Peter Hegemann

List of Publications by Year in descending order

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139 20,977 64 137 papers citations h-index g-index

157 157 15032 all docs docs citations times ranked citing authors

#	Article	IF	CITATIONS
1	Optogenetic tools for manipulation of cyclic nucleotides functionally coupled to cyclic nucleotideâ€gated channels. British Journal of Pharmacology, 2022, 179, 2519-2537.	5.4	6
2	Tailoring Organic LEDs for Bidirectional Optogenetic Control via Dualâ€Color Switching. Advanced Functional Materials, 2022, 32, 2110590.	14.9	8
3	Gene Editing in Green Alga Chlamydomonas reinhardtii via CRISPR-Cas9 Ribonucleoproteins. Methods in Molecular Biology, 2022, 2379, 45-65.	0.9	17
4	A cytoplasmic protein kinase couples engagement of <i>Chlamydomonas</i> ciliary receptors to cAMP-dependent cellular responses. Journal of Cell Science, 2022, 135, .	2.0	1
5	Rhodopsin-bestrophin fusion proteins from unicellular algae form gigantic pentameric ion channels. Nature Structural and Molecular Biology, 2022, 29, 592-603.	8.2	23
6	Aion is a bistable anion-conducting channelrhodopsin that provides temporally extended and reversible neuronal silencing. Communications Biology, 2022, 5, .	4.4	3
7	Time-resolved serial femtosecond crystallography reveals early structural changes in channelrhodopsin. ELife, 2021, 10, .	6.0	41
8	 'chlamydomonas 'i> POLQ is necessary for CRISPR/Cas9-mediated gene targeting. G3: Genes, Genomes, Genetics, 2021, 11, .	1.8	13
9	Conformational changes of a membrane protein determined by infrared difference spectroscopy beyond the diffraction limit. Physical Review Applied, 2021, 16, .	3.8	8
10	BiPOLES is an optogenetic tool developed for bidirectional dual-color control of neurons. Nature Communications, 2021, 12, 4527.	12.8	73
11	The inner mechanics of rhodopsin guanylyl cyclase during cGMP-formation revealed by real-time FTIR spectroscopy. ELife, 2021, 10, .	6.0	6
12	NeoR, a near-infrared absorbing rhodopsin. Nature Communications, 2020, 11, 5682.	12.8	45
13	Modulation of Light Energy Transfer from Chromophore to Protein in the Channelrhodopsin ReaChR. Biophysical Journal, 2020, 119, 705-716.	0.5	6
14	Lateral Gene Transfer of Anion-Conducting Channelrhodopsins between Green Algae and Giant Viruses. Current Biology, 2020, 30, 4910-4920.e5.	3.9	42
15	Dual Photoisomerization on Distinct Potential Energy Surfaces in a UV-Absorbing Rhodopsin. Journal of the American Chemical Society, 2020, 142, 11464-11473.	13.7	23
16	Collective exchange processes reveal an active site proton cage in bacteriorhodopsin. Communications Biology, 2020, 3, 4.	4.4	14
17	Altered N-glycan composition impacts flagella-mediated adhesion in Chlamydomonas reinhardtii. ELife, 2020, 9, .	6.0	10
18	MerMAIDs: a family of metagenomically discovered marine anion-conducting and intensely desensitizing channelrhodopsins. Nature Communications, 2019, 10, 3315.	12.8	56

