Michael Rape

Investigator, Howard Hughes Medical Institute

K. Peter Hirth Chair of Cancer Biology
Professor and Head, Division of Molecular Therapeutics

Department of Molecular and Cell Biology
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EDUCATION:

2002	Dr. rer. nat. (equivalent to Ph.D.) in biochemistry, *summa cum laude* Max-Planck-Institute of Biochemistry, Martinsried, Germany
1999	Diploma (equivalent to M.Sc.) in biochemistry, *with highest honors* Bayreuth University, Bayreuth, Germany
1994-1999	Study of biochemistry Bayreuth University, Bayreuth, Germany University of Delaware, Newark, USA
1993	Abitur (Walter Gropius Gymnasium Selb, Germany)

POSITIONS AND EMPLOYMENT:

2022-present	Founding Head, Division of Molecular Therapeutics, MCB, UC Berkeley
2022-present	Professor of Molecular Therapeutics, Department of Molecular and Cell Biology, UC Berkeley
2014-present	K. Peter Hirth Chair of Cancer Biology, UC Berkeley
2013-present	Investigator, Howard Hughes Medical Institute
2013-2022	Professor of Cell and Developmental Biology Department of Molecular and Cell Biology, UC Berkeley
July 2011-2013	Associate Professor of Cell and Developmental Biology with tenure Department of Molecular and Cell Biology, UC Berkeley
Oct. 2006 – 2011	Assistant Professor of Cell and Developmental Biology Department of Molecular and Cell Biology, UC Berkeley
2003-2006	Postdoctoral Fellow with Prof. Marc W. Kirschner Department of Systems Biology, Harvard Medical School, Boston, USA
2000-2002	Graduate Student with Prof. Stefan Jentsch Max-Planck-Institute of Biochemistry, Martinsried, Germany
1999	Diploma Student with Prof. Franz Schmid Bayreuth University, Bayreuth, Germany

AWARDS & HONORS:

2023	**Elected Foreign Member, EMBO**
2018	Pew Foundation Innovation Award
2016	**National Blavatnik Laureate in the Life Sciences**
2015	Finalist, National Blavatnik Award
2014	K. Peter Hirth Endowed Chair of Cancer Biology, UC Berkeley
2014	Finalist, National Blavatnik Award
2014	Editorial Board, Molecular Cell
2013	**Investigator, Howard Hughes Medical Institute**
2013	Curci Foundation Award
2013	**Vilcek Award for Creative Promise**
2012	Bakar Fellow, University of California at Berkeley
2011	Editorial Board, EMBO Reports
2011	Editorial Board, Journal of Cell Science
2011	Editorial Board, Current Protocols in Chemical Biology
2010	Board of Reviewing Editors, Molecular Biology of the Cell
2009	Member, Faculty of 1000
2007	**NIH Director's New Innovator Award**
2007	Pew Scholar Award
2007	Kimmel Scholar Award (declined)
2004-2006	Long-Term Fellowship of the Human Frontier Science Program
2003	Long-Term Fellowship of the European Molecular Biology Organization (EMBO)
2002	Dissertation "summa cum laude"
2002	Otto-Hahn Medal of the Max-Planck Society
2001	Max-Planck Institute of Biochemistry Junior Research Award
2000-2002	Ph.D. Fellowship of the Boehringer Ingelheim Foundation
1999	Diploma "with highest honors"
1996-1999	Fellowship of the German National Scholarship Foundation (Studienstiftung des Deutschen Volkes)
1994-1999	Bavarian Fellowship for very talented students (Bayerische Begabtenfoerderung)

SELECT INVITED KEYNOTE OR NAMED LECTURES:

