

Curriculum Vitae – Eva Nogales

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EDUCATION AND TRAINING

- 1993 – 95 Postdoctoral training in Biophysics at the Life Sciences Division, Lawrence Berkeley National Laboratory (LBNL). Advisor: Dr. Kenneth H. Downing.
- 1993 Ph.D. in Biophysics by the Physics Department of Keele University, UK. Advisor: Dr. Joan Bordas, SRS, Daresbury Laboratory.
- 1988 B.S. in Physics by the Universidad Autónoma de Madrid, Spain

POSITIONS

- 07/21 – present **Distinguished Professor** of Biochemistry, Biophysics and Structural Biology, Molecular and Cell Biology Department, UC Berkeley
- 09/20 – 04/22 Co-director, Cal Cryo Facility, UC Berkeley
- 08/16 – 08/20 Head, Bay Area Cryo-EM Facility (BACEM), Berkeley Site
- 12/15 – present **Senior Faculty Scientist**, Molecular Biophysics and Integrative Bioimaging Division, LBNL.
- 09/15 – 06/20 Head, Biochemistry, Biophysics and Structural Biology Division, MCB Department, UC Berkeley.
- 01/12 – 06/15 Head, Biophysics Graduate Program, UC Berkeley
- 01/10 – 01/14 Deputy Director of the Bioenergy/GTL & Structural Biology Department, Life Science Division, LBNL
- 11/08 – 11/15 Senior Faculty Scientist at LBNL, Life Sciences Division, LBNL
- 07/06 – 06/21 Professor of Biochemistry, Biophysics and Structural Biology, Molecular and Cell Biology Department, UC Berkeley
- 07/03 – 06/06 Associate Professor of Biochemistry and Molecular Biology, Molecular and Cell Biology Department, UC Berkeley
- 09/00 – present **Investigator**, Howard Hughes Medical Institute
- 07/98 – 10/08 Faculty Scientist, Life Sciences Division, LBNL
- 07/98 – 06/03 Assistant Professor of Biochemistry and Molecular Biology, Molecular and Cell Biology Department, UC Berkeley
- 09/95 – 06/98 Staff Scientist, Life Sciences Division, LBNL

AWARDS AND HONORS

- 2022 Paul Sigler Prize, Yale University
- 2022 Visiting Scholar of the Fundación Jesús Serra (at CNIO, Madrid)
- 2021 **AAAS Fellow**
- 2021 **Foreign Member of the Royal Spanish Academy of Sciences** (Real Academia de Ciencias Exactas, Físicas y Naturales de España)
- 2021 Biophysical Society Annual Lecturer
- 2020 Vallee Visiting Professor (delayed to 2022)
- 2020 Kuggie Vallee Distinguished Lecturer (delayed to 2022)
- 2020 **Biophysical Society Fellow**
- 2019 **EMBO Associate Member**
- 2019 Grimwade Medal by the University of Melbourne
- 2018 Sandra K. Masur Senior Leadership Award by the American Society for Cell Biology

2017 **Fellow of the American Society for Cell Biology**
2016 LBNL Director's Award for Exceptional Science Achievement
2016 Keith Porter Lecture Award by the American Society for Cell Biology
2016 Mildred Cohn Award in Biological Chemistry by the American Society for Biochemistry and Molecular Biology
2016 **Member of the American Academy of Arts and Sciences**
2015 **Member of the National Academy of Sciences**
2015 Dorothy Crowfoot Hodgkin Award by the Protein Society
2015 Distinguished Role Model in the Life Sciences, Northwestern University
2005 American Society for Cell Biology Early Career Award
2005 Chabot Science Award for Excellence
2000 Burton Award by the Microscopy Society of America
1998 Outstanding Performance Award, LBNL
1989 – 92 Doctoral fellowships, Spanish Ministry of Education and MRC (U.K.)
1984 – 88 Undergraduate fellowship by the Spanish Ministry of Education

