Nicholas P Franks

List of Publications by Year
in descending order

125 papers	18,936 citations	16411 64 h-index	17546 121 g-index
131 all docs	131 docs citations	131 times ranked	11252 citing authors

#	Article	IF	Citations
1	Molecular and cellular mechanisms of general anaesthesia. Nature, 1994, 367, 607-614.	13.7	1,738
2	Crystal structure of human serum albumin complexed with fatty acid reveals an asymmetric distribution of binding sites. Nature Structural Biology, 1998, 5, 827-835.	9.7	1,201
3	General anaesthesia: from molecular targets to neuronal pathways of sleep and arousal. Nature Reviews Neuroscience, 2008, 9, 370-386.	4.9	1,065
4	The Î±2-Adrenoceptor Agonist Dexmedetomidine Converges on an Endogenous Sleep-promoting Pathway to Exert Its Sedative Effects. Anesthesiology, 2003, 98, 428-436.	1.3	738
5	Crystal structure of firefly luciferase throws light on a superfamily of adenylate-forming enzymes. Structure, 1996, 4, 287-298.	1.6	594
6	Do general anaesthetics act by competitive binding to specific receptors?. Nature, 1984, 310, 599-601.	13.7	545
7	The sedative component of anesthesia is mediated by GABAA receptors in an endogenous sleep pathway. Nature Neuroscience, 2002, 5, 979-984.	7.1	535
8	Binding of the General Anesthetics Propofol and Halothane to Human Serum Albumin. Journal of Biological Chemistry, 2000, 275, 38731-38738.	1.6	468
9	How does xenon produce anaesthesia?. Nature, 1998, 396, 324-324.	13.7	455
10	Molecular mechanisms of general anaesthesia. Nature, 1982, 300, 487-493.	13.7	431
11	Fatty acid binding to human serum albumin: new insights from crystallographic studies. Biochimica Et Biophysica Acta - Molecular and Cell Biology of Lipids, 1999, 1441, 131-140.	1.2	429
12	Structural analysis of hydrated egg lecithin and cholesterol bilayers II. Neutron diffraction. Journal of Molecular Biology, 1976, 100, 359-378.	2.0	398
13	Structural analysis of hydrated egg lecithin and cholesterol bilayers I. X-ray diffraction. Journal of Molecular Biology, 1976, 100, 345-358.	2.0	346
14	Molecular targets underlying general anaesthesia. British Journal of Pharmacology, 2006, 147, S72-S81.	2.7	314
15	Two-Pore-Domain K+ Channels Are a Novel Target for the Anesthetic Gases Xenon, Nitrous Oxide, and Cyclopropane. Molecular Pharmacology, 2004, 65, 443-452.	1.0	294
16	Stereospecific effects of inhalational general anesthetic optical isomers on nerve ion channels. Science, 1991, 254, 427-430.	6.0	276
17	The structure of lipid bilayers and the effects of general anaesthetics. Journal of Molecular Biology, 1979, 133, 469-500.	2.0	259
18	Xenon Mitigates Isoflurane-induced Neuronal Apoptosis in the Developing Rodent Brain. Anesthesiology, 2007, 106, 746-753.	1.3	258