2024	Discovery Lecture, MRC/Dundee University (Scotland)
2023	Alexander M. Cruickshank Lecture, Gordon Research Conferences
2022	Friedrich-Miescher Lecture, Basel (Switzerland)
2018	UT Southwestern University Lecture
2018	Keynote Lecture, 2nd Frankfurt Conference on Quality Control (Germany)
2018	Tony Pawson Memorial Lecture (Canada)
2017	Danny Thomas Lecture, St. Jude Children's Research Hospital
2016	Distinguished Lecture Series, Max Planck Institute of Biochemistry (Germany)
2015	President's Lecture, Sanford Burnham Prebys Medical Discovery Institute
2015	Keynote Lecture, ETH Zurich (Switzerland)
2014	Keynote Lecture, Boehringer Ingelheim Foundation Meeting, Woods Hole
2014	Keynote Lecture, Ubiquitin and Drug Discovery, San Diego
2011	3rd SCILLS lecture, Dundee, UK
2011	George Connell Lecture, University of Toronto, Canada

SELECT INVITED LECTURES:

2024	Caltech (Pasadena); Altos (Foster City); Calico (South San Francisco); Proteasome and Autophagy Congress (Clermont-Ferrand, France); University of Cologne (Germany); Columbia University (New York); University of Dundee (Scotland); EMBO conference

	Ubiquitin and Ubiquitin-like proteins (Cavtat, Croatia); Gilead (Redwood City); Keystone meeting Targeted Protein Degradation (Keystone); Fusion conference Ubiquitin Function in Health and Disease (Lisbon, Portugal); Lorne Protein Meeting (Lorne, Australia); WEHI (Melbourne, Australia); New York University (New York City); Stanford Chemical Biology Symposium (Stanford); Proteocure (London, UK); University of Colorado Medical School (Denver); UT San Antonio (San Antonio);
2023	Freiburg (Germany); AACR Orlando; Cold Spring Harbor Ubiquitin, Autophagy and Disease; EMBO workshop quality control, Dubrovnik (Croatia); EMBO workshop RNA and protein degradation (Cavtat, Croatia); NIH Cobre mentorship University of South Dakota; Gordon Conference Cell Proliferation (Mount Snow); Vanderbilt University (Nashville); Keystone Meeting Protein Degradation and Autophagy; EMBO meeting (Heidelberg, Germany)
2022	University of Cambridge, UK (Zoom); HD Therapeutics Conference (Palm Springs, US); Discovery of Target Conference (Boston, MA); Jentsch Proteostasis Meeting (Austria); OncoArendi (Poland; Zoom); ICCB Meeting (Taipeh, Taiwan); Ubiquitin and Friends Symposium (Vienna, Austria); University of Colorado (Boulder, US); Amgen (Thousand Oaks, US); HHMI (Chevy Chase, US); Friedrich-Miescher Institute (Basel, Switzerland); Fred Hutchison Cancer Center (Seattle, US).
2021	Goethe University, Frankfurt (Germany); UCSF; Loyola University; Gladstone Institutes, San Francisco; Centre for Molecular and Cellular Biology (India); Carnegie Institution; Proteasome and Autophagy Congress, Clermant Ferrand (France); CECAD Cologne (Germany); Vanderbilt University; Biochemie Zentrum, Basel (Switzerland); Dana Faber Cancer Institute, Boston. (most invitations were postponed due to Covid)
2020	IMP Vienna (Austria); ETH, Zurich (Switzerland); Dana Faber Cancer Institute, Boston; Gladstone Institutes, San Francisco; University of Leiden (Netherlands) (most invitations have been postponed due to the pandemic)
2019	Siebel Symposium, UC Berkeley; University of Massachusetts, Amherst; EMBO Quality Control meeting, Mallorca (Spain); UCSF; EMBO Ubiquitin meeting, Croatia; CHDI degradation meeting, Amsterdam; New York Academy of Sciences; Targeted Degradation Summit, Boston; University of Minnesota; University of Pennsylvania cMyc meeting; HHMI; Cleveland Clinic
2018	MD Anderson Cancer Center; Baylor University; University of California at Davis; Ubiquitin and Disease Meeting (Nassau, Bahamas); Signaling Meeting, Banff (Canada); Harvard Medical School; Siebel Stem Cell Center, Stanford; CHDI Annual Meeting, Palm Spring; FASEB Ubiquitin meeting, Snowmass; Pfizer; Wuerzburg University; Makarere University, Uganda; Frankfurt Conference on Quality Control; Jena Aging Meeting; University of North Carolina; UT Southwestern; Max-Planck Institute, Dortmund
2017	Memorial Sloan Kettering Cancer Center, New York; St. Jude Children's Research Hospital; University of California, San Diego; Weizmann Institute, Rehovot (Israel); Technion, Haifa (Israel); Hinterzartener Kreis, Lake Como (Italy); Max Delbrueck Center, Berlin; Massachussetts General Hospital, Boston; New York Academy of Sciences, New York; Stanford University; IMP Vienna; Gordon Conference on Membrane Biology; Howard Hughes Medical Institute, Chevy Chase; Max-Planck Institute of Biochemistry; Abbvie; University of Heidelberg
2016	Columbia University; Yale University; UT Southwestern Dallas; Stanford University; University of California Los Angeles; Max Delbrueck Center Berlin; Medical University of South Carolina; Keystone Ubiquitin meeting; FASEB Ubiquitin meeting; Mayo Clinic, Rochester; Max Planck Institute of Biochemistry, Germany; New York Academy of Sciences; Janelia Farms (HHMI); ASCB meeting
2015	Strasbourg (France); Van Andel Research Institute Student Symposium; Princeton University; Memorial Sloan Kettering Cancer Center; University of Pennsylvania Abramson Cancer Center; Ubiquitin and Disease Workshop (Beijing, China); Cold Spring Harbor Meeting Ubiquitin Family; EMBO Ubiquitin Meeting (Dubrovnik Croatia); Howard Hughes Medical Institute; Gordon Conference Cell Growth (Vermont); University of Wisconsin Student Lecture; ETH Zurich (Switzerland); Kirschner Symposium (Harvard, Boston); IFOM (Milan, Italy)
2014	EMBO Ubiquitin and RNA Meeting (Buenos Aires, Argentina); Ubiquitin Workshop (Nara, Japan); Kyoto University (Kyoto, Japan); Howard Hughes Medical Institute; New York