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19	Absorption and Emission Spectroscopic Investigation of the Thermal Dynamics of the Archaerhodopsin 3 Based Fluorescent Voltage Sensor QuasAr1. International Journal of Molecular Sciences, 2019, 20, 4086.	4.1	10
20	Tracking Pore Hydration in Channelrhodopsin by Site-Directed Infrared-Active Azido Probes. Biochemistry, 2019, 58, 1275-1286.	2.5	8
21	Unifying photocycle model for light adaptation and temporal evolution of cation conductance in channelrhodopsin-2. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 9380-9389.	7.1	66
22	Engineered Passive Potassium Conductance in the KR2 Sodium Pump. Biophysical Journal, 2019, 116, 1941-1951.	0.5	29
23	Design of a light-gated proton channel based on the crystal structure of <i>Coccomyxa</i> rhodopsin. Science Signaling, 2019, 12, .	3.6	24
24	Channelrhodopsin-1 Phosphorylation Changes with Phototactic Behavior and Responds to Physiological Stimuli in <i>Chlamydomonas</i> . Plant Cell, 2019, 31, 886-910.	6.6	30
25	Tip-Enhanced Infrared Difference-Nanospectroscopy of the Proton Pump Activity of Bacteriorhodopsin in Single Purple Membrane Patches. Nano Letters, 2019, 19, 3104-3114.	9.1	36
26	Enzymerhodopsins: novel photoregulated catalysts for optogenetics. Current Opinion in Structural Biology, 2019, 57, 118-126.	5.7	44
27	Photoreactions of the Histidine Kinase Rhodopsin Ot-HKR from the Marine Picoalga Ostreococcus tauri. Biochemistry, 2019, 58, 1878-1891.	2.5	6
28	Féry Infrared Spectrometer for Single-Shot Analysis of Protein Dynamics. Journal of Physical Chemistry Letters, 2019, 10, 7672-7677.	4.6	10
29	Potassium channel-based optogenetic silencing. Nature Communications, 2018, 9, 4611.	12.8	71
30	Crystal structure of the red light-activated channelrhodopsin Chrimson. Nature Communications, 2018, 9, 3949.	12.8	112
31	Rhodopsin-cyclases for photocontrol of cGMP/cAMP and 2.3 à structure of the adenylyl cyclase domain. Nature Communications, 2018, 9, 2046.	12.8	55
32	Electrical properties, substrate specificity and optogenetic potential of the engineered light-driven sodium pump eKR2. Scientific Reports, 2018, 8, 9316.	3.3	43
33	Complex Photochemistry within the Green-Absorbing Channelrhodopsin ReaChR. Biophysical Journal, 2017, 112, 1166-1175.	0.5	18
34	Heterogeneity of the Transmembrane Protein Conformation in Purple Membranes Identified by Infrared Nanospectroscopy. Small, 2017, 13, 1701181.	10.0	29
35	Targeting of Photoreceptor Genes in <i>Chlamydomonas reinhardtii</i> via Zinc-Finger Nucleases and CRISPR/Cas9. Plant Cell, 2017, 29, 2498-2518.	6.6	260
36	Optogenetic Tools for Subcellular Applications in Neuroscience. Neuron, 2017, 96, 572-603.	8.1	274

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37	The femtosecond-to-second photochemistry of red-shifted fast-closing anion channelrhodopsin <i>Ps</i> ACR1. Physical Chemistry Chemical Physics, 2017, 19, 30402-30409.	2.8	9
38	Proton transfer reactions in the red light-activatable channelrhodopsin variant ReaChR and their relevance for its function. Journal of Biological Chemistry, 2017, 292, 14205-14216.	3.4	11
39	Molecular determinants of proton selectivity and gating in the red-light activated channelrhodopsin Chrimson. Scientific Reports, 2017, 7, 9928.	3.3	37
40	The form and function of channelrhodopsin. Science, 2017, 357, .	12.6	212
41	Whole-cell Patch-clamp Recordings for Electrophysiological Determination of Ion Selectivity in Channelrhodopsins. Journal of Visualized Experiments, 2017, , .	0.3	18
42	Reaction dynamics of the chimeric channelrhodopsin C1C2. Scientific Reports, 2017, 7, 7217.	3.3	48
43	The two parallel photocycles of the Chlamydomonas sensory photoreceptor histidine kinase rhodopsin 1. Journal of Plant Physiology, 2017, 217, 77-84.	3.5	20
44	Anion-conducting channelrhodopsins with tuned spectra and modified kinetics engineered for optogenetic manipulation of behavior. Scientific Reports, 2017, 7, 14957.	3.3	54
45	Absorption and Emission Spectroscopic Investigation of Thermal Dynamics and Photo-Dynamics of the Rhodopsin-Guanylyl Cyclase from the Nematophagous Fungus Catenaria anguillulae. International Journal of Molecular Sciences, 2017, 18, 2099.	4.1	7
46	An Efficient Visual Screen for CRISPR/Cas9 Activity in Arabidopsis thaliana. Frontiers in Plant Science, 2017, 08, 39.	3.6	39
47	Optogenetic approaches addressing extracellular modulation of neural excitability. Scientific Reports, 2016, 6, 23947.	3.3	34
48	Active cortical dendrites modulate perception. Science, 2016, 354, 1587-1590.	12.6	324
49	Unfolding of the C-Terminal JÎ \pm Helix in the LOV2 Photoreceptor Domain Observed by Time-Resolved Vibrational Spectroscopy. Journal of Physical Chemistry Letters, 2016, 7, 3472-3476.	4.6	52
50	A blue-light photoreceptor mediates the feedback regulation of photosynthesis. Nature, 2016, 537, 563-566.	27.8	185
51	Photoadduct Formation from the FMN Singlet Excited State in the LOV2 Domain of <i>Chlamydomonas reinhardtii</i> Phototropin. Journal of Physical Chemistry Letters, 2016, 7, 4380-4384.	4.6	23
52	Active site structure and absorption spectrum of channelrhodopsin-2 wild-type and C128T mutant. Chemical Science, 2016, 7, 3879-3891.	7.4	40
53	Identification of a Natural Green Light Absorbing Chloride Conducting Channelrhodopsin from Proteomonas sulcata. Journal of Biological Chemistry, 2016, 291, 4121-4127.	3.4	55
54	Structural foundations of optogenetics: Determinants of channelrhodopsin ion selectivity. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, 822-829.	7.1	197

