

9 Literatur

1. Kleinig H, Maier U:
Zellbiologie. Stuttgart, Jena, 4. Aufl. 1999: Gustav Fischer; 1999.
2. Rapoport TA, Jungnickel B, Kutay U:
Protein transport across the eukaryotic endoplasmic reticulum and bacterial inner membranes.
Annu.Rev.Biochem. 1996, **65**: 271-303.
3. Hirschberg K, Rodger J, Futerman AH:
The long-chain sphingoid base of sphingolipids is acylated at the cytosolic surface of the endoplasmic reticulum in rat liver.
Biochem.J. 1993, **290**: 751-757.
4. Hauri H-P, Schweizer A:
The endoplasmic reticulum-Golgi intermediate compartment.
Curr.Op.Cell Biol. 1992, **4**: 600-608.
5. Füllekrug J, Nilsson T:
Protein sorting in the Golgi complex.
Biochim.Biophys.Acta 1998, **1404**: 77-84.
6. Celis JE. Golgi apparatus. 1997.
Ref Type: Data File
7. Pfeffer SR, Rothman JE:
Biosynthetic protein transport and sorting by the endoplasmic reticulum and Golgi.
Ann.Rev.Biochem. 1987, **56**: 829-852.
8. Burgess TL, Kelly RB:
Constitutive and regulated secretion of proteins.
Ann.Rev.Cell Biol. 1987, **3**: 243-293.
9. Pryer NK, Wuestehube LJ, Schekman R:
Vesicle-mediated protein sorting.
Ann.Rev.Biochem. 1992, **61**: 471-516.
10. Zegers MMP, Hoekstra D:
Mechanisms and functional features of polarized membrane traffic in epithelial and hepatic cells.
Biochem.J. 1998, **336**: 257-269.
11. Lazzarino DA, Gabel CA:
Biosynthesis of the mannose 6-phosphate recognition marker in transport-impaired mouse lymphoma cells.
Demonstration of a two-step phosphorylation.
J.Biol.Chem. 1988, **263**: 10118-10126.
12. Ludwig T, Leborgne R, Hoflack B:
Roles for mannose-6-phosphate receptors in lysosomal enzyme sorting, IGF-II binding and clathrin coat

- assembly.
- Trends in Cell Biology* 1995, **5**: 202-206.
13. Hille-Rehfeld A:
Mannose 6-phosphate receptors in sorting and transport of lysosomal enzymes.
Biochim.Biophys.Acta 1995, **1241**: 177-194.
14. Glickman JN, Conibear E, Pearse BMF:
Specificity of binding of clathrin adaptors to signals on the mannose-6-phosphate/insulin-like growth factor II receptor.
EMBO J. 1989, **8**: 1041-1047.
15. Farquhar MG, Hauri H-P:
Protein sorting and vesicular traffic in the golgi apparatus. In *The Golgi Apparatus*. Edited by Berger EG, Roth J. Basel/Switzerland: Birkhäuser; 1997:63-130.
16. Schekman R, Orci L:
Coat proteins and vesicle budding.
Science 1996, **271**: 1526-1533.
17. Hirst J, Robinson MS:
Clathrin and adaptors.
Biochim.Biophys.Acta 1998, **1404**: 173-193.
18. Traub LM, Kornfeld S, Ungewickell E:
Different domains of the AP-1 adaptor complex are required for Golgi membrane binding and clathrin recruitment.
J.Biol.Chem. 1995, **270**: 4933-4942.
19. Stamnes MA, Rothman JE:
The binding of AP-1 clathrin adaptor particles to Golgi membranes requires ADP-ribosylation factor, a small GTP-binding protein.
Cell 1993, **73**: 999-1005.
20. Traub LM, Ostrom JA, Kornfeld S:
Biochemical dissection of AP-1 recruitment onto Golgi membranes.
J.Cell Biol. 1993, **123**: 561-573.
21. DellAngelica EC, Klumperman J, Stoorvogel W, Bonifacino JS:
Association of the AP-3 adaptor complex with clathrin.
Science 1998, **280**: 431-434.
22. Dell'Angelica EC, Ohno H, Ooi CE, Rabinovich E, Roche KW, Bonifacino JS:
AP-3: an adaptor-like protein complex with ubiquitous expression.
EMBO J. 1997, **16**: 917-928.
23. Simpson F, Peden AA, Christopoulou L, Robinson MS:
Characterization of the adaptor-related protein complex, AP-3.
J.Cell Biol. 1997, **137**: 835-845.

