BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME: Kirchhausen, Tomas

eRA COMMONS USER NAME: kirchhausen

POSITION TITLE: Professor of Cell Biology and Professor of Pediatrics, Harvard Medical School, Senior Investigator, Boston Children's Hospital; Springer Family Chair, Boston Children's Hospital

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE	Completion Date	FIELD OF STUDY
Universidad Peruana Cayetano Heredia, Peru	B.S.	04/72	Biology
Instituto Venezolano de Investigaciones Cientificas, Venezuela	M.S.	06/75	Biophysics
Universidad Peruana Cayetano Heredia, Peru	M.S.	06/75	Biophysics
Instituto Venezolano de Investigaciones Cientificas, Venezuela	Ph.D.	06/77	Biophysics and Physiology
Harvard University	M.A. (HON)	12/99	Cell Biology

A. Personal Statement

Record of successful and productive research projects in structural biology, cell biology, chemical genetics, live cell and single-molecule fluorescence microscopy imaging. My expertise and experience have prepared me to advise predoctoral and postdoctoral students. Leadership record to successfully carry out the longest lasting international collaborative educational and research program at Harvard Medical School.

B. Positions and Honors

Positions and Employment

1980-	Tutor in Biochemical Sciences, Harvard University
1981-1982	Postdoctoral, Harvard University, Department of Biochemistry and Molecular Biology
1982-1985	Research Associate in Biochemistry, Harvard University
1984-1985	Assistant Head Tutor, Biochemical Sciences, Harvard University
1986-1991	Assistant Professor of Anatomy and Cellular Biology, Harvard Medical School
1991-1993	Associate Professor of Anatomy and Cellular Biology, Harvard Medical School
1992-1999	Investigator, The Center for Blood Research, Inc.
1993-1999	Associate Professor, Department of Cell Biology, Harvard Medical School
1999-	Professor, Department of Cell Biology, Harvard Medical School
1999-2012	Senior Investigator, Immune Disease Institute, (formerly CBR Inst. for Biomedical Research)
2006-2012	Chair IT Committee, Immune Disease Institute.
2007-2012	Executive Faculty Committee, Immune Disease Institute.
2009-2015	HMS Director, Harvard-Portugal Program in Translational Research and Medical Education
2012-	Senior Investigator, Program in Cellular and Molecular Medicine (PCMM) at Boston Children's Hospital
2012-	Professor, Department of Pediatrics, Harvard Medical School
2016-2017	Visiting Scientist at Janelia Research Campus, HHMI
2016-	Honorary Professor in the school of Biomedical Sciences, Hong Kong

Honors

1982-1984	Research Fellow, Charles A. King Trust
1986-1991	Established Investigator Award, American Heart Association
2002-	Honorary Professor, Universidad Peruana Cayetano Heredia, Peru
2008-	AAAS Fellow
2012	John Cebra Endowed Lecture, Dynamics and Endocytosis. Marine Biological Laboratory, Woods Hole
2013-	Springer Family Chair, Boston Children's Hospital
2013-	Doctor Honoris Causa, Universidad Ricardo Palma, Peru
2014-	Associated Member EMBO
2014-	SMB Jose Laguna Lecture for Outstanding Basic Research in Dynamics of Endocytosis
2015-	Netherlands Society for Biochemistry and Molecular Biology: Speaker of the year
2015	EMBO Keynote Lecture, Systems Biology of Infection

Other Experience and Professional Memberships

1996-1999	Ad-hoc member of NIH Study Section, CB-1
1999-2003	Member, NIH Study Section, CDF-2
2001-	Member, Advisory Committee, Imaging Facility, Dept. of Cell Biology, Harvard Med. School
2004-2012	Ad-hoc member of NIH Study Sections CD-4 and ZRG1

C. Contribution to Science

1. Molecular architecture clathrin coats

The clathrin pathway is the principal route by which ligands such as protein growth factors and hormones enter cells; it is critical for reuptake of membrane at synapses, and it is a mode of entry usurped by many viral pathogens. We defined the structure, interactions, and assembly mechanisms of clathrin and many of its associated proteins, through studies extending over three decades (Kirchhausen et al., 2014). The clathrin heavy-chain sequence -- at the time, the longest derived by cDNA cloning (Kirchhausen et al., 1987a) -- and a similar analysis of the light chains (Kirchhausen et al., 1987b) led us ultimately to the crystal structure of a large N-terminal fragment (Haar et al., 1998) and to the determination of the first membrane coat, a complete molecular model of a clathrin coat from electron cryomicroscopy (cryoEM) (Fotin et al., 2004b).

Fotin, A., Cheng, Y., Sliz, P., Grigorieff, N., Harrison, S. C., Kirchhausen, T., and Walz, T. (2004b). Molecular model for a complete clathrin lattice from electron cryomicroscopy. Nature 432, 573–579.

Haar, ter, E., Musacchio, A., Harrison, S. C., and Kirchhausen, T. (1998). Atomic structure of clathrin: a beta propeller terminal domain joins an alpha zigzag linker. Cell 95, 563–573.

Kirchhausen, T., Harrison, S. C., Chow, E. P., Mattaliano, R. J., Ramachandran, K. L., Smart, J., and Brosius, J. (1987a). Clathrin heavy chain: molecular cloning and complete primary structure. Proc Natl Acad Sci USA 84, 8805–8809.

Kirchhausen, T., Scarmato, P., Harrison, S. C., Monroe, J. J., Chow, E. P., Mattaliano, R. J., Ramachandran, K. L., Smart, J. E., Ahn, A. H., and Brosius, J. (1987b). Clathrin light chains LCA and LCB are similar, polymorphic, and share repeated heptad motifs. Science 236, 320–324.

Kirchhausen, T., Owen, D., and Harrison, S. C. (2014). Molecular structure, function, and dynamics of clathrin-mediated membrane traffic. Cold Spring Harb Perspect Biol 6. PMID: 2478982. PMC3996469.

2. Mechanism of uncoating

The structure from cryoEM of a clathrin coat with a bound fragment of auxilin suggested a site for Hsc70 interaction (Fotin et al., 2004a). We determined the structure of a coat with bound auxilin and Hsc70, after carefully determining conditions under which the former directed specific recruitment of the latter (Xing et al., 2010). We showed that Hsc70 binding is accompanied by a distortion of the clathrin lattice and proposed a mechanism for uncoating in which Hsc70:ATP, recruited by auxilin, captures a transient distortion that exposes its site on clathrin; ATP hydrolysis tightens its grip, locking in the distortion and destabilizing the coat. Our subsequent in vitro single-molecule studies of uncoating supported and extended this model, which shows how a purely local set of molecular interactions, consistent with the known mechanism for Hsc70-mediated stabilization of unfolded proteins, can generate a delocalized remodeling of a very large assembly (Böcking et al., 2011).

Böcking, T., Aguet, F., Harrison, S. C., and Kirchhausen, T. (2011). Single-molecule analysis of a molecular disassemblase reveals the mechanism of Hsc70-driven clathrin uncoating. Nat Struct Mol Biol 18, 295–301. PMC3056279.
Fotin, A., Cheng, Y., Grigorieff, N., Walz, T., Harrison, S. C., and Kirchhausen, T. (2004a). Structure of an auxilin-bound clathrin coat and its implications for the mechanism of uncoating. Nature 432, 649–653.
Xing, Y., Böcking, T., Wolf, M., Grigorieff, N., Kirchhausen, T., and Harrison, S. C. (2010). Structure of clathrin coat with bound Hsc70 and auxilin: mechanism of Hsc70-facilitated disassembly. Embo J 29, 655–665. PMC2830701.

3. Mechanisms of coated-vesicle assembly in living cells

We built on the biochemical and structural discoveries we had made during the first twenty-five years of our work on clathrin-mediated endocytosis to analyze the mechanisms of coated-vesicle assembly in living cells, using emerging technologies in fluorescence microscopy and live-cell imaging. We showed that coated pits nucleate at the plasma membrane, grow by steady addition of clathrin triskelions, and finish assembly in a time determined in part by the size of the cargo; a substantial proportion of initiated coated pits abort before completion. Hsc70-mediated uncoating follows promptly upon dynamin-induced membrane scission of completed coated pits; we showed that the timing of this event is determined by arrival of auxilin, the clathrin specific, J-domain co-chaperone for Hsc70 (Massol et al., 2006). We went on, when our TIRF microscopy technology had reached the level of single-molecule counting, to show that coated pits initiate at the plasma membrane by coordinated arrival of clathrin and the AP2 adaptor complex, the latter recruited by interaction with PI-4,5-P2 (Cocucci et al., 2012) and that a single dynamin rung rather than spirals mediate coated pit neck scission (Cocucci et al., 2014). Accessory proteins are then essential for sustained growth. We further showed that clathrin assembly ordinarily provides the principal driving force for membrane invagination but that high membrane tension (Boulant et al., 2011) or very elongated cargo (Cureton et al., 2010) imposes an additional requirement for actin polymerization.

