

Christoph Bräuchle – List of publications

Publications 2015

341.	Möckl L., Horst A., Kolbe K., Lindhorst T*., Bräuchle C.* Microdomain Formation Controls Spatiotemporal Dynamics of Cell Surface Glycoproteins ChemBioChem (2015), DOI: 10.1002/cbic.201500361 Link There will be an inside cover picture for ChemBioChem, Issue 14
340.	Broda E., Mickler F., Lächelt U., Morys S., Wagner E., Bräuchle C. Assessing potential peptide targeting ligands by quantification of cellular adhesion of model nanoparticles under flow conditions J Controlled Release 213 (2015), 79 Link
339.	Bräuchle C., Weiß V. Entwicklung von Nanofähren zur gezielten Krebsbekämpfung mit Hilfe superhochauflösender Lichtmikroskopie GDCh Aktuelle Wochenschau zum "Internationalen Jahr des Lichts", Woche 16, (2015) Link
338.	Niedermayer S., Weiss V., Herrmann A., Schmidt A., Datz S., Müller K., Wagner E., Bein T*., Bräuchle C.* Multifunctional Polymer-Capped Mesoporous Silica Nanoparticles for pH-Responsive Targeted Drug Delivery Nanoscale 7 (2015), 7953 Link
337.	Kos P., Lächelt U., Herrmann A., Mickler F.M., Döblinger M., He D., Krhač Levačić A., Morys S., Bräuchle C., Wagner E. Histidine-rich stabilized polyplexes for cMet-directed tumor-targeted gene

	transfer Nanoscale 7 (2015), 5350 Link
336.	Prescher J., Baumgärtel V., Ivanchenko S., Torrano A.A., Bräuchle C., Müller B., Lamb D.C. Super-Resolution Imaging of ESCRT-proteins at HIV-1 Assembly Sites PLoS Pathogens (2015), DOI:10.1371/journal.ppat.1004677 Link
335.	Pavlichenko I., Broda E., Fukuda Y., Szendrei K., Hatz A.K., Scarpa G., Lugli P., Bräuchle C., Lotsch B.V. Bringing One-Dimensional Photonic Crystals to a New Light: An Electrophotonic Platform for Chemical Mass Transport Visualisation and Cell Monitoring Mater. Horiz. 2 (2015), 299. Link Front cover picture for Mater. Horiz. 01 May 2015, Issue 3
334.	Brunner K., Harder J., Halbach T., Willibald J., Spada F., Gnerlich F., Sparrer K., Beil A., Möckl L., Bräuchle C., Conzelmann K.-K., Carell T.* Cell-Penetrating and Neurotargeting Dendritic siRNA Nanostructures Angew. Chem. Int. Ed. 53(51) (2015), 1946. Link Dendritische Nanostrukturen zur rezeptorvermittelten Aufnahme von siRNA in neurale Zellen Angew. Chem. 126(51) (2015), 1968. _Link
333.	Strobl F.G., Breyer D., Link P., Torrano A.A., Bräuchle C., Schneider M.F., Wixforth A. A surface acoustic wave-driven micropump for particle uptake investigation under physiological flow conditions in very small volumes Beilstein Journal of Nanotechnology 6 (2015), 414. _Link

Publications 2014

332.	Strobl F.G., Seitz F., Westerhausen C., Reller A., Torrano A.A., Bräuchle C., Wixforth A., Schneider, M.F. Intake of silica nanoparticles by giant lipid vesicles: influence of particle size and thermodynamic membrane state Beilstein Journal of Nanotechnology 5 (2014), 2468. Link
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331. [Invited Article](#)

Möckl L., Lamb D.C., Bräuchle C.