University; Stanford University; University of Massachusetts; Boehringer Ingelheim Foundation Meeting; Cold Spring Harbor Meeting Cell Cycle; Protein Society Meeting; American Society for Biochemistry and Molecular Biology Meeting; Keystone Ubiquitin Meeting; Blavatnik Science Scholar Symposium; FASEB Ubiquitin Meeting; University of Colorado; University of Delaware; Siebel Stem Cell Symposium; Ubiquitin and Drug Discovery Meeting San Diego

INTERNATIONAL SERVICE (2012-present):

2025	Organizer, Titisee Conference "Stress signaling in development and disease"
2024-present	Co-organizer, Keystone meeting "Ubiquitin biology"
2024	Co-organizer "The Future of Cell, Systems, and Developmental Biology", Boston
2024-present	Scientific Advisory Panel, Mathers Foundation
[1]2023-present	Member, Vanderbilt University School of Medicine Basic Sciences External Advisory Council
2023-present	AACR Award for Outstanding Achievement in Chemistry in Cancer Research, Selection committee
2023-2024	Associate Editor, Molecular Biology of the Cell
2021-2022	Study Section, NIH Director's Transformative Research Award
2018, 2021	Workshop, Scientific Communication, Makarere University, Uganda
2016-2018	Chair, NIH Study Section Cellular Signaling and Regulatory Systems
2015-present	Co-Organizer, Cold Spring Harbor Meeting "Ubiquitin, Autophagy, and Disease"
2015-2023	ASCB, mentoring on faculty chalk talks (also at UCSF, UCB)
2014	Organizer, 2016 Keystone Meeting Ubiquitin (Whistler Mountain)
2014-2018	Member, NIH Study Section Cellular Signaling and Regulatory Systems
2013	Site visit member; NCI Frederick
2012	NIH PO1 review panel
2012-present	Editorial Boards of Molecular Cell; Journal of Cell Science; EMBO Reports; Current Protocols in Chemical Biology; F1000 Research
2013-2022	Board of Reviewing Editors, eLife
2012-2020	Editorial Board, Molecular Biology of the Cell
2012-present	Tenure and promotion committees and departmental evaluation for LMB Cambridge (UK); NIH; Indiana University; University of Dundee, New York University; UCSD; UNLV; University of South Carolina; Duke University; University of Texas; et al.
2012-present	Grant review panels for NIH; NSF; Medical Research Council, UK; Swiss National Science Foundation; Boehringer Ingelheim Foundation; Austrian Science Foundation; Welcome Trust, UK; European Research Council; Humboldt Foundation, Germany; Deutsche Forschungsgemeinschaft, Germany; German Cancer Foundation; et al.
2012-present	Reviewer for Cell, Molecular Cell, Developmental Cell, Cancer Cell, Cell Reports, Science, Nature, Nature Cell Biology, Nature Structural and Molecular Biology, Nature Chemical Biology, Nature Communications, Genes and Development, PNAS, Molecular Biology of the Cell, Molecular Cell Biology, Journal of Cell Biology, EMBO Journal, EMBO Reports, Annual Reviews of Biochemistry, Chemistry and Biology, JACS, International Journal of Cancer Research, Journal of Cell Science, PLoS Biology, eLife; et al.