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55	An improved chloride-conducting channelrhodopsin for light-induced inhibition of neuronal activity in vivo. Scientific Reports, 2015, 5, 14807.	3.3	102
56	Time-resolved infrared spectroscopic techniques as applied to channelrhodopsin. Frontiers in Molecular Biosciences, 2015, 2, 38.	3.5	34
57	Light-Induced Rearrangement of the \hat{I}^2 5 Strand in the BLUF Photoreceptor SyPixD (Slr1694). Journal of Physical Chemistry Letters, 2015, 6, 4749-4753.	4.6	17
58	Early Formation of the Ionâ€Conducting Pore in Channelrhodopsinâ€2. Angewandte Chemie - International Edition, 2015, 54, 4953-4957.	13.8	72
59	Biophysics of Channelrhodopsin. Annual Review of Biophysics, 2015, 44, 167-186.	10.0	172
60	Photochemical chromophore isomerization in histidine kinase rhodopsin HKR1. FEBS Letters, 2015, 589, 1067-1071.	2.8	15
61	Light–Dark Adaptation of Channelrhodopsin Involves Photoconversion between the all- <i>trans</i> and 13- <i>cis</i> Retinal Isomers. Biochemistry, 2015, 54, 5389-5400.	2.5	54
62	The rhodopsin–guanylyl cyclase of the aquatic fungus <i>Blastocladiella emersonii</i> enables fast optical control of cGMP signaling. Science Signaling, 2015, 8, rs8.	3.6	84
63	Optogenetics: 10 years after ChR2 in neurons—views from the community. Nature Neuroscience, 2015, 18, 1202-1212.	14.8	122
64	Photoactivated cyclases: In memoriam Masakatsu Watanabe. Photochemical and Photobiological Sciences, 2015, 14, 1781-1786.	2.9	0
65	Optogenetic acidification of synaptic vesicles and lysosomes. Nature Neuroscience, 2015, 18, 1845-1852.	14.8	113
66	Controlling fertilization and cAMP signaling in sperm by optogenetics. ELife, 2015, 4, .	6.0	99
67	Of ion pumps, sensors and channels — Perspectives on microbial rhodopsins between science and history. Biochimica Et Biophysica Acta - Bioenergetics, 2014, 1837, 533-545.	1.0	92
68	Microbial and Animal Rhodopsins: Structures, Functions, and Molecular Mechanisms. Chemical Reviews, 2014, 114, 126-163.	47.7	897
69	Engineering of a red-light–activated human cAMP/cGMP-specific phosphodiesterase. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 8803-8808.	7.1	163
70	Absorption and emission spectroscopic characterization of photo-dynamics of photoactivated adenylyl cyclase mutant bPAC-Y7F of Beggiatoa sp Journal of Photochemistry and Photobiology B: Biology, 2014, 140, 182-193.	3.8	6
71	Conversion of Channelrhodopsin into a Light-Gated Chloride Channel. Science, 2014, 344, 409-412.	12.6	339
72	Towards an Understanding of Channelrhodopsin Function: Simulations Lead to Novel Insights of the Channel Mechanism. Journal of Molecular Biology, 2013, 425, 1795-1814.	4.2	62