Super-resolved Fluorescence Microscopy: Nobel Prize in Chemistry 2014 for Eric Betzig, Stefan Hell, and William E. Moerner

Angew. Chem. Int. Ed. **53(51)** (2014), 13972. [Link](#)

Superhochauflösende Mikroskopie: Nobelpreis in Chemie 2014 für Eric Betzig, Stefan Hell und William E. Moerner

Angew. Chem. **126(51)** (2014), 14192. [Link](#)

Keywords:

Nobel Prize; PALM; single molecule detection; STED; super-resolution



A big honor for small objects: The Nobel Prize in Chemistry 2014 was jointly awarded to Eric Betzig, Stefan Hell, and William E. Moerner "for the development of super-resolved fluorescence microscopy". This Highlight describes how the field of super-resolution microscopy developed from the first detection of a single molecule in 1989 to the sophisticated techniques of today.

330. **Davies M., Rühle B., Li C., Müllen K., Bein T.*, Bräuchle C.***

Insights into Nanoscale Electrophoresis of Single Dye Molecules in Highly Oriented Mesoporous Silica Channels

The Journal of Physical Chemistry C **118(41)** (2014), 24013. [Link](#)

329. **Torrano A.A., Bräuchle C.**

Precise quantification of silica and ceria nanoparticle uptake revealed by 3D fluorescence microscopy

Beilstein Journal of Nanotechnology **5** (2014), 1616. [Link](#)

328. **Argyo C., Weiss V., Bräuchle C., Bein T.**

Multifunctional Mesoporous Silica Nanoparticles as a Universal Platform for Drug Delivery

Chem. Mater. **26(1)** (2014), 435. [Link](#)

327.	<p>Lächelt U., Kos P., Mickler F.M., Herrmann A., Salcher E.E., Rödl W., Badgujar N., Bräuchle C., Wagner E. Fine-tuning of proton sponges by precise diaminoethanes and histidines in pDNA polyplexes Nanomedicine 10 (2014), 35. Link</p>
326.	<p>Strobel C., Torrano A.A., Herrmann R., Malissek M., Bräuchle C., Reller A., Treuel L., Hilger I. Effects of the physicochemical properties of titanium dioxide nanoparticles, commonly used as sun protection agents, on microvascular endothelial cells J. Nanopart. Res. 16:2130 (2014), 1. Link</p>

Publications 2013

325.	<p>Torrano A.A., Blechinger J., Bräuchle C. Trafficking and Intracellular Distribution of Nanoparticles (Subchapter 6.4 of Chapter 6 "Biological Responses to Nanomaterials") In "Safety Aspects of Engineered Nanomaterials" Eds.: Luther W., Zweck A. Pan Stanford Publishing (2013), p. 157</p>
324.	<p>Rühle B., Davies M., Bein T., Bräuchle C. Fluorescence Microscopy Studies of Porous Silica Materials Z. Naturforsch. 68b (2013), 423. Link</p>
323.	<p>Mackowiak S.A., Schmidt A., Weiss V., Argyo C., von Schirnding C., Bein T.*, Bräuchle C.* Targeted Drug Delivery in Cancer Cells with Red Light Photoactivated Mesoporous Silica Nanoparticles Nano Letters 13(6) (2013), 2576. Link</p> <p>see also LMU Press Release in English and German as well as NIM News</p>

- 322. Blechinger J., Bauer A.T., Torrano A.A., Gorzelanny C., Bräuchle C., Schneider S.W.**
Uptake Kinetics and Nanotoxicity of Silica Nanoparticles are Cell Type Dependent
Small **9(23)**(2013), 3970. [Link](#)

Inside cover picture for *Small* December 2013, 9(23)



- 321. Mackowiak S., Bräuchle C.**
Study of Single Molecule Dynamics in Mesoporous Systems, Glasses and Living Cells
In "Nonequilibrium Statistical Physics of Small Systems: Fluctuation relations and beyond"
Eds.: Klages R., Just W., Jarzynski C.
Wiley VCH Weinheim (2013), p. 393.

