CURRICULUM VITAE

THOMAS SURREY

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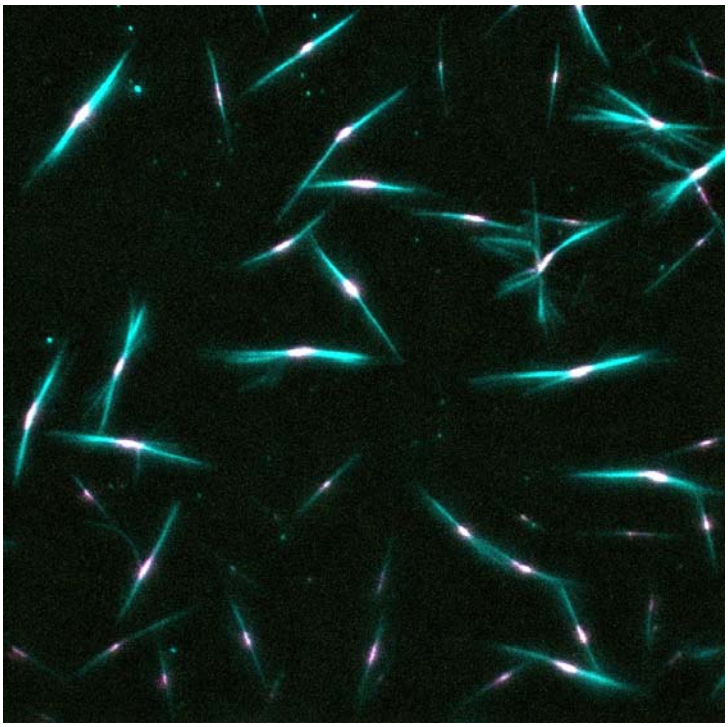

I. ACADEMIC EDUCATION

1995	**University of Tübingen, Germany** Faculty for Chemistry and Pharmacy Doctorate (Dr rer nat in Biochemistry):
1990 - 1995	**Max-Planck-Institute for Biology, Tübingen, Germany** Department of Membrane Biochemistry Graduate student (with Fritz Jähnig)
1990	**University of Tübingen** Faculty for Chemistry and Pharmacy Diploma in Biochemistry
1984 - 1990	**University of Tübingen** Institute for Physiological Chemistry Undergraduate student

II. POSITIONS HELD

since 2019	**Catalan Institution for Research and Advanced Studies, Barcelona, Spain** Research Professor
since 2019	**Centre for Genomic Regulation (CRG), Barcelona Spain** Quantitative Cell Biology Programme
2024	Co-coordinator of Quantitative Cell Biology department
2019	Senior Group Leader
2016 - 2021	**Kings College London, UK** Honorary Professor
2015 - 2019	**The Francis Crick Institute, London, UK** Senior Group Leader
2011 - 2022	**University College London, UK** Honorary Professor
2011 - 2015	**Cancer Research UK (CRUK) - London Research Institute (LRI), UK** Lincoln's Inn Fields Laboratories Senior Group Leader
1998 - 2010	**European Molecular Biology Laboratory (EMBL) Heidelberg, Germany** Cell Biology and Biophysics Unit
2006	Group Leader
2002	Team Leader
2001	Staff Scientist (with Eric Karsenti)
1998	Postdoc (with Eric Karsenti and Stan Leibler):
1995 - 1997	**Princeton University, USA** Departments of Molecular Biology and Physics Postdoc (with Stan Leibler)

III. RECOGNITION OF ACADEMIC EXCELLENCE

Awards

2021 **ASCB Fellow**, American Society of Cell Biology, USA
2020 **ERC Synergy Grant** (with Andrea Musacchio, MPI Dortmund, Germany & Francois Nédélec, University of Cambridge, UK)
2018 **Miller Professorship** at UC Berkeley, USA (autumn 2018)
2017 **Crick Surrey lab review: grade excellent** (chair: James Spudich, Stanford)
2016 **Whitman Center Fellow**, MBL, Woods Hole, USA
2015 **Hooke Medal** of the British Society of Cell Biology
2013 **ERC Advanced Grant**
2012 **EMBO member** (elected)