24. Odorizzi G, Cowles CR, Emr SD:
The AP-3 complex: a coat of many colours.
Trends Cell Biol. 1998, **8:** 282-288.
25. Saucan L, Palade GE:
Membrane and secretory proteins are transported from the Golgi complex to the sinuoidal plasmalemma of hepatocytes by distinct vesicular carriers.
J.Cell Biol. 1994, **125:** 733-741.
26. Maier O. Intrazellulärer Proteintransport: Vesikelbildung am trans-Golgi Netzwerk und ihre Regulation durch trimere G-Proteine. 1998.
Ref Type: Thesis/Dissertation
27. Ladinsky MS, Kremer JR, Furciniti PS, McIntosh JR, Howell KE:
HVEM tomography of the trans-Golgi network: structural insights and identification of a lace-like vesicle coat.
J.Cell Biol. 1994, **127:** 29-38.
28. Stow JL, Fath KR, Burgess DR:
Budding roles for myosin II on the Golgi.
Trends Cell Biol. 1998, **8:** 138-141.
29. Narula N, McMorrow I, Plopper G, Doherty J, Matlin KS, Burke B, Stow JL:
Identification of a 200-kD, brefeldin-sensitive protein on Golgi membranes.
J.Cell Biol. 1992, **117:** 27-38.
30. Ikonen E, de Almeid JB, Fath KF, Burgess DR, Ashman K, Simons K, Stow JL:
Myosin II is associated with Golgi membranes: identification of p200 as nonmuscle myosin II on Golgi-derived vesicles.
J.Cell Sci. 1997, **110:** 2155-2164.
31. Narula N, Stow JL:
Distinct coated vesicles labeled for P200 bud from trans-Golgi network membranes.
Proc.Natl.Acad.Sci.U.S.A. 1995, **92:** 2874-2878.
32. Wang J, Ladinsky MS, Howell KE:
Molecules and vesicle coats involved in the budding of exocytotic vesicles from the trans-Golgi network.
Cold Spring Harbor Symp.Quant.Biol. 1995, **60:** 139-146.
33. Stanley KK, Howell KE:
TGN38/41: a molecule on the move.
Trends Cell Biol. 1993, **3:** 252-255.
34. Gleeson PA, Anderson TJ, Stow JL, Griffiths G, Toh BH, Matheson F:
P230 is associated with vesicles budding from the trans-Golgi network.
J.Cell Sci. 1996, **109:** 2811-2821.
35. Erlich R, Gleeson PA, Campbell P, Dietzsch E, Toh B-H:
Molecular characterization of trans-Golgi p230. A human peripheral membrane protein encoded by a gene on

- chromosome 6p12-33 contains extensive coiled coil α -helical domains and a granin motif.
J.Biol.Chem. 1996, **271**: 8328-8337.
36. Post PL, DeBiasio RL, Taylor DL:
A fluorescent protein biosensor of myosin II regulatory light chain phosphorylation reports a gradient of phosphorylated myosin II in migrating cells.
Mol Biol Cell 1995, **6**: 1755-1768.
37. Simon J-P, Ivanov IE, Ren M, Zeng J, Shopsin B, Hersh D, Tempst B, Erdjument-Bromage H, Lui M, De Lemos-Chiarandini C, Rosenfeld M, Gravotta D, Morimoto T, Adesnik M, Sabatini DD:
Regulation of post-Golgi vesicle production in an in vitro system.
Cold Spring Harbor Symp.Quant.Biol. 1995, **60**: 179-195.
38. Yoshimori T, Keller P, Roth MG, Simons K:
Different biosynthetic transport routes to the plasma membrane in BHK and CHO cells.
J.Cell Biol. 1996, **133**: 247-256.
39. Compton T, Ivanov IE, Gottlieb T, Rindler M, Adesnik M, Sabatini DD:
A sorting signal for the basolateral delivery of the vesicular stomatitis virus (VSV) G protein lies in its luminal domain: analysis of the targeting of VSV G-influenza hemagglutinin chimeras.
Proc.Natl Acad.Sci.U.S.A. 1989, **86**: 4112-4116.
40. Wandinger-Ness A, Bennett MK, Antony C, Simons K:
Distinct transport vesicles mediate the delivery of plasma membrane proteins to the apical and basolateral domains of MDCK cells.
J.Cell Biol. 1990, **111**: 987-1000.
41. Ikonen E, Tagaya M, Ullrich O, Montecucco C, Simons K:
Different requirements for NSF, SNAP, and Rab proteins in apical and basolateral transport in MDCK cells.
Cell 1995, **81**: 571-580.
42. Le Gall AH, Yeaman C, Muesch A, Rodriguez-Boulan E:
Epithelial cell polarity: new perspectives.
Semin.Nephrol. 1995, **15**: 272-284.
43. Bartles JR, Feracci HM, Stieger B, Hubbard AL:
Biogenesis of the rat hepatocyte plasma membrane in vivo: comparison of the pathways taken by apical and basolateral proteins using subcellular fractionation.
J.Cell Biol. 1987, **105**: 1241-1251.
44. Schell MJ, Maurice M, Stieger B, Hubbard AL:
5 nucleotidase is sorted to the apical domain of hepatocytes via an indirect route.
J.Cell Biol. 1992, **119**: 1173-1182.
45. Rothman JE:
The protein machinery of vesicle budding and fusion.
Protein Science 1996, **5**: 185-194.