KEYNOTE AND PLENARY PRESENTATIONS AND NAMED LECTURES

2023 Frederick Seitz Lecture, University of Chicago
2022 Bruce Merrifield Lecture, Rockefeller University
2022 Pace Lecture in Biochemistry, University of Utah
2022 Keynote, Annual Symposium, Cleveland Center for Membrane and Structural Biology, Case Western Reserve University
2022 Caspar Lecture, Florida State University
2022 Keynote, Annual Cellular, Biochemical and Molecular Sciences Retreat, University of Rochester.
2022 Erlanger-Gasser Lecture, Washington University School of Medicine
2021 James M. Akagi Lecture, University of Kansas
2021 Keynote, UCSC Chemistry and Biochemistry Annual Meeting
2021 Plenary Lecture, Nebraska Drug Development Pipeline Symposium
2021 Kendall-Maddox Lectureship, Mayo Clinic
2021 David L. Weaver Lecture in Biophysics and Computational Biology, UC Davis
2021 Harry Steenbock Lectures, University of Wisconsin-Madison
2021 Martha L. Ludwig Lecture, University of Michigan
2020 Keynote, Buffalo Hamilton Toronto Symposium (BHT2020)
2020 Schmidt Lecture, Tufts University School of Medicine
2020 Keynote, University of Virginia's Molecular Physiology and Biological Physics Department Retreat
2020 Inaugural Brigid L.M. Hogan Keynote Lecture, Duke University
2019 Inaugural Donald G. Comb Honorary Lecture, New England Biolabs
2019 Keynote, Nature Conferences: Functional Dynamics - Visualizing Molecules in Action
2019 Blaffer Lecture, MD Anderson
2019 Solvay Conference, invited speaker and Public Seminar presenter
2019 Keynote speaker, Center for Cellular and Biomolecular Machines, UC Merced.
2019 Kensal E. van Holde Lecture, Marine Biology Laboratory
2019 Plenary Talk, European Biophysical Society Meeting
2019 Onasis Lectures, invited speaker
2019 Dean's Lecture, Virginia Commonwealth University
2019 Keynote, Molecular Mechanistic Biology Symposium, Harvard Medical School
2019 Hadad Lecture, Haverford College
2019 Chipperfield Lecture, MIT
2018 Edward A. Doisy Lecture, Saint Louis University School of Medicine
2018 Hans Neurath Lecture, University of Washington
2018 Paul M. Horowitz Lecture, UT Health San Antonio

2018	Rosalind Franklin Lecture, Institute of Structural and Molecular Biology Symposium, UCL/Birbeck, London
2018	Keynote speaker, ASBMB Symposium “Transcriptional Regulation”
2018	Keynote speaker, Cytoskeletal Motors GRC
2018	Keynote speaker, FASEB Conference “Machines on Genes”
2018	Keynote speaker, 3D-EM GRC
2018	Keynote speaker, EMBL Symposium “Microtubules: from atoms to complex systems”
2018	Gruber Lecture, Yale University
2017	Russell Marker Lectures, University of Maryland
2017	Benning Lecture, University of Utah
2017	Plenary lecture, ESRF Cryo-EM Symposium
2017	Ernest C. Pollard Lecture in Biophysics at Penn State University
2017	Katherine D. McCormick Distinguished Lecture, Stanford University
2016	NCI Distinguished Scientist lecture
2016	James P. Holland Memorial Lecture, Indiana University
2016	Harvey Lecture, New York
2015	Dr. Smith Freeman Endowed Lecture, Chicago Cytoskeleton Meeting
2014 – 2015	Visiting Scholar of the Fundación Jesús Serra (at CNIO, Madrid)
2014	Symposium speaker ASCB meeting, “Cell Structure across Scales”
2014	Lampert Lecture, Dept. of Biophysics and Physiology, University of Washington
2014	Dean’s Distinguished Lecture, University of Colorado Medical School
2013	Keynote speaker, GRC on “Proteins”
2013	NIH WALIS Lecture
2012	Fitzgerald Lecture, Duke University
2011	Keynote speaker, GRC on “Motile and Contractile systems”
2011	Keynote speaker, IUCr Annual Meeting, Madrid
2009	Max Birnstiel Lecture at IMP, Vienna
2009	Distinguished Lecture at EMBL, Heidelberg
2007 – 2008	Biomedicine Chair, Foundation BBVA (at CNIO, Madrid)
2006	Annual Hamilton Memorial Lecture, Temple University