#	Article	IF	Citations
19	Dexmedetomidine produces its neuroprotective effect via the Î±2A-adrenoceptor subtype. European Journal of Pharmacology, 2004, 502, 87-97.	1.7	257
20	Where do general anaesthetics act?. Nature, 1978, 274, 339-342.	13.7	256
21	Xenon and hypothermia combine to provide neuroprotection from neonatal asphyxia. Annals of Neurology, 2005, 58, 182-193.	2.8	243
22	Mapping of general anaesthetic target sites provides a molecular basis for cutoff effects. Nature, 1985, 316, 349-351.	13.7	237
23	Competitive Inhibition at the Glycine Site of the <i>N</i>Â-Methyl-d-aspartate Receptor by the Anesthetics Xenon and Isoflurane. Anesthesiology, 2007, 107, 756-767.	1.3	222
24	Effects of Xenon on In VitroÂ and In VivoÂ Models of Neuronal Injury. Anesthesiology, 2002, 96, 1485-1491.	1.3	220
25	The Neuroprotective Effect of Xenon Administration during Transient Middle Cerebral Artery Occlusion in Mice. Anesthesiology, 2003, 99, 876-881.	1.3	210
26	Neuronal ensembles sufficient for recovery sleep and the sedative actions of Î±2 adrenergic agonists. Nature Neuroscience, 2015, 18, 553-561.	7.1	210
27	Role of endogenous sleepâ€wake and analgesic systems in anesthesia. Journal of Comparative Neurology, 2008, 508, 648-662.	0.9	207
28	Structural Basis for the Inhibition of Firefly Luciferase by a General Anesthetic. Biophysical Journal, 1998, 75, 2205-2211.	0.2	205
29	SELECTIVE ACTIONS OF VOLATILE GENERAL ANAESTHETICS AT MOLECULAR AND CELLULAR LEVELS. British Journal of Anaesthesia, 1993, 71, 65-76.	1.5	203
30	Volatile general anaesthetics activate a novel neuronal K+ current. Nature, 1988, 333, 662-664.	13.7	199
31	A propofol binding site on mammalian GABAA receptors identified by photolabeling. Nature Chemical Biology, 2013, 9, 715-720.	3.9	199
32	The TREK K2P channels and their role in general anaesthesia and neuroprotection. Trends in Pharmacological Sciences, 2004, 25, 601-608.	4.0	196
33	GABA and glutamate neurons in the VTA regulate sleep and wakefulness. Nature Neuroscience, 2019, 22, 106-119.	7.1	188
34	Moderate hypothermia within 6 h of birth plus inhaled xenon versus moderate hypothermia alone after birth asphyxia (TOBY-Xe): a proof-of-concept, open-label, randomised controlled trial. Lancet Neurology, The, 2016, 15, 145-153.	4.9	170
35	Xenon Attenuates Cardiopulmonary Bypassâ€"induced Neurologic and Neurocognitive Dysfunction in the Rat. Anesthesiology, 2003, 98, 690-698.	1.3	169
36	Xenon Preconditioning Reduces Brain Damage from Neonatal Asphyxia in Rats. Journal of Cerebral Blood Flow and Metabolism, 2006, 26, 199-208.	2.4	164

#	Article	IF	Citations
37	What is the molecular nature of general anaesthetic target sites?. Trends in Pharmacological Sciences, 1987, 8, 169-174.	4.0	155
38	Partitioning of long-chain alcohols into lipid bilayers: implications for mechanisms of general anesthesia.. Proceedings of the National Academy of Sciences of the United States of America, 1986, 83, 5116-5120.	3.3	153
39	The neuroprotective effects of xenon and helium in an in vitro model of traumatic brain injury*. Critical Care Medicine, 2008, 36, 588-595.	0.4	150
40	Wakefulness Is Governed by GABA and Histamine Cotransmission. Neuron, 2015, 87, 164-178.	3.8	136
41	The Involvement of Hypothalamic Sleep Pathways in General Anesthesia: Testing the Hypothesis Using the GABA_AReceptor Î²₃N265M Knock-In Mouse. Journal of Neuroscience, 2009, 29, 2177-2187.	1.7	123
42	Effects of inhalational general anaesthetics on native glycine receptors in rat medullary neurones and recombinant glycine receptors in <i>Xenopus</i> oocytes. British Journal of Pharmacology, 1996, 118, 493-502.	2.7	121
43	The effects of general anaesthetics on carbachol-evoked gamma oscillations in the rat hippocampus in vitro. Neuropharmacology, 2003, 44, 864-872.	2.0	120
44	Mechanisms of general anesthesia.. Environmental Health Perspectives, 1990, 87, 199-205.	2.8	119
45	The Temperature Dependence of Sleep. Frontiers in Neuroscience, 2019, 13, 336.	1.4	119
46	Sleep deprivation and stress: a reciprocal relationship. Interface Focus, 2020, 10, 20190092.	1.5	118
47	Altered Activity in the Central Medial Thalamus Precedes Changes in the Neocortex during Transitions into Both Sleep and Propofol Anesthesia. Journal of Neuroscience, 2014, 34, 13326-13335.	1.7	115
48	Stereoselective and nonâ€stereoselective actions of isoflurane on the GABA_A receptor. British Journal of Pharmacology, 1994, 112, 906-910.	2.7	105
49	Neuroprotection against Traumatic Brain Injury by Xenon, but Not Argon, Is Mediated by Inhibition at the <i>N</i>-Methyl-<scp>d</scp>-Aspartate Receptor Glycine Site. Anesthesiology, 2013, 119, 1137-1148.	1.3	105
50	A Neuronal Hub Binding Sleep Initiation and Body Cooling in Response to a Warm External Stimulus. Current Biology, 2018, 28, 2263-2273.e4.	1.8	99
51	Is membrane expansion relevant to anaesthesia?. Nature, 1981, 292, 248-251.	13.7	98
52	Molecular Organization of Liquid n-Octanol: An X-ray Diffraction Analysis. Journal of Pharmaceutical Sciences, 1993, 82, 466-470.	1.6	97
53	Xenon: no stranger to anaesthesia. British Journal of Anaesthesia, 2003, 91, 709-717.	1.5	95
54	GABAergic Inhibition of Histaminergic Neurons Regulates Active Waking But Not the Sleepâ€“Wake Switch or Propofol-Induced Loss of Consciousness. Journal of Neuroscience, 2012, 32, 13062-13075.	1.7	89

#	Article	IF	Citations
55	Bench-to-bedside review: Molecular pharmacology and clinical use of inert gases in anesthesia and neuroprotection. Critical Care, 2010, 14, 229.	2.5	87
56	Competitive Inhibition at the Glycine Site of the NÂ-Methyl-d-Aspartate Receptor Mediates Xenon Neuroprotection against Hypoxiaâ€"Ischemia. Anesthesiology, 2010, 112, 614-622.	1.3	86
57	Actions of general anaesthetics on 5â€HT₃ receptors in N1Eâ€115 neuroblastoma cells. British Journal of Pharmacology, 1996, 117, 1507-1515.	2.7	85
58	Role of Hydrogen Bonding in General Anesthesia. Journal of Pharmaceutical Sciences, 1991, 80, 719-724.	1.6	83
59	Sleep and general anesthesia. Canadian Journal of Anaesthesia, 2011, 58, 139-148.	0.7	82
60	Modulation of the general anesthetic sensitivity of a protein: a transition between two forms of firefly luciferase.. Proceedings of the National Academy of Sciences of the United States of America, 1991, 88, 134-138.	3.3	81
61	Anaesthetics set their sites on ion channels. Nature, 1997, 389, 334-335.	13.7	81
62	An unexpected role for TASK-3 potassium channels in network oscillations with implications for sleep mechanisms and anesthetic action. Proceedings of the National Academy of Sciences of the United States of America, 2009, 106, 17546-17551.	3.3	80
63	Circadian Factor BMAL1 in Histaminergic Neurons Regulates Sleep Architecture. Current Biology, 2014, 24, 2838-2844.	1.8	74
64	Histamine: neural circuits and new medications. Sleep, 2019, 42, .	0.6	71
65	Can the stereoselective effects of the anesthetic isoflurane be accounted for by lipid solubility?. Biophysical Journal, 1994, 66, 2019-2023.	0.2	70
66	Galanin Neurons Unite Sleep Homeostasis and Î±2-Adrenergic Sedation. Current Biology, 2019, 29, 3315-3322.e3.	1.8	66
67	Excitatory Pathways from the Lateral Habenula Enable Propofol-Induced Sedation. Current Biology, 2018, 28, 580-587.e5.	1.8	65
68	Neuroprotective interaction produced by xenon and dexmedetomidine on in vitro and in vivo neuronal injury models. Neuroscience Letters, 2006, 409, 128-133.	1.0	64
69	Asynchronous administration of xenon and hypothermia significantly reduces brain infarction in the neonatal rat. British Journal of Anaesthesia, 2007, 98, 236-240.	1.5	61
70	Xenon Neuroprotection in Experimental Stroke. Anesthesiology, 2012, 117, 1262-1275.	1.3	60
71	Xenon Improves Neurologic Outcome and Reduces Secondary Injury Following Trauma in an In Vivo Model of Traumatic Brain Injury*. Critical Care Medicine, 2015, 43, 149-158.	0.4	59
72	Thermodynamics of anesthetic/protein interactions. Temperature studies on firefly luciferase. Biophysical Journal, 1993, 64, 1264-1271.	0.2	58

#	Article	IF	Citations
73	Are Extrasynaptic GABA_AReceptors Important Targets for Sedative/Hypnotic Drugs?. Journal of Neuroscience, 2012, 32, 3887-3897.	1.7	58
74	Sleep and thermoregulation. Current Opinion in Physiology, 2020, 15, 7-13.	0.9	54
75	Xenon improves long-term cognitive function, reduces neuronal loss and chronic neuroinflammation, and improves survival after traumatic brain injury in mice. British Journal of Anaesthesia, 2019, 123, 60-73.	1.5	52
76	Anesthetic inhibition of firefly luciferase, a protein model for general anesthesia, does not exhibit pressure reversal. Biophysical Journal, 1991, 60, 1309-1314.	0.2	49
77	Feasibility and Safety of Delivering Xenon to Patients Undergoing Coronary Artery Bypass Graft Surgery While on Cardiopulmonary Bypass. Anesthesiology, 2006, 104, 458-465.	1.3	48
78	Determinants of the Anesthetic Sensitivity of Two-pore Domain Acid-sensitive Potassium Channels. Journal of Biological Chemistry, 2007, 282, 20977-20990.	1.6	45
79	The Common Chemical Motifs Within Anesthetic Binding Sites. Anesthesia and Analgesia, 2007, 104, 318-324.	1.1	45
80	Preparation of Barbiturate Optical Isomers and Their Effects on GABA (A) Receptors. Anesthesiology, 1999, 90, 1714-1722..	1.3	44
81	Actions of general anaesthetics on a neuronal nicotinic acetylcholine receptor in isolated identified neurones of <i>Lymnaea stagnalis</i>. British Journal of Pharmacology, 1995, 115, 275-282.	2.7	43
82	Seeing the Light. Anesthesiology, 2004, 101, 235-237.	1.3	41
83	Identification of Two Mutations (F758W and F758Y) in the <i>N</i>Â-methyl-D-aspartate Receptor Glycine-binding Site that Selectively Prevent Competitive Inhibition by Xenon without Affecting Glycine Binding. Anesthesiology, 2012, 117, 38-47.	1.3	40
84	Background K+ channels: an important target for volatile anesthetics?. Nature Neuroscience, 1999, 2, 395-396.	7.1	39
85	Determinants of the Sensitivity of AMPA Receptors to Xenon. Anesthesiology, 2004, 100, 347-358.	1.3	39
86	A direct method for determination of membrane electron density profiles on an absolute scale. Nature, 1978, 276, 530-532.	13.7	38
87	Sleep and Sedative States Induced by Targeting the Histamine and Noradrenergic Systems. Frontiers in Neural Circuits, 2018, 12, 4.	1.4	38
88	A specific circuit in the midbrain detects stress and induces restorative sleep. Science, 2022, 377, 63-72.	6.0	36
89	Noble gas neuroprotection: xenon and argon protect against hypoxicâ€“ischaemic injury in rat hippocampus inÂvitro via distinct mechanisms. British Journal of Anaesthesia, 2019, 123, 601-609.	1.5	35
90	Bottom-Up versus Top-Down Induction of Sleep by Zolpidem Acting on Histaminergic and Neocortex Neurons. Journal of Neuroscience, 2016, 36, 11171-11184.	1.7	34

#	Article	IF	Citations
91	The inescapable drive to sleep: Overlapping mechanisms of sleep and sedation. Science, 2021, 374, 556-559.	6.0	34
92	Combination of Xenon and Isoflurane Produces a Synergistic Protective Effect against Oxygenâ€“Glucose Deprivation Injury in a Neuronalâ€“Glial Co-culture Model. Anesthesiology, 2003, 99, 748-751.	1.3	32
93	Rested and Refreshed after Anesthesia? Overlapping Neurobiologic Mechanisms of Sleep and Anesthesia. Anesthesiology, 2004, 100, 1341-1342.	1.3	32
94	The Differential Effects of Nitrous Oxide and Xenon on Extracellular Dopamine Levels in the Rat Nucleus Accumbens: A Microdialysis Study. Anesthesia and Analgesia, 2006, 103, 1459-1463.	1.1	32
95	Dysfunction of ventral tegmental area GABA neurons causes mania-like behavior. Molecular Psychiatry, 2021, 26, 5213-5228.	4.1	31
96	Expansion of Gas Bubbles by Nitrous Oxide and Xenon. Anesthesiology, 2006, 104, 299-302.	1.3	30
97	Structural Comparisons of Ligand-gated Ion Channels in Open, Closed, and Desensitized States Identify a Novel Propofol-binding Site on Mammalian Î³-Aminobutyric Acid Type A Receptors. Anesthesiology, 2015, 122, 787-794.	1.3	30
98	Xenon Protects against Blast-Induced Traumatic Brain Injury in an <i>In Vitro</i> Model. Journal of Neurotrauma, 2018, 35, 1037-1044.	1.7	30
99	Staying awake â€“ a genetic region that hinders Î±₂ adrenergic receptor agonistâ€induced sleep. European Journal of Neuroscience, 2014, 40, 2311-2319.	1.2	28
100	The effects of hypoxia on the modulation of human TREK-1 potassium channels. Journal of Physiology, 2005, 562, 205-212.	1.3	26
101	General Anesthesia and Ascending Arousal Pathways. Anesthesiology, 2009, 111, 695-696.	1.3	23
102	Two-pore domain potassium channels enable action potential generation in the absence of voltage-gated potassium channels. Pflugers Archiv European Journal of Physiology, 2015, 467, 989-999.	1.3	22
103	Xenon Exerts Age-independent Antinociception in Fischer Rats. Anesthesiology, 2004, 100, 1313-1318.	1.3	21
104	Selective Synaptic Actions of Thiopental and Its Enantiomers. Anesthesiology, 2002, 96, 884-892.	1.3	20
105	Mutational Analysis of the Putative High-Affinity Propofol Binding Site in Human <i>Î²</i>3 Homomeric GABA_A Receptors. Molecular Pharmacology, 2015, 88, 736-745.	1.0	20
106	Effects of temperature on the anaesthetic potency of halothane, enflurane and ethanol in Daphnia magna (Cladocera: Crustacea). Comparative Biochemistry and Physiology Part C: Comparative Pharmacology, 1992, 101, 15-19.	0.2	19
107	Molecular Modeling of a Tandem Two Pore Domain Potassium Channel Reveals a Putative Binding Site for General Anesthetics. ACS Chemical Neuroscience, 2014, 5, 1246-1252.	1.7	19
108	Activation and modulation of recombinant glycine and GABA_A receptors by 4â€halogenated analogues of propofol. British Journal of Pharmacology, 2016, 173, 3110-3120.	2.7	19

#	Article	IF	Citations
109	Determinants of the Anesthetic Sensitivity of Neuronal Nicotinic Acetylcholine Receptors. Journal of Biological Chemistry, 2002, 277, 10367-10373.	1.6	18
110	Genetic lesioning of histamine neurons increases sleepâ€“wake fragmentation and reveals their contribution to modafinil-induced wakefulness. Sleep, 2019, 42, .	0.6	17
111	A serious target for laughing gas. Nature Medicine, 1998, 4, 383-384.	15.2	16
112	Xenon treatment after severe traumatic brain injury improves locomotor outcome, reduces acute neuronal loss and enhances early beneficial neuroinflammation: a randomized, blinded, controlled animal study. Critical Care, 2020, 24, 667.	2.5	16
113	nNOS-Expressing Neurons in the Ventral Tegmental Area and Substantia Nigra Pars Compacta. ENeuro, 2018, 5, ENEURO.0381-18.2018.	0.9	14
114	Selectivity of general anesthetics: A new dimension. Nature Medicine, 1997, 3, 377-378.	15.2	13
115	NMDA Receptors in the Lateral Preoptic Hypothalamus Are Essential for Sustaining NREM and REM Sleep. Journal of Neuroscience, 2022, 42, 5389-5409.	1.7	12
116	Identification of Anesthetic Binding Sites on Human Serum Albumin Using a Novel Etomidate Photolabel. Journal of Biological Chemistry, 2007, 282, 12038-12047.	1.6	9
117	Modulation of GABA A receptor function and sleep. Current Opinion in Physiology, 2018, 2, 51-57.	0.9	7
118	Fast and Slow Inhibition in the Visual Thalamus Is Influenced by Allocating GABAA Receptors with Different Î³ Subunits. Frontiers in Cellular Neuroscience, 2017, 11, 95.	1.8	5
119	Nitric Oxide Synthase Neurons in the Preoptic Hypothalamus Are NREM and REM Sleep-Active and Lower Body Temperature. Frontiers in Neuroscience, 2021, 15, 709825.	1.4	5
120	Brain Clocks, Sleep, and Mood. Advances in Experimental Medicine and Biology, 2021, 1344, 71-86.	0.8	4
121	The stillness of sleep. Science, 2020, 367, 366-367.	6.0	3
122	The Unfolding Story of How General Anesthetics Act. , 2014, , 597-608.		2
123	Xenon prevents early neuronal loss and neuroinflammation in a rat model of traumatic brain injury. British Journal of Anaesthesia, 2019, 123, e508-e509.	1.5	0
124	A Miniature Neural Recording Device to Investigate Sleep and Temperature Regulation in Mice. , 2019, , .		0
125	The Mechanistic Relationship between NREM Sleep and Anesthesia. , 2006, , 43-52.		0