁺ channels
1991	Steady-state gating of batrachotoxin-modified sodium channels. Variability and electrolyte-dependent modulation
1991	Interactions of neosaxitoxin with the sodium channel of the frog skeletal muscle fiber
1991	Ion permeation in normal and batrachotoxin-modified Na ⁺ channels in the squid giant axon
1992	Grayanotoxin-I-modified eel electroplax sodium channels. Correlation with batrachotoxin and veratridine modifications
1992	Altered stereoselectivity of cocaine and bupivacaine isomers in normal and batrachotoxin-modified Na ⁺ channels
1992	Alkaloid-modified sodium channels from lobster walking leg nerves in planar lipid bilayers
1992	Inactivation of batrachotoxin-modified Na ⁺ channels in GH3 cells. Characterization and pharmacological modification
1993	Divalent cation competition with [3H]saxitoxin binding to tetrodotoxin-resistant and -sensitive sodium channels. A two-site structural model of ion/toxin interaction
1993	Modification of cardiac sodium channels by carboxyl reagents. Trimethyloxonium and water-soluble carbodiimide
1994	Binding of benzocaine in batrachotoxin-modified Na ⁺ channels. State-dependent interactions
1995	Specificity for block by saxitoxin and divalent cations at a residue which determines sensitivity of sodium channel subtypes to guanidinium toxins
1995	Irreversible inhibition of sodium current and batrachotoxin binding by a photoaffinity-derivatized local anesthetic
1995	Modification of inactivation in cardiac sodium channels: Ionic current studies with Anthopleurin-A toxin
1995	Voltage-dependent open-state inactivation of cardiac sodium channels: Gating current studies with Anthopleurin-A toxin
1997	Functional expression of <i>Drosophila</i> para sodium channels modulation by the membrane protein TipE and toxin pharmacology
1999	Block of brain sodium channels by peptide mimetics of the isoleucine, phenylalanine, and methionine (IFM) motif from the inactivation gate
1999	Augmentation of recovery from inactivation by site-3 Na channel toxins
1999	Activation of <i>Drosophila</i> sodium channels promotes modification by deltamethrin
2000	The role of the putative inactivation lid in sodium channel gating current immobilization
2000	Localization and molecular determinants of the hanatoxin receptors on the voltage-sensing domains of a K ⁺ channel
2000	μ-Conotoxin GIIIA interactions with the voltage-gated Na ⁺ channel predict a clockwise arrangement of the domains
2001	Interaction of scorpion α-toxins with cardiac sodium channels
2001	Neutralization of gating charges in domain II of the sodium channel α subunit enhances voltage-sensor trapping by a β-scorpion toxin
2002	Single ion occupancy and steady-state gating of Na channels in squid giant axon
2002	Electrostatic and steric contributions to block of the skeletal muscle sodium channel by μ-conotoxin
2003	Conotoxins as sensors of local pH and electrostatic potential in the outer vestibule of the sodium channel
2004	Block of tetrodotoxin-resistant Na ⁺ channel pore by multivalent cations: Gating modification and Na ⁺ flow dependence
2007	β-Scorpion toxin modifies gating transitions in all four voltage sensors of the sodium channel
2008	α-Scorpion toxin impairs a conformational change that leads to fast inactivation of muscle sodium channels
2011	Functional properties and toxin pharmacology of a dorsal root ganglion sodium channel viewed through its voltage sensors
2012	Scorpion β-toxin interference with NaV channel voltage sensor gives rise to excitatory and depressant modes
2012	Use-dependent block of the voltage-gated Na ⁺ channel by tetrodotoxin and saxitoxin: Effect of pore mutations that change ionic selectivity
2013	Interactions among DIV voltage-sensor movement, fast inactivation, and resurgent Na current induced by the Navβ4 open-channel blocking peptide
2014	Folding similarity of the outer pore region in prokaryotic and eukaryotic sodium channels revealed by docking of conotoxins GIIIA, PIHA, and KIIIA in a NavAb-based model of Nav1.4
2015	A surface plasmon resonance approach to monitor toxin interactions with an isolated voltage-gated sodium channel paddle motif