PARTICIPATION IN SOCIETIES, ADVISORY BOARDS, JOURNALS, CONFERENCE ORGANIZATION AND REVIEW PANELS

2022	Invited participant, NS184 Nobel Symposia, “Towards characterizing the human 3D-proteome”
2021-2026	Chair , Scientific Advisory Board of the Max Planck Institute for Molecular Physiology, Dortmund
2021-2026	Member , Scientific Advisory Board of the Max Planck Institute for Biochemistry, Munich
2021-present	Member , CZI Visual Proteomics Steering Council
2021-2024	Member , Scientific Advisory Board of the Institute for Molecular Physiology, Vienna
2021-2022	Vallee Scholars Selection Committee
2021	Reviewer for the Medical Research Council, UK
2021	Ad Hoc Reviewer for NHLBI, National Institutes of Health (NIH)
2021	Past President, American Society for Cell Biology (ASCB)
2020	Reviewer for the French National Research Agency
2020	Ad Hoc Reviewer for NINDS, NIH
2020	President, ASCB
2019	Reviewer for the Natural Sciences and Engineering Research Council of Canada
2019	Co-organizer and co-chair of the Symposium “Cryo-EM – from physics to biology: honoring the remarkable legacy of Ken Downing”, M&M Annual Meeting, Portland.

2019	Congressional Briefing on Cryo-EM as part of the Biophysics Week organized by the Biophysical Society
2019	President Elect, ASCB
2019 - present	Member , External Advisory Committee, Pacific Northwestern Center for Cryo-EM
2019 - present	Chair , National Advisory Committee for the Latin American Fellows Program, PEW Charitable Foundation
2018 - present	Member , Advisory Board of CryoEM 101, University of Utah.
2018 - present	Member , Life Sciences Institute Scientific Advisory Board, University of Michigan
2017	Reviewer for the Villum Fonden, Denmark
2016 – 2021	Member, International Academic Advisory Committee for the Beijing Innovation Center for Structural Biology at Tsinghua University.
2016 – present	Member , External Advisory Board for the NSF-CREST Center for Cellular and Biomolecular Machines at UC Merced.
2016	Ad hoc scientific advisor for the Beckmann Foundation
2016	Member, External Advisory Board for CUNY ASRC-SBI
2015	NIH special study section panel member
2015 – present	Member , Advisory Council for Princeton’s Molecular Biology Department
2015 – 2019	Member, Krios Oversight Committee, OHSU
2015 – present	Member , Editorial Board of Journal of Cell Biology
2015	Elected Chair, GRC on “3-D Electron Microscopy”
01/14 – 09/15	Member of the Scientific Advisory Committee for the Life Sciences Division, LBNL
2015 – 2018	Associate Editor of Journal of Structural Biology
2013	CMP study section, ad hoc member
2013	NCSB study section, ad hoc member
2012	Co-chair "New Technologies in Imaging", ASCB Annual meeting
2012 – 2018	Member of the Editorial Board of Journal of Molecular Biology
2012	MSFC study section, ad hoc member
2011 – 2018	Member of the National Advisory Committee for the Latin American Fellows Program, PEW Charitable Foundation
2010	Co-organizer, Structural Biology Workshop at Janelia Farm
2009	Member of the Search Committee for the LBNL Director
2009	Chair of the Early Career Selection Committee of the ASCB
2008	Co-organizer of Workshop “Frontiers in Cryo-EM” at Janelia Farm.
2008	Co-organizer of CNIO Cancer Conference “Structure and mechanism of essential complexes for cell survival”.
2007	Co-organizer of the “Imaging Techniques” workshop of the GTL-DOE Annual Conference
2007	Co-editor, Macromolecular Section, Current Opinion in Structural Biology
2006	Co-organizer, “Imaging” Mini-symposium ASCB Meeting
2005-2009	Macromolecular Structure and Function C Study Section Member
2004	Co-organizer of HHMI-MPI Workshop on Molecular and Cellular Imaging
2003	Organizer, QB3 Symposium: “Challenges in Biological Imaging: from cells to molecules”. Berkeley
2003 – 2005	Elected member of the Biophysical Society Executive Board
2002 – 2020	Chair, Advisory Board for the National Resource for Automated Molecular Microscopy
2002	Co-organizer of the Biophysical Discussion “Frontiers in structural cell biology”, Biophysical Society
2000 – 2015	Member of the editorial board of Journal of Structural Biology.
1999	Editor of special issue of Journal of Structural Biology on Electron Crystallography
1999	Chair of symposium “Visualizing Function: a new revolution in electron microscopy”, Meeting of the American Society for Cell Biology (ASCB).

- 1999 Chair, session “New Challenges in Data Analysis and Interpretation”, GRC on 3D Electron Microscopy of Macromolecules
- 1998 Co-organizer of the workshop “Electron crystallography of biological macromolecules”, Granlibakken.