Invited Editorial Board Memberships

- Member of the Board of Reviewing Editors of 'Elife' (2016-2024)
- Monitoring Editor for the ASCB journal 'Molecular Biology of the Cell' (2014-2024)
- Advisory Editorial Board member for 'Cytoskeleton' (since 2019)
- Advisory Editorial Board member for 'Current Biology' (since 2014)
- Advisory Editorial Board member for 'EMBO Journal' (since 2011)

Membership in Scientific Organizations

since 2012: European Molecular Biology Organization (EMBO)
since 2011: Biophysical Society
since 1997: American Society of Cell Biology (ASCB)

IV. ACADEMIC TEACHING

Course Lecturer *(last 10 years)*

2019/2023 Lecturer at the UIMP Summer School on Synthetic Biology, Santander, Spain
since 2020 Lecturer at the Annual CRG PhD Course
2011-2019 Lecturer at University College London for the CoMPLEX (2014-2019) and MRC-LMCB (2011-219) graduate programmes
2016 Lecturer at Birkbeck College London for the Wellcome Trust 'Molecular Machines' graduate programme
2015 Lecturer and Practical Instructor at the EMBO Practical Course 'Single Molecule and Single Cell Fluorescence Microscopy' at EMBL/Uni Heidelberg, Germany

Thesis Advisor, Post- and Undergraduate Sponsor

a. 17 PhD students (year of degree, university):
Jessica Vaughan (ongoing), Zoë Geraghty (ongoing), Sabina Colombo (ongoing), Julia Grawenhoff (2024, UPF Barcelona), Gil Henkin (2022, University College London (UCL)), Christel Michel (2021, Kings College London), Tanja Consolati (2019, UCL), Jamie Rickman (2019, UCL), Jonathon Hannabus (2017, UCL), Rupam Jha (2017, UCL), Christian Duellberg

(2014, UCL), Hella Baumann (2014, UCL), Martina Trokter (2011, University of Heidelberg), Christian Hentrich (2009, University of Heidelberg), Peter Bieling (2008, University of Heidelberg), Marianne Uteng (2008, University of Oslo), Julie Cahu (2007, Université Pierre et Marie Curie, Paris)

b. 20 Postdoctoral Associates Sponsored (current affiliation):
Jo Judernatz (ongoing), Claudia Brito (ongoing), Wei Xiang Chew (ongoing), Wei Ming Lim (ongoing), Kseniya Ustinova (DIANA Biotechnologies), Juan Estévez-Gallego (PSI Villigen), Jayant Asthana (Sloane Kettering, New York), Johanna Roostalu (BioInnovation Institute, Kopenhagen), Nic Cade (UCL London), Einat Schnur, (Medicines and Healthcare Products Regulatory Agency, London), Michael Juniper (Nikon UK), Todd Fallesen (The Francis Crick Institute, London), Franck Fourniol (Royal Society, London), Ivo Telley (IGC, Lisbon), Sebastian Maurer (Eppendorf, Hamburg), Emmanuel Boutant (Uni Strasbourg), Aurelien Olichon (Uni de la Réunion), Surajit Ghosh (IIT Jodhpur), Arne Seitz (EPFL Lausanne), Jan Vos (Bejo Zaden B.V., Harenkapsel), Henry Scheck (Sun Density, Rochester)

c. ~ 26 Diploma, Masters and Visiting Students Advised

V. EXTERNAL FUNDS AWARDED

External Grants:

2023: **Plan Estatal Grant** of the Spanish Ministry for Science and Innovation, 3 years, € 487,500
Title: Control of microtubule nucleation, stability and organization - a focus on minus ends (MTMinusReg)

2022: **AUGUR Grant** (SGR-Cat 2021) of the Generalitat de Catalunya, 3 years, € 40,000

2021: **ERC Synergy Grant** (H2020), 6 years, PI, € 4.58 Mio
Network coordinator: Andrea Musacchio, MPI Dortmund, Germany; partner: François Nédélec, University of Cambridge, UK (total award: € 10.61 Mio)
Title: Integration of the Biochemical and Mechanical Networks of Cell Division (BIOMECANET).