Table S2. **K⁺ channel toxins**

Year	Title
1977	Effects of strychnine on the potassium conductance of the frog node of Ranvier
1987	Charybdotoxin selectively blocks small Ca-activated K channels in <i>Aplysia</i> neurons
1988	<i>Pandinus imperator</i> scorpion venom blocks voltage-gated potassium channels in GH3 cells
1988	Charybdotoxin block of single Ca ²⁺ -activated K ⁺ channels. Effects of channel gating, voltage, and ionic strength
1988	Mechanism of charybdotoxin block of the high-conductance, Ca ²⁺ -activated K ⁺ channel
1989	Charybdotoxin blocks voltage-gated K ⁺ channels in human and murine T lymphocytes
1990	Calcium-independent cell volume regulation in human lymphocytes. Inhibition by charybdotoxin
1991	On the interaction of bovine pancreatic trypsin inhibitor with maxi Ca ²⁺ -activated K ⁺ channels. A model system for analysis of peptide-induced subconductance states
1998	Proton probing of the charybdotoxin binding site of Shaker K ⁺ channels
1998	Structural implications of fluorescence quenching in the Shaker K ⁺ channel
1999	Simultaneous binding of basic peptides at intracellular sites on a large conductance Ca ²⁺ -activated K ⁺ channel equilibrium and kinetic basis of negatively coupled ligand interactions
1999	Distinct transient outward potassium current (I _{to}) phenotypes and distribution of fast-inactivating potassium channel alpha subunits in ferret left ventricular myocytes
1999	Novel gating mechanism of polyamine block in the strong inward rectifier K channel Kir2.1
1999	Four kinetically distinct depolarization-activated K ⁺ currents in adult mouse ventricular myocytes
1999	Simultaneous binding of basic peptides at intracellular sites on a large conductance Ca ²⁺ -activated K ⁺ channel. Equilibrium and kinetic basis of negatively coupled ligand interactions
1999	The block of Shaker K ⁺ channels by κ -conotoxin PVIIA is state dependent
1999	A marine snail neurotoxin shares with scorpion toxins a convergent mechanism of blockade on the pore of voltage-gated K channels
1999	Single <i>Streptomyces lividans</i> K ⁺ channels
2001	Helical structure of the COOH terminus of S3 and its contribution to the gating modifier toxin receptor in voltage-gated ion channels
2003	Saxitoxin is a gating modifier of hERG K ⁺ channels
2004	Binding of κ -conotoxin PVIIA to Shaker K ⁺ channels reveals different K ⁺ and Rb ⁺ occupancies within the ion channel pore
2004	Inhibition of the collapse of the Shaker K ⁺ conductance by specific scorpion toxins
2004	Molecular surface of tarantula toxins interacting with voltage sensors in K _v channels
2004	A gastropod toxin selectively slows early transitions in the Shaker K channel's activation pathway
2006	Binding of a gating modifier toxin induces intersubunit cooperativity early in the Shaker K channel's activation pathway
2007	Tarantula toxins interact with voltage sensors within lipid membranes
2010	Glycine311, a determinant of paxilline block in BK channels: A novel bend in the BK S6 helix
2011	Arrangement of Kv1 alpha subunits dictates sensitivity to tetraethylammonium
2013	Opening the Shaker K ⁺ channel with hanatoxin
2013	Positions of β 2 and β 3 subunits in the large-conductance calcium- and voltage-activated BK potassium channel
2013	The ladder-shaped polyether toxin gambierol anchors the gating machinery of Kv3.1 channels in the resting state
2014	Paxilline inhibits BK channels by an almost exclusively closed-channel block mechanism

Table S3. **Voltage gated Ca²⁺ channel toxins**

Year	Title
1989	Calcium channels that are required for secretion from intact nerve terminals of vertebrates are sensitive to omega-conotoxin and relatively insensitive to dihydropyridines. Optical studies with and without voltage-sensitive dyes
1994	Isolation of myocardial L-type calcium channel gating currents with the spider toxin omega-Aga-IIIa
2000	A hot spot for the interaction of gating modifier toxins with voltage-dependent ion channels
2002	Interactions among toxins that inhibit N-type and P-type calcium channels
2008	Differential interactions of Na ⁺ channel toxins with T-type Ca ²⁺ channels
2014	Differential Cav2.1 and Cav2.3 channel inhibition by baclofen and α -conotoxin Vc1.1 via GABAB receptor activation