46. Matter K, Mellman I:
Mechanisms of cell polarity: sorting and transport in epithelial cells.
Curr.Op.Cell Biol. 1994, **6:** 545-554.
47. Zurzolo C, Hof Wv, Meer Gv, Rodriguez-Boulan E:
VIP21/caveolin, glycosphingolipid clusters and the sorting of glycophosphatidylinositol-anchored proteins in epithelial cells.
EMBO J. 1994, **13:** 42-53.
48. Zurzolo C, Lisanti MP, Caras IW, Nitsch L, Rodriguez-Boulan E:
Glycosylphosphatidylinositol-anchored proteins are preferentially targeted to the basolateral surface in Fischer rat thyroid epithelial cells.
J.Cell Biol. 1993, **121:** 1031-1039.
49. Murata M, Peranen J, Schreiner R, Wieland F, Kurzhalia TV, Simons K:
Vip21/caveolin is a cholesterol-binding protein.
Proc.Natl.Acad.Sci.USA 1995, **92:** 10339-10343.
50. Fiedler K, Parton RG, Kellner R, Etzold T, Simons K:
Vip36, a novel component of glycolipid rafts and exocytic carrier vesicles in epithelial cells.
EMBO J. 1994, **13:** 1729-1740.
51. Fiedler K, Simons K:
The role of N-glycans in the secretory pathway.
Cell 1995, **81:** 309-312.
52. Ohno H, Fournier M-C, Poy G, Bonifacino JS:
Structural determinants of interaction of tyrosine-based sorting signals with the adaptor medium chains.
J.Biol.Chem. 1996, **271:** 29009-29015.
53. Marks MS, Ohno H, Kirchhausen T, Bonifacino JS:
Protein sorting by tyrosine-based signals: adapting the Ys and wheresores.
Trends Cell Biol. 1997, **7:** 124-128.
54. Hunziker W, Geuze HJ:
Intracellular trafficking of lysosomal membrane proteins.
Bioessays 1996, **18:** 379-389.
55. Marks MS, Woodruff L, Ohno H, Bonifacino JS:
Protein targeting by tyrosin- and di-leucine-based signals: evidence for distinct saturable components.
J.Cell Biol. 1996, **135:** 341-354.
56. Ali N, Evans WH:
Priority targeting of glycosyl-phosphatidylinositol-anchored proteins to the bile-canicular (apical) plasma membrane of hepatocytes.
Biochem.J. 1990, **271:** 193-199.
57. Brown DA, Rose JK:
Sorting of GPI-anchored proteins to glycolipid-enriched membrane subdomains during transport to the apical cell

- surface.
- Cell* 1992, **68**: 533-544.
58. Fujimoto T:
GPI-anchored proteins, glycosphingolipids, and sphingomyelin are sequestered to caveolae only after crosslinking.
J.Histochem.Cytochem. 1996, **44**: 929-941.
59. Molloy SS, Thomas L, Kamibayashi C, Mumby MC, Thomas G:
Regulation of Endosome Sorting by a Specific PP2A Isoform.
J.Cell Biol. 1998, **142**: 1399-1411.
60. Molloy SS, Anderson ED, Jean F, Thomas G:
Bi-cycling the furin pathway: from TGN localization to pathogen activation and embryogenesis.
Trends.Cell Biol. 1999, **9**: 28-35.
61. Bosshart H, Humphrey J, Deignan E, Davidson J, Drazba J, Yuan L, Oorschot V, Peters PJ, Bonifacino JS:
The cytoplasmic domain mediates localization of furin to the trans-Golgi network en route to the endosomal/lysosomal system.
J.Cell Biol. 1994, **126**: 1157-1172.
62. Brakch N, Galanopoulou AS, Patel YC, Boileau G, Seidah NG:
Comparative proteolytic processing of rat prosomatostatin by the convertases PC1, PC2, furin, PACE4 and PC5 in constitutive and regulated secretory pathways.
FEBS Lett. 1995, **362**: 143-146.
63. Nuoffer C, Balch WE:
GTPases: multifunctional molecular switches regulating vesicular traffic.
Annu.Rev.Biochem. 1994, **63**: 949-990.
64. Stow JL, Almeida JB, Narula N, Holtzman EJ, Ercolani L, Ausiello DA:
A heterotrimeric G protein, $G_{\alpha i-3}$, on Golgi membranes regulates the secretion of a heparan sulfate proteoglycan in LLC- PK₁ epithelial cells.
J.Cell Biol. 1991, **114**: 1113-1124.
65. Melancon P, Glick BS, Malhotra V, Weidman PJ, Serafini T, Gleason ML, Orci L, Rothman JE:
Involvement of GTP-binding "G" proteins in transport through the Golgi stack.
Cell 1987, **51**: 1053-1062.
66. Tooze SA:
Biogenesis of secretory granules in the trans-Golgi network of neuroendocrine and endocrine cells.
Biochim.Biophys.Acta 1998, **1404**: 231-244.
67. de Almeida JB, Doherty J, Ausiello DA, Stow JL:
Binding of the cytosolic p200 protein to Golgi membranes is regulated by heterotrimeric G proteins.
J.Cell Sci. 1993, **106**: 1239-1248.
68. Colombo MI, Inglese J, DSouza-Schorey C, Beron W, Stahl PD:
Heterotrimeric G proteins interact with the small GTPase ARF. Possibilities for the regulation of vesicular