2020: **Plan Estatal Grant** of the Spanish Ministry for Science and Innovation**,** 3 years, € 537,700
Title: Regulation of microtubule cytoskeleton dynamics and organization (MTCytoReg).

2016: **EU International Training Network** (ITN), 4 years, € 273,000
Network coordinator: Isabelle Vernos, CRG, Barcelona, Spain; total award: € 2.8 Mio
Title: A multi-disciplinary approach to cell division: From human oocyte to synthetic biology (DivIDe).

2013: **ERC Advanced Grant** (FP7), 5+1 years, € 2.49 Mio.
Title: Design principles of microtubule cytoskeleton architectures during cell division (Spindle Dynamics).

2010: **DFG**, 2 years, € 120,000.
Title: In vitro reconstitution of a minimal protein interaction network at microtubule ends that controls microtubule dynamics in vertebrates.

2008: **DFG**, 2 years, € 110,000.
Title: Molecular mechanism of the selective recognition of growing microtubule ends by vertebrate +TIPs.

2008: **HFSP**, 3+1 years, US$ 300,000.
Network coordinator: Carsten Janke, Institut Curie, France; total award: US$ 1.2 Mio.
Title: Deciphering the microtubule code.

2007: **DFG**, 2+2 years, € 140,000.
Title: Recombinant llama antibodies as sensors and inhibitors of intracellular protein activities during cell division.

2005: **EU STREP** (FP6) 'Active Biomics', 2+1 years, € 128,000.
Network coordinator: Reinhard Lipowsky, MPI for Colloids and Interfaces, Potsdam, Germany; total award: € 2.4 Mio.
Title: Active biomimetic materials.

2005: **EU Marie Curie Research Training Network** (FP6) "Spindle Dynamics", 3 years, € 383,000.
Network coordinator: Thomas Surrey, EMBL, Germany; total award: € 2.4 Mio.
Title: Understanding the dynamics of cell division.

2003: **DFG**, 2 years, € 107,000.
Title: Motor proteins involved in mitotic spindle assembly: biochemistry of regulation and biophysics of collective mechanics.

2003: **DFG**, 2 years, € 107,000.
Title: Motor proteins involved in mitotic spindle assembly: biochemistry of regulation and biophysics of collective mechanics.

2002: **Volkswagen Foundation**, 3 years, € 311,000.
Title: Regulation of motor protein activities monitored by single molecule fluorescence microscopy.

Early Career Fellowships

1996: postdoc fellowship - Physics Department of Princeton University, 1 year.
1995: DFG postdoc fellowship, 1.5 years.

VI. MANAGEMENT EXPERIENCE

Co-organizer of international conferences (last 15 years):

- 3rd Dynamic Cell Conference of the British Biochemical Society and the British Society for Cell Biology, Manchester, UK (2018)
- Circle Meeting on Biological Physics 2018, London, UK (2018)

- 1st and 2nd CNRS Jacques Monod Conference on the Actin and Microtubule Cytoskeleton, Marine Biology Laboratory, Roscoff, France (2015, 2017)
- Crick Biophysics Symposium (2015)
- ASCB Annual Meeting Program Committee Member (2013)
- 1st and 2nd EMBO Conference on Microtubule Structure, Regulation and Functions, ATC, Heidelberg (2010, 2012)

Home institution (last 10 years):

- CRG Quantitative Cell Biology department co-coordinator
- CRG Graduate Committee (Chair)
- Barcelona Institute of Science and Technology (BIST) Academic Working Group
- CRG External Seminar Committee
- PRBB Microfabrication Workgroup
- Crick Research Degrees Committee
- Crick Image Processing Work Group
- Crick Chemical Biology Work Group
- LRI Graduate Student Advisory Committee

VII. COLLABORATORS:

Current:

- **François Nédélec**, Sainsbury Laboratory, University of Cambridge, UK
- **Andrea Musacchio**, Max-Planck-Institute for Molecular Physiology, Dortmund, Germany
- **Oscar Llorca**, CNIO Madrid, Spain
- **Eva Nogales**, UC Berkeley, USA
- **Michel Steinmetz**, Paul Scherrer Institute, Villigen, Switzerland
- **Isabelle Vernos**, CRG Barcelona, Spain