Table S4. Intracellular Ca²⁺ channel toxins

Year	Title
1945	The effects of caffeine on oxygen consumption and cell division in the fertilized egg of the sea urchin, <i>Arbacia punctulata</i>
1961	The effect of caffeine on radiocalcium movement in frog sartorius
1963	Inhibition of caffeine rigor and radiocalcium movements by local anesthetics in frog sartorius muscle
1966	Caffeine- and potassium-induced contractures of frog striated muscle fibers in hypertonic solutions
1967	Quinine and caffeine effects on ⁴⁵ Ca movements in frog sartorius muscle
1968	Calcium-binding properties of sarcoplasmic reticulum as influenced by ATP, caffeine, quinine, and local anesthetics
1968	The mechanism of the action of caffeine on sarcoplasmic reticulum
1970	Effects of caffeine on crayfish muscle fibers
1971	Caffeine and excitation-contraction coupling in the guinea pig taenia coli
1972	The interaction between caffeine and calcium in the desensitization of muscle postjunctional membrane receptors
1983	Ryanodine modification of cardiac muscle responses to potassium-free solutions. Evidence for inhibition of sarcoplasmic reticulum calcium release
1984	Excitation-contraction coupling in cardiac Purkinje fibers. Effects of caffeine on the intracellular [Ca ²⁺] transient, membrane currents, and contraction
1985	Effects of caffeine, tetracaine, and ryanodine on calcium-dependent oscillations in sheep cardiac Purkinje fibers
1986	Patterns of sarcomere activation, temperature dependence, and effect of ryanodine in chemically skinned cardiac fibers
1988	Purified ryanodine receptor from rabbit skeletal muscle is the calcium-release channel of sarcoplasmic reticulum
1988	Effects of rapid application of caffeine on intracellular calcium concentration in ferret papillary muscles
1990	Actions of ryanodine
1994	A novel action of quinine and quinidine on the membrane conductance of neurons from the vertebrate retina
1994	Caffeine activates a Ca(2+)-permeable, nonselective cation channel in smooth muscle cells
1994	Simultaneous measurement of Ca ²⁺ release and influx into smooth muscle cells in response to caffeine. A novel approach for calculating the fraction of current carried by calcium
1994	How does ryanodine modify ion handling in the sheep cardiac sarcoplasmic reticulum Ca(2+)-release channel?
1994	Caffeine- and ryanodine-sensitive Ca(2+)-induced Ca ²⁺ release from the endoplasmic reticulum in honeybee photoreceptors
1994	Calcium current activated by muscarinic receptors and thapsigargin in neuronal cells
1994	Signaling between intracellular Ca ²⁺ stores and depletion-activated Ca ²⁺ channels generates [Ca ²⁺] _i oscillations in T lymphocytes
1997	Caffeine-induced release of intracellular Ca ²⁺ from Chinese hamster ovary cells expressing skeletal muscle ryanodine receptor
1998	Imperatoxin A induces subconductance states in Ca ²⁺ release channels (ryanodine receptors) of cardiac and skeletal muscle
2000	The interaction of a neutral ryanoid with the ryanodine receptor channel provides insights into the mechanisms by which ryanoid binding is modulated by voltage
2001	Ryanoid modification of the cardiac muscle ryanodine receptor channel results in relocation of the tetraethylammonium binding site

Table S5. Toxins affecting multiple ion channel types or other ion channels

Year	Title
1918	Reversal of reaction by means of strychnine in planarians and starfish
1919	The selective action of nicotine on the central nervous system of the squid, <i>Loligo pealii</i>
1920	The action of strychnine and nicotine on the neuromuscular mechanism of asterias
1922	A note on the action of curare, atropine, and nicotine on the invertebrate heart
1924	Suppression of phototropic circus movements of <i>Limax</i> by strychnine
1927	Galvanotropism and "reversal of inhibition" by strychnine
1932	The mechanisms of tropistic reactions and the strychnine effect in daphnia
1944	The relation between attachment to the substratum and ingestion by ameba in strychnine sulfate solution and conditioned media
1951	Experiments on the role of potassium in the blocking of neuromuscular transmission by curare and other drugs
1963	Demonstration of increased permeability as a factor in the effect of acetylcholine on the electrical activity of venom-treated axons
1964	Alteration of acetylcholine penetration into, and effects on, venom-treated squid axons by physostigmine and related compounds
1975	Conductance increases produced by bath application of cholinergic agonists to <i>Electrophorus</i> electroplaques
1976	The involvement of gamma-aminobutyric acid in the organization of cat retinal ganglion cell receptive fields. A study with picrotoxin and bicuculline
1978	Voltage- and time-dependent action of histrionicotoxin on the endplate current of the frog muscle
1979	The effect of strychnine, bicuculline, and picrotoxin on X and Y cells in the cat retina
1987	Characterization of the channel properties of a neuronal acetylcholine receptor reconstituted into planar lipid bilayers
1996	A quinine-activated cationic conductance in vertebrate taste receptor cells
2000	Identification of a peptide toxin from <i>Grammostola spatulata</i> : Spider venom that blocks cation-selective stretch-activated channels
2003	Pseudochetoxin binds to the pore turret of cyclic nucleotide-gated ion channels
2003	Low pH potentiates both capsaicin binding and channel gating of VR1 receptors
2004	Ca ²⁺ /calmodulin modulates TRPV1 activation by capsaicin
2005	The tarantula toxin psalmotoxin 1 inhibits acid-sensing ion channel (ASIC) 1a by increasing its apparent H ⁺ affinity
2006	Interaction of acid-sensing ion channel (ASIC) 1 with the tarantula toxin psalmotoxin 1 is state dependent
2012	Mechanism of inhibition of connexin channels by the quinine derivative <i>N</i> -benzylquininium
2012	Selective disruption of high sensitivity heat activation but not capsaicin activation of TRPV1 channels by pore turret mutations
2014	Conductance and block of hair-cell mechanotransducer channels in transmembrane channel-like protein mutants
2016	The exceptionally high reactivity of Cys 621 is critical for electrophilic activation of the sensory nerve ion channel TRPA1

