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 iberotoxin charybdotoxin hanatoxin SgTx VsTx guangxitoxin thapsigargin capsaicin resiniferatoxin.
| Year | Title |
|------|-------|
| 1968 | Further study of the relationship between pre- and postsynaptic potentials in the squid giant synapse |
| 1968 | Effect of low sodium, tetrodotoxin, and temperature variation upon excitation |
| 1967 | Interactions of veratrum alkaloids, procaine, and calcium with monolayers of stearic acid and their implications for pharmacological action |
| 1966 | Blockage of sodium conductance increase in lobster giant axon by tarichatoxin (tetrodotoxin) |
| 1966 | Differences in Na and Ca spikes as examined by application of tetrodotoxin, procaine, and manganese ions |
| 1965 | After-potentials and large depolarizations of single nodes of Ranvier treated with veratridine |
| 1965 | The action of tetrodotoxin on electrogenic components of squid giant axons |
| 1965 | Interactions of veratrum alkaloids, procaine, and calcium with monolayers of stearic acid and their implications for pharmacological action |
| 1964 | Comparison of tetrodotoxin and procaine in internally perfused squid giant axons |
| 1963 | Effect of low sodium, tetrodotoxin, and temperature variation upon excitation |
| 1963 | Further study of the relationship between pre- and postsynaptic potentials in the squid giant synapse |
| 1962 | Pharmacological modifications of the sodium channels of frog nerve |
| 1962 | Changes in membrane properties of chick embryonic hearts during development |
| 1962 | Current- and voltage-clamped studies on Myxococcal giant axons. Effect of tetrodotoxin |
| 1962 | Increase in PNa and PK of cultured heart cells produced by veratridine |
| 1961 | Equilibrium and kinetic properties of the interaction between tetrodotoxin and the excitable membrane of the squid giant axon |
| 1961 | Ionic channels and nerve membrane lipids. Cholesterol-tetrodotoxin interaction |
| 1961 | Effects of batrachotoxin on membrane potential and conductance of squid giant axons |
| 1961 | Ionic channels and nerve membrane constituents: Tetrodotoxin-like interaction of saxitoxin with cholesterol monolayers |
| 1960 | Tetrodotoxin desensitization in aggregates of embryonic chick heart cells |
| 1960 | Repetitive spikes in photoreceptor axons of the scorpion eye. Invertebrate eye structure and tetrodotoxin |
| 1960 | Kinetic and pharmacological properties of the sodium channel of frog skeletal muscle |
| 1959 | Sodium flux through the sodium channels of axon membrane fragments isolated from lobster nerves |
| 1959 | Grayanotoxin, veratrine, and tetrodotoxin-sensitive sodium pathways in the Schwann cell membrane of squid nerve fibers |
| 1959 | Density and distribution of tetrodotoxin receptors in normal and demembranated frog sartorius muscle |
| 1959 | Binding of tetrodotoxin to squid nerve fibers. Two kinds of receptors? |
| 1958 | Effects of strychnine on the sodium conductance of the frog node of Ranvier |
| 1958 | Effects of veratridine on Ca fluxes and the release of oxytocin and vasopressin from the isolated rat neurohypophysis |
| 1957 | Binding of scorpion toxin to receptor sites associated with sodium channels in frog muscle. Correlation of voltage-dependent binding with activation |
| 1957 | Comparison of ionic selectivity of batrachotoxin-activated channels with different tetrodotoxin dissociation constants |
| 1957 | Sodium channels in presynaptic nerve terminals. Regulation by neurotransmitters |
| 1957 | Local anesthesics QX 572 and benzocaine act at separate sites on the batrachotoxin-activated sodium channel |
| 1957 | Tetrodotoxin block of sodium channels in rabbit Purkinje fibers. Interactions between toxin binding and channel gating |
| 1957 | Saxitoxin binding in nerves from walking legs of the lobster Homarus americanus. Two classes of receptors? |
| 1957 | Effects of deuterium oxide on the rate and dissociation constants for saxitoxin and tetrodotoxin action. Voltage-clamp studies on frog myelinated nerve |
| 1956 | Biphasic regulation of development of the high-affinity saxitoxin receptor by innervation in rat skeletal muscle |
| 1956 | Modified kinetics and selectivity of sodium channels in frog skeletal muscle fibers treated with aconitine |
| 1956 | Differential expression of sodium channel activities during the development of chick skeletal muscle cells in culture |
| 1956 | Effect of sea amene toxins on the sodium inactivation process in crayfish axons |
| 1956 | Current-dependent inactivation induced by sodium depletion in normal and batrachotoxin-treated frog node of Ranvier |