- traffic.
- J.Biol.Chem.* 1995, **270**: 24564-24571.
69. Franco M, Chardin P, Chabre M, Paris S:
Myristylation of ADP-ribosylation factor 1 facilitates nucleotide exchange at physiological Mg²⁺ levels.
J.Biol.Chem. 1995, **270**: 1337-1341.
70. Traub LM, Kornfeld S:
The trans-Golgi network: a late secretory sorting station.
Curr.Opin.Cell Biol. 1997, **9**: 527-533.
71. Brown A, Sternweis PC:
Stimulation of phospholipase D by ADP-ribosylation factor.
Meth.Enzymol. 1995, **257**: 313-313.
72. Chen Y-G, Siddhanta A, Austin CD, Hammond SM, Sung T-C, Frohman MA, Morris AJ, Shields D:
Phospholipase D stimulates release of nascent secretory vesicles from the trans-Golgi network.
J.Cell Biol. 1997, **138**: 495-504.
73. West MA, Bright NA, Robinson MS:
The role of ADP-ribosylation factor and phospholipase D in adaptor recruitment.
J.Cell Biol. 1997, **138**: 1239-1254.
74. Ktistakis NT, Brown HA, Sternweis PC, Roth MG:
Phospholipase D is present on Golgi-enriched membranes and its activation by ADP-ribosylation factor is sensitive to brefeldin A.
Proc.Natl.Acad.Sci.U.S.A. 1995, **92**: 4952-4956.
75. Alberts, B.:
Lehrbuch der molekularen Zellbiologie. Weinheim: Wiley-VCH; 1999.
76. Martinez O, Goud B:
Rab proteins.
Biochim.Biophys.Acta 1998, **1404**: 101-112.
77. Farquhar MG, Palade GE:
The Golgi apparatus (complex)-(1954-1981)-from artifact to center stage.
J.Cell Biol. 1981, **91**: 77s-103s.
78. De Camilli P, Takei K, McPherson PS:
The function of dynamin in endocytosis.
Curr.Opin.Neurobiol. 1995, **5**: 559-565.
79. Conibear E, Stevens TH:
Vacuolar biogenesis in yeast: sorting out the sorting proteins.
Cell 1995, **83**: 513-516.
80. Nothwehr SF, Conibear E, Stevens TH:
Golgi and vacuolar membrane proteins reach the vacuole in vps1 mutant yeast cells via the plasma membrane.
J.Cell Biol. 1995, **129**: 35-46.

81. Jones SM, Howell KE, Henley JR, Cao H, McNiven MA:
Role of dynamin in the formation of transport vesicles from the trans-Golgi network.
Science 1998, **279**: 573-577.
82. De Camilli P, Emr SD, McPherson PS, Novick P:
Phosphoinositides as regulators in membrane traffic.
Science 1996, **271**: 1533-1539.
83. Bankaitis VA, Aitken JR, Cleves AE, Dowhan W:
An essential role for a phospholipid transfer protein in yeast Golgi function [see comments].
Nature 1990, **347**: 561-562.
84. Ohashi M, Vries KJd, Frank R, Snoek G, Bankaitis V, Wirtz K, Huttner WB:
A role for phosphatidylinositol transfer protein in secretory vesicle formation.
Nature(London) 1995, **377**: 544-547.
85. Tüscher O, Lorra C, Bouma B, Wirtz KW, Huttner WB:
Cooperativity of phosphatidylinositol transfer protein and phospholipase D in secretory vesicle formation from the TGN - phosphoinositides as a common denominator?
FEBS Lett. 1997, **419**: 271-275.
86. Terui T, Kahn RA, Randazzo PA:
Effects of acid phospholipids on nucleotide exchange properties of ADP-ribosylation factor 1. Evidence for specific interaction with phosphatidylinositol 4,5-bisphosphate.
J.Biol.Chem. 1994, **269**: 28130-28135.
87. Bi K, Roth MG, Ktistakis NT:
Phosphatidic acid formation by phospholipase D is required for transport from the endoplasmic reticulum to the Golgi complex.
Current Biology 1997, **7**: 301-307.
88. Hardie G, Hanks S:
Protein-Serine Kinases, The protein kinase factsbook. Academic Press Limited; 1995.
89. Nishizuka Y:
Intracellular signaling by hydrolysis of phospholipids and activation of protein kinase C.
Science 1992, **258**: 607-613.
90. Hug H, Sarre TF:
Protein kinase C isoenzymes. divergence in signal transduction?
Biochem.J. 1993, **291**: 329-343.
91. Dekker LV, Parker PJ:
Protein kinase C-a question of specificity.
Trends.Biochem.Sci. 1994, **19**: 73-77.
92. Busconi L, Boutin PM, Denker BM:
N-terminal binding domain of Galphalpha subunits: involvement of amino acids 11-14 of Gao in membrane