- 320. Torrano A.A., Blechinger J., Osseforth C., Argyo C., Reller A., Bein T., Michaelis J., Bräuchle C.**
A fast analysis method to quantify nanoparticle uptake on a single cell level
Nanomedicine **8(11)** (2013), 1815. [Link](#)

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- 319. Albertazzi L., Mickler F., Pavan G.M., Salomone F., Bardi G., Panniello M., Amir E., Kang T., Killops K., Bräuchle C., Amir R., Hawker C.**
Enhanced bioactivity of internally functionalized cationic dendrimers with PEG cores
Biomacromolecules **13** (2012), 4089. [Link](#)

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| 318. | Sax G., Feil F., Schulze S., Jung C., Bräuchle C., Winter G.
Release pathways of interferon $\alpha 2a$ molecules from lipid twin screw extrudates revealed by single molecule fluorescence microscopy
Journal of Controlled Release 162 (2012), 295. Link |
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| 317. | Mickler F.M., Möckl L., Ruthardt N., Ogris M., Wagner E., Bräuchle C.
Tuning nanoparticle uptake: Live-cell imaging reveals two distinct endocytosis mechanisms mediated by natural and artificial EGFR targeting ligand
Nano Lett. 12(7) (2012), 3417. Link |
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| 316. | Davies M., Wochnik A., Feil F., Jung C., Bräuchle C., Scheu C., Michaelis J.
Synchronous Emission from Nanometric Silver Particles through Plasmonic Coupling on Silver Nanowires
ACS Nano, 6(7) (2012), 6049. Link |
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| 315. | Lebold T., Michaelis J., Bein T., Bräuchle C.*
Single Molecule Spectroscopy
in "Characterization of Solid Materials and Heterogeneous Catalysts: From Structure to Surface Reactivity", Vol. 1/2012
Eds: Che M., Védérine Jacques C.
Wiley-VCH Verlag (2012), S. 585-607 |
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| 314. | Schloßbauer A., Sauer A.M., Cauda V., Schmidt A., Engelke H., Rothbauer U., Zolghadr K., Leonhardt H., Bräuchle C.*, Bein T.*
Cascaded Photoinduced Drug Delivery to Cells from Multifunctional Core-Shell Mesoporous Silica
Advanced Healthcare Materials 1(3) (2012), 316. Link |
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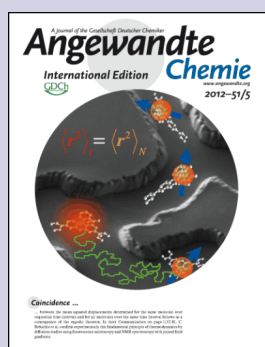
313. Rühle B., Davies M., Lebold T., Bräuchle C.*, Bein T.*
Highly Oriented Mesoporous Silica Channels Synthesized in Microgrooves and Visualized with Single Molecule Diffusion
ACS Nano **6(3)** (2012), 1948. [Link](#)

312. Feil F., Cauda V., Bein T.,*, Bräuchle C.*
Direct Visualization of Dye and Oligonucleotide Diffusion in Silica Filaments with Collinear Mesopores
Nano Lett. **12(3)** (2012), 1354. [Link](#)

311. Feil F., Naumov S., Michaelis J., Valiullin R., Enke D., Kärger J., Bräuchle C.
Single-Particle and Ensemble Diffusivities—Test of Ergodicity
Angewandte Chemie **124(5)** (2012), 1178. [Link](#)
Angewandte Chemie Internat. Edition **51(5)** (2012), 1152. [Link](#)

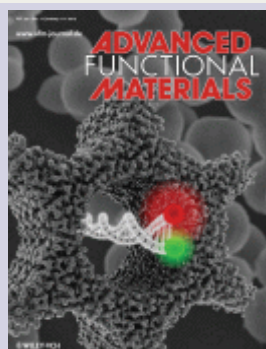
see also [News NIM](#)

Cover picture for Angewandte Chemie Internat. Edition (January 2012, 51(5))



310. Lebold T., Schloßbauer A., Schneider K., Schermelleh L., Leonhardt H., Bein T.*, Bräuchle C.*
Controlling the mobility of oligonucleotides in the nanochannels of mesoporous silica
Advanced Functional Materials, **22(1)** (2012), 106. [Link_](#)

Cover picture for Advanced Functional Materials (January 2012, 22(1))