| 1955 | Structural determinants of the affinity of saxitoxin for neuronal sodium channels. Electrophysiological studies on frog peripheral nerve |
| 1955 | Batrachotoxin-activated Na’ channels in planar lipid bilayers. Competition of tetrodotoxin block by Na’ |
| 1955 | Voltage-dependent blockade of muscle Na+ channels by guanidinium toxins |
| 1955 | Kinetic analysis of the action of Leitur scorpion alpha-toxin on ionic currents in myelinated nerve |
| 1955 | Kinetics of intramembrane charge movement and conductance activation of batrachotoxin-modified sodium channels in frog node of Ranvier |
| 1954 | Electrophysiological comparison of insecticide and alkaloid agonists of Na channels |
| 1954 | Voltage-dependent gating of veratridine-modified Na channels |
| 1954 | Batrachotoxin-modified sodium channels in planar lipid bilayers. Ion permeation and block |
| 1954 | Sodium channels in planar lipid bilayers. Channel gating kinetics of purified sodium channels modified by batrachotoxin |
| 1954 | Na channel distribution in vertebrate skeletal muscle |
| 1954 | Rapid voltage-dependent dissociation of scorpion alpha-toxins coupled to Na channel inactivation in amphibian myelinated nerves |
| 1954 | Kinetics of veratridine action on Na channels of skeletal muscle |
| 1954 | Trimethylxylonium 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 |
| 1987 | 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 Tityus serrulatus |
| 1990 | Binding affinity and stereoselectivity of local anesthetics in single batrachotoxin-activated Na⁺ channels |
| 1990 | Zn²⁺-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. Za⁺ induces discrete substates in cardiac Na⁺ channels |
| 1991 | Actions of chironotoxin 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 neo saxitoxin 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 |
| 1991 | Grayanotoxin-I-modified eel electroplax sodium channels. Correlation with batrachotoxin and veratridine modifications |
| 1991 | Altered stereoselectivity of cocaine and bupivacaine isomers in normal and batrachotoxin-modified Na⁺ channels |
| 1991 | Alkaloid-modified sodium channels from lobster walking leg nerves in planar lipid bilayers |
| 1991 | Inactivation of batrachotoxin-modified Na⁺ channels in GH3 cells. Characterization and pharmacological modification |
| 1991 | Divalent cation competition with [3H]saxitoxin binding to tetrodotoxin-resistant and -sensitive sodium channels. A two-site structural model of ion/toxin interaction |
| 1991 | Modification of cardiac sodium channels by carboxyl reagents. Trimethylxonium and water-soluble carbodiimide |
| 1991 | Binding of benzocaine in batrachotoxin-modified Na⁺ channels. State-dependent interactions |
| 1991 | Specificity for block by saxitoxin and divalent cations at a residue which determines sensitivity of sodium channel subtypes to guanidinium toxins |
| 1991 | Irreversible inhibition of sodium current and batrachotoxin binding by a photoaffinity-derivatized local anesthetic |
| 1991 | Modification of inactivation in cardiac sodium channels: Ionic current studies with Anthopleurin-A toxin |
| 1991 | Voltage-gated open-state inactivation of cardiac sodium channels: Gating current studies with Anthopleurin-A toxin |
| 1991 | Functional expression of Drosophila para sodium channels modulation by the membrane protein TipE and toxin pharmacology |
| 1991 | Block of brain sodium channels by peptide mimetics of the isoleucine, phenylalanine, and methionine (IFM) motif from the inactivation gate |
| 1991 | Augmentation of recovery from inactivation by site-3 Na channel toxins |
| 1991 | Activation of Drosophila sodium channels promotes modification by deltamethrin |
| 1991 | The role of the putative inactivation lid in sodium channel gating current immobilization |
| 1991 | Localization and molecular determinants of the hanatoxin receptors on the voltage-sensing domains of a K⁺ channel |
| 1991 | γ-Conotoxin GIIIA interactions with the voltage-gated Na⁺ channel predict a clockwise arrangement of the domains |
| 2000 | Interaction of scorpion α-toxins with cardiac sodium channels |
| 2000 | Neutralization of gating charges in domain II of the sodium channel α subunit enhances voltage-sensor trapping by a β-scorpion toxin |
| 2000 | Single ion occupancy and steady-state gating of Na channels in squid giant axon |
| 2000 | Electrostatic and steric contributions to block of the skeletal muscle sodium channel by γ-conotoxin |
| 2000 | Conotoxins as sensors of local pH and electrostatic potential in the outer vestibule of the sodium channel |
| 2000 | Block of tetrodotoxin-resistant Na⁺ channel pore by multivalent cations: Gating modification and Na⁺ flow dependence |