LOCAL SERVICE (2013-present):

2023-present	UCB-wide proposal selection committee for Mathers Foundation grants and Schmitt Polymaths grants
2023-present	Board member, Molecular Therapeutics Initiative, UC Berkeley
2023-2024	Search committee for Dean of Optometry and Vision Sciences, UC Berkeley
2023-2024	Chair, Midcareer Evaluation committee, MCB
2023-present	DEIBJ committee member, MCB Berkeley
2022-present	Chair; Campus-wide Financial Conflict of Interest Committee
2022-present	Founding Head, Division of Molecular Therapeutics, MCB

2022-present	Head, Industrial Affiliates Program, MCB
2020-present	Member, advisory committee for Berkeley's Chief Entrepreneurship and Innovation Officer
2020-2021	Chair, graduate admissions committee, MCB
2019-2020	Co-chair, graduate admission committee, MCB
2018	Co-founding faculty member, Biobiz (an MCB and Haas collaboration)
2017-present	Member or chair of tenure and promotion committees
2018-present	Outside member, promotion committees
2018-2023	Campus-wide Privileges and Tenure Committee
2017-present	Faculty-in-Residence, Skydeck
2017-2018	Vice Chancellor's Committee on Entrepreneurship at UC Berkeley
2016-2022	Member, Campus-wide Financial Conflict of Interest Committee
2016	Search committee, Cancer Biology, MCB
2016	Selection committee, Women in Science Research Grants
2015	outside member, promotion committee in NST
2015-present	Selection committee, Summer Undergraduate Research Fellowship
2014-2020	Seminar committee, BBS-CDB-GGD seminar series
2014	Organizer, CDB retreat
2013-present	Founder and scientific advisor, Berkeley High-Throughput Screening Center
2013-present	Member of five assistant professor mentoring committees
2013-present	Member of >30 thesis advisory committees
2013-present	Teaching (MCB95B, MCB130A, MCB230, 2016: MCB290)

BIOTECHNOLOGY EXPERIENCE

2009-present Co-founder, consultant, Scientific Advisory Board, Nurix Therapeutics ($NRIX; San Francisco); head VCs: The Column Group Ventures, Third Rock Ventures

This public company was the first company dedicated to developing small molecule approaches to targeted protein degradation as a new therapeutic modality. It focuses on targets in immuno-oncology and currently has two degrader programs and a first-in-class E3 ligase inhibitor program in clinical trials. One of these trials reported several complete responses in blood cancer

2019-2023	Scientific Advisory Board of Monte Rosa Therapeutics (Basel)
2021-present	iPartner, The Column Group Ventures
2022-present	Scientific Advisory Board of Vicinitas (San Francisco)
2022-present	co-founder, consultant, Scientific Advisory Board, Zenith Therapeutics (Basel); head VC: Versant Ventures and a16z (series A)
2022-present	co-founder, consultant, Scientific Advisory Board, Lyterian Therapeutics (San Francisco); head VC: The Column Group, Bayer Leaps (series A)
2023-present	co-founder, Reina Therapeutics (seed stage company)

VOLUNTEERING

2022-present Board of Trustees, GATE Academy, St. Vincent, CA

SELECT KEY PUBLICATIONS:

Haakonsen DL, Heider M, Ingersoll AJ, Vodehnal K, Witus SR, Uenaka T, Wernig M, and **Rape M**. (2024). Stress response silencing by an E3 ligase mutated in neurodegeneration. Nature 626(8000): 874-800.