Table S6. **Pore-forming toxins**

Year	Title
1926	On the nature of diphtheria toxin
1947	Comparative kinetics of hemolysis induced by bacterial and other hemolysins
1952	The effects of diphtheria toxin on the <i>Cecropia</i> silkworm
1972	Effect of black widow spider venom on the lobster neuromuscular junctions
1979	Reversibility and mode of action of black widow spider venom on the vertebrate neuromuscular junction
1986	Effects of black widow spider venom and Ca^{2+} on quantal secretion at the frog neuromuscular junction
1990	Voltage-dependent block of anthrax toxin channels in planar phospholipid bilayer membranes by symmetric tetraalkylammonium ions. Effects on macroscopic conductance
1990	Voltage-dependent block of anthrax toxin channels in planar phospholipid bilayer membranes by symmetric tetraalkylammonium ions. Single-channel analysis
1990	Diffusion limitation in the block by symmetric tetraalkylammonium ions of anthrax toxin channels in planar phospholipid bilayer membranes
1996	Major transmembrane movement associated with colicin Ia channel gating
1997	Probing the structure of the diphtheria toxin channel reactivity in planar lipid bilayer membranes of cysteine-substituted mutant channels with methanethiosulfonate derivatives
1998	The diphtheria toxin channel-forming T domain translocates its own NH ₂ -terminal region across planar bilayers
2000	Probing pores with peptide plugs topology of membrane-inserted diphtheria toxin
2000	Topography of diphtheria toxin's T domain in the open channel state
2001	Prolonged residence time of a noncovalent molecular adapter, β -cyclodextrin, within the lumen of mutant α -hemolysin pores
2001	The number of subunits comprising the channel formed by the T domain of diphtheria toxin
2001	Prolonged residence time of a noncovalent molecular adapter, β -cyclodextrin, within the lumen of mutant α -hemolysin pores
2004	Inhibition and redistribution of NHE3, the apical Na^+/H^+ exchanger, by <i>Clostridium difficile</i> toxin B
2008	Ca-dependent nonsecretory vesicle fusion in a secretory cell
2008	Preventing voltage-dependent gating of anthrax toxin channels using engineered disulfides
2009	Evidence for a proton–protein symport mechanism in the anthrax toxin channel
2010	Rapid topology probing using fluorescence spectroscopy in planar lipid bilayer: The pore-forming mechanism of the toxin Cry1Aa of <i>Bacillus thuringiensis</i>
2011	Trapping a translocating protein within the anthrax toxin channel: Implications for the secondary structure of permeating proteins
2011	A kinetic analysis of protein transport through the anthrax toxin channel
2015	Mapping the membrane topography of the TH6–TH7 segment of the diphtheria toxin T-domain channel
2015	Ion selectivity of the anthrax toxin channel and its effect on protein translocation
2016	Structure of anthrax lethal toxin prepore complex suggests a pathway for efficient cell entry
2016	Anthrax lethal toxin co-complexes are stabilized by contacts between adjacent lethal factors