Recent (last 10 years):

- **Philipp Kukura**, University of Oxford, UK
- **Alessandro Costa**, The Francis Crick Institute, London, UK
- **Benoit Gigant**, CNRS, Gif-sur-Yvette, France
- **Joachim Spatz**, MPI Stuttgart, Germany
- **Gunnar Pruessner**, Imperial College, London, UK
- **Takashi Toda**, London Research Institute, UK
- **Lewis Griffin**, University College London, UK
- **Tarun Kapoor**, Rockefeller, New York, USA

XII. LIST OF PUBLICATIONS

Colombo S, Michel C, Speroni S, Ruhnow F, Gili M, Brito C, Surrey T. NuMA is a mitotic adaptor protein that activates dynein and connects it to microtubule minus ends. ***J Cell Biol***, *accepted*.

Lim WM, Chew WX, Esposito Verza A, Pesenti M, Musacchio A, Surrey T. Regulation of minimal spindle midzone organization by mitotic kinases. ***Nat Commun***. 29, 92132024 (2024).

Henkin G, Brito C, Plückthun, A, Surrey T. Preparation of polarity-marked microtubules using a plus-end capping DARPin. ***Bio Protoc*** 14, e5109 (2024).

Brito C, Serna M, Guerra P, Llorca O, Surrey T. Transition of human γ-tubulin ring complex into a closed conformation during microtubule nucleation. ***Science*** 383, 870-876 (2024).

Scrofani J, Ruhnow F, Chew WX, Normanno D, Nedelec F, Surrey T, Vernos I. Branched microtubule nucleation and dynein transport organize RanGTP asters in Xenopus laevis egg extract. ***Mol Biol Cell*** 35, ar12 (2024).

Henkin G, Brito C, Thomas C, Surrey T. The minus-end depolymerase KIF2A drives flux-like treadmilling of γTuRC-uncapped microtubules. ***J Cell Biol*** 222, e202304020 (2023).

Ustinova K, Ruhnow F, Gili M, Surrey T. Microtubule binding of the human augmin complex is directly controlled by importins and Ran-GTP. ***J Cell Sci*** 136, jcs261096 (2023).

Chew WX, Henkin G, Nédélec F, Surrey T. Effects of microtubule length and crowding on active microtubule network organization. ***iScience*** 26, 109063 (2023).

Henkin G, Chew WX, Nédélec F, Surrey T. Cross-linker design determines microtubule network organization by opposing motors. ***Proc Natl Acad Sci U S A*** 119, e2206398119 (2022).

Consolati T, Henkin G, Roostalu J, Surrey T. Real-Time Imaging of Single γTuRC-Mediated Microtubule Nucleation Events In Vitro by TIRF Microscopy. ***Methods Mol Biol***. 2430:315-336 (2022).

LaFrance BJ, Roostalu J, Henkin G, Greber BJ, Zhang R, Normanno D, McCollum CO, Surrey T, Nogales E. Structural transitions in the GTP cap visualized by cryo-electron microscopy of catalytically inactive microtubules. ***Proc Natl Acad Sci U SA*** 119, e2114994119 (2022).

Asthana J, Cade NI, Normanno D, Lim WM, Surrey T. Gradual compaction of the central spindle decreases its dynamicity in PRC1 and EB1 gene-edited cells. ***Life Sci Alliance*** 4, e202101222 (2021).

Fineberg A, Surrey T, Kukura P. Quantifying the Monomer-Dimer Equilibrium of Tubulin with Mass Photometry. ***J Mol Biol*** 432, 6168-6172 (2020).

Consolati T, Locke J, Roostalu J, Chen ZA, Gannon J, Asthana J, Lim WM, Martino F, Cvetkovic MA, Rappsilber J, Costa A, Surrey T. Microtubule nucleation properties of single human γTuRCs explained by their cryo-EM structure. ***Dev Cell*** 53, 603-617 (2020).

Roostalu J, Thomas C, Cade NI, Kunzelmann S, Taylor IA, Surrey T. The speed of GTP hydrolysis determines GTP cap size and controls microtubule stability. ***Elife*** e51992 (2020).