- *This paper shows that stress responses are actively silenced and that persistent stress response signaling, not protein aggregation, causes a range of related neurodegenerative diseases.*

Mark KG, Kolla S, Aguirre J, et al., and **Rape M.** (2023). Orphan quality control shapes network dynamics and gene expression. Cell 186(16):3460-3475.

- *This paper reveals a regulatory role of quality control in gene expression in stem cells and thereby explains why proteasomal degradation is required for transcription.*

Padovani C, Jevtić P, and **Rape M.** (2022). Quality control of protein complex composition. Mol. Cell 82(8): 1439-1450

Akopian D, McGourty C, and **Rape M**. (2022). Co-adaptor driven assembly of a CUL3 E3 ligase complex. Mol. Cell 82(3): 585-597

Manford AG, Mena EL, Shih KY, Gee CL, McMinimy R, Martínez-González B, Sherriff R, Lew B, Zoltek M, Rodríguez-Pérez F, Woldesenbet M, Kuriyan J, and **Rape M**. (2021). Structural basis and regulation of the reductive stress response. Cell 184(21): 5375-5390

- *This paper introduces Zinc as the first physiological molecular glue in the ubiquitin pathway, central for mitochondrial regulation, and explains the molecular basis of two developmental diseases.*

Rodriguez-Perez F, Manford AG, Pogson A, Ingersoll AJ, Martinez-Gonzalez B, and **Rape M** (2021). Ubiquitin-dependent remodeling of the actin cytoskeleton drives cell fusion, Developmental Cell 56(5):588-601.

Manford AG, Rodriguez-Perez F, et. al., and **Rape M**. (2020). A cellular mechanism to detect and alleviate reductive stress, Cell 183(1):46-61

- *This paper reports an essential signaling pathway that uses reactive oxygen species to control mitochondrial activity in cells.*

Mena E, Jevtic P. et al., and **Rape M.** (2020). Structural basis for dimerization quality control. Nature 586(7829):452-456

- *This paper provides the first structural insight into any mechanism of protein quality control of complex composition*

Oh E, Mark KG, Mocciaro A, Watson ER, Prabu JR, Cha DD, Kampmann M, Gamarra N, Zhou CY, and **Rape M.** (2020). APC/C-dependent control of gene expression and cell identity. Nature 579(7797):136-140.

- *This paper reveals a molecular mechanism for "mitotic bookmarking", i.e. how cells can maintain their identity through cell division*

Mena EI, Kjolby RAS, Saxton R, Werner A, Lew BG, Boyle JM, Harland R, and **Rape M**. (2018). Dimerization quality control ensures neuronal development and survival. Science 12;362(6411). pii: eaap8236. doi: 10.1126/science.aap8236.

- *This paper provides the first example of quality control of protein complex composition.*

Werner A, Baur R, Teerikorpi N, Kaya D, and **Rape M**. (2018). Multisite dependency of an E3 ligase controls monoubiquitylation-dependent cell fate decisions. eLife *7:* e35407

Oh A, Akopian D, and **Rape M**. (2018). Principles of ubiquitin-dependent signaling. Annu. Rev. Dev. Cell Bio. *34:* 137-162.

Yau R, Doerner K, Castellanos ER, Werner A, Haakonsen D, Wang N, Yang WX, Matsumoto M, Dixit V, and **Rape M**. (2017). Assembly and function of heterotypic ubiquitin chains in cell cycle and protein quality control, Cell 171(4):918-933

- *This paper reveals physiological roles of branched ubiquitin chains and identifies the components of an essential quality control pathway mutated in Amyotrophic Lateral Sclerosis.*

Rape M. (2017). Ubiquitylation at the crossroads of development and disease. Nature Rev. Mol. Cell Bio. 19(1):59-70.