| 2000 | β-Scorpion toxin modifies gating transitions in all four voltage sensors of the sodium channel |
| 2000 | α-Scorpion toxin impairs a conformational change that leads to fast inactivation of muscle sodium channels |
| 2000 | Functional properties and toxin pharmacology of a dorsal root ganglion sodium channel viewed through its voltage sensors |
| 2000 | Scorpion α-toxin interference with NaV channel voltage sensor gives rise to excitatory and depressant modes |
| 2000 | Use-dependent block of the voltage-gated Na⁺ channel by tetrodotoxin and saxitoxin: Effect of pore mutations that change ionic selectivity |
| 2000 | Interactions among DIV voltage-sensor movement, fast inactivation, and resurgent Na⁺ current induced by the NaVf4 open-channel blocking peptide |
| 2000 | Folding similarity of the outer pore region in prokaryotic and eukaryotic sodium channels revealed by docking of conotoxin GIII A, PHa, and μHIIA in a NavAb-based model of Nav1.4 |
| 2012 | Block of tetrodotoxin-resistant Na⁺ channel by tetrodotoxin and saxitoxin: Effect of pore mutations that change ionic selectivity |
| 2012 | 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 Ca²⁺-activated K⁺ channels in Aplysia neurons |
| 1988 | *Pandinus imperator* scorpion venom blocks voltage-gated potassium channels in GH3 cells |
| 1988 | Charybdotoxin block of single Ca²⁺-activated K⁺ channels. Effects of channel gating, voltage, and ionic strength |
| 1988 | Mechanism of charybdotoxin block of the high-conductance, Ca²⁺-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 Ca²⁺-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 Ca²⁺-activated K⁺ channel equilibrium and kinetic basis of negatively coupled ligand interactions |
| 1999 | Distinct transient outward potassium current (Iₒ) 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 Ca²⁺-activated K⁺ channel. Equilibrium and kinetic basis of negatively coupled ligand interactions |
| 1999 | The block of Shaker K⁺ channels by κ-conotoxin PVI IA 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 Streptomyces lividans 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 PVI IA 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⁺ channels |
| 2004 | A gastropod toxin selectively slows early transitions in the Shaker K⁺ channel’s activation pathway |
| 2005 | 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 β2 and β3 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-IIIIA |
| 1999 | A hot spot for the interaction of gating modifier toxins with voltage-dependent ion channels |
| 2001 | 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 Ca²⁺ channels |
| 2014 | Differential Cav2.1 and Cav2.3 channel inhibition by baclofen and Ω-conotoxin Vc1.1 via GABAB receptor activation |
Table S4. Intracellular Ca\(^{2+}\) channel toxins

| Year | Title |
|------|-------|
| 1945 | The effects of caffeine on oxygen consumption and cell division in the fertilized egg of the sea urchin, *Arbacia punctulata* |
| 1961 | The effect of caffeine on radioactivity 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 45Ca movements in frog sartorius muscle |
| 1968 | Calcium-binding properties of sarcoplasmic reticulum as influenced by ATP, caffeine, quinine, and local anesthetics |
| 1969 | The mechanism of the action of caffeine on sarcoplasmic reticulum |
| 1970 | Effects of caffeine on crayfish muscle fibers |
| 1970 | 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 |
| 1990 | 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 | Caffeine-induced release of intracellular Ca\(^{2+}\) stores and depletion-activated Ca\(^{2+}\) channels generates \([Ca^{2+}]_{i}\) oscillations in T lymphocytes |
| 1994 | Caffeine-induced release of intracellular Ca\(^{2+}\) from Chinese hamster ovary cells expressing skeletal muscle ryanodine receptor |
| 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, *Loligo pealii* |
| 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 *Limax* 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 |
| 1957 | 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 phystostigmine and related compounds |
| 1975 | Conductance increases produced by bath application of cholinergic agonists to *Electrophorus* 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 histriionicotoxin 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 *Grammmostola spatulata*: Spider venom that blocks cation-selective stretch-activated channels |
| 2003 | Pseudochetoxin binds to the pore turret of cyclic nucleotide-gated ion channels |