Hannabuss J, Ramirez ML, Cade NI, Fourniol FJ, Nédélec F & Surrey T. Self-organization of minimal anaphase spindle midzone bundles. ***Curr Biol*** 29, 2120-2130 (2019).

Rickman J, Nédélec F, Surrey T. Effects of spatial dimensionality and steric interactions on microtubule-motor self-organization. ***Phys Biol***. 16, 046004 (2019).

Campanacci V, Urvoas A, Consolati T, Cantos-Fernandes S, Aumont-Nicaise M, Valerio-Lepiniec M, Surrey T, Minard P, Gigant B. Selection and Characterization of Artificial Proteins Targeting the Tubulin α Subunit. ***Structure*** 27, 497-506 (2019).

Roostalu J, Rickman J, Thomas C, Nédélec F, Surrey T. Determinants of Polar versus Nematic Organization in Networks of Dynamic Microtubules and Mitotic Motors. ***Cell*** 175, 796-808 (2018).

Juniper M, Weiss M, Platzman I, Spatz JP, Surrey T. Spherical network contraction forms microtubule asters in confinement. ***Soft Matter*** 14, 901-909 (2018).

Jha R. and Surrey T. Dynein at microtubule plus ends. Invited book chapter for **'Dyneins: Structure, Biology and Disease'**, The Biology of Dynein Motors, Volume 1, 2nd Edition, Academic Press, edited by Stephen M. King (2018).

Zhang R, Roostalu J, Surrey T, Nogales E. Structural Insight into TPX2-Stimulated Microtubule Assembly. ***Elife*** 6, e30959 (2017).

Fallesen T, Roostalu J, Duellberg, C, Pruessner G, Surrey T. Ensembles of bidirectional kinesin Cin8 produce additive forces in both directions of movement. ***Biophys J*** 113, 2055-2067 (2017).

Jha R, Roostalu J, Trokter M, Surrey T. Combinatorial regulation of the balance between dynein microtubule end accumulation and directed motility. ***EMBO J*** 36, 3387-3404 (2017).

Roostalu J & Surrey T. Microtubule nucleation: beyond the template. ***Nat Rev Mol Cell Biol*** 18, 702-710 (2017).

Matsuo Y, Maurer SP, Surrey T, Toda T. Purification and characterization of the fission yeast Ndc80 complex. ***Protein Expr Purif*** 135, 61-69 (2017).

Rickman J, Duellberg C, Cade NI, Griffin, LD, Surrey, T. Steady state EB cap size fluctuations are determined by stochastic microtubule growth and maturation. ***Proc Natl Acad Sci U S A*** 114, 3427-3432 (2017).

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Duellberg C, Cade NI, Surrey T. Microtubule ageing probed by microfluidics-assisted tubulin washout. ***Mol Biol Cell*** 27, 3563-3573 (2016).

Duellberg C, Cade NI, Holmes D, Surrey T. The size of the EB cap determines instantaneous microtubule stability. ***Elife*** 5, e13470 (2016).

Ti SC, Pamula MC, Howes SC, Duellberg C, Cade NI, Kleiner RE, Forth S, Surrey T, Nogales E, Kapoor TM. Mutations in Human Tubulin Proximal to the Kinesin-Binding Site Alter Dynamic Instability at Microtubule Plus- and Minus-Ends. ***Dev Cell*** 37, 72-84 (2016).

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Baumann H, Surrey T. Self-organization of motors and microtubules in lipid-monolayered droplets. ***Methods Cell Biol*** 128, 39-55 (2015).

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Duellberg C, Trokter M, Jha R, Sen I, Steinmetz MO, Surrey T. Reconstitution of a hierarchical +TIP interaction network controlling microtubule end tracking of the human dynein complex. ***Nat Cell Biol*** 16, 804-11 (2014).

Baumann H & Surrey T. Motor-mediated cortical versus astral microtubule organization in lipid-monolayered droplets. ***J Biol Chem*** 289, 22524-35 (2014).

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Ghosh S, Hentrich C, Surrey T. Micropattern-Controlled Local Microtubule Nucleation, Transport, and Mesoscale Organization. ***ACS Chem Biol*** 8, 673-8 (2013).