- attachment.
- Biochem.J.* 1997, **323:** 239-244.
93. Halstead J, Kemp K, Ignotz RA:
Evidence for involvement of phosphatidylcholine-phospholipase C and protein kinase C in transforming growth factor-beta signaling.
J.Biol.Chem. 1995, **270:** 13600-13603.
94. Stempka L, Girod A, Muller HJ, Rincke G, Marks F, Gschwendt M, Bossemeyer D:
Phosphorylation of protein kinase C δ (PKC δ) at threonine 505 is not a prerequisite for enzymatic activity.
Expression of rat PKC δ and an alanine 505 mutant in bacteria in a functional form.
J.Biol.Chem. 1997, **272:** 6805-6811.
95. Mumby MCWG:
Protein serine/threonine phosphatases: structure, regulation, and functions in cell growth.
Physiol.Rev. 1993, **73:** 673-700.
96. Ohashi M, Huttner WB:
An elevation of cytosolic protein phosphorylation modulates trimeric G-protein regulation of secretory vesicle formation from the trans-Golgi network.
J.Biol.Chem. 1994, **269:** 24897-24905.
97. Czech MP, Corvera S:
Signaling Mechanisms That Regulate Glucose Transport.
J.Biol.Chem. 1999, **274:** 1865-1868.
98. Takai Y, Kishimoto A, Inoue M, Nishizuka Y:
Studies on a cyclic nucleotide-independent protein kinase and its proenzyme in mammalian tissues. I.
Purification and characterization of an active enzyme from bovine cerebellum.
J.Biol.Chem. 1977, **252:** 7603-7609.
99. Nishizuka Y:
The role of protein kinase C in cell surface signal transduction and tumour promotion.
Nature 1984, **308:** 693-698.
100. Takai Y, Kishimoto A, Iwasa Y, Kawahara Y, Mori T, Nishizuka Y:
Calcium-dependent activation of a multifunctional protein kinase by membrane phospholipids.
J Biol Chem 1979, **254:** 3692-3695.
101. Nishizuka Y:
The heterogeneity and differential expression of multiple species of the protein kinase C family.
Biofactors 1988, **1:** 17-20.
102. Takai Y, Kishimoto A, Iwasa Y, Kawahara Y, Mori T, Nishizuka Y, Tamura A, Fujii T:
A role of membranes in the activation of a new multifunctional protein kinase system.
J Biochem Tokyo. 1979, **86:** 575-578.
103. Takai Y, Kishimoto A, Kikkawa U, Mori T, Nishizuka Y:
Unsaturated diacylglycerol as a possible messenger for the activation of calcium-activated, phospholipid-

- dependent protein kinase system.
Biochem Biophys Res Commun. 1979, **91:** 1218-1224.
104. Nishizuka Y:
Protein kinase C and lipid signaling for sustained cellular responses.
FASEB J 1995, **9:** 484-496.
105. Denning MF, Kazanietz MG, Blumberg PM, Yuspa SH:
Cholesterol sulfate activates multiple protein kinase C isoenzymes and induces granular cell differentiation in cultured murine keratinocytes.
Cell Growth Differ. 1995, **6:** 1619-1626.
106. Geiges D, Meyer T, Marte B, Vanek M, Weissgerber G, Stabel S, Pfeilschifter J, Fabbro D, Huwiler A:
Activation of protein kinase C subtypes alpha, gamma, delta, epsilon, zeta, and eta by tumor-promoting and nontumor-promoting agents.
Biochem.Pharmacol. 1997, **53:** 865-875.
107. Fackler MJ, Civin CI, Sutherland DR, Baker MA, May WS:
Activated protein kinase C directly phosphorylates the CD34 antigen on hematopoietic cells.
J.Biol.Chem. 1990, **265:** 11056-11061.
108. Liu B, Maher RJ, Hannun YA, Porter AT, Honn KV:
12(S)-HETE enhancement of prostate tumor cell invasion: selective role of PKC alpha.
J.Natl.Cancer Inst. 1994, **86:** 1145-1151.
109. Chiarpotto E, Domenicotti C, Paola D, Vitali A, Nitti M, Pronzato MA, Biasi F, Cottalasso D, Marinari UM, Dragonetti A, Cesaro P, Isidoro C, Poli G:
Regulation of rat hepatocyte protein kinase C beta isoenzymes by the lipid peroxidation product 4-hydroxy-2,3-nonenal: A signaling pathway to modulate vesicular transport of glycoproteins.
Hepatology 1999, **29:** 1565-1572.
110. Murray NR, Fields AP:
Phosphatidylglycerol is a physiologic activator of nuclear protein kinase C.
J.Biol.Chem. 1998, **273:** 11514-11520.
111. Acs P, Szallasi Z, Kazanietz MG, Blumberg PM:
Differential activation of PKC isozymes by 14-3-3 zeta protein.
Biochem.Biophys.Res.Commun. 1995, **216:** 103-109.
112. Zhao L, Standaert ML, Cooper DR, Avignon A, Farese RV:
Effects of insulin on protein kinase-C (PKC) in HIRC-B cells: specific activation of PKC epsilon and its resistance to phorbol ester-induced down-regulation.
Endocrinology. 1994, **135:** 2504-2510.
113. Nishizuka Y:
The molecular heterogeneity of protein kinase C and its implications for cellular regulation.
Nature(London) 1988, **334:** 661-665.