| 2005 | 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 4-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 Cecropia 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 NH2-terminal region across planar bilayers |
| 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 *Clostridium difficile* toxin B |
| 2008 | Ca\(^{2+}\)-dependent nonsecretory vesicle fusion in a secretory cell |
| 2008 | 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 *Bacillus thuringiensis* |
| 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 |
| 2011 | 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 *Xenopus* oocytes |
| 2002 | β2-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, IP3R-mediated, slow calcium signal in skeletal muscle cells |
| 2004 | Discovery of glycine hydradizde 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 IP3 signaling pathway in dystrophin-deficient muscle cells |
| 2008 | Roles of GRK and PDE4 activities in the regulation of β2-adrenergic signaling |
| Year | Title |
|------|-------|
| 1956 | The kinetics of cardiac glycoside inhibition of potassium transport in human erythrocytes |
| 1956 | The Na+, K+, and Cl- Content of Goose Salt Gland Slices and the Effects of Acetylcholine and Ouabain |
| 1956 | The relation between ouabain-sensitive potassium efflux and the hypothetical dephosphorylation step in the “transport ATPase” system |
| 1956 | Accumulation of iron in the rabbit erythroid cell as affected by ouabain, sodium and potassium ions, and temperature |
| 1956 | Sodium plus potassium-activated, ouabain-inhibited adenosine triphosphatase from a fraction of rat skeletal muscle, and lack of insulin effect on it |
| 1956 | The interaction between tritiated ouabain and the Na-K pump in red blood cells |
| 1956 | The effect of ouabain and external potassium on the ion transport of rabbit red cells |
| 1956 | Ouabain-sensitive sodium movements in the human red blood cell |
| 1956 | The kinetics of ouabain inhibition and the partition of rubidium influx in human red blood cells |
| 1956 | Active cation transport and ouabain binding in high potassium and low potassium red blood cells of sheep |
| 1956 | The effects of sodium and potassium on ouabain binding by human erythrocytes |
| 1956 | Interaction of HK and LK goat red blood cells with ouabain |
| 1956 | Action of ouabain on sodium transport in toad urinary bladder. Evidence for two pathways for sodium entry |
| 1956 | Side-dependent effects of internal versus external Na and K on ouabain binding to reconstituted human red blood cell ghosts |
| 1956 | 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 |
| 1956 | 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 |
| 1957 | Ouabain-insensitive salt and water movements in duck red cells. I. Kinetics of cation transport under hypertonic conditions |
| 1957 | Ouabain-insensitive salt and water movements in duck red cells. II. Norepinephrine stimulation of sodium plus potassium cotransport |
| 1957 | Ouabain-insensitive salt and water movements in duck red cells. III. The role of chloride in the volume response |
| 1957 | 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 |
| 1957 | Binding of [3H]ouabain to split frog skin: The role of the Na,K-ATPase in the generation of short circuit current |
| 1957 | Ouabain on active transepithelial sodium transport in frog skin: studies with microelectrodes |
| 1957 | Ouabain binding and coupled sodium, potassium, and chloride transport in isolated transverse tubules of skeletal muscle |
| 1957 | Inotropic effects and changes in sodium and calcium contents associated with inhibition of monovalent cation active transport by ouabain in cultured myocardial cells |
| 1957 | Effects of ouabain on fluid transport and electrical properties of Necturus gallbladder. Evidence in favor of a neutral basolateral sodium transport mechanism |
| 1958 | Kinetics and thermodynamics of ouabain binding by intact turkey erythrocytes: Effects of external sodium ion, potassium ion, and temperature |
| 1958 | [3H]Ouabain binding and Na+K+ATPase in resealed human red cell ghosts |
| 1959 | Intracellular sodium affects ouabain interaction with the Na/K pump in cultured chick cardiac myocytes |
| 1959 | Apparent affinity of the Na/K pump for ouabain in cultured chick cardiac myocytes. Effects of NaI and K0 |
| 1959 | Isoform-specific stimulation of cardiac Na/K pumps by nanomolar concentrations of glycosides |
| 1959 | Large diameter of palytoxin-induced Na/K pump channels and modulation of palytoxin interaction by Na/K pump ligands |
| 1959 | Palytoxin-induced effects on partial reactions of the Na,K-ATPase |
| 2002 | Ionic mechanisms of cardiac cell swelling induced by blocking Na+/K+ pump as revealed by experiments and simulation |