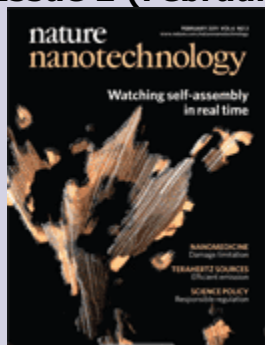


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| 309. | Mickler F.M., Vachutinsky Y., Oba M., Miyata K., Nishiyama N., Kataoka K., Bräuchle C., Ruthardt N.
Effect of integrin targeting and PEG shielding on polyplex micelle internalization studied by live-cell imaging
Journal of Controlled Release 156 (2011), 364. Link |
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| 308. | Ruthardt N., Lamb D.C., Bräuchle C.
Single-particle Tracking as a Quantitative Microscopy-based Approach to Unravel Cell Entry Mechanisms of Viruses and Pharmaceutical Nanoparticles
Molecular Therapy 19(7) (2011), 1199. Link |
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| 307. | Baumgärtel V., Ivanchenko S., Dupont A., Sergeev M., Wiseman P.W., Kräusslich H.-G., Bräuchle C., Müller B., Lamb D.C.
Live-cell visualization of dynamics of HIV budding site interactions with an ESCRT component
Nature Cell Biology 13 (2011), 469. Link |
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| 306. | Lebold T., Michaelis J., Bräuchle C.*
The complexity of mesoporous silica nanomaterials unraveled by single molecule microscopy
Phys. Chem. Chem. Phys. 13 (2011), 5017. Link |

- 305. Jung C., Schwaderer P., Dethlefsen M., Köhn R., Michaelis J., Bräuchle C.**
Visualization of the Self Assembly of Silica Nanochannels reveals growth mechanism
Nature Nanotechnology **6** (2011), 87. [Link](#)

Figure from this publication: cover picture for Nature Nanotechnology, Issue 2 (February 2011 Volume 6 No 2)



- 304. Davies M., Jung C., Wallis P., Schnitzler T., Li C., Müllen K., Bräuchle C. ***
Photophysics of New Photostable Rylene Derivatives: Applications in Single-Molecule Studies and Membrane Labelling
ChemPhysChem **12** (2011), 1588. [Link](#)

Publications 2010

- 303. Michaelis J., Bräuchle C.**
Reporters in the Nanoworld – Diffusion of single molecules in mesoporous materials
Chem. Soc. Rev. **39** (2010), 4731. [Link](#)

- 302. Blechinger J., Herrmann R., Kiener D., Garcia-Garcia F., Scheu C., Reller A., Bräuchle C.**
Perylene-labeled Silica Nanoparticles: Synthesis and Characterization of Three Novel Silica Nanoparticle Species for Live Cell Imaging
Small **6(21)**, (2010), 2427. [Link](#)

<p>301.</p>	<p>Sauer A., Schloßbauer A., Ruthardt N., Cauda V., Bein T., Bräuchle C. The Role of Endosomal Escape for Disulfide-Based Drug Delivery from Colloidal Mesoporous Silica Evaluated by Live-Cell Imaging Nano Letters, 10 (2010), 3684. Link</p>
<p>300.</p>	<p>Ruthardt N., Bräuchle C. Visualizing Uptake and Intracellular Trafficking of Gene Carriers by Single-Particle Tracking in "Nucleic Acid Transfection" Topics in Current Chemistry, Vol. 296/2010 Eds: Bielke W., Erbacher C. Verlag Springer Berlin/Heidelberg (2010), S. 283-304 Link_</p>
<p>299.</p>	<p>Cauda V., Engelke H., Sauer A., Arcizet D., Bräuchle C., Rädler J., Bein T. Colchicine-loaded lipid bilayer-coated 50 nm mesoporous nanoparticles efficiently induce microtubule depolymerization upon cell uptake Nano Letters, 10(7) (2010), 2484. Link_</p>
<p>298.</p>	<p>Wirth S., Wallek A.U., Zernickel A., Feil F., Sztiller-Sikorska M., Lesiak-Mieczkowska K., Bräuchle C., Lorenz I.-P., Czyz M. Tautomerization of 2-nitroso-N-arylanilines by coordination as N,N'-chelate ligands to rhenium(I) complexes and the anticancer activity of newly synthesized oximine rhenium(I) complexes against human melanoma and leukemia cells in vitro Journal of Inorganic Biochemistry 104(7) (2010), 774. Link_</p>
<p>297.</p>	<p>Bräuchle C. Exploring Nanostructured Systems with Single Molecule Probes: From Nanoporous Materials to Living Cells in "Single Molecule Spectroscopy in Chemistry, Physics and Biology" Nobel Symposium Springer Series in Chemical Physics, Vol. 96, Part 10 Eds: Gräslund A., Rigler R., Widengren J. Verlag: Springer Berlin Heidelberg (2010), S. 537</p>