Yau R, and **Rape M**. (2016). The increasing complexity of the ubiquitin code. Nat. Cell Biol. 18(6):579-86.

McGourty CA, Akopian D, Walsh C, Gorur A, Schekman R, Bautista D, and **Rape M.** (2016). Regulation of the CUL3 ubiquitin ligase by a calcium-dependent co-adaptor. Cell 167(2):525-538.

- *This paper reports the first calcium-dependent E3 ubiquitin ligase, involved in COPII vesicle size control*

Schaletzky J, and **Rape M**. (2016). Getting a grip on microtubules. Cell 164(5):836-7.

Craney A, Kelly A, Jia L, Fedrigo I, Yu H, and **Rape M**. (2016). Control of APC/C-dependent ubiquitylation by reversible phosphorylation. Proc. Natl. Acad. Sci. USA 113(6):1540-5.

Werner A., Iwasaki S., McGourty C., Medina-Ruiz S., Teerikorpi N., Fedrigo I., Ingolia N., and **Rape M.** (2015). Cell fate determination by ubiquitin-dependent regulation of translation. Nature 525, 523-37. [Research Highlight in Nat. Rev. Mol. Cell Biol]

- *This study shows that cells can change ribosome specificity through acute ubiquitin-dependent regulation, a pathway essential for neural crest specification and mutated in melanoma.*

Kelly, A, Wickliffe, KE, Song, L, Federigo, I., and **Rape M.** (2014). Ubiquitin chain formation requires E3-dependent tracking of the emerging conjugate. Mol. Cell 56(2): 232-45. [Preview in Mol. Cell; Faculty of 1000]

Meyer, HJ., and **Rape M.** (2014). Enhanced protein degradation by branched ubiquitin chains. Cell 157 (4): 910-921 [Preview in Cell]

- *This study reports the first function of branched ubiquitin chains, as proteasomal priority signals.*

Song L., Craney A., and **Rape M.** (2014). Microtubule-dependent regulation of mitotic protein degradation. Mol. Cell 23;53(2):179-92. [Issue highlight of Mol. Cell; News and Views in Mol. Cell; Research Highlight in Nature Reviews Mol. Cell Biol.; Digital highlight in Biotechniques; Faculty of 1000]

Williamson A., Werner A., and **Rape M.** (2013). The Colossus of ubiquitylation – decrypting a cellular code. Mol. Cell 49(4):591-600

Jin L, Bajai K, Wickliffe K, Gorur A, Schekman R, and **Rape M.** (2012). Ubiquitin-dependent regulation of COPII coat size and function. Nature 482(7386):495-500. [News and Views in Nature; Preview in Cell; Faculty of 1000]

- *This study shows that cells can regulate vesicle size using a ubiquitin-dependent mechanism.*

Komander D, and **Rape M.** (2012). The ubiquitin code. Annu. Rev. Biochem. 81:203-29.

Williamson A*, Banerjee S*, Zhu X, Philipp I, Iavarone AT, and **Rape M**. (2011). Regulation of ubiquitin chain initiation to control the timing of substrate degradation. Mol Cell 42, 744-57. [Highlight in Nature Rev. Mol Cell Biol.]

Wickliffe KE*, Lorenz S*, Wemmer D, Kuriyan J, and **Rape M.** (2011) The mechanism of ubiquitin chain formation by a single-subunit E2. Cell 144, 769-781 [Preview in Nat. Struct. Mol. Biol.; Faculty of 1000]

- *This paper demonstrates that substrate-assisted catalysis is at the heart of linkage specific ubiquitin chain formation.*

Wickliffe KE, Williamson A, Meyer HJ, Kelly A, **Rape M**. (2011). K11-linked ubiquitin chains as novel regulators of cell division. Trends Cell Biol. 21(11):656-63.