RESEARCH STATEMENT

My lab is dedicated to the *visualization of macromolecular function*, using cryo-EM as a main experimental tool. We study two different areas of essential eukaryotic biology: molecular machinery in the control of gene expression, and microtubule cytoskeleton interaction and dynamics in cell division. The unifying principle in our work is the study of macromolecular assemblies as whole units of molecular function by direct visualization of their architecture, functional states, and regulatory interactions.

PUBLICATIONS

1. Zukin, S.A., Marunde, M.R., Popova, I.K., Nogales, E. and Patel, A.B. (2022) Structure and flexibility of the yeast NuA4 histone acetyltransferase complex. bioRxiv 2022.06.24.497536; doi: <https://doi.org/10.1101/2022.06.24.497536>.
2. Cofsky, J.C., Soczek, K.M., Knott, G.J., Nogales, E., and Doudna J.A. (2022) CRISPR-Cas9 bends and twists DNA to read its sequence. NSMB **29**, 395-40
3. Tsuchida C.A., Zhang S., Saffari Doost M, Zhao Y., O'Brien E., Fang H., Wang J., Hai Z.-Y., Chuck J., Brötzmann J., Vartoumian A., Burstein D., Chen X.-W., Nogales E., Doudna J.A. and Liu J.-J. (2022) Chimeric CRISPR-CasX enzymes and guide RNAs for improved genome editing activity. Mol. Cell **82**, 1199-1209.
4. Ferro, L.S., Fang, Q., Eshun-Wilson, L., Fernandes, J., Jack, A., Farrell, D., Gölcük, M., Huijben, T., Costa, K., Gür, M., DiMaio, F., Nogales, E. and Yildiz, A. (2022) Structural and functional insight into the regulation of kinesin-1 by MAP7. Science **375**, 326-331.
5. LaFrance B.J., Roostalu, J., Henkin, G., Greber, B.J., Zhang, R., Normanno, D., McCollum, C. Surrey, T. and Nogales E. (2022) Structural transitions in the GTP cap visualized by cryo-EM of catalytically inactive microtubules. PNAS **119**, e2114994119.
6. Sauer, P.V., Dominguez-Martin, M.A., Kirst, H., Sutter, M., Bina, D., Basil J. Greber, B.J., Eva Nogales, E., Polívka, T. and Cheryl A. Kerfeld, C.A. (2021) Structures of the Cyanobacterial Phycobilisome. bioRxiv 2021.11.15.468712; doi: <https://doi.org/10.1101/2021.11.15.468712>
7. Dominguez-Martin, M.A., Sauer, Sutter, M., P.V., Kirst, H., Bina, D., Basil J. Greber, B.J., Eva Nogales, E., Polívka, T. and Cheryl A. Kerfeld, C.A. (2021) Structure of the Quenched Cyanobacterial OCP-Phycobilisome Complex. bioRxiv 2021.11.15.468719; doi:<https://doi.org/10/1101/2021/11.15.46871>.
8. Meng Zhang, M., César Díaz-Celis, C., Onoa, B., Cañari-Chumpitaz, C., Requejo, K.I., Liu, J., Vien, M., Nogales, E., Ren, G., and Bustamante, C. (2021) Molecular Organization of the Early Stages of Nucleosome Phase Separation Visualized by Cryo-Electron Tomography. bioRxiv 2021.09.01.458650; doi: <https://doi.org/10.1101/2021.09.01.458650>.
9. LaFrance B.J., Cassidy-Amstutz, C., Nichols R.J., Oltrogge L.M., Nogales E and Savage, D.F. (2021) The encapsulin from *Thermotoga maritima* is a flavoprotein with a symmetry matched ferritin-like cargo protein. Scientific Reports **11**:22810.
10. Herbst, D.A., Esbin, M.N., Louder, R.K., Dugast-Darzacq, C., Dailey, G.M., Fang, Q., Darzacq, X., Tjian, R., and Nogales, E. (2021) Structure of the human SAGA coactivator complex. NSMB **28**, 989-996.
11. Pausch, P., Soczek, K.M., Herbst, D.A., Al-Shayeb, B., Banfield, J.F., Nogales, E. and Doudna, J.A. (2021) DNA interference states of the hypercompact CRISPR-Cas Φ effector. NSMB **28**, 652-661.
12. Glaeser, R.M., Nogales, E. and Chiu, W. (2021) Single particle cryo-EM of biological macromolecules. Biophysical Society-IOP series. IOP Publishing. Online ISBN: 978-0-7503-3039-8. Print ISBN: 978-0-7503-3037-4
13. Patel, A., Toso, D., Litvak, A., and Nogales, E. (2021) Efficient graphene oxide coating improves cryo-EM sample preparation and data collection from tilted grids. bioRxiv 2021.03.08.434344. doi: <https://doi.org/10.1101/2021.03.08.434344>.