Telley IA, Gáspár I, Ephrussi A, Surrey T. A single Drosophila embryo extract for the study of mitosis ex vivo. ***Nat Protoc*** 8, 310-24 (2013).

Duellberg C, Fourniol FJ, Maurer SP, Roostalu J, Surrey T. End-binding proteins and Ase1/PRC1 define local functionality of structurally distinct parts of the microtubule cytoskeleton. ***Trends Cell Biol*** 23, 54-63 (2013).

Roostalu J, Surrey T. The multiple talents of kinesin-8. ***Nat Cell Biol*** 15, 889-91 (2013).

Trokter M, Mücke N, Surrey T. Reconstitution of the human cytoplasmic dynein complex. ***Proc Natl Acad Sci U S A*** 109, 20895-900 (2012).

Gropeanu RA, Baumann H, Ritz S, Mailänder V, Surrey T, Del Campo A. Phototriggerable 2',7-caged Paclitaxel. ***PLoS One*** 7, e43657 (2012).

Trokter M, Surrey T. LIS1 Clamps Dynein to the Microtubule. ***Cell.*** 150, 877-9 (2012).

Pecqueur L, Duellberg C, Dreier B, Jiang Q, Wang C, Plückthun A, Surrey T, Gigant B, Knossow M. A designed ankyrin repeat protein selected to bind to tubulin caps the microtubule plus end. ***Proc Natl Acad Sci U S A*** 109, 12011-6 (2012)

Telley IA, Gáspár I, Ephrussi A, Surrey T. Aster migration determines the length scale of nuclear separation in the Drosophila syncytial embryo. ***J Cell Biol***. 197, 887-95 (2012).

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Maurer SP, Bieling P, Cope J, Hoenger A, Surrey T. GTPgammaS microtubules mimic the growing microtubule end structure recognized by end-binding proteins (EBs). ***Proc Natl Acad Sci U S A*** 108, 3988-93 (2011).

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Telley IA, Bieling P, Surrey T. Reconstitution and quantification of dynamic microtubule end tracking in vitro using TIRF microscopy. ***Methods Mol Biol*** 777, 127-45 (2011).

Bieling P, Telley IA, Hentrich C, Piehler J, Surrey T. Fluorescence microscopy assays on chemically functionalized surfaces for quantitative imaging of microtubule, motor and +TIP dynamics. ***Methods Cell Biol*** 95, 555-80 (2010).

Bieling P, Telley IA, Surrey T. A minimal midzone protein module controls formation and length of antiparallel microtubule overlaps. ***Cell*** 142, 420-32 (2010).

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Bieling P, Kronja I, Surrey T. Microtubule motility on reconstituted meiotic chromatin. ***Curr Biol*** 20, 763-69 (2010).

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Bhagawati M, Ghosh S, Reichel A, Froehner K, Surrey T, Piehler J. Organization of motor proteins into functional micropatterns fabricated by a photoinduced Fenton reaction. ***Angew Chem*** 48, 9188-91 (2009).

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Bieling P, Telley IA, Piehler J, Surrey T. Processive kinesins require loose mechanical coupling for efficient collective motility. ***EMBO Rep.*** 9, 1121-7 (2008).

Uteng M, Hentrich C, Miura K, Bieling P, Surrey T. Poleward transport of the mitotic motor Eg5 by dynein/dynactin in Xenopus egg extract spindles. ***J Cell Biol*** 182, 715-26 (2008).

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Seitz A, Surrey T. Motility of single kinesins on crowded microtubules visualized using quantum dots. ***EMBO J*** 25, 267-277 (2006).

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Nédélec F, Surrey T. Dynamics of microtubule aster formation by motor complexes. ***C R Acad Sci Phys*** 2, 841-7 (2001).

Nédélec F, Surrey T, Maggs AC. Dynamic concentration of motor proteins in microtubule arrays. ***Phys Rev Lett*** 86, 3192-5 (2001).

Döring K, Surrey T, Grünewald S, John E, Jähnig F. Enhanced internal dynamics of a membrane transport protein during substrate translocation. ***Protein Sci*** 9, 2246-50 (2000).

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