Matsumoto M*, **Wickliffe KE***, et al. (2010). K11-Linked Polyubiquitination in Cell Cycle Control Revealed by a K11 Linkage-Specific Antibody. Mol. Cell 39(3):477-84 [Faculty of 1000]

- *This paper reveals the physiological importance of K11-linked ubiquitin chains during cell division.*

Song EJ, Werner SL, Neubauer J, Stegmeier F, Aspden J, Rio D, Harper JW, Elledge SJ, Kirschner MW, and **Rape M.** (2010). The Prp19 complex and the Usp4^{Sart3} deubiquitinating enzyme control reversible ubiquitination at the spliceosome. Genes Dev. 24, 1434-47.

Song L, and **Rape M.** (2010). Regulated degradation of spindle assembly factors by the anaphase-promoting complex. Mol. Cell 38, 369-82.

Rape M (2010) Assembly of K11-linked ubiquitin chains by the anaphase-promoting complex. Subcell. Biochem. 54: 107-115

Williamson A*, Wickliffe KE*, Mellone BG, Song L, Karpen G, and **Rape M.** (2009). Identification of a physiological E2 module for human APC/C. Proc. Natl. Acad. Sci. USA. 106(43):18213-8. [Faculty of 1000]

- *This paper defines the catalytic module of the essential Anaphase-Promoting Complex (APC/C)*

Ye Y and **Rape M.** (2009). Building ubiquitin chains: E2 enzymes at work. Nat. Rev. Mol. Cell Biol. 10(11):755-64.

Jin, L.*, Williamson, A.*, Banerjee, S., Phillip, I., and **Rape M.** (2008). Mechanism of ubiquitin chain formation by the human Anaphase-Promoting Complex. Cell, 133, 653-665. [*Preview* in Cell]

- *This paper reports the first atypical ubiquitin chain, linked through K11, thereby setting the stage for the "ubiquitin code" hypothesis developed by us and others.*

Reddy, S.K.*, **Rape, M.***, and Kirschner M.W. (2007). Ubiquitination by the anaphase-promoting complex drives spindle checkpoint inactivation. Nature 446, 921-925.* *These authors contributed equally to this work.* [*News and Views* in Nature, Nature Reviews Molecular and Cell Biology, Faculty of 1000 Biology, Journal of Cell Biology]

Stegmeier, F.*, **Rape, M.***, et al. (2007). Anaphase initiation is regulated by antagonistic ubiquitination and deubiquitination activities. Nature 446, 876-881.* *These authors contributed equally to this work.* [*News and Views* in Nature, Nature Reviews Molecular and Cell Biology, Faculty of 1000 Biology, Journal of Cell Biology]

Rape, M., Reddy, S.K., and Kirschner, M.W. (2006). The anaphase-promoting complex controls substrate ordering by an intrinsic process akin to kinetic proofreading. Cell 124, 89-103. [*News and Views* in Cell, Nature Reviews Molecular and Cell Biology, Journal of Cell Biology, Nature Structural and Molecular Biology]

Richly, H.*, **Rape, M.*,** Braun, S., Rumpf, S., Hoege, C., and Jentsch, S. (2005). A series of ubiquitin binding factors connects CDC48/p97 to substrate multiubiquitylation and proteasomal targeting. Cell 120, 73-84.
* *These authors contributed equally to this work.*

Rape, M., and Kirschner, M.W. (2004). Autonomous regulation of the anaphase-promoting complex couples mitosis to S-phase entry. Nature 432, 588-595. [*News and Views* in Nature, Nature Reviews Molecular and Cell Biology]

Rape, M., Hoppe, T., Gorr, I., Kalocay, M., Richly, H., and Jentsch, S. (2001). Mobilization of processed, membrane-tethered SPT23 transcription factor by CDC48. Cell 107, 667-677.

- *This paper documents the function of p97/VCP as a ubiquitin-selective segregase, the first known ubiquitin-dependent chaperone.*

1. Mena, E.L., Kjolby, R.A.S., Saxton, R.A., Werner, A., Lew, B.G., Boyle, J.M., Harland, R., and Rape, M. (2018). Dimerization quality control ensures neuronal development and survival. Science *362*. 10.1126/science.aap8236.