Table S7. **G-protein–coupled receptor toxins**

Year	Title
1994	Differential effects of pertussis toxin on the muscarinic regulation of Ca^{2+} and K^+ currents in frog cardiac myocytes
1997	Positive and negative coupling of the metabotropic glutamate receptors to a G protein–activated K^+ channel, GIRK, in <i>Xenopus</i> oocytes
2002	β 2-Adrenergic receptor signaling acts via no release to mediate Ach-induced activation of ATP-sensitive K^+ current in cat atrial myocytes
2003	Dihydropyridine receptors as voltage sensors for a depolarization-evoked, IP ₃ R-mediated, slow calcium signal in skeletal muscle cells
2004	Discovery of glycine hydrazone pore-occluding CFTR inhibitors
2005	Phospholipase C in living cells: activation, inhibition, Ca^{2+} requirement, and regulation of M current
2006	Mini-dystrophin expression down-regulates overactivation of G protein–mediated IP ₃ signaling pathway in dystrophin-deficient muscle cells
2008	Roles of GRK and PDE4 activities in the regulation of β 2adrenergic signaling

Table S8. Ion pump toxins

Year	Title
1956	The kinetics of cardiac glycoside inhibition of potassium transport in human erythrocytes
1967	The Na ⁺ , K ⁺ , and Cl ⁻ Content of Goose Salt Gland Slices and the Effects of Acetylcholine and Ouabain
1968	The relation between ouabain-sensitive potassium efflux and the hypothetical dephosphorylation step in the "transport ATPase" system
1969	Accumulation of iron in the rabbit erythroid cell as affected by ouabain, sodium and potassium ions, and temperature
1969	Sodium plus potassium-activated, ouabain-inhibited adenosine triphosphatase from a fraction of rat skeletal muscle, and lack of insulin effect on it
1969	The interaction between tritiated ouabain and the Na-K pump in red blood cells
1969	The effect of ouabain and external potassium on the ion transport of rabbit red cells
1971	Ouabain-insensitive sodium movements in the human red blood cell
1971	The kinetics of ouabain inhibition and the partition of rubidium influx in human red blood cells
1971	Active cation transport and ouabain binding in high potassium and low potassium red blood cells of sheep
1972	The effects of sodium and potassium on ouabain binding by human erythrocytes
1974	Interaction of HK and LK goat red blood cells with ouabain
1976	Action of ouabain on sodium transport in toad urinary bladder. Evidence for two pathways for sodium entry
1976	Side-dependent effects of internal versus external Na and K on ouabain binding to reconstituted human red blood cell ghosts
1976	Comparison of the side-dependent effects of Na and K on orthophosphate-, UTP-, and ATP-promoted ouabain binding to reconstituted human red blood cell ghosts
1976	Effects of Mg and Ca on the side dependencies of Na and K on ouabain binding to red blood cell ghosts and the control of Na transport by internal Mg
1977	Ouabain-insensitive salt and water movements in duck red cells. I. Kinetics of cation transport under hypertonic conditions
1977	Ouabain-insensitive salt and water movements in duck red cells. II. Norepinephrine stimulation of sodium plus potassium cotransport
1977	Ouabain-insensitive salt and water movements in duck red cells. III. The role of chloride in the volume response
1978	Interaction of external alkali metal ions with the Na-K pump of human erythrocytes: A comparison of their effects on activation of the pump and on the rate of ouabain binding
1978	Binding of [3H] ouabain to split frog skin: The role of the Na,K-ATPase in the generation of short circuit current
1979	Ouabain on active transepithelial sodium transport in frog skin: studies with microelectrodes
1979	Ouabain binding and coupled sodium, potassium, and chloride transport in isolated transverse tubules of skeletal muscle
1979	Inotropic effects and changes in sodium and calcium contents associated with inhibition of monovalent cation active transport by ouabain in cultured myocardial cells
1979	Effects of ouabain on fluid transport and electrical properties of <i>Necturus</i> gallbladder. Evidence in favor of a neutral basolateral sodium transport mechanism
1980	Kinetics and thermodynamics of ouabain binding by intact turkey erythrocytes: Effects of external sodium ion, potassium ion, and temperature
1983	[3H]Ouabain binding and Na ⁺ ,K ⁺ -ATPase in resealed human red cell ghosts
1990	Intracellular sodium affects ouabain interaction with the Na/K pump in cultured chick cardiac myocytes
1990	Apparent affinity of the Na/K pump for ouabain in cultured chick cardiac myocytes. Effects of Nai and Ko
2002	Isoform-specific stimulation of cardiac Na/K pumps by nanomolar concentrations of glycosides
2004	Large diameter of palytoxin-induced Na/K pump channels and modulation of palytoxin interaction by Na/K pump ligands
2006	Palytoxin-induced effects on partial reactions of the Na,K-ATPase
2006	Ionic mechanisms of cardiac cell swelling induced by blocking Na ⁺ /K ⁺ pump as revealed by experiments and simulation