14. Nichols, R.J., LaFrance B., Phillips, N.R., Oltrogge, L.M., Valentin-Alvarado, L.E., Bischoff, L.E., Nogales, E., and Savage, D.F. (2021) Discovery and characterization of a novel family of prokaryotic nanocompartments involved in sulfur metabolism. *eLife* **59288**.
15. Greber, B.J., Remis, J., Ali, S. Nogales, E. (2021) Structure of the CDK-activating kinase bound to the clinical inhibitor ICE0942 at 2.5 Å resolution. *Biophys. J.* **120**, 677-686 (journal cover).
16. Kasinath, V., Beck, C., Sauer, P., Poepsel, S., Kosmatka, J., Faini, M., Toso, D., Aebersold, R., and Nogales, E. (2021) JARID2 and AEBP2 regulate PRC2 activity in the presence of H2A ubiquitination or other histone modifications. *Science* **371**, 6527.
17. Martin, R., Tiancong Qi T., Zhang H., Liu F., King M., Toth C., Nogales E and Staskawicz, B.J. (2020) Structure of the activated Roq1 resistosome directly recognizing the pathogen effector XopQ. *Science* **370**, eabd 9993.
18. Castañeda, A.F., Didychuk, A.L., Louder, R.K., McCollum, C.O., Davis, Z.H., Nogales E. and Glaunnsinger, B.A. (2020) The gammaherpesviral TATA box binding protein interacts directly with the C-terminal domain of RNA polymerase II to direct late gene transcription. *PLOS Pathogenes* <https://doi.org/10.1371/journal.ppat.1008843>.
19. Greber, B.J., Perez Bertoldi, J.M., Lim, K., Iavarone, A.T., Toso, D.B. and Nogales, E. (2020) The cryo-electron microscopy structure of the human CDK activating kinase. *PNAS* **549**, 414-417.
20. Mena, E.L., Jevtić, P., Greber, B.J., Gee, C.L., Lew, B.G., Akopian, D., Nogales, E., Kuriyan, J., and Rape, M. (2020) Structural basis for dimerization quality control. *Nature* **586**, 452–456.
21. García-Cerdán, Schmid, E.M., Takeuchi, T., McRae, I., McDonald, K.L., Yordduangjun, N., Hassan, A.M., Grob, P., Xu, C.S., Hess, H.F., Fletcher, D.A., Nogales, E., and Niyogi, K.K. (2020) Chloroplast Sec14-like 1 (CPSFL1) is essential for normal chloroplast development and affects carotenoid accumulation in *Chlamydomonas*. *PNAS* **117**, 12452–12463.
22. Greber, B.J. and Nogales, E. (2019) The structures of eukaryotic transcription pre-initiation complexes and their functional implications. *Subcellular Biochemistry* **93**, 143-192.
23. Patel, A.B., Moore, C.M., Greber, B.J., Luo, J., Zukin, S.A., Ranish, J. and Nogales, E. (2019) Architecture of the chromatin remodeler RSC and insights into its nucleosome engagement. *Elife* **54449**.
24. Patel, A.B., Greber B.J. and Nogales, E. (2019) Recent insights into the structure of TFIID, its assembly, and its binding to core promote. *COSB* **61**, 17-24.
25. Ghanim, G., Kellogg, E., Nogales, E. and Rio, D.C. (2019) Structure of a P element transposase-DNA complex reveals unusual DNA structures and GTP-DNA contacts. *NSMB* **26**, 1013-1022.
26. Nogales E., and Greber, B.J. (2019) Structures of TFIIH and their functional implications. *COSB* **59**, 188-194.
27. Carragher, B., Cheng, Y., Frost, A, Glaeser, G.M., Lander, G.C., Nogales, E. and Wang, H-W. (2019) Compendium of current outcomes when optimizing sample preparation of single-particle cryo-EM. *J. Micros.* **276**, 39-45.
28. Haloupek, N., Grob, P., Tenthorey, J., Vance, R. and Nogales, E. (2019) Cryo-EM Studies of NAIP–NLRC4 Inflammasomes. *Methods in Enzymology Volume 625: DNA Sensors and Inflammasomes*, Ch. 12, 177, 204.
29. Liu, T., Liu, J.-J., Aditham, A., Nogales, E. and Doudna, J. (2019) Target preference of Type III-A CRISPR-Cas complexes at the transcription bubble. *Nat. Commun.* **10**, 3001.
30. Nguyen, T.H.D., Collins, K. and Nogales, E. (2019) Telomerase structures and regulation: shedding light on the chromosome end. *COSB* **55**, 185-193.
31. Eshun-Wilson, L., Zhang, R., Portran, D., Nachury, M.V., Toso, D., Lohr, T., Vendruscolo, M., Bonomi, M., Fraser, J.S. and Nogales, E. (2019) Effects of α -tubulin acetylation on microtubule structure and stability. *PNAS* **116**, 10366-10371.
32. Greber, B.J., Toso, D.B., Fang, J. and Nogales, E. (2019) The complete structure of the human TFIIH core complex. *eLife* **44771**.
33. Liu, J-J. Orlova, N., Oakes, B.L., Ma, E., Spinner, H.B., Baney, K.L.M., Chuck, J., Tan, D., Knott, G.J., Harrington, L.B., Al-Shayeb, B., Wagner, A., Brötzmann, J., Staahl, B.T., Talyor, K.L., Desmarais, J., Nogales, E., Doudna, J.A. (2019) CRISPR-CasX is an RNA-dominated enzyme active for human genome editing. *Nature* **566**, 218-223.
34. Jiang, F., Liu J.-J., Osuna, B.A., Xu, M., Berry, J.D., Rauch, J.B., Nogales, E., Bondy-Denomy, J,

- and Doudna, J.A. (2019) Temperature-responsive competitive inhibition of CRISPR-Cas. *Mol. Cell* **73**, 1-10.
35. Kasinath, V, Pöpsel, S and Nogales, E. (2019) Recent structural insights into PRC2 regulation and substrate binding. *Biochem.* **58**, 346-354.
 36. Nogales, E. (2018) Tubulin and its isoforms. Reference Module in Biomedical Sciences. Elsevier. 28-Dec-2018 doi:10.1016/B978-0-12-801238-3.11142-0.
 37. Patel, A. Louder, R.K., Greber, B.J., Grünberg, S., Luo, J., Fang, J., Liu, Y., Ranish, J., Hahn, S. and Nogales, E. (2018) Structure of human TFIID and mechanism of TBP loading onto promoter DNA. *Science* **362**, eaau8872.
 38. Iwai, M., Grob, P., Iavarone, A.T., Nogales, E. and Niyogi, K.K. (2018) A unique supramolecular organization of photosystem I in the moss *Physcomitrella patens*. *Nat. Plants* **4**, 904-909.
 39. Nogales, E. (2018) Who mentors whom? *MBoC* **29**, 2606-2607.
 40. Nogales, E. (2018) Cryo-EM. *Curr. Biol.* **28**, R1127-1128.
 41. Zhang, R, LaFrance, B. and Nogales E. (2018) Separating the effect of nucleotide and EB binding on microtubule structure. *PNAS* **115**, E6191-E6200.
 42. Kellogg, E.H., Hejab, N.M.A., Poepsel, S., Downing, K.H., DiMaio, F. and Nogales, E. (2018) Near-atomic model of microtubule-bound tau. *Science* **360**, 1242-1246.
 43. Nguyen, T.H.D., Tam, J., Wu, R.A., Greber, B.J., Toso, D., Nogales, E., Collins, K. (2018) Cryo-EM structure of substrate-bound human telomerase holoenzyme. *Nature* **557**, 190-195. [News and Views in that issue.](#)
 44. Pöpsel, S., Kasinath, V. and Nogales E. (2018) Cryo-EM structure of PRC2 simultaneous engagement with two functionally distinct nucleosomes. *NSMB* **25**, 154-162
 45. Nogales, E. (2018) Cytoskeleton in high resolution. *Nature Rev. Mol. Cell Biol.* **19**, 142.
 46. Kasinath V., Faini M., Reif D., Feng X.A., Stjepanovic G., Poepsel S., Aebersold R. and Nogales, E. (2018) Structures of human PRC2 with its cofactors AEBP2 and JARID2. *Science* **359**, 940-944.
 47. Howes, S.C., Geyer, E.A., LaFrance, B., Zhang, R., Kellogg, E.H., Westermann, S., Rice, L.M. and Nogales, E. (2018) Structural and functional differences between porcine brain and budding yeast microtubules. *Cell Cycle*, **17**, 278-287.
 48. Nogales, E. (2018) Profile of Joachim Frank, Richard Henderson, and Jacques Dubochet, 2017 Nobel Laureates in Chemistry. *PNAS* **115**, 441-444.
 49. Cheng, Y., Glaeser, R.M. and Nogales, E. (2017) How did cryo-EM get so hot? *Cell* **171**, 1229-1231.
 50. Zhang, R., Roostalu, J., Surrey, T. and Nogales, E. (2017) Structural Insight into TPX2-Stimulated Microtubule Assembly. *eLife* **e30959**.
 51. Tenthorey, J.L., Haloupek, N., López-Blanco, J.R., Grob, P., Adamson, E., Hartenian, E., Lind, N.A., Chacón, P., Nogales, E and Vance, R.E. (2017) Structural basis of flagellin detection by NAIP5: a strategy to limit pathogen immune evasion. *Science* **358**, 888-893.
 52. Greber, B.J., Nguyen, T.H.D., Fang, J., Afonine, P.V., Adams, P.D. and Nogales, E. (2017) The cryo-EM structure of human TFIID. *Nature* **549**, 414-417.
 53. Wright, A.V., Liu, J.-J., Knott, G.J., Doxzen, K.W., Nogales, E. and Doudna, J.A. (2017). Structures of the CRISPR genome integration complex. *Science* **357**, 1113-1118.
 54. Shin, J., Jiang, F., Liu, J.-J., Bray, N.L., Rauch, B.J., Baik, S.H., Nogales, E., Bondy-Denomy, J., Corn, J.E., and Doudna, J.A. Disabling Cas 9 by anti-CRISPR DNA mimic. *Science Advances* **3**, e1701620.
 55. Howes, S.C., Geyer, E.A., LaFrance, B., Zhang, R., Kellogg, E.H., Westermann, S., Rice, L.M. and Nogales, E. (2017) Structural differences between yeast and mammalian microtubules revealed by cryo-EM. *JCB* **216**, 2669-2677.
 56. Nogales, E, Patel, A. and Louder R.K. (2017) Towards a Mechanistic Understanding of Core Promoter Recognition from Cryo-EM Studies of Human TFIID. *COSB* **47**, 60-66.
 57. Nogales, E. and Kellogg, E.H. (2017) Challenges and opportunities in the high-resolution cryo-EM visualization of microtubules and their binding partners. *COSB* **46**, 65-70.
 58. Xu, C.S., Hayworth, K.J., Lu, Z., Grob, P., Hassan, A., Garcia Cerdan, J.G., Niyogi, K.K., Nogales, E., Weinberg, R.J. and Hess, H.F. (2017) Enhanced FIB-SEM systems for large-volume 3D

- imaging. *eLife* **6**, e25916.
59. Nogales E., Louder R.K. and He Y. (2017) Structural Insights into the Eukaryotic Transcription Initiation Machinery. *Ann. Rev. Biophys* **46**, 59-83.
 60. Kellogg, E., Hejab, N.M.A., Howes, S., Northcote, P, Miller, J.H., Diaz, J.F., Downing, K.H. and Nogales, E. (2017). Insights into the distinct mechanisms of action of taxane and non-taxane microtubule stabilizers from cryo-EM studies. *J. Mol. Biol.* **429**, 633–646. Cover in that issue.
 61. Nogales, E, Fang, J. and Louder R.K. (2017) Structural dynamics and DNA interaction of human TFIID. *Transcription* **8**, 56-60.
 62. Huang, C.S., Nogales, E. and Ciferri, C. (2017) Molecular architecture of the polycomb repressive complex 2. *Polycomb Group Proteins*, Chapter 8, 165-189. Academic Press.
 63. Booth, E.A, Sterling, S.M., Dovala, D., Nogales, E. and Thorner, J. (2016) Effects of Bni5 Binding on Septin Filament Organization. *J.Mol. Biol.* **428**, 4962-4980.
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