Boulant, S., Kural, C., Zeeh, J.-C., Ubelmann, F., and Kirchhausen, T. (2011). Actin dynamics counteract membrane tension during clathrin-mediated endocytosis. Nat Cell Biol 13, 1124–1131. PMCID: PMC3167020.
Cocucci, E., Aguet, F., Boulant, S., and Kirchhausen, T. (2012). The first five seconds in the life of a clathrin-coated pit. Cell 150, 495–507. PMCID: PMC3413093.
Cocucci, E., Gaudin, R., and Kirchhausen, T. (2014). Dynamin recruitment and membrane scission at the neck of a clathrin-coated pit. Mol Biol Cell. PMC4230619.
Cureton, D. K., Massol, R. H., Whelan, S. P. J., and Kirchhausen, T. (2010). The length of vesicular stomatitis virus particles dictates a need for actin assembly during clathrin-dependent endocytosis. PLoS Pathog 6, e1001127. PMC2947997.
Massol, R. H., Boll, W., Griffin, A. M., and Kirchhausen, T. (2006). A burst of auxilin recruitment determines the onset of clathrin-coated vesicle uncoating. Proc Natl Acad Sci USA 103, 10265–10270.

4.Chemical genetics. We used the adaptation of small-molecule screening tools for academic settings to introduce "chemical genetics" into the membrane-traffic field. Four compounds we discovered have turned into valuable tools for probing intracellular membrane dynamics. Dynasore, which we found with a screen for inhibitors of its GTPase activity, blocks the membrane scission step (Macia et al., 2006); this molecule and a more soluble derivative (hydroxydynasore) are now standard tools for identifying dynamin-dependent processes. Vacuolin, identified in a phenotypic screen, causes loss of intralumenal vesicle in endosomes (Cerny et al., 2004). BLT-1, identified in a screen for inhibition of cholesterol uptake from HDL, blocks scavenger-receptor mediated cholesterol transfer (Nieland et al., 2002). Secramine was the earliest discovered small-molecule inhibitor of Cdc42 (Pelish et al., 2006).

Cerny, J., Feng, Y., Yu, A., Miyake, K., Borgonovo, B., Klumperman, J., Meldolesi, J., McNeil, P. L., and Kirchhausen, T. (2004). The small chemical vacuolin-1 inhibits Ca(2+)-dependent lysosomal exocytosis but not cell resealing. EMBO Rep 5, 883–888.
Macia, E., Ehrlich, M., Massol, R., Boucrot, E., Brunner, C., and Kirchhausen, T. (2006). Dynasore, a cell-permeable inhibitor of dynamin. Dev. Cell 10, 839–850.
Nieland, T. J. F., Penman, M., Dori, L., Krieger, M., and Kirchhausen, T. (2002). Discovery of chemical inhibitors of the selective transfer of lipids mediated by the HDL receptor SR-BI. Proc Natl Acad Sci USA 99, 15422–15427.

Pelish, H. E., Peterson, J. R., Salvarezza, S. B., Rodriguez-Boulan, E., Chen, J.-L., Stamnes, M., Macia, E., Feng, Y., Shair, M. D., and Kirchhausen, T. (2006). Secramine inhibits Cdc42-dependent functions in cells and Cdc42 activation in vitro. Nat Chem Biol 2, 39–46.

5. Organelle Biogenesis

We applied our experience with frontier optical-imaging modalities to examine cellular membrane remodeling processes other than clathrin-coated vesicle traffic. We showed by combining live-cell imaging with EM tomography that during cell division, that the endoplasmic reticulum converts into extended sheets (Lu et al., 2009). We followed reconstitution of the nuclear membrane during late stages of mitosis and showed that nuclear membrane deposition precedes nuclear pore insertion (Lu et al., 2011). We also have studied the regulation of cell-surface area during cell division; constitutive membrane recycling shuts down during early mitosis and reactivates massively at the onset of anaphase. In contrast to the constitutive recycling, the reactivated recycling, like membrane wound healing and synaptic vesicle release, is a Ca2+ triggered process (Boucrot and Kirchhausen, 2007).

Boucrot, E., and Kirchhausen, T. (2007). Endosomal recycling controls plasma membrane area during mitosis. Proc Natl Acad Sci USA 104, 7939–7944.

Lu, L., Ladinsky, M. S., and Kirchhausen, T. (2009). Cisternal organization of the endoplasmic reticulum during mitosis. Mol Biol Cell 20, 3471–3480. PMC2719565.

Lu, L., Ladinsky, M. S., and Kirchhausen, T. (2011). Formation of the postmitotic nuclear envelope from extended ER cisternae precedes nuclear pore assembly. J Cell Biol 194, 425–440. PMC3153650.

Complete List of Published Work in MyBibliography:

http://www.ncbi.nlm.nih.gov/sites/myncbi/tomas.kirchhausen.1/bibliography/40106331/public/?sort=date&direction=ascending.

Selected peer-reviewed publications (193 in chronological order).

1. Mateu, L., Kirchhausen, T. and Camejo, G. 1977. A low temperature structural transition in human serum low density lipoproteins. Biochim Biophys Acta. 487. 1. 243-245.
2. Mateu, L., Kirchhausen, T., Padron, R. and Camejo, G. 1977. Small-angle x-ray scattering study of human serum low-density lipoproteins with differential reactivity for an arterial proteoglycan. J Supramol Struct. 7. 3-4. 435-442.
3. Mateu, L., Kirchhausen, T. and Camejo, G. 1978. Small-angle X-ray scattering and differential scanning calorimetry studies on reversibly modified human-serum low density lipoproteins. Biochemistry. 17. 8. 1436-1440.
4. Kirchhausen, T., Untracht, S. H., Fless, G. M. and Scanu, A. M. 1979. Atherogenic diets and neutral-lipid organization in plasma low density lipoproteins. Atherosclerosis. 33. 1. 59-70.
5. Mateu, L. and Kirchhausen, T. 1979. Kinetics of thermal transitions in human serum low density lipoproteins (LDL) and neutral lipids. A dynamic small-angle X-ray scattering study. Acta Cient Venez. 30. 5. 478-483.
6. Kirchhausen, T., Fless, G. and Scanu, A. M. 1980. The structure of plasma low density lipoproteins: experimental facts and interpretations--a minireview. Lipids. 15. 6. 464-467.
7. Kirchhausen, T. and Harrison, S. C. 1981. Protein organization in clathrin trimers. Cell. 23. 3. 755-761.
8. Fless, G. M., Kirchhausen, T., Fischer-Dzoga, K., Wissler, R. W. and Scanu, A. M. 1982. Serum low density lipoproteins with mitogenic effect on cultured aortic smooth muscle cells. Atherosclerosis. 41. 2-3. 171-183.
9. Harrison, S. C. and Kirchhausen, T. 1983. Clathrin, cages, and coated vesicles. Cell. 33. 3. 650-652.
10. Hogle, J., Kirchhausen, T. and Harrison, S. C. 1983. Divalent cation sites in tomato bushy stunt virus. Difference maps at 2-9 A resolution. J Mol Biol. 171. 1. 95-100.
11. Kirchhausen, T., Harrison, S. C., Parham, P. and Brodsky, F. M. 1983. Location and distribution of the light chains in clathrin trimers. Proc Natl Acad Sci U S A. 80. 9. 2481-2485.
12. Leon, V., Kirchhausen, T., Avila, E. M. and Mateu, L. 1983. Thermal effects in human plasma high density lipoproteins (HDL)3: a 13C-FT-NMR study. Acta Cient Venez. 34. 3-4. 209-215.
13. Kirchhausen, T. and Harrison, S. C. 1984. Structural domains of clathrin heavy chains. J Cell Biol. 99. 5. 1725-1734.

14. Heuser, J. and Kirchhausen, T. 1985. Deep-etch views of clathrin assemblies. J Ultrastruct Res. 92. 1-2. 1-27.
15. Kirchhausen, T., Wang, J. C. and Harrison, S. C. 1985. DNA gyrase and its complexes with DNA: direct observation by electron microscopy. Cell. 41. 3. 933-943.
16. Kirchhausen, T., Harrison, S. C. and Heuser, J. 1986. Configuration of clathrin trimers: evidence from electron microscopy. J Ultrastruct Mol Struct Res. 94. 3. 199-208.
17. Kirchhausen, T., Harrison, S. C., Chow, E. P., Mattaliano, R. J., Ramachandran, K. L., Smart, J. and Brosius, J. 1987. Clathrin heavy chain: molecular cloning and complete primary structure. Proc Natl Acad Sci U S A. 84. 24. 8805-8809.
18. Kirchhausen, T., Scarmato, P., Harrison, S. C., Monroe, J. J., Chow, E. P., Mattaliano, R. J., Ramachandran, K. L., Smart, J. E., Ahn, A. H. and Brosius, J. 1987. Clathrin light chains LCA and LCB are similar, polymorphic, and share repeated heptad motifs. Science. 236. 4799. 320-324.
19. Thurieau, C., Brosius, J., Burne, C., Jolles, P., Keen, J. H., Mattaliano, R. J., Chow, E. P., Ramachandran, K. L. and Kirchhausen, T. 1988. Molecular cloning and complete amino acid sequence of AP50, an assembly protein associated with clathrin-coated vesicles. DNA. 7. 10. 663-669.
20. Kirchhausen, T., Nathanson, K. L., Matsui, W., Vaisberg, A., Chow, E. P., Burne, C., Keen, J. H. and Davis, A. E. 1989. Structural and functional division into two domains of the large (100- to 115-kDa) chains of the clathrin-associated protein complex AP-2. Proc Natl Acad Sci U S A. 86. 8. 2612-2616.
21. Kirchhausen, T. 1990. Identification of a putative yeast homolog of the mammalian beta chains of the clathrin-associated protein complexes. Mol Cell Biol. 10. 11. 6089-6090.
22. Matsui, W. and Kirchhausen, T. 1990. Stabilization of clathrin coats by the core of the clathrin-associated protein complex AP-2. Biochemistry. 29. 48. 10791-10798.
23. Scarmato, P. and Kirchhausen, T. 1990. Analysis of clathrin light chain-heavy chain interactions using truncated mutants of rat liver light chain LCB3. J Biol Chem. 265. 7. 3661-3668.
24. Tucker, K. L., Nathanson, K. and Kirchhausen, T. 1990. Sequence of the rat alpha c large chain of the clathrin associated protein complex AP-2. Nucleic Acids Res. 18. 17. 5306.
25. Keen, J. H., Beck, K. A., Kirchhausen, T. and Jarrett, T. 1991. Clathrin domains involved in recognition by assembly protein AP-2. J Biol Chem. 266. 12. 7950-7956.
26. Kirchhausen, T., Davis, A. C., Frucht, S., Greco, B. O., Payne, G. S. and Tubb, B. 1991. AP17 and AP19, the mammalian small chains of the clathrin-associated protein complexes show homology to Yap17p, their putative homolog in yeast. J Biol Chem. 266. 17. 11153-11157.
27. Nakayama, Y., Goebl, M., O'Brine Greco, B., Lemmon, S., Pingchang Chow, E. and Kirchhausen, T. 1991. The medium chains of the mammalian clathrin-associated proteins have a homolog in yeast. Eur J Biochem. 202. 2. 569-574.
28. Gallusser, A. and Kirchhausen, T. 1993. The beta 1 and beta 2 subunits of the AP complexes are the clathrin coat assembly components. Embo J. 12. 13. 5237-5244.
29. Kirchhausen, T. 1993. Coated pits and coated vesicles - sorting it all out. Current Opinion in Structural Biology. 3. 182-188.
30. Kirchhausen, T., Staunton, D. E. and Springer, T. A. 1993. Location of the domains of ICAM-1 by immunolabeling and single-molecule electron microscopy. J Leukoc Biol. 53. 3. 342-346.
31. Kirchhausen, T. and Toyoda, T. 1993. Immunoelectron microscopic evidence for the extended conformation of light chains in clathrin trimers. J Biol Chem. 268. 14. 10268-10273.
32. Osborn, L., Vassallo, C., Browning, B. G., Tizard, R., Haskard, D. O., Benjamin, C. D., Dougas, I. and Kirchhausen, T. 1994. Arrangement of domains, and amino acid residues required for binding of vascular cell adhesion molecule-1 to its counter-receptor VLA-4 (alpha 4 beta 1). J Cell Biol. 124. 4. 601-608.
33. Phan, H. L., Finlay, J. A., Chu, D. S., Tan, P. K., Kirchhausen, T. and Payne, G. S. 1994. The Saccharomyces cerevisiae APS1 gene encodes a homolog of the small subunit of the mammalian clathrin AP-1 complex: evidence for functional interaction with clathrin at the Golgi complex. Embo J. 13. 7. 1706-1717.
34. Sogaard, M., Tani, K., Ye, R. R., Geromanos, S., Tempst, P., Kirchhausen, T., Rothman, J. E. and Sollner, T. 1994. A rab protein is required for the assembly of SNARE complexes in the docking of transport vesicles. Cell. 78. 6. 937-948.
35. Boll, W., Gallusser, A. and Kirchhausen, T. 1995. Role of the regulatory domain of the EGF-receptor cytoplasmic tail in selective binding of the clathrin-associated complex AP-2. Curr Biol. 5. 10. 1168-1178.

36. Ohno, H., Stewart, J., Fournier, M. C., Bosshart, H., Rhee, I., Miyatake, S., Saito, T., Gallusser, A., Kirchhausen, T. and Bonifacino, J. S. 1995. Interaction of tyrosine-based sorting signals with clathrin-associated proteins. Science. 269. 5232. 1872-1875.
37. Rad, M. R., Phan, H. L., Kirchrath, L., Tan, P. K., Kirchhausen, T., Hollenberg, C. P. and Payne, G. S. 1995. Saccharomyces cerevisiae Apl2p, a homologue of the mammalian clathrin AP beta subunit, plays a role in clathrin-dependent Golgi functions. J Cell Sci. 108 (Pt 4). 1605-1615.
38. Shih, W., Gallusser, A. and Kirchhausen, T. 1995. A clathrin-binding site in the hinge of the beta 2 chain of mammalian AP-2 complexes. J Biol Chem. 270. 52. 31083-31090.
39. Sorkin, A., McKinsey, T., Shih, W., Kirchhausen, T. and Carpenter, G. 1995. Stoichiometric interaction of the epidermal growth factor receptor with the clathrin-associated protein complex AP-2. J Biol Chem. 270. 2. 619-625.
40. Speelman, B. A., Allen, K., Grounds, T. L., Neutra, M. R., Kirchhausen, T. and Wilson, J. M. 1995. Molecular characterization of an apical early endosomal glycoprotein from developing rat intestinal epithelial cells. J Biol Chem. 270. 4. 1583-1588.
41. Stepp, J. D., Pellicena-Palle, A., Hamilton, S., Kirchhausen, T. and Lemmon, S. K. 1995. A late Golgi sorting function for Saccharomyces cerevisiae Apm1p, but not for Apm2p, a second yeast clathrin AP medium chain-related protein. Mol Biol Cell. 6. 1. 41-58.
42. Boll, W., Ohno, H., Songyang, Z., Rapoport, I., Cantley, L. C., Bonifacino, J. S. and Kirchhausen, T. 1996. Sequence requirements for the recognition of tyrosine-based endocytic signals by clathrin AP-2 complexes. Embo J. 15. 21. 5789-5795.
43. Bonifacino, J. S., Marks, M. S., Ohno, H. and Kirchhausen, T. 1996. Mechanisms of signal-mediated protein sorting in the endocytic and secretory pathways. Proc Assoc Am Physicians. 108. 4. 285-295.
44. Bunnell, S. C., Henry, P. A., Kolluri, R., Kirchhausen, T., Rickles, R. J. and Berg, L. J. 1996. Identification of Itk/Tsk Src homology 3 domain ligands. J Biol Chem. 271. 41. 25646-25656.
45. Kirchhausen, T. and Rosen, F. S. 1996. Disease mechanism: unravelling Wiskott-Aldrich syndrome. Curr Biol. 6. 6. 676-678.
46. Kolluri, R., Tolias, K. F., Carpenter, C. L., Rosen, F. S. and Kirchhausen, T. 1996. Direct interaction of the Wiskott-Aldrich syndrome protein with the GTPase Cdc42. Proc Natl Acad Sci U S A. 93. 11. 5615-5618.
47. Spiro, D. J., Boll, W., Kirchhausen, T. and Wessling-Resnick, M. 1996. Wortmannin alters the transferrin receptor endocytic pathway in vivo and in vitro. Mol Biol Cell. 7. 3. 355-367.
48. Tebar, F., Sorkina, T., Sorkin, A., Ericsson, M. and Kirchhausen, T. 1996. Eps15 is a component of clathrin-coated pits and vesicles and is located at the rim of coated pits. J Biol Chem. 271. 46. 28727-28730.
49. Clairmont, K. B., Boll, W., Ericsson, M. and Kirchhausen, T. 1997. A role for the hinge/ear domain of the beta chains in the incorporation of AP complexes into clathrin-coated pits and coated vesicles. Cell Mol Life Sci. 53. 7. 611-619.
50. Cupers, P., ter Haar, E., Boll, W. and Kirchhausen, T. 1997. Parallel dimers and anti-parallel tetramers formed by epidermal growth factor receptor pathway substrate clone 15. J Biol Chem. 272. 52. 33430-33434.
51. Kirchhausen, T., Bonifacino, J. S. and Riezman, H. 1997. Linking cargo to vesicle formation: receptor tail interactions with coat proteins. Curr Opin Cell Biol. 9. 4. 488-495.
52. Kirchhausen, T., Pines, J., Toldo, L. and Lafont, F. 1997. Membranes and sorting. Membrane permeability. Curr Opin Cell Biol. 9. 4. 473.
53. Rapoport, I., Miyazaki, M., Boll, W., Duckworth, B., Cantley, L. C., Shoelson, S. and Kirchhausen, T. 1997. Regulatory interactions in the recognition of endocytic sorting signals by AP-2 complexes. Embo J. 16. 9. 2240-2250.
54. Cupers, P., Jadhav, A. P. and Kirchhausen, T. 1998. Assembly of clathrin coats disrupts the association between Eps15 and AP-2 adaptors. J Biol Chem. 273. 4. 1847-1850.
55. DeTulleo, L. and Kirchhausen, T. 1998. The clathrin endocytic pathway in viral infection. Embo J. 17. 16. 4585-4593.
56. Greenberg, M., DeTulleo, L., Rapoport, I., Skowronski, J. and Kirchhausen, T. 1998. A dileucine motif in HIV-1 Nef is essential for sorting into clathrin-coated pits and for downregulation of CD4. Curr Biol. 8. 22. 1239-1242.
57. Kamiguchi, H., Long, K. E., Pendergast, M., Schaefer, A. W., Rapoport, I., Kirchhausen, T. and Lemmon, V. 1998. The neural cell adhesion molecule L1 interacts with the AP-2 adaptor and is endocytosed via the clathrin-mediated pathway. J Neurosci. 18. 14. 5311-5321.

58. Kirchhausen, T. 1998. Vesicle formation: dynamic dynamin lives up to its name. Curr Biol. 8. 22. R792-794.
59. Kirchhausen, T. 1998. Wiskott-Aldrich syndrome: a gene, a multifunctional protein and the beginnings of an explanation. Mol Med Today. 4. 7. 300-304.
60. Rapoport, I., Chen, Y. C., Cupers, P., Shoelson, S. E. and Kirchhausen, T. 1998. Dileucine-based sorting signals bind to the beta chain of AP-1 at a site distinct and regulated differently from the tyrosine-based motif-binding site. Embo J. 17. 8. 2148-2155.
61. Sanderfoot, A. A., Ahmed, S. U., Marty-Mazars, D., Rapoport, I., Kirchhausen, T., Marty, F. and Raikhel, N. V. 1998. A putative vacuolar cargo receptor partially colocalizes with AtPEP12p on a prevacuolar compartment in Arabidopsis roots. Proc Natl Acad Sci U S A. 95. 17. 9920-9925.
62. ter Haar, E., Musacchio, A., Harrison, S. C. and Kirchhausen, T. 1998. Atomic structure of clathrin: a beta propeller terminal domain joins an alpha zigzag linker. Cell. 95. 4. 563-573.
63. Tong, X., Boll, W., Kirchhausen, T. and Howley, P. M. 1998. Interaction of the bovine papillomavirus E6 protein with the clathrin adaptor complex AP-1. J Virol. 72. 1. 476-482.
64. Jones, A. T., Spiro, D. J., Kirchhausen, T., Melancon, P. and Wessling-Resnick, M. 1999. Studies on the inhibition of endosome fusion by GTPgammaS-bound ARF. J Cell Sci. 112 (Pt 20). 3477-3485.
65. Kirchhausen, T. 1999. Adaptors for clathrin-mediated traffic. Annu Rev Cell Dev Biol. 15. 705-732.
66. Kirchhausen, T. 1999. Cell biology. Boa constrictor or rattlesnake? Nature. 398. 6727. 470-471.
67. Musacchio, A., Smith, C. J., Roseman, A. M., Harrison, S. C., Kirchhausen, T. and Pearse, B. M. 1999. Functional organization of clathrin in coats: combining electron cryomicroscopy and X-ray crystallography. Mol Cell. 3. 6. 761-770.
68. Rohatgi, R., Ma, L., Miki, H., Lopez, M., Kirchhausen, T., Takenawa, T. and Kirschner, M. W. 1999. The interaction between N-WASP and the Arp2/3 complex links Cdc42-dependent signals to actin assembly. Cell. 97. 2. 221-231.
69. Schneider, H., Martin, M., Agarraberes, F. A., Yin, L., Rapoport, I., Kirchhausen, T. and Rudd, C. E. 1999. Cytolytic T lymphocyte-associated antigen-4 and the TCR zeta/CD3 complex, but not CD28, interact with clathrin adaptor complexes AP-1 and AP-2. J Immunol. 163. 4. 1868-1879.
70. Chen, F., Ma, L., Parrini, M. C., Mao, X., Lopez, M., Wu, C., Marks, P. W., Davidson, L., Kwiatkowski, D. J., Kirchhausen, T., Orkin, S. H., Rosen, F. S., Mayer, B. J., Kirschner, M. W. and Alt, F. W. 2000. Cdc42 is required for PIP(2)-induced actin polymerization and early development but not for cell viability. Curr Biol. 10. 13. 758-765.
71. Farr, G. W., Furtak, K., Rowland, M. B., Ranson, N. A., Saibil, H. R., Kirchhausen, T. and Horwich, A. L. 2000. Multivalent binding of nonnative substrate proteins by the chaperonin GroEL. Cell. 100. 5. 561-573.
72. Kirchhausen, T. 2000. Three ways to make a vesicle. Nat Rev Mol Cell Biol. 1. 3. 187-198.
73. Kirchhausen, T. 2000. Clathrin. Annu Rev Biochem. 69. 699-727.
74. ter Haar, E., Harrison, S. C. and Kirchhausen, T. 2000. Peptide-in-groove interactions link target proteins to the beta-propeller of clathrin. Proc Natl Acad Sci U S A. 97. 3. 1096-1100.
75. Lederkremer, G. Z., Cheng, Y., Petre, B. M., Vogan, E., Springer, S., Schekman, R., Walz, T. and Kirchhausen, T. 2001. Structure of the Sec23p/24p and Sec13p/31p complexes of COPII. Proc Natl Acad Sci U S A. 98. 19. 10704-10709.
76. Pelish, H. E., Westwood, N. J., Feng, Y., Kirchhausen, T. and Shair, M. D. 2001. Use of biomimetic diversity-oriented synthesis to discover galanthamine-like molecules with biological properties beyond those of the natural product. J Am Chem Soc. 123. 27. 6740-6741.
77. Boes, M., Cerny, J., Massol, R., Op den Brouw, M., Kirchhausen, T., Chen, J. and Ploegh, H. L. 2002. T-cell engagement of dendritic cells rapidly rearranges MHC class II transport. Nature. 418. 6901. 983-988.
78. Boll, W., Rapoport, I., Brunner, C., Modis, Y., Prehn, S. and Kirchhausen, T. 2002. The mu2 subunit of the clathrin adaptor AP-2 binds to FDNPVY and YppO sorting signals at distinct sites. Traffic. 3. 8. 590-600.
79. Kirchhausen, T. 2002. Clathrin adaptors really adapt. Cell. 109. 4. 413-416.
80. Kirchhausen, T. 2002. Single-handed recognition of a sorting traffic motif by the GGA proteins. Nat Struct Biol. 9. 4. 241-244.
81. Nieland, T. J., Penman, M., Dori, L., Krieger, M. and Kirchhausen, T. 2002. Discovery of chemical inhibitors of the selective transfer of lipids mediated by the HDL receptor SR-BI. Proc Natl Acad Sci U S A. 99. 24. 15422-15427.

82. Schaefer, A. W., Kamei, Y., Kamiguchi, H., Wong, E. V., Rapoport, I., Kirchhausen, T., Beach, C. M., Landreth, G., Lemmon, S. K. and Lemmon, V. 2002. L1 endocytosis is controlled by a phosphorylation-dephosphorylation cycle stimulated by outside-in signaling by L1. J Cell Biol. 157. 7. 1223-1232.
83. Boes, M., Bertho, N., Cerny, J., Op den Brouw, M., Kirchhausen, T. and Ploegh, H. 2003. T cells induce extended class II MHC compartments in dendritic cells in a Toll-like receptor-dependent manner. J Immunol. 171. 8. 4081-4088.
84. Chandran, K., Parker, J. S., Ehrlich, M., Kirchhausen, T. and Nibert, M. L. 2003. The delta region of outer-capsid protein micro 1 undergoes conformational change and release from reovirus particles during cell entry. J Virol. 77. 24. 13361-13375.
85. Feng, Y., Yu, S., Lasell, T. K., Jadhav, A. P., Macia, E., Chardin, P., Melancon, P., Roth, M., Mitchison, T. and Kirchhausen, T. 2003. Exo1: a new chemical inhibitor of the exocytic pathway. Proc Natl Acad Sci U S A. 100. 11. 6469-6474.
86. Legesse-Miller, A., Massol, R. H. and Kirchhausen, T. 2003. Constriction and Dnm1p recruitment are distinct processes in mitochondrial fission. Mol Biol Cell. 14. 5. 1953-1963.
87. Wang, Y. J., Wang, J., Sun, H. Q., Martinez, M., Sun, Y. X., Macia, E., Kirchhausen, T., Albanesi, J. P., Roth, M. G. and Yin, H. L. 2003. Phosphatidylinositol 4 phosphate regulates targeting of clathrin adaptor AP-1 complexes to the Golgi. Cell. 114. 3. 299-310.
88. Yarrow, J. C., Feng, Y., Perlman, Z. E., Kirchhausen, T. and Mitchison, T. J. 2003. Phenotypic screening of small molecule libraries by high throughput cell imaging. Comb Chem High Throughput Screen. 6. 4. 279-286.
89. Boll, W., Ehrlich, M., Collier, R. J. and Kirchhausen, T. 2004. Effects of dynamin inactivation on pathways of anthrax toxin uptake. Eur J Cell Biol. 83. 6. 281-288.
90. Cerny, J., Feng, Y., Yu, A., Miyake, K., Borgonovo, B., Klumperman, J., Meldolesi, J., McNeil, P. L. and Kirchhausen, T. 2004. The small chemical vacuolin-1 inhibits Ca(2+)-dependent lysosomal exocytosis but not cell resealing. EMBO Rep. 5. 9. 883-888.
91. Ehrlich, M., Boll, W., Van Oijen, A., Hariharan, R., Chandran, K., Nibert, M. L. and Kirchhausen, T. 2004. Endocytosis by random initiation and stabilization of clathrin-coated pits. Cell. 118. 5. 591-605.
92. Feng, Y., Jadhav, A. P., Rodighiero, C., Fujinaga, Y., Kirchhausen, T. and Lencer, W. I. 2004. Retrograde transport of cholera toxin from the plasma membrane to the endoplasmic reticulum requires the trans-Golgi network but not the Golgi apparatus in Exo2-treated cells. EMBO Rep. 5. 6. 596-601.
93. Fotin, A., Cheng, Y., Grigorieff, N., Walz, T., Harrison, S. C. and Kirchhausen, T. 2004. Structure of an auxilin-bound clathrin coat and its implications for the mechanism of uncoating. Nature. 432. 7017. 649-653.
94. Fotin, A., Cheng, Y., Sliz, P., Grigorieff, N., Harrison, S. C., Kirchhausen, T. and Walz, T. 2004. Molecular model for a complete clathrin lattice from electron cryomicroscopy. Nature. 432. 7017. 573-579.
95. Heldwein, E. E., Macia, E., Wang, J., Yin, H. L., Kirchhausen, T. and Harrison, S. C. 2004. Crystal structure of the clathrin adaptor protein 1 core. Proc Natl Acad Sci U S A. 101. 39. 14108-14113.
96. Larsen, J. E., Massol, R. H., Nieland, T. J. and Kirchhausen, T. 2004. HIV Nef-mediated major histocompatibility complex class I down-modulation is independent of Arf6 activity. Mol Biol Cell. 15. 1. 323-331.
97. Massol, R. H., Larsen, J. E., Fujinaga, Y., Lencer, W. I. and Kirchhausen, T. 2004. Cholera toxin toxicity does not require functional Arf6- and dynamin-dependent endocytic pathways. Mol Biol Cell. 15. 8. 3631-3641.
98. Nieland, T. J., Chroni, A., Fitzgerald, M. L., Maliga, Z., Zannis, V. I., Kirchhausen, T. and Krieger, M. 2004. Cross-inhibition of SR-BI- and ABCA1-mediated cholesterol transport by the small molecules BLT-4 and glyburide. J Lipid Res. 45. 7. 1256-1265.
99. Nieland, T. J., Feng, Y., Brown, J. X., Chuang, T. D., Buckett, P. D., Wang, J., Xie, X. S., McGraw, T. E., Kirchhausen, T. and Wessling-Resnick, M. 2004. Chemical genetic screening identifies sulfonamides that raise organellar pH and interfere with membrane traffic. Traffic. 5. 7. 478-492.
100. Benedito, A. B., Lehtinen, M., Massol, R., Lopes, U. G., Kirchhausen, T., Rao, A. and Bonni, A. 2005. The transcription factor NFAT3 mediates neuronal survival. J Biol Chem. 280. 4. 2818-2825.
101. Keefe, D., Shi, L., Feske, S., Massol, R., Navarro, F., Kirchhausen, T. and Lieberman, J. 2005. Perforin triggers a plasma membrane-repair response that facilitates CTL induction of apoptosis. Immunity. 23. 3. 249-262.
102. Kirchhausen, T., Boll, W., van Oijen, A. and Ehrlich, M. 2005. Single-molecule live-cell imaging of clathrin-based endocytosis. Biochem Soc Symp. 72. 71-76.

103. Massol, R. H., Larsen, J. E. and Kirchhausen, T. 2005. Possible role of deep tubular invaginations of the plasma membrane in MHC-I trafficking. Exp Cell Res. 306. 1. 142-149.
104. McNeil, P. L. and Kirchhausen, T. 2005. An emergency response team for membrane repair. Nat Rev Mol Cell Biol. 6. 6. 499-505.
105. Nieland, T. J., Ehrlich, M., Krieger, M. and Kirchhausen, T. 2005. Endocytosis is not required for the selective lipid uptake mediated by murine SR-BI. Biochim Biophys Acta. 1734. 1. 44-51.
106. Paleotti, O., Macia, E., Luton, F., Klein, S., Partisani, M., Chardin, P., Kirchhausen, T. and Franco, M. 2005. The small G-protein Arf6GTP recruits the AP-2 adaptor complex to membranes. J Biol Chem. 280. 22. 21661-21666.
107. Boucrot, E., Saffarian, S., Massol, R., Kirchhausen, T. and Ehrlich, M. 2006. Role of lipids and actin in the formation of clathrin-coated pits. Exp Cell Res. 312. 20. 4036-4048.
108. Falcone, S., Cocucci, E., Podini, P., Kirchhausen, T., Clementi, E. and Meldolesi, J. 2006. Macropinocytosis: regulated coordination of endocytic and exocytic membrane traffic events. J Cell Sci. 119. Pt 22. 4758-4769.
109. Fotin, A., Kirchhausen, T., Grigorieff, N., Harrison, S. C., Walz, T. and Cheng, Y. 2006. Structure determination of clathrin coats to subnanometer resolution by single particle cryo-electron microscopy. J Struct Biol. 156. 3. 453-460.
110. Goess, B. C., Hannoush, R. N., Chan, L. K., Kirchhausen, T. and Shair, M. D. 2006. Synthesis of a 10,000-membered library of molecules resembling carpanone and discovery of vesicular traffic inhibitors. J Am Chem Soc. 128. 16. 5391-5403.
111. Macia, E., Ehrlich, M., Massol, R., Boucrot, E., Brunner, C. and Kirchhausen, T. 2006. Dynasore, a cell-permeable inhibitor of dynamin. Dev Cell. 10. 6. 839-850.
112. Massol, R. H., Boll, W., Griffin, A. M. and Kirchhausen, T. 2006. A burst of auxilin recruitment determines the onset of clathrin-coated vesicle uncoating. Proc Natl Acad Sci U S A. 103. 27. 10265-10270.
113. Newton, A. J., Kirchhausen, T. and Murthy, V. N. 2006. Inhibition of dynamin completely blocks compensatory synaptic vesicle endocytosis. Proc Natl Acad Sci U S A. 103. 47. 17955-17960.
114. Pelish, H. E., Ciesla, W., Tanaka, N., Reddy, K., Shair, M. D., Kirchhausen, T. and Lencer, W. I. 2006. The Cdc42 inhibitor secramine B prevents cAMP-induced K+ conductance in intestinal epithelial cells. Biochem Pharmacol. 71. 12. 1720-1726.
115. Pelish, H. E., Peterson, J. R., Salvarezza, S. B., Rodriguez-Boulan, E., Chen, J. L., Stamnes, M., Macia, E., Feng, Y., Shair, M. D. and Kirchhausen, T. 2006. Secramine inhibits Cdc42-dependent functions in cells and Cdc42 activation in vitro. Nat Chem Biol. 2. 1. 39-46.
116. Xu, B., Pelish, H., Kirchhausen, T. and Hammond, G. B. 2006. Large scale synthesis of the Cdc42 inhibitor secramine A and its inhibition of cell spreading. Org Biomol Chem. 4. 22. 4149-4157.
117. Boucrot, E. and Kirchhausen, T. 2007. Endosomal recycling controls plasma membrane area during mitosis. Proc Natl Acad Sci U S A. 104. 19. 7939-7944.
118. Cheng, Y., Boll, W., Kirchhausen, T., Harrison, S. C. and Walz, T. 2007. Cryo-electron tomography of clathrin-coated vesicles: structural implications for coat assembly. J Mol Biol. 365. 3. 892-899.
119. Jiang, S., Zhou, X., Kirchhausen, T. and Wong, S. T. 2007. Tracking molecular particles in live cells using fuzzy rule-based system. Cytometry A. 71. 8. 576-584.
120. Jiang, S., Zhou, X., Kirchhausen, T. and Wong, S. T. 2007. Detection of molecular particles in live cells via machine learning. Cytometry A. 71. 8. 563-575.
121. Kirchhausen, T. 2007. Making COPII coats. Cell. 129. 7. 1251-1252.
122. Li, J., Peters, P. J., Bai, M., Dai, J., Bos, E., Kirchhausen, T., Kandror, K. V. and Hsu, V. W. 2007. An ACAP1-containing clathrin coat complex for endocytic recycling. J Cell Biol. 178. 3. 453-464.
123. Ma, Y. M., Boucrot, E., Villen, J., Affar el, B., Gygi, S. P., Gottlinger, H. G. and Kirchhausen, T. 2007. Targeting of AMSH to endosomes is required for epidermal growth factor receptor degradation. J Biol Chem. 282. 13. 9805-9812.
124. Veiga, E., Guttman, J. A., Bonazzi, M., Boucrot, E., Toledo-Arana, A., Lin, A. E., Enninga, J., Pizarro-Cerda, J., Finlay, B. B., Kirchhausen, T. and Cossart, P. 2007. Invasive and adherent bacterial pathogens co-Opt host clathrin for infection. Cell Host Microbe. 2. 5. 340-351.
125. Wang, J., Sun, H. Q., Macia, E., Kirchhausen, T., Watson, H., Bonifacino, J. S. and Yin, H. L. 2007. PI4P promotes the recruitment of the GGA adaptor proteins to the trans-Golgi network and regulates their recognition of the ubiquitin sorting signal. Mol Biol Cell. 18. 7. 2646-2655.

126. Yu, A., Rual, J. F., Tamai, K., Harada, Y., Vidal, M., He, X. and Kirchhausen, T. 2007. Association of Dishevelled with the clathrin AP-2 adaptor is required for Frizzled endocytosis and planar cell polarity signaling. Dev Cell. 12. 1. 129-141.
127. Ambrogio, C., Voena, C., Manazza, A. D., Martinengo, C., Costa, C., Kirchhausen, T., Hirsch, E., Inghirami, G. and Chiarle, R. 2008. The anaplastic lymphoma kinase controls cell shape and growth of anaplastic large cell lymphoma through Cdc42 activation. Cancer Res. 68. 21. 8899-8907. PMCID: PMC2596920
128. Boucrot, E. and Kirchhausen, T. 2008. Mammalian cells change volume during mitosis. PLoS One. 3. 1. e1477. PMCID: PMC2198941
129. Kirchhausen, T., Macia, E. and Pelish, H. E. 2008. Use of dynasore, the small molecule inhibitor of dynamin, in the regulation of endocytosis. Methods Enzymol. 438. 77-93. PMCID: PMC2796620
130. Nieland, T. J., Shaw, J. T., Jaipuri, F. A., Duffner, J. L., Koehler, A. N., Banakos, S., Zannis, V. I., Kirchhausen, T. and Krieger, M. 2008. Identification of the molecular target of small molecule inhibitors of HDL receptor SR-BI activity. Biochemistry. 47. 1. 460-472.
131. Rapoport, I., Boll, W., Yu, A., Bocking, T. and Kirchhausen, T. 2008. A motif in the clathrin heavy chain required for the Hsc70/auxilin uncoating reaction. Mol Biol Cell. 19. 1. 405-413.
132. Saffarian, S. and Kirchhausen, T. 2008. Differential evanescence nanometry: live-cell fluorescence measurements with 10-nm axial resolution on the plasma membrane. Biophys J. 94. 6. 2333-2342. PMCID: PMC2257884.
133. Cureton, D. K., Massol, R. H., Saffarian, S., Kirchhausen, T. and Whelan, S. P. 2009. Vesicular stomatitis virus enters cells through vesicles incompletely coated with clathrin that depend upon actin for internalization. PLoS Pathog. 5. 4. e1000394. PMCID: PMC2667253.
134. Kirchhausen, T. 2009. Imaging endocytic clathrin structures in living cells. Trends Cell Biol. 19. 11. 596-605. PMCID: PMC2796618.
135. Lu, L., Ladinsky, M. S. and Kirchhausen, T. 2009. Cisternal organization of the endoplasmic reticulum during mitosis. Mol Biol Cell. 20. 15. 3471-3480. PMCID: PMC2719565.
136. Saffarian, S., Cocucci, E. and Kirchhausen, T. 2009. Distinct dynamics of endocytic clathrin-coated pits and coated plaques. PLoS Biol. 7. 9. e1000191. PMCID: PMC2731173.
137. Shulman, Z., Shinder, V., Klein, E., Grabovsky, V., Yeger, O., Geron, E., Montresor, A., Bolomini-Vittori, M., Feigelson, S. W., Kirchhausen, T., Laudanna, C., Shakhar, G. and Alon, R. 2009. Lymphocyte crawling and transendothelial migration require chemokine triggering of high-affinity LFA-1 integrin. Immunity. 30. 3. 384-396. PMCID: PMC2803105.
138. Xing, Y., Bocking, T., Wolf, M., Grigorieff, N., Kirchhausen, T. and Harrison, S. C. 2009. Structure of clathrin coat with bound Hsc70 and auxilin: mechanism of Hsc70-facilitated disassembly. Embo J. 29. 3. 655-665. PMCID: PMC2830701.
139. Anitei, M., Stange, C., Parshina, I., Baust, T., Schenck, A., Raposo, G., Kirchhausen, T. and Hoflack, B. 2010. Protein complexes containing CYFIP/Sra/PIR121 coordinate Arf1 and Rac1 signalling during clathrin-AP-1-coated carrier biogenesis at the TGN. Nat Cell Biol. 12. 4. 330-340. PMCID: PMC3241509.
140. Boucrot, E., Saffarian, S., Zhang, R. and Kirchhausen, T. 2010. Roles of AP-2 in clathrin-mediated endocytosis. PLoS One. 5. 5. e10597. PMCID: PMC2868873.
141. Smits, P., Bolton, A. D., Funari, V., Hong, M., Boyden, E. D., Lu, L., Manning, D. K., Dwyer, N. D., Moran, J. L., Prysak, M., Merriman, B., Nelson, S. F., Bonafe, L., Superti-Furga, A., Ikegawa, S., Krakow, D., Cohn, D. H., Kirchhausen, T., Warman, M. L. and Beier, D. R. 2010. Lethal skeletal dysplasia in mice and humans lacking the golgin GMAP-210. N Engl J Med. 362. 3. 206-216. PMID: 20089971 PMCID: PMC3108191.
142. Thiery, J., Keefe, D., Saffarian, S., Martinvalet, D., Walch, M., Boucrot, E., Kirchhausen, T. and Lieberman, J. 2010. Perforin activates clathrin- and dynamin-dependent endocytosis, which is required for plasma membrane repair and delivery of granzyme B for granzyme-mediated apoptosis. Blood. 115. 8. 1582-1593. PMCID: PMC2830763.
143. Utskarpen, A., Massol, R., van Deurs, B., Lauvrak, S. U., Kirchhausen, T. and Sandvig, K. 2010. Shiga Toxin Increases Formation of Clathrin-Coated Pits through Syk Kinase. PLoS One. 5. 7. e10944. PMID: 20668539: PMCID: PMC2910670.
144. Harrison, S. C. and Kirchhausen, T. 2010. Structural biology: Conservation in vesicle coats. Nature. 466. 7310. 1048-1049. PMID: 20739998 (Review).
145. Guan, R., Han, D., Harrison, S. C. and Kirchhausen, T. 2010. Structure of the PTEN-like region of auxilin, a detector of clathrin-coated vesicle budding. Structure. 18. 9. 1191-1198. PMCID: PMC2955424.

146. Cureton, D. K., Massol, R. H., Whelan, S. P. and Kirchhausen, T. 2010. The length of vesicular stomatitis virus particles dictates a need for actin assembly during clathrin-dependent endocytosis. PLoS Pathog. 6. 9. PMCID: PMC2947997.
147. Yu, A., Xing, Y., Harrison, S. C. and Kirchhausen, T. 2010. Structural analysis of the interaction between Dishevelled2 and clathrin AP-2 adaptor, a critical step in noncanonical Wnt signaling. Structure. 18. 10. 1311-1320. PMCID: PMC2992793.
148. Bocking, T., Aguet, F., Harrison, S. C. and Kirchhausen, T. 2011. Single-molecule analysis of a molecular disassemblase reveals the mechanism of Hsc70-driven clathrin uncoating. Nat Struct Mol Biol. 18. 3. 295-301. PMID: 21278753. PMCID: PMC3056279.
149. Bai, M., Gad, H., Turacchio, G., Cocucci, E., Yang, J. S., Li, J., Beznoussenko, G. V., Nie, Z., Luo, R., Fu, L., Collawn, J. F., Kirchhausen, T., Luini, A. and Hsu, V. W. 2011. ARFGAP1 promotes AP-2-dependent endocytosis. Nat Cell Biol. 13. 5. 559-567. PMID: 21499258. PMCID: PMC3087831.
150. Boucrot, E., Howes, M. T., Kirchhausen, T. and Parton, R. G. 2011. Redistribution of caveolae during mitosis. J Cell Sci. 124. Pt 12. 1965-1972. PMID: 21625007. PMCID: PMC3104031.
151. Thiery, J., Keefe, D., Boulant, S., Boucrot, E., Walch, M., Martinvalet, D., Goping, I. S., Bleackley, R. C., Kirchhausen, T. and Lieberman, J. 2011. Perforin pores in the endosomal membrane trigger the release of endocytosed granzyme B into the cytosol of target cells. Nat Immunol 12(8):770-7. PMID: 21685908 PMCID: PMC3140544.
152. Ivanovic, T., Boulant, S., Ehrlich, M., Demidenko, A. A., Arnold, M. M., Kirchhausen, T. and Nibert, M. L. 2011. Recruitment of Cellular Clathrin to Viral Factories and Disruption of Clathrin-Dependent Trafficking. Traffic 12(9):1179-95. PMID: 21736684 PMCID: PMC3575638.
153. Lu, L., Ladinsky, M. S. and Kirchhausen, T. 2011. Formation of the postmitotic nuclear envelope from extended ER cisternae precedes nuclear pore assembly. J Cell Biol. 194. 3. 425-440. PMID: 21825076 PMCID: PMC3153650.
154. Boulant, S., Kural, C., Zeeh, J. C., Ubelmann, F. and Kirchhausen, T. 2011. Actin dynamics counteract membrane tension during clathrin-mediated endocytosis. Nat Cell Biol. 13. 9. 1124-1131. PMID: 21841790, PMCID: PMC3167020.
155. Hori, K., Sen, A., Kirchhausen, T. and Artavanis-Tsakonas, S. 2011. Synergy between the ESCRT-III complex and Deltex defines a ligand-independent Notch signal. J Cell Biol. 195. 6. 1005-1015. PMID: 22162134. PMCID: PMC3241730.
156. Strang, B. L., Boulant, S., Chang, L., Knipe, D. M., Kirchhausen, T. and Coen, D. M. 2011. Human Cytomegalovirus UL44 Concentrates at the Periphery of Replication Compartments, the Site of Viral DNA Synthesis. J Virol 86(4):2089-95. PMID: 22156516. PMCID: PMC3302373.
157. Kural, C. and Kirchhausen, T. 2012. Live-cell imaging of clathrin coats. Methods Enzymol. 505. 59-80. PMID: 22289448 PMCID: PMC3523664.
158. Cureton, D. K., Harbison, C. E., Cocucci, E., Parrish, C. R. and Kirchhausen, T. 2012. Limited transferrin receptor clustering allows rapid diffusion of canine parvovirus into clathrin endocytic structures. J Virol. 86(9):5330-40 PMID: 22357278. PMCID: PMC3347332.
159. Strang, B. L., Boulant, S., Kirchhausen, T. and Coen, D. M. 2012. Host cell nucleolin is required to maintain the architecture of human cytomegalovirus replication compartments. MBio. 3. 1. PMID: 22318319. PMCID: PMC3280463.
160. Lu, L. and Kirchhausen, T. 2012. Visualizing the high curvature regions of post-mitotic nascent nuclear envelope membrane. Commun Integr Biol. 5. 1. 16-18. PMCID: PMC3291306.
161. Cocucci, E., Aguet, F., and Kirchhausen, T. 2012. The first five seconds in the life of a clathrin coated pit. Cell. PMID: 22863004. PMCID: PMC3413093.
162. Willems, E., Cabral-Teixeira, J., Schade, D., Cai, W., Reeves, P., Bushway, P. J., Lanier, M., Walsh, C., Kirchhausen, T., Izpisua Belmonte, J. C., Cashman, J. and Mercola, M. 2012. Small Molecule-Mediated TGF-beta Type II Receptor Degradation Promotes Cardiomyogenesis in Embryonic Stem Cells. Cell Stem Cell. 11. 2. 242-252. PMID: 22862949 [PubMed - in process]. PMCID: PMC3419596.
163. Kirchhausen, T. 2012. Bending membranes. Nat Cell Biol. 14. 9. 906-908. PMID: 22945258 (Review).
164. Hori, K., Sen, A., Kirchhausen, T. and Artavanis-Tsakonas, S. 2012. Regulation of ligand-independent Notch signal through intracellular trafficking. Commun Integr Biol. 5. 4. 374-376. PMID: 23060962. PMCID: PMC3460843.
165. Kural, C., Tacheva-Grigorova, S. K., Boulant, S., Cocucci, E., Baust, T., Duarte, D. and Kirchhausen, T. 2012. Dynamics of Intracellular Clathrin/AP1- and Clathrin/AP3-Containing Carriers. Cell Rep 2(5):1111-9. PMID: 23103167. PMCID: PMC3513667.

166. Boulant, S., Stanifer, M., Kural, C., Cureton, D. K., Massol, R., Nibert, M. L. and Kirchhausen, T. 2013. Similar uptake but different trafficking and escape routes of reovirus virions and ISVPs imaged in polarized MDCK cells. Molecular biology of the cell (8):1196-207. PMID: 23427267 PMCID: PMC3623640.
167. Lu, L., Hannoush, R. N., Goess, B. C., Varadarajan, S., Shair, M. D. and Kirchhausen, T. 2013. The small molecule dispergo tubulates the endoplasmic reticulum and inhibits export. Molecular biology of the cell. PMID: 23389632 PMCID: PMC3608490.
168. Martinelli, R., Kamei, M., Sage, P. T., Massol, R., Varghese, L., Sciuto, T., Toporsian, M., Dvorak, A. M., Kirchhausen, T., Springer, T. A. and Carman, C. V. 2013. Release of cellular tension signals self-restorative ventral lamellipodia to heal barrier micro-wounds. The Journal of Cell Biology. 201. 3. 449-465. PMID: 23629967 [PubMed - in process] PMCID: PMC3639391.
169. Heesters, B. A., Chatterjee, P., Kim, Y. A., Gonzalez, S. F., Kuligowski, M. P., Kirchhausen, T. and Carroll, M. C. 2013. Endocytosis and recycling of immune complexes by follicular dendritic cells enhances B cell antigen binding and activation. Immunity. 38. 6. 1164-1175. PMID: 23770227 PMCID: PMC3773956 [Available on 2014/6/27].
170. Silvia K. Tacheva-Grigorova, António J.M. Santos, Emmanuel Boucrot, and Tom Kirchhausen. 2013. Clathrin-Mediated Endocytosis Persists during Unperturbed Mitosis. Cell Reports. PMID: 23954786. PMCID: PMC3849811.
171. Piccinotti, S., Kirchhausen, T. and Whelan, S. P. 2013. Uptake of rabies virus into epithelial cells by clathrin-mediated endocytosis depends upon actin. Journal of virology. PMID: 23966407 PMCID: PMC3807345.
172. Martin, R. M., Rino, J., Carvalho, C., Kirchhausen, T. and Carmo-Fonseca, M. 2013. Live-Cell Visualization of Pre-mRNA Splicing with Single-Molecule Sensitivity. Cell Reports 4(6):1144-55.. PMID: 24035393 [PubMed - in process]. PMCID: PMC3805459.
173. Carmo-Fonseca, M. and Kirchhausen, T. 2014. The timing of pre-mRNA splicing visualized in real-time. Nucleus. 5.(1):11-4 [Epub ahead of print] PMID: 24637398 [PubMed – in process].
174. Kirchhausen, T., Owen, D. and Harrison, S. C. 2014. Molecular Structure, Function, and Dynamics of Clathrin-Mediated Membrane Traffic. Cold Spring Harbor perspectives in biology. 6(5):a016725. PMID: 2478982. PMC3996469.
175. Walch, M., Dotiwala, F., Mulik, S., Thiery, J., Kirchhausen, T., Clayberger, C., Krensky, A. M., Martinvalet, D. and Lieberman, J. 2014. Cytotoxic Cells Kill Intracellular Bacteria through Granulysin-Mediated Delivery of Granzymes. Cell. 157. 6. 1309-1323. PMID: 24906149 PMCID: PMC4090916.
176. Bocking, T., Aguet, F., Rapoport, I., Banzhaf, M., Yu, A., Zeeh, J. C. and Kirchhausen, T. 2014. Key Interactions for Clathrin Coat Stability. Structure. 22(6):819-29 PMID: 24815030. PMCID: PMC4067485.
177. Hagemann, A. I., Kurz, J., Kauffeld, S., Chen, Q., Reeves, P. M., Weber, S., Schindler, S., Davidson, G., Kirchhausen, T. and Scholpp, S. 2014. In-vivo analysis of formation and endocytosis of the Wnt/beta-Catenin signaling complex in zebrafish embryos. Journal of cell science 127(Pt 18):3970-82. PMID: 25512326. PMCID: PMC4163645.
178. Cocucci, E., Gaudin, R. and Kirchhausen, T. 2014. Dynamin recruitment and membrane scission at the neck of a clathrin-coated pit. Molecular biology of the cell 25(22):3595-609. PMID: 25232009. PMCID: PMC4230619.
179. Abdelhakim, A. H., Salgado, E. N., Fu, X., Pasham, M., Nicastro, D., Kirchhausen, T. and Harrison, S. C. 2014. Structural correlates of rotavirus cell entry. PLoS pathogens. 10. 9. e1004355. PMID: 25211455 PMCID: PMC4161437.
180. Ishikawa, Y., Maeda, M., Pasham, M., Aguet, F., Tacheva-Grigorova, S. K., Masuda, T., Yi, H., Lee, S., Xu, J., Teruya-Feldstein, J., Ericsson, M., Mullally, A., Heuser, J., Kirchhausen, T. and Maeda, T. 2014. Role of the clathrin adaptor PICALM in normal hematopoiesis and polycythemia vera pathophysiology. Haematologica 100(4):439-51. PMID: 25552701 PMCID: PMC4380716.
181. Kural, C., Akatay, A. A., Gaudin, R., Chen, B. C., Legant, W. R., Betzig, E. and Kirchhausen, T. 2015. Asymmetric formation of coated pits on dorsal and ventral surfaces at the leading edge of motile cells and on protrusions of immobile cells. Molecular biology of the cell 26(11):2044-53. PMID: 25851602 PMID: 25851602 PMCID: PMC4472015.
182. Wittrup, A., Ai, A., Liu, X., Hamar, P., Trifonova, R., Charisse, K., Manoharan, M., Kirchhausen, T. and Lieberman, J. 2015. Visualizing lipid-formulated siRNA release from endosomes and target gene knockdown. Nature biotechnology. 33. 8. 870-876. PMID: 26192320. PMCID: PMC4663660.

183. Li, D., Shao, L., Chen, B. C., Zhang, X., Zhang, M., Moses, B., Milkie, D. E., Beach, J. R., Hammer, J. A., 3rd, Pasham, M., Kirchhausen, T., Baird, M. A., Davidson, M. W., Xu, P. and Betzig, E. 2015. ADVANCED IMAGING. Extended-resolution structured illumination imaging of endocytic and cytoskeletal dynamics. Science. 349. 6251. aab3500. PMID: 26315442 PMCID: PMC4659358.
184. Reeves, P. M., Kang, Y. L. and Kirchhausen, T. 2015. Endocytosis of ligand activated sphingosine 1-phosphate receptor 1 mediated by the clathrin-pathway. Traffic. PMID: 26481905 PMCID: PMC4688054.
185. Gaudin, R. and Kirchhausen, T. 2015. Superinfection exclusion is absent during acute Junin virus infection of Vero and A549 cells. Scientific reports. 5. 15990. PMID: 26549784 PMCID: PMC4637830.
186. Chou, Y. Y., Cuevas, C., Carocci, M., Stubbs, S. H., Ma, M., Cureton, D. K., Chao, L., Evesson, F., He, K., Yang, P. L., Whelan, S. P., Ross, S. R., Kirchhausen, T. and Gaudin, R. 2016. Identification and characterization of a novel broad spectrum virus entry inhibitor. Journal of virology. PMID: 26912630 PMCID: PMC4836360.
187. Meyer, P. A., Socias, S., Key, J., Ransey, E., Tjon, E. C., Buschiazzo, A., Lei, M., Botka, C., Withrow, J., Neau, D., Rajashankar, K., Anderson, K. S., Baxter, R. H., Blacklow, S. C., Boggon, T. J., Bonvin, A. M., Borek, D., Brett, T. J., Caflisch, A., Chang, C. I., Chazin, W. J., Corbett, K. D., Cosgrove, M. S., Crosson, S., Dhe-Paganon, S., Di Cera, E., Drennan, C. L., Eck, M. J., Eichman, B. F., Fan, Q. R., Ferre-D'Amare, A. R., Christopher Fromme, J., Garcia, K. C., Gaudet, R., Gong, P., Harrison, S. C., Heldwein, E. E., Jia, Z., Keenan, R. J., Kruse, A. C., Kvansakul, M., McLellan, J. S., Modis, Y., Nam, Y., Otwinowski, Z., Pai, E. F., Pereira, P. J., Petosa, C., Raman, C. S., Rapoport, T. A., Roll-Mecak, A., Rosen, M. K., Rudenko, G., Schlessinger, J., Schwartz, T. U., Shamoo, Y., Sondermann, H., Tao, Y. J., Tolia, N. H., Tsodikov, O. V., Westover, K. D., Wu, H., Foster, I., Fraser, J. S., Maia, F. R., Gonen, T., Kirchhausen, T., Diederichs, K., Crosas, M. and Sliz, P. 2016. Data publication with the structural biology data grid supports live analysis. Nature communications. 7. 10882. PMID: 26947396 PMCID: PMC4786681.
188. Aguet, F., Upadhyayula, S., Gaudin, R., Chou, Y. Y., Cocucci, E., He, K., Chen, B. C., Mosaliganti, K., Pasham, M., Skillern, W., Legant, W. R., Liu, T. L., Findlay, G., Marino, E., Danuser, G., Megason, S., Betzig, E. and Kirchhausen, T. 2016. Membrane dynamics of dividing cells imaged by lattice light-sheet microscopy. Molecular biology of the cell. PMID: 27535432 PMCID: PMC5221578.
189. Wang, H., Becuwe, M., Housden, B. E., Chitraju, C., Porras, A. J., Graham, M. M., Liu, X. N., Thiam, A. R., Savage, D. B., Agarwal, A. K., Garg, A., Olarte, M. J., Lin, Q., Frohlich, F., Hannibal-Bach, H. K., Upadhyayula, S., Perrimon, N., Kirchhausen, T., Ejsing, C. S., Walther, T. C. and Farese, R. V. 2016. Seipin is required for converting nascent to mature lipid droplets. eLife. 5. PMID:27564575 PMCID: PMC5035145.
190. Antonny, B., Burd, C., De Camilli, P., Chen, E., Daumke, O., Faelber, K., Ford, M., Frolov, V. A., Frost, A., Hinshaw, J. E., Kirchhausen, T., Kozlov, M. M., Lenz, M., Low, H. H., McMahon, H., Merrifield, C., Pollard, T. D., Robinson, P. J., Roux, A. and Schmid, S. 2016. Membrane fission by dynamin: what we know and what we need to know. The EMBO journal. PMCID: PMC5090216.
191. Hu Y, Kim JH, He K, Wan Q, Kim J, Flach M, Kirchhausen T, Vortkamp A, Winau F. Scramblase TMEM16F terminates T cell receptor signaling to restrict T cell exhaustion. The Journal of experimental medicine. 2016 October 24. PubMed PMID: 27810927. PMCID: PMC5110022.
192. Yi-Ying Chou, Annabel Krupp, Campbell Kaynor, Raphaël Gaudin, Minghe Ma, Ellen Cahir-McFarland, Tom Kirchhausen Inhibition of JCPyV infection mediated by targeted viral genome editing using CRISPR/Cas9. Sci Rep (2016) vol. 6 pp. 36921. PMID: 27841295. PMCID: PMC5107994.
193. Schuler, M. H., Lewandowska, A., Di Caprio, G., Skillern, W., Upadhyayula, S., Kirchhausen, T., Shaw, J. M. and Cunniff, B. 2017. Miro1-mediated mitochondrial positioning shapes intracellular energy gradients required for cell migration. Mol Biol Cell. PMID:28615318. PMCID: PMC5531732.