Literatur

114. Mathias S, Pena LA, Kolesnick RN:
Signal transduction of stress via ceramide.
Biochem.J. 1998, **335**: 465-480.
115. Municio MM, Lozano J, Sanchez P, Moscat J, Diaz MM:
Identification of heterogeneous ribonucleoprotein A1 as a novel substrate for protein kinase C zeta.
J.Biol.Chem. 1995, **270**: 15884-15891.
116. Ahmed S, Kozma R, Lee J, Monfries C, Harden N, Lim L:
The cysteine-rich domain of human proteins, neuronal chimaerin, protein kinase C and diacylglycerol kinase binds zinc. Evidence for the involvement of a zinc-dependent structure in phorbol ester binding.
Biochem.J. 1991, **280**: 233-241.
117. Jaken S:
Protein kinase C isozymes and substrates.
Curr.Opin.Cell Biol. 1996, **8**: 168-173.
118. Mochly-Rosen D, Gordon AS:
Anchoring proteins for protein kinase C: a means for isozyme selectivity.
FASEB J. 1998, **12**: 35-42.
119. Swiss Institute of Bioinformatics (SIB). SWISS-PROT. The ExPASy Molecular Biology Server . 2000.
Ref Type: Electronic Citation
120. Burns DJ, Bell RM:
Protein kinase C contains two phorbol ester binding domains.
J Biol Chem 1991, **266**: 18330-18338.
121. Kraft AS, Anderson WB, Cooper HL, Sando JJ:
Decrease in cytosolic calcium/phospholipid-dependent protein kinase activity following phorbol ester treatment of EL4 thymoma cells.
J Biol Chem 1982, **257**: 13193-13196.
122. Newton AC:
Protein kinase C: structure, function and regulation.
J.Biol.Chem. 1995, **270**: 28495-28498.
123. Bell RM, Burns DJ:
Lipid activation of protein kinase C.
J Biol Chem 1991, **266**: 4661-4664.
124. Dekker LV, McIntyre P, Parker PJ:
Mutagenesis of the regulatory domain of rat protein kinase C-eta. A molecular basis for restricted histone kinase activity.
J.Biol.Chem. 1993, **268**: 19498-19504.
125. Dutil EM, Keranen LM, DePaoli RA, Newton AC:
In vivo regulation of protein kinase C by trans-phosphorylation followed by autophosphorylation.
J Biol Chem 1994, **269**: 29359-29362.

Literatur

126. Newton AC:
Protein kinase C: ports of anchor in the cell.
Curr.Biol 1996, **6**: 806-809.
127. Orr JW, Newton AC:
Requirement for negative charge on "activation loop" of protein kinase C.
J.Biol.Chem. 1994, **269**: 27715-27718.
128. Zhang J, Wang L, Petrin J, Bishop WR, Bond RW:
Characterization of site-specific mutants altered at protein kinase C beta 1 isozyme autophosphorylation sites.
Proc.Natl Acad.Sci.U.S.A. 1993, **90**: 6130-6134.
129. Gysin S, Imber R:
Replacement of Ser657 of protein kinase C-alpha by alanine leads to premature down regulation after phorbol-ester-induced translocation to the membrane.
Eur.J.Biochem. 1996, **240**: 747-750.
130. Zhang J, Wang L, Schwartz J, Bond RW, Bishop WR:
Phosphorylation of Thr642 is an early event in the processing of newly synthesized protein kinase C beta 1 and is essential for its activation.
J.Biol.Chem. 1994, **269**: 19578-19584.
131. Bornancin F, Parker PJ:
Phosphorylation of threonine 638 critically controls the dephosphorylation and inactivation of protein kinase Calpha.
Curr.Biol. 1996, **6**: 1114-1123.
132. Lee HW, Smith L, Pettit GR, Bingham SJ:
Dephosphorylation of activated protein kinase C contributes to downregulation by bryostatin.
Am J Physiol. 1996, **271**: C304-C311.
133. Gysin S, Imber R:
Phorbol-ester-activated protein kinase C-alpha lacking phosphorylation at Ser657 is down-regulated by a mechanism involving dephosphorylation.
Eur.J.Biochem. 1997, **249**: 156-160.
134. Kishimoto A, Mikawa K, Hashimoto K, Yasuda I, Tanaka S, Tominaga M, Kuroda T, Nishizuka Y:
Limited proteolysis of protein kinase C subspecies by calcium-dependent neutral protease (calpain).
J.Biol.Chem. 1989, **264**: 4088-4092.
135. Junco M, Webster C, Crawford C, Bosca L, Parker PJ:
Protein kinase C V3 domain mutants with differential sensitivities to m-calpain are not resistant to phorbol-ester-induced down-regulation.
Eur.J Biochem. 1994, **223**: 259-263.
136. Gatti A, Robinson PJ:
Okadaic acid interferes with phorbol-ester-mediated down-regulation of protein kinase C-alpha, C-delta and C-