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73	Gloeobacter Rhodopsin, Limitation of Proton Pumping at High Electrochemical Load. Biophysical Journal, 2013, 105, 2055-2063.	0.5	34
74	Nuclear gene targeting in <i><scp>C</scp>hlamydomonas</i> using engineered zincâ€finger nucleases. Plant Journal, 2013, 73, 873-882.	5.7	148
75	Genetically encoded calcium indicators for multi-color neural activity imaging and combination with optogenetics. Frontiers in Molecular Neuroscience, 2013, 6, 2.	2.9	629
76	Ion Selectivity and Competition in Channelrhodopsins. Biophysical Journal, 2013, 105, 91-100.	0.5	68
77	Light-dark Adaptation of Channelrhodopsin C128T Mutant. Journal of Biological Chemistry, 2013, 288, 10451-10458.	3.4	46
78	From channelrhodopsins to optogenetics. EMBO Molecular Medicine, 2013, 5, 173-176.	6.9	84
79	A Photochromic Histidine Kinase Rhodopsin (HKR1) That Is Bimodally Switched by Ultraviolet and Blue Light. Journal of Biological Chemistry, 2012, 287, 40083-40090.	3.4	106
80	In Channelrhodopsin-2 Glu-90 Is Crucial for Ion Selectivity and Is Deprotonated during the Photocycle. Journal of Biological Chemistry, 2012, 287, 6904-6911.	3.4	84
81	Structural Model of Channelrhodopsin. Journal of Biological Chemistry, 2012, 287, 7456-7466.	3.4	39
82	Crystal structure of the channelrhodopsin light-gated cation channel. Nature, 2012, 482, 369-374.	27.8	503
83	Color-tuned Channelrhodopsins for Multiwavelength Optogenetics. Journal of Biological Chemistry, 2012, 287, 31804-31812.	3.4	147
84	Phototropin Influence on Eyespot Development and Regulation of Phototactic Behavior in <i>Chlamydomonas reinhardtii</i> . Plant Cell, 2012, 24, 4687-4702.	6.6	63
85	Bimodal Activation of Different Neuron Classes with the Spectrally Red-Shifted Channelrhodopsin Chimera C1V1 in Caenorhabditis elegans. PLoS ONE, 2012, 7, e46827.	2.5	55
86	The Hydrogen-Bond Switch Reaction of the Blrb Bluf Domain of <i>Rhodobacter sphaeroides</i> Journal of Physical Chemistry B, 2011, 115, 7963-7971.	2.6	31
87	Rectification of the Channelrhodopsin Early Conductance. Biophysical Journal, 2011, 101, 1057-1068.	0.5	51
88	Neocortical excitation/inhibition balance in information processing and social dysfunction. Nature, 2011, 477, 171-178.	27.8	2,036
89	Light Modulation of Cellular cAMP by a Small Bacterial Photoactivated Adenylyl Cyclase, bPAC, of the Soil Bacterium Beggiatoa. Journal of Biological Chemistry, 2011, 286, 1181-1188.	3.4	337
90	The Microbial Opsin Family of Optogenetic Tools. Cell, 2011, 147, 1446-1457.	28.9	471