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295.	Jung C., Bräuchle C. Visualizing Single-Molecule Diffusion in Nanochannel Systems In "Single Particle Tracking and Single Molecule Energy Transfer" Eds.: C. Bräuchle, D.C. Lamb, J. Michaelis Wiley VCH Weinheim (2009), S. 309.
294.	Bräuchle C., Lamb D.C., Michaelis J. (Hrsg.) Single Particle Tracking and Single Molecule Energy Transfer Handbuch/Nachschlagewerk 1. Auflage November 2009 Wiley-VCH, Weinheim
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292.	Jung C., Michaelis J., Ruthardt N., Bräuchle C. Exploring Diffusional Behaviour in Nanostructured Systems with Single Molecule Probes: From Nanoporous Materials to Living Cells In "Diffusion Fundamentals III Athens 2009" Editors: Chmelik C., Kanellopoulos N., Kärger J. Theodorou D. Leipziger Universitätsverlag 2009, S. 421

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290.	Lebold T., Jung C., Michaelis J., Bräuchle C.* Nanostructured Silica Materials As Drug-Delivery Systems for Doxorubicin: Single Molecule and Cellular Studies Nanoletters 9(8) (2009), 2877. Link
289.	Sauer A.M., de Bruin K.G., Ruthardt N., Mykhaylyk O., Plank C., Bräuchle C. Dynamics of magnetic lipoplexes studied by single particle tracking in living cells Journal of Controlled Release 137 (2009), 136 Link On this publication in "Journal of Controlled Release" the following cover story was published: Journal of Controlled Release 137 (2009), 89. Cover Story zu Journal of Cotrolled Release 137 (2009) 136_
288.	Heiss G., Lapiene V., Kukulka F., Niemeyer C.M., Bräuchle C., Lamb D.C. Single-Molecule Investigations of a Photoswitchable Nanodevice Small 5(10) (2009), 1169 Link_
287.	Feil F., Jung C., Kirstein J., Michaelis J., Li C., Nolde F., Müllen K., Bräuchle C.* Diffusional and orientational dynamics of various single terrylene diimide conjugates in mesoporous materials Microporous and Mesoporous Materials 125 (2009), 70 Link_
286.	Lebold T., Mühlstein L.A., Blechinger J., Riederer M., Amenitsch H., Köhn R., Peneva K., Müllen K., Michaelis J., Bräuchle C., Bein T. Tuning Single-Molecule Dynamics in Functionalized Mesoporous Silica Chem. Eur. J., 15 (2009), 1661 Link_

285.	Jung C., Ruthardt N., Lewis R., Michaelis J., Sodeik B., Nolde F., Peneva K., Müllen K., Bräuchle C.* Photophysics of New Water-Soluble Terrylenediimide Derivatives and Applications in Biology ChemPhysChem 10 (2009), 180 Link
284.	Lupton E.M., Achenbach F., Weis J., Bräuchle C., Frank I. Origins of Material Failure in Siloxane Elastomers from First Principles ChemPhysChem 10 (2009), 119 Link
283.	Wörmke S., Mackowski S., Scheer H., Bräuchle C. Biomimetische Solarzellen: Von der Photosynthese lernen Nachrichten aus der Chemie 11/08 (2008), 1120 Link
282.	de Bruin K., Fella C., Ogris M., Wagner E., Ruthardt* N., Bräuchle C. Dynamics of photoinduced endosomal release of polyplexes J. Control. Release, 130 , (2008), 175. Link
281.	Lange S., Katayama Y., Schmid M., Burkacky O., Bräuchle C., Lamb D.C., Jansen R.-P. Simultaneous Transport of Different Localized mRNA Species Revealed by Live-Cell Imaging Traffic 9 , (2008), 1256. Link_
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278.	Lamb D. C., Müller B.K., Bräuchle C. PIE: Eine multidimensionale Fluoreszenzmethode BioSpektrum 2/2008, 166. Link_
277.	Bräuchle C., Bein T. Neue Einblicke in poröse Nanostrukturen GIT Laborfachzeitschrift 2/2008, 93.