- epsilon.
- Eur.J.Biochem.* 1997, **249:** 92-97.
137. Lee HW, Smith L, Pettit GR, Smith JB:
Bryostatin 1 and phorbol ester down-modulate protein kinase C-alpha and -epsilon via the ubiquitin/proteasome pathway in human fibroblasts.
Mol.Pharmacol. 1997, **51:** 439-447.
138. Wolf M, Sahyoun N:
Protein kinase C and phosphatidylserine bind to Mr 110,000/115,000 polypeptides enriched in cytoskeletal and postsynaptic density preparations.
J.Biol.Chem. 1986, **261:** 13327-13332.
139. Gopalakrishna R, Barsky SH, Thomas TP, Anderson WB:
Factors influencing chelator-stable, detergent-extractable, phorbol diester-induced membrane association of protein kinase C. Differences between Ca²⁺-induced and phorbol ester-stabilized membrane bindings of protein kinase C.
J Biol Chem 1986, **261:** 16438-16445.
140. Kiley SC, Jaken S:
Activation of alpha-protein kinase C leads to association with detergent-insoluble components of GH4C1 cells.
Mol.Endocrinol. 1990, **4:** 59-68.
141. Mochly-Rosen D, Khaner H, Lopez J:
Identification of intracellular receptor proteins for activated protein kinase C.
Proc.Natl.Acad.Sci.USA 1991, **88:** 3997-4000.
142. Smith BL, Mochly-Rosen D:
Inhibition of protein kinase C function by injection of intracellular receptors for the enzyme.
Biochem.Biophys.Res.Commun. 1992, **188:** 1235-1240.
143. Mochly-Rosen D:
Localization of protein kinases by anchoring proteins: a theme in signal transduction.
Science 1995, **268:** 247-251.
144. Li W, Yu J-C, Shin D-Y, Pierce JH:
Characterization of a protein kinase C-delta (PKC-delta) ATP binding mutant. An inactive enzyme that competitively inhibits wild type PKC-delta enzymatic activity.
J.Biol.Chem. 1995, **270:** 8311-8318.
145. Li W, Mischak H, Yu JC, Wang LM, Mushinski JF, Heidaran MA, Pierce JH:
Tyrosine phosphorylation of protein kinase C-delta in response to its activation.
J.Biol.Chem. 1994, **269:** 2349-2352.
146. Lehel C, Olah Z, Jakab G, Szallasi Z, Petrovics G, Harta G, Blumberg PM, Anderson WB:
Protein kinase C epsilon subcellular localization domains and proteolytic degradation sites. A model for protein kinase C conformational changes.
J.Biol.Chem. 1995, **270:** 19651-19658.

147. Ono Y, Fujii T, Ogita K, Kikkawa U, Igarashi K, Nishizuka Y:
Protein kinase C zeta subspecies from rat brain: its structure, expression, and properties.
Proc.Natl.Acad.Sci.U.S.A. 1989, **86:** 3099-3103.
148. Kochs G, Hummel R, Meyer D, Hug H, Marme D, Sarre TF:
Activation and substrate specificity of the human protein kinase C alpha and zeta isoenzymes.
Eur.J.Biochem. 1993, **216:** 597-606.
149. Stabel S, Parker PJ:
Protein kinase C.
Pharmacol.Ther. 1991, **51:** 71-95.
150. Johannes FJ, Prestle J, Eis S, Oberhagemann P, Pfizenmaier K:
PKCu is a novel, atypical member of the protein kinase C family.
J Biol Chem 1994, **269:** 6140-6148.
151. Ramsdell JS, Pettit GR, Tashjian AH Jr:
Three activators of protein kinase C, bryostatins, dioleins, and phorbol esters, show differing specificities of action on GH4 pituitary cells.
J.Biol.Chem. 1986, **261:** 17073-17080.
152. Caloca MJ, Fernandez N, Lewin NE, Ching D, Modali R, Blumberg PM, Kazanietz MG:
Beta2-chimaerin is a high affinity receptor for the phorbol ester tumor promoters.
J.Biol.Chem. 1997, **272:** 26488-26496.
153. Singh SS, Chauhan A, Brockerhoff H, Chauhan VP:
Activation of protein kinase C by phosphatidylinositol 3,4,5-trisphosphate.
Biochem Biophys Res Commun. 1993, **195:** 104-112.
154. Nakanishi H, Brewer KA, Exton JH:
Activation of the zeta isozyme of protein kinase C by phosphatidylinositol 3,4,5-trisphosphate.
J.Biol.Chem. 1993, **268:** 13-16.
155. Valius M, Kazlauskas A:
Phospholipase C-gamma 1 and phosphatidylinositol 3 kinase are the downstream mediators of the PDGF receptor's mitogenic signal.
Cell 1993, **73:** 321-334.
156. Sontag E, Sontag JM, Garcia A:
Protein phosphatase 2A is a critical regulator of protein kinase C zeta signaling targeted by SV40 small t to promote cell growth and NF-kappaB activation.
EMBO J. 1997, **16:** 5662-5671.
157. Lozano J, Berra E, Municio MM, Diaz Meco MT, Dominguez I, Sanz L, Moscat J:
Protein kinase c zeta isoform is critical for kappa b-dependent promoter activation by sphingomyelinase.
J Biol Chem 1994, **269:** 19200-2 *LHM: Bibliothek.
158. Müller G, Ayoub M, Storz P, Rennecke J, Fabbro D, Pfizenmaier K:
PKC zeta is a molecular switch in signal transduction of TNF-a, bifunctionally regulated by ceramide and