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91	High-efficiency channelrhodopsins for fast neuronal stimulation at low light levels. Proceedings of the National Academy of Sciences of the United States of America, 2011, 108, 7595-7600.	7.1	409
92	Color Tuning in Binding Pocket Models of the Chlamydomonas-Type Channelrhodopsins. Journal of Physical Chemistry B, 2011, 115, 15119-15128.	2.6	28
93	Channelrhodopsin engineering and exploration of new optogenetic tools. Nature Methods, 2011, 8, 39-42.	19.0	93
94	The chromophore structure of the long-lived intermediate of the C128T channelrhodopsin-2 variant. FEBS Letters, 2011, 585, 3998-4001.	2.8	19
95	Microbial Opsins: A Family of Single-Component Tools for Optical Control of Neural Activity. Cold Spring Harbor Protocols, 2011, 2011, top102.	0.3	38
96	Evolution of the Channelrhodopsin Photocycle Model. ChemPhysChem, 2010, 11, 1120-1126.	2.1	69
97	Inside Cover: Evolution of the Channelrhodopsin Photocycle Model (ChemPhysChem 6/2010). ChemPhysChem, 2010, 11, 1074-1074.	2.1	0
98	Ultrafast optogenetic control. Nature Neuroscience, 2010, 13, 387-392.	14.8	660
99	Two Open States with Progressive Proton Selectivities in the Branched Channelrhodopsin-2 Photocycle. Biophysical Journal, 2010, 98, 753-761.	0.5	61
100	The Branched Photocycle of the Slow-Cycling Channelrhodopsin-2 Mutant C128T. Journal of Molecular Biology, 2010, 398, 690-702.	4.2	63
101	Sensory Photoreceptors and Light Control of Flagellar Activity. , 2009, , 395-429.		26
102	Channelrhodopsins of <i>Volvox carteri</i> Are Photochromic Proteins That Are Specifically Expressed in Somatic Cells under Control of Light, Temperature, and the Sex Inducer. Plant Physiology, 2009, 151, 347-366.	4.8	51
103	Bi-stable neural state switches. Nature Neuroscience, 2009, 12, 229-234.	14.8	533
104	Glu 87 of Channelrhodopsinâ€l Causes pHâ€dependent Color Tuning and Fast Photocurrent Inactivation ^{â€} . Photochemistry and Photobiology, 2009, 85, 564-569.	2.5	72
105	Nuclear gene targeting in Chlamydomonas as exemplified by disruption of the PHOT gene. Gene, 2009, 432, 91-96.	2.2	63
106	In Vivo Generation of Flavoproteins with Modified Cofactors. Journal of Molecular Biology, 2009, 385, 1511-1518.	4.2	75
107	Red-shifted optogenetic excitation: a tool for fast neural control derived from Volvox carteri. Nature Neuroscience, 2008, 11, 631-633.	14.8	490
108	Hydrogen Bond Switching among Flavin and Amino Acid Side Chains in the BLUF Photoreceptor Observed by Ultrafast Infrared Spectroscopy. Biophysical Journal, 2008, 95, 4790-4802.	0.5	104

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109	Algal Sensory Photoreceptors. Annual Review of Plant Biology, 2008, 59, 167-189.	18.7	222
110	Photoactivation of Channelrhodopsin. Journal of Biological Chemistry, 2008, 283, 1637-1643.	3.4	146
111	Channelrhodopsin-1 Initiates Phototaxis and Photophobic Responses in <i>Chlamydomonas</i> by Immediate Light-Induced Depolarization. Plant Cell, 2008, 20, 1665-1677.	6.6	156
112	Monitoring Light-induced Structural Changes of Channelrhodopsin-2 by UV-visible and Fourier Transform Infrared Spectroscopy. Journal of Biological Chemistry, 2008, 283, 35033-35041.	3.4	169
113	Fast manipulation of cellular cAMP level by light in vivo. Nature Methods, 2007, 4, 39-42.	19.0	237
114	H+-Pumping Rhodopsin from the Marine Alga Acetabularia. Biophysical Journal, 2006, 91, 1471-1479.	0.5	75
115	Hydrogen-bond switching through a radical pair mechanism in a flavin-binding photoreceptor. Proceedings of the National Academy of Sciences of the United States of America, 2006, 103, 10895-10900.	7.1	213
116	Removal of mismatched bases from synthetic genes by enzymatic mismatch cleavage. Nucleic Acids Research, 2005, 33, e58-e58.	14.5	54
117	Fast noninvasive activation and inhibition of neural and network activity by vertebrate rhodopsin and green algae channelrhodopsin. Proceedings of the National Academy of Sciences of the United States of America, 2005, 102, 17816-17821.	7.1	501
118	Nuclear-Gene Targeting by Using Single-Stranded DNA Avoids Illegitimate DNA Integration in Chlamydomonas reinhardtii. Eukaryotic Cell, 2005, 4, 1264-1272.	3.4	79
119	The Phot LOV2 Domain and Its Interaction with LOV1. Biophysical Journal, 2005, 89, 402-412.	0.5	72
120	Multiple Photocycles of Channelrhodopsin. Biophysical Journal, 2005, 89, 3911-3918.	0.5	127
121	On the Reaction Mechanism of Adduct Formation in LOV Domains of the Plant Blue-Light Receptor Phototropin. Journal of the American Chemical Society, 2004, 126, 11067-11076.	13.7	127
122	Recording of Blue Light-Induced Energy and Volume Changes within the Wild-Type and Mutated Phot-LOV1 Domain from Chlamydomonas reinhardtii. Biophysical Journal, 2004, 86, 1051-1060.	0.5	66
123	"Vision―in Single-Celled Algae. Physiology, 2004, 19, 133-137.	3.1	76
124	Monitoring dynamic expression of nuclear genes in Chlamydomonas reinhardtii by using a synthetic luciferase reporter gene. Plant Molecular Biology, 2004, 55, 869-881.	3.9	96
125	Channelrhodopsin-2, a directly light-gated cation-selective membrane channel. Proceedings of the National Academy of Sciences of the United States of America, 2003, 100, 13940-13945.	7.1	2,348
126	Fluorescence quenching of flavin adenine dinucleotide in aqueous solution by pH dependent isomerisation and photo-induced electron transfer. Chemical Physics, 2003, 295, 137-149.	1.9	110

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127	Quantum yield of triplet formation of riboflavin in aqueous solution and of flavin mononucleotide bound to the LOV1 domain of Phot1 from Chlamydomonas reinhardtii. Chemical Physics, 2003, 291, 97-114.	1.9	87
128	Phot-LOV1: Photocycle of a Blue-Light Receptor Domain from the Green Alga Chlamydomonas reinhardtii. Biophysical Journal, 2003, 84, 1192-1201.	0.5	227
129	Crystal Structures and Molecular Mechanism of a Light-Induced Signaling Switch: The Phot-LOV1 Domain from Chlamydomonas reinhardtii. Biophysical Journal, 2003, 84, 2474-2482.	0.5	258
130	Evidence for a Light-Induced H+ Conductance in the Eye of the Green Alga Chlamydomonas reinhardtii. Biophysical Journal, 2002, 82, 740-751.	0.5	44
131	Channelrhodopsin-1: A Light-Gated Proton Channel in Green Algae. Science, 2002, 296, 2395-2398.	12.6	1,013
132	A Streptomyces rimosus aphVIII gene coding for a new type phosphotransferase provides stable antibiotic resistance to Chlamydomonas reinhardtii. Gene, 2001, 277, 221-229.	2.2	348
133	ALGAL SENSORY PHOTORECEPTORS. Journal of Phycology, 2001, 37, 668-676.	2.3	85
134	Volvoxrhodopsin, a Light-Regulated Sensory Photoreceptor of the Spheroidal Green Alga Volvox carteri. Plant Cell, 1999, 11, 1473-1484.	6.6	81
135	A synthetic gene coding for the green fluorescent protein (GFP) is a versatile reporter in Chlamydomonas reinhardtii+. Plant Journal, 1999, 19, 353-361.	5.7	286
136	Two Light-Activated Conductances in the Eye of the Green Alga Volvox carteri. Biophysical Journal, 1999, 76, 1668-1678.	0.5	57
137	Vision in microalgae. Planta, 1997, 203, 265-274.	3.2	119
138	In vitro identification of rhodopsin in the green alga Chlamydomonas. Biochemistry, 1991, 30, 3692-3697.	2.5	104
139	Rhodopsin-regulated calcium currents in Chlamydomonas. Nature, 1991, 351, 489-491.	27.8	251