276.	Mackowski S., Wörmke S., Ehrl M., Bräuchle C. Low-Temperature Spectral Dynamics of Single TDI Molecules in n-Alkane Matrixes J. Fluoresc. 18 , (2008), 625. Link_
275.	Wörmke S., Mackowski S., Schaller A., Brotosudarmo T.H.P., Johanning S., Scheer H., Bräuchle C. Single Molecule Fluorescence of Native and Refolded Peridinin–Chlorophyll–Protein Complexes J. Fluoresc. 18 , (2008), 611. Link
274.	Jung C., Kirstein J., Platschek B., Bein T., Budde M., Frank I., Müllen K., Michaelis J., Bräuchle C. Diffusion of Oriented Single Molecules with Switchable Mobility in Networks of Long Unidimensional Nanochannels J. Am. Chem. Soc. 130(5) , (2008), 1638. Link
273.	Mackowski S., Wörmke S., Maier A.J., Brotosudarmo T.H.P., Harutyunyan H., Hartschuh A., Govorov A.O., Scheer H., Bräuchle C. Metal - enhanced fluorescence of chlorophylls in single light - harvesting complexes Nanoletters 8(2) , (2008), 558. Link_
272.	Schwaderer P., Funk E., Achenbach F., Weis J., Bräuchle C., Michaelis J. Single-Molecule Measurement of the Strength of a Siloxane Bond Langmuir 24(4) , (2008), 1343. Link_
271.	Mackowski S., Wörmke S., Brotosudarmo T H.P., Scheer H., Bräuchle C. Fluorescence spectroscopy of reconstituted peridinin–chlorophyll–5 protein complexes Photosynth. Res. 95 , (2008), 253. Link_
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269.	Zürner A., Kirstein J., Döblinger M., Bräuchle C.*, Bein T.* Visualizing single molecule diffusion in mesoporous materials Nature 450 , (2007), 705. Link_
268.	Lamb D.C., Bräuchle C.

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267.	Lupton E.M., Achenbach F., Weis J., Bräuchle C., Frank I. Molecular origins of adhesive failure: Siloxane elastomers pulled from a silica surface Phys. Rev. B 76 , (2007), 125420-1. Link
266.	Mackowski S., Wörmke S., Brotosudarmo T.H.P., Jung C., Hiller R.G., Scheer H., Bräuchle C. Energy Transfer in Reconstituted Peridinin-Chlorophyll-Protein Complex: Ensemble and Single Molecule Spectroscopy Studies Biophys. J. 93 , (2007), 3249. Link
265.	Bendz H., Ruhland S.C., Pandya M.P., Hainzl O., Riegelsberger S., Bräuchle C., Mayer M.P., Buchner J., Issels R.D., Noessner E. Human heat shock protein 70 enhances tumor antigen presentation through complex formation and intracellular antigen delivery without innate immune signaling J. Biol. Chem. 282(43) , (2007), 31688. Link_
264.	Wörmke S., Mackowski S., Brotosudarmo T. H. P., Jung C., Zumbusch A., Ehrl M., Scheer H., Hofmann E., Hiller R. G., Bräuchle, C.* Monitoring fluorescence of individual chromophores in peridinin-chlorophyll-protein complex using single molecule spectroscopy Biochimica et Biophysica Acta 1767 , (2007), 956. Link_
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