- arachidonic acid.
- EMBO J.* 1995, **14:** 1961-1969.
159. Keenan C, Kelleher D:
Protein kinase C and the cytoskeleton.
Cell Signal. 1998, **10:** 225-232.
160. Mochly-Rosen D, Henrich CJ, Cheever L, Khaner H, Simpson PC:
A protein kinase C isozyme is translocated to cytoskeletal elements on activation.
Cell Regul. 1990, **1:** 693-706.
161. Ozawa K, Yamada K, Kazanietz MG, Blumberg PM, Beaven MA:
Different isozymes of protein kinase C mediate feedback inhibition of phospholipase C and stimulatory signals for exocytosis in rat RBL-2H3 cells.
J.Biol.Chem. 1993, **268:** 2280-2283.
162. Ozawa K, Szallasi Z, Kazanietz MG, Blumberg PM, Mischak H, Mushinski JF, Beaven MA:
Ca(2+)-dependent and Ca(2+)-independent isozymes of protein kinase C mediate exocytosis in antigen-stimulated rat basophilic RBL-2H3 cells. Reconstitution of secretory responses with Ca²⁺ and purified isozymes in washed permeabilized cells.
J.Biol.Chem. 1993, **268:** 1749-1756.
163. Buccione R, Tullio GD, Caretta M, Marinetti MR, Bizarri C, Francavilla S, Luini A, de Matteis MA:
Analysis of protein kinase C requirement for exocytosis in permeabilized rat basophilic leukemia RBL-2H3 cells: a GTP- binding protein(s) as a potential target for protein kinase C.
Biochem.J. 1994, **298:** 149-156.
164. Buccione R, Bannykh S, Santone I, Baldassarre M, Facchiano F, Bozzi Y, Di Tullio G, Mironov A, Luini A, de Matteis MA:
Regulation of constitutive exocytic transport by membrane receptors. A biochemical and morphometric study.
J.Biol.Chem. 1996, **271:** 3523-3533.
165. Westermann P, Knoblich M, Maier O, Lindschau C, Haller H:
Protein kinase C bound to the Golgi apparatus supports the formation of constitutive transport vesicles.
Biochem.J. 1996, **320:** 651-658.
166. Saito N, Kose A, Ito A, Hosoda K, Mori M, Hirata M, Ogita K, Kikkawa U, Ono Y, Igarashi K, et al:
Immunocytochemical localization of beta II subspecies of protein kinase C in rat brain.
Proc.Natl.Acad.Sci.USA 1989, **86:** 3409-3413.
167. Mori M, Kose A, Tsujino T, Tanaka C:
Immunocytochemical localization of protein kinase C subspecies in the rat spinal cord: light and electron microscopic study.
J.Comp.Neurol. 1990, **299:** 167-177.
168. Hietanen PM:
Colocalization of protein kinase C beta-subtype and calcitonin gene-related peptide in rat spinal cord.
Histochemistry 1992, **97:** 19-23.

Literatur

169. Goodnight JA, Mischak H, Kolch W, Mushinski JF:
Immunocytochemical localization of eight protein kinase C isozymes overexpressed in NIH 3T3 fibroblasts.
Isoform-specific association with microfilaments, Golgi, endoplasmic reticulum, and nuclear and cell membranes.
J.Biol.Chem. 1995, **270**: 9991-10001.
170. Prestle J, Pfizenmaier K, Brenner J, Johannes FJ:
Protein kinase C mu is located at the Golgi compartment.
J.Cell Biol. 1996, **134**: 1401-1410.
171. Kearns BG, McGee TP, Mayinger P, Gedvilaite A, Phillips SE, Kagiwada S, Bankaitis VA:
Essential role for diacylglycerol in protein transport from the yeast Golgi complex.
Nature 1997, **387**: 101-105.
172. Strulovici B, Daniel-Issakani S, Baxter G, Knopf J, Sultzman L, Cherwinski H, Nestor Jr J, Webb DR, Ransom J:
Distinct mechanisms of regulation of protein kinase C epsilon by hormones and phorbol diesters.
J.Biol.Chem. 1991, **266**: 168-173.
173. Traub O, Monia BP, Dean NM, Berk BC:
PKC-epsilon is required for mechano-sensitive activation of ERK1/2 in endothelial cells.
J.Biol.Chem. 1997, **272**: 31251-31257.
174. Bandyopadhyay G, Standaert ML, Zhao L, Yu B, Avignon A, Galloway L, Karnam P, