

# Nicholas P Franks

## List of Publications by Citations

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121  
papers

15,538  
citations

60  
h-index

124  
g-index

131  
ext. papers

17,142  
ext. citations

11.4  
avg, IF

6.67  
L-index

#	Paper	IF	Citations
121	Molecular and cellular mechanisms of general anaesthesia. <i>Nature</i> , <b>1994</b> , 367, 607-14	50.4	1486
120	Crystal structure of human serum albumin complexed with fatty acid reveals an asymmetric distribution of binding sites. <i>Nature Structural Biology</i> , <b>1998</b> , 5, 827-35		1080
119	General anaesthesia: from molecular targets to neuronal pathways of sleep and arousal. <i>Nature Reviews Neuroscience</i> , <b>2008</b> , 9, 370-86	13.5	860
118	The alpha2-adrenoceptor agonist dexmedetomidine converges on an endogenous sleep-promoting pathway to exert its sedative effects. <i>Anesthesiology</i> , <b>2003</b> , 98, 428-36	4.3	584
117	Crystal structure of firefly luciferase throws light on a superfamily of adenylate-forming enzymes. <i>Structure</i> , <b>1996</b> , 4, 287-98	5.2	515
116	Do general anaesthetics act by competitive binding to specific receptors?. <i>Nature</i> , <b>1984</b> , 310, 599-601	50.4	463
115	The sedative component of anesthesia is mediated by GABA(A) receptors in an endogenous sleep pathway. <i>Nature Neuroscience</i> , <b>2002</b> , 5, 979-84	25.5	452
114	Binding of the general anesthetics propofol and halothane to human serum albumin. High resolution crystal structures. <i>Journal of Biological Chemistry</i> , <b>2000</b> , 275, 38731-8	5.4	423
113	Fatty acid binding to human serum albumin: new insights from crystallographic studies. <i>Biochimica Et Biophysica Acta - Molecular and Cell Biology of Lipids</i> , <b>1999</b> , 1441, 131-40	5	387
112	Molecular mechanisms of general anaesthesia. <i>Nature</i> , <b>1982</b> , 300, 487-93	50.4	381
111	Structural analysis of hydrated egg lecithin and cholesterol bilayers. II. Neutrol diffraction. <i>Journal of Molecular Biology</i> , <b>1976</b> , 100, 359-78	6.5	372
110	How does xenon produce anaesthesia?. <i>Nature</i> , <b>1998</b> , 396, 324	50.4	368
109	Molecular targets underlying general anaesthesia. <i>British Journal of Pharmacology</i> , <b>2006</b> , 147 Suppl 1, S72-81	8.6	258
108	Structural analysis of hydrated egg lecithin and cholesterol bilayers. I. X-ray diffraction. <i>Journal of Molecular Biology</i> , <b>1976</b> , 100, 345-58	6.5	255
107	Two-pore-domain K <sup>+</sup> channels are a novel target for the anesthetic gases xenon, nitrous oxide, and cyclopropane. <i>Molecular Pharmacology</i> , <b>2004</b> , 65, 443-52	4.3	249
106	The structure of lipid bilayers and the effects of general anaesthetics. An x-ray and neutron diffraction study. <i>Journal of Molecular Biology</i> , <b>1979</b> , 133, 469-500	6.5	235
105	Stereospecific effects of inhalational general anesthetic optical isomers on nerve ion channels. <i>Science</i> , <b>1991</b> , 254, 427-30	33.3	225

104	Where do general anaesthetics act?. <i>Nature</i> , <b>1978</b> , 274, 339-42	50.4	223
103	Mapping of general anaesthetic target sites provides a molecular basis for cutoff effects. <i>Nature</i> , <b>1985</b> , 316, 349-51	50.4	218
102	Xenon mitigates isoflurane-induced neuronal apoptosis in the developing rodent brain. <i>Anesthesiology</i> , <b>2007</b> , 106, 746-53	4.3	216
101	Dexmedetomidine produces its neuroprotective effect via the alpha 2A-adrenoceptor subtype. <i>European Journal of Pharmacology</i> , <b>2004</b> , 502, 87-97	5.3	209
100	Xenon and hypothermia combine to provide neuroprotection from neonatal asphyxia. <i>Annals of Neurology</i> , <b>2005</b> , 58, 182-93	9.4	208
99	Structural basis for the inhibition of firefly luciferase by a general anesthetic. <i>Biophysical Journal</i> , <b>1998</b> , 75, 2205-11	2.9	188
98	Effects of xenon on in vitro and in vivo models of neuronal injury. <i>Anesthesiology</i> , <b>2002</b> , 96, 1485-91	4.3	185
97	Competitive inhibition at the glycine site of the N-methyl-D-aspartate receptor by the anesthetics xenon and isoflurane: evidence from molecular modeling and electrophysiology. <i>Anesthesiology</i> , <b>2007</b> , 107, 756-67	4.3	185
96	The neuroprotective effect of xenon administration during transient middle cerebral artery occlusion in mice. <i>Anesthesiology</i> , <b>2003</b> , 99, 876-81	4.3	182
95	Volatile general anaesthetics activate a novel neuronal K <sup>+</sup> current. <i>Nature</i> , <b>1988</b> , 333, 662-4	50.4	177
94	The TREK K <sub>2</sub> P channels and their role in general anaesthesia and neuroprotection. <i>Trends in Pharmacological Sciences</i> , <b>2004</b> , 25, 601-8	13.2	175
93	A propofol binding site on mammalian GABA <sub>A</sub> receptors identified by photolabeling. <i>Nature Chemical Biology</i> , <b>2013</b> , 9, 715-20	11.7	168
92	Role of endogenous sleep-wake and analgesic systems in anesthesia. <i>Journal of Comparative Neurology</i> , <b>2008</b> , 508, 648-62	3.4	168
91	Selective actions of volatile general anaesthetics at molecular and cellular levels. <i>British Journal of Anaesthesia</i> , <b>1993</b> , 71, 65-76	5.4	145
90	Xenon attenuates cardiopulmonary bypass-induced neurologic and neurocognitive dysfunction in the rat. <i>Anesthesiology</i> , <b>2003</b> , 98, 690-8	4.3	144
89	Xenon preconditioning reduces brain damage from neonatal asphyxia in rats. <i>Journal of Cerebral Blood Flow and Metabolism</i> , <b>2006</b> , 26, 199-208	7.3	143
88	What is the molecular nature of general anaesthetic target sites?. <i>Trends in Pharmacological Sciences</i> , <b>1987</b> , 8, 169-174	13.2	138
87	Partitioning of long-chain alcohols into lipid bilayers: implications for mechanisms of general anesthesia. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , <b>1986</b> , 83, 5116-20	11.5	137

86	Neuronal ensembles sufficient for recovery sleep and the sedative actions of $\alpha$ adrenergic agonists. <i>Nature Neuroscience</i> , <b>2015</b> , 18, 553-561	25.5	136
85	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. <i>Lancet Neurology, The</i> , <b>2016</b> , 15, 145-153	24.1	133
84	The neuroprotective effects of xenon and helium in an in vitro model of traumatic brain injury. <i>Critical Care Medicine</i> , <b>2008</b> , 36, 588-95	1.4	122
83	Mechanisms of general anesthesia. <i>Environmental Health Perspectives</i> , <b>1990</b> , 87, 199-205	8.4	107
82	Effects of inhalational general anaesthetics on native glycine receptors in rat medullary neurones and recombinant glycine receptors in <i>Xenopus</i> oocytes. <i>British Journal of Pharmacology</i> , <b>1996</b> , 118, 493-502	8.6	103
81	The involvement of hypothalamic sleep pathways in general anesthesia: testing the hypothesis using the GABAA receptor beta3N265M knock-in mouse. <i>Journal of Neuroscience</i> , <b>2009</b> , 29, 2177-87	6.6	100
80	Wakefulness Is Governed by GABA and Histamine Cotransmission. <i>Neuron</i> , <b>2015</b> , 87, 164-78	13.9	99
79	The effects of general anaesthetics on carbachol-evoked gamma oscillations in the rat hippocampus in vitro. <i>Neuropharmacology</i> , <b>2003</b> , 44, 864-72	5.5	91
78	Is membrane expansion relevant to anaesthesia?. <i>Nature</i> , <b>1981</b> , 292, 248-51	50.4	90
77	Altered activity in the central medial thalamus precedes changes in the neocortex during transitions into both sleep and propofol anesthesia. <i>Journal of Neuroscience</i> , <b>2014</b> , 34, 13326-35	6.6	83
76	GABA and glutamate neurons in the VTA regulate sleep and wakefulness. <i>Nature Neuroscience</i> , <b>2019</b> , 22, 106-119	25.5	83
75	Neuroprotection against traumatic brain injury by xenon, but not argon, is mediated by inhibition at the N-methyl-D-aspartate receptor glycine site. <i>Anesthesiology</i> , <b>2013</b> , 119, 1137-48	4.3	82
74	Stereoselective and non-stereoselective actions of isoflurane on the GABAA receptor. <i>British Journal of Pharmacology</i> , <b>1994</b> , 112, 906-10	8.6	81
73	Molecular organization of liquid n-octanol: an X-ray diffraction analysis. <i>Journal of Pharmaceutical Sciences</i> , <b>1993</b> , 82, 466-70	3.9	79
72	Xenon: no stranger to anaesthesia. <i>British Journal of Anaesthesia</i> , <b>2003</b> , 91, 709-17	5.4	74
71	GABAergic inhibition of histaminergic neurons regulates active waking but not the sleep-wake switch or propofol-induced loss of consciousness. <i>Journal of Neuroscience</i> , <b>2012</b> , 32, 13062-75	6.6	72
70	An unexpected role for TASK-3 potassium channels in network oscillations with implications for sleep mechanisms and anesthetic action. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , <b>2009</b> , 106, 17546-51	11.5	71
69	Actions of general anaesthetics on 5-HT3 receptors in N1E-115 neuroblastoma cells. <i>British Journal of Pharmacology</i> , <b>1996</b> , 117, 1507-15	8.6	69

68	Modulation of the general anesthetic sensitivity of a protein: a transition between two forms of firefly luciferase. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , <b>1991</b> , 88, 134-8	11.5	69
67	Competitive inhibition at the glycine site of the N-methyl-D-aspartate receptor mediates xenon neuroprotection against hypoxia-ischemia. <i>Anesthesiology</i> , <b>2010</b> , 112, 614-22	4.3	68
66	Bench-to-bedside review: Molecular pharmacology and clinical use of inert gases in anesthesia and neuroprotection. <i>Critical Care</i> , <b>2010</b> , 14, 229	10.8	67
65	Role of hydrogen bonding in general anesthesia. <i>Journal of Pharmaceutical Sciences</i> , <b>1991</b> , 80, 719-24	3.9	67
64	Sleep and general anesthesia. <i>Canadian Journal of Anaesthesia</i> , <b>2011</b> , 58, 139-48	3	64
63	A Neuronal Hub Binding Sleep Initiation and Body Cooling in Response to a Warm External Stimulus. <i>Current Biology</i> , <b>2018</b> , 28, 2263-2273.e4	6.3	62
62	Circadian factor BMAL1 in histaminergic neurons regulates sleep architecture. <i>Current Biology</i> , <b>2014</b> , 24, 2838-44	6.3	60
61	Can the stereoselective effects of the anesthetic isoflurane be accounted for by lipid solubility?. <i>Biophysical Journal</i> , <b>1994</b> , 66, 2019-23	2.9	58
60	Neuroprotective interaction produced by xenon and dexmedetomidine on in vitro and in vivo neuronal injury models. <i>Neuroscience Letters</i> , <b>2006</b> , 409, 128-33	3.3	57
59	Are extrasynaptic GABAA receptors important targets for sedative/hypnotic drugs?. <i>Journal of Neuroscience</i> , <b>2012</b> , 32, 3887-97	6.6	54
58	The Temperature Dependence of Sleep. <i>Frontiers in Neuroscience</i> , <b>2019</b> , 13, 336	5.1	53
57	Asynchronous administration of xenon and hypothermia significantly reduces brain infarction in the neonatal rat. <i>British Journal of Anaesthesia</i> , <b>2007</b> , 98, 236-40	5.4	50
56	Thermodynamics of anesthetic/protein interactions. Temperature studies on firefly luciferase. <i>Biophysical Journal</i> , <b>1993</b> , 64, 1264-71	2.9	50
55	Xenon neuroprotection in experimental stroke: interactions with hypothermia and intracerebral hemorrhage. <i>Anesthesiology</i> , <b>2012</b> , 117, 1262-75	4.3	49
54	Anesthetic inhibition of firefly luciferase, a protein model for general anesthesia, does not exhibit pressure reversal. <i>Biophysical Journal</i> , <b>1991</b> , 60, 1309-14	2.9	43
53	The common chemical motifs within anesthetic binding sites. <i>Anesthesia and Analgesia</i> , <b>2007</b> , 104, 318-24	3.9	42
52	Preparation of barbiturate optical isomers and their effects on GABA(A) receptors. <i>Anesthesiology</i> , <b>1999</b> , 90, 1714-22	4.3	42
51	Xenon improves neurologic outcome and reduces secondary injury following trauma in an in vivo model of traumatic brain injury. <i>Critical Care Medicine</i> , <b>2015</b> , 43, 149-158	1.4	41

50	Histamine: neural circuits and new medications. <i>Sleep</i> , <b>2019</b> , 42,	1.1	41
49	Determinants of the anesthetic sensitivity of two-pore domain acid-sensitive potassium channels: molecular cloning of an anesthetic-activated potassium channel from <i>Lymnaea stagnalis</i> . <i>Journal of Biological Chemistry</i> , <b>2007</b> , 282, 20977-90	5.4	38
48	Actions of general anaesthetics on a neuronal nicotinic acetylcholine receptor in isolated identified neurones of <i>Lymnaea stagnalis</i> . <i>British Journal of Pharmacology</i> , <b>1995</b> , 115, 275-82	8.6	38
47	A direct method for determination of membrane electron density profiles on an absolute scale. <i>Nature</i> , <b>1978</b> , 276, 530-2	50.4	38
46	Feasibility and safety of delivering xenon to patients undergoing coronary artery bypass graft surgery while on cardiopulmonary bypass: phase I study. <i>Anesthesiology</i> , <b>2006</b> , 104, 458-65	4.3	35
45	Seeing the light: protein theories of general anesthesia. 1984. <i>Anesthesiology</i> , <b>2004</b> , 101, 235-7	4.3	35
44	Galanin Neurons Unite Sleep Homeostasis and $\alpha$ -Adrenergic Sedation. <i>Current Biology</i> , <b>2019</b> , 29, 3315-3323.e3	3.3	34
43	Sleep deprivation and stress: a reciprocal relationship. <i>Interface Focus</i> , <b>2020</b> , 10, 20190092	3.9	34
42	Xenon improves long-term cognitive function, reduces neuronal loss and chronic neuroinflammation, and improves survival after traumatic brain injury in mice. <i>British Journal of Anaesthesia</i> , <b>2019</b> , 123, 60-73	5.4	33
41	Identification of two mutations (F758W and F758Y) in the N-methyl-D-aspartate receptor glycine-binding site that selectively prevent competitive inhibition by xenon without affecting glycine binding. <i>Anesthesiology</i> , <b>2012</b> , 117, 38-47	4.3	33
40	Determinants of the sensitivity of AMPA receptors to xenon. <i>Anesthesiology</i> , <b>2004</b> , 100, 347-58	4.3	32
39	Excitatory Pathways from the Lateral Habenula Enable Propofol-Induced Sedation. <i>Current Biology</i> , <b>2018</b> , 28, 580-587.e5	6.3	31
38	The differential effects of nitrous oxide and xenon on extracellular dopamine levels in the rat nucleus accumbens: a microdialysis study. <i>Anesthesia and Analgesia</i> , <b>2006</b> , 103, 1459-63	3.9	29
37	Structural comparisons of ligand-gated ion channels in open, closed, and desensitized states identify a novel propofol-binding site on mammalian $\gamma$ -aminobutyric acid type A receptors. <i>Anesthesiology</i> , <b>2015</b> , 122, 787-94	4.3	28
36	Sleep and Sedative States Induced by Targeting the Histamine and Noradrenergic Systems. <i>Frontiers in Neural Circuits</i> , <b>2018</b> , 12, 4	3.5	27
35	Combination of xenon and isoflurane produces a synergistic protective effect against oxygen-glucose deprivation injury in a neuronal-gial co-culture model. <i>Anesthesiology</i> , <b>2003</b> , 99, 748-51	4.3	27
34	Rested and refreshed after anesthesia? Overlapping neurobiologic mechanisms of sleep and anesthesia. <i>Anesthesiology</i> , <b>2004</b> , 100, 1341-2	4.3	27
33	Noble gas neuroprotection: xenon and argon protect against hypoxic-ischaemic injury in rat hippocampus <i>in vitro</i> via distinct mechanisms. <i>British Journal of Anaesthesia</i> , <b>2019</b> , 123, 601-609	5.4	25

32	The effects of hypoxia on the modulation of human TREK-1 potassium channels. <i>Journal of Physiology</i> , <b>2005</b> , 562, 205-12	3.9	24
31	Bottom-Up versus Top-Down Induction of Sleep by Zolpidem Acting on Histaminergic and Neocortex Neurons. <i>Journal of Neuroscience</i> , <b>2016</b> , 36, 11171-11184	6.6	22
30	General anesthesia and ascending arousal pathways. <i>Anesthesiology</i> , <b>2009</b> , 111, 695-6	4.3	21
29	Expansion of gas bubbles by nitrous oxide and xenon. <i>Anesthesiology</i> , <b>2006</b> , 104, 299-302	4.3	21
28	Xenon exerts age-independent antinociception in Fischer rats. <i>Anesthesiology</i> , <b>2004</b> , 100, 1313-8	4.3	20
27	Mutational Analysis of the Putative High-Affinity Propofol Binding Site in Human $\beta$ Homomeric GABAA Receptors. <i>Molecular Pharmacology</i> , <b>2015</b> , 88, 736-45	4.3	19
26	Staying awake--a genetic region that hinders $\beta$ adrenergic receptor agonist-induced sleep. <i>European Journal of Neuroscience</i> , <b>2014</b> , 40, 2311-9	3.5	19
25	Two-pore domain potassium channels enable action potential generation in the absence of voltage-gated potassium channels. <i>Pflugers Archiv European Journal of Physiology</i> , <b>2015</b> , 467, 989-99	4.6	18
24	Xenon Protects against Blast-Induced Traumatic Brain Injury in an In Vitro Model. <i>Journal of Neurotrauma</i> , <b>2018</b> , 35, 1037-1044	5.4	18
23	Sleep and thermoregulation. <i>Current Opinion in Physiology</i> , <b>2020</b> , 15, 7-13	2.6	18
22	Molecular modeling of a tandem two pore domain potassium channel reveals a putative binding site for general anesthetics. <i>ACS Chemical Neuroscience</i> , <b>2014</b> , 5, 1246-52	5.7	17
21	Determinants of the anesthetic sensitivity of neuronal nicotinic acetylcholine receptors. <i>Journal of Biological Chemistry</i> , <b>2002</b> , 277, 10367-73	5.4	17
20	Selective synaptic actions of thiopental and its enantiomers. <i>Anesthesiology</i> , <b>2002</b> , 96, 884-92	4.3	17
19	Effects of temperature on the anaesthetic potency of halothane, enflurane and ethanol in <i>Daphnia magna</i> (Cladocera: Crustacea). <i>Comparative Biochemistry and Physiology Part C: Comparative Pharmacology</i> , <b>1992</b> , 101, 15-9		17
18	Activation and modulation of recombinant glycine and GABA receptors by 4-halogenated analogues of propofol. <i>British Journal of Pharmacology</i> , <b>2016</b> , 173, 3110-3120	8.6	14
17	Genetic lesioning of histamine neurons increases sleep-wake fragmentation and reveals their contribution to modafinil-induced wakefulness. <i>Sleep</i> , <b>2019</b> , 42,	1.1	11
16	nNOS-Expressing Neurons in the Ventral Tegmental Area and Substantia Nigra Pars Compacta. <i>ENeuro</i> , <b>2018</b> , 5,	3.9	11
15	Identification of anesthetic binding sites on human serum albumin using a novel etomidate photolabel. <i>Journal of Biological Chemistry</i> , <b>2007</b> , 282, 12038-47	5.4	9



14	Dysfunction of ventral tegmental area GABA neurons causes mania-like behavior. <i>Molecular Psychiatry</i> , <b>2021</b> , 26, 5213-5228	15.1	7
13	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. <i>Critical Care</i> , <b>2020</b> , 24, 667	10.8	7
12	Fast and Slow Inhibition in the Visual Thalamus Is Influenced by Allocating GABA Receptors with Different $\beta$ Subunits. <i>Frontiers in Cellular Neuroscience</i> , <b>2017</b> , 11, 95	6.1	4
11	The inescapable drive to sleep: Overlapping mechanisms of sleep and sedation. <i>Science</i> , <b>2021</b> , 374, 556-559	5.5	4
10	Modulation of GABA A receptor function and sleep. <i>Current Opinion in Physiology</i> , <b>2018</b> , 2, 51-57	2.6	3
9	Nitric Oxide Synthase Neurons in the Preoptic Hypothalamus Are NREM and REM Sleep-Active and Lower Body Temperature. <i>Frontiers in Neuroscience</i> , <b>2021</b> , 15, 709825	5.1	2
8	Sleep deprivation triggers somatostatin neurons in prefrontal cortex to initiate nesting and sleep via the preoptic and lateral hypothalamus		2
7	Hypothalamic NMDA receptors stabilize NREM sleep and are essential for REM sleep		2
6	Galanin neurons in the hypothalamus link sleep homeostasis, body temperature and actions of the $\alpha$ adrenergic agonist dexmedetomidine		2
5	The Unfolding Story of How General Anesthetics Act <b>2014</b> , 597-608		2
4	The stillness of sleep. <i>Science</i> , <b>2020</b> , 367, 366-367	33.3	1
3	Xenon prevents early neuronal loss and neuroinflammation in a rat model of traumatic brain injury. <i>British Journal of Anaesthesia</i> , <b>2019</b> , 123, e508-e509	5.4	
2	Brain Clocks, Sleep, and Mood. <i>Advances in Experimental Medicine and Biology</i> , <b>2021</b> , 1344, 71-86	3.6	
1	The Mechanistic Relationship between NREM Sleep and Anesthesia <b>2006</b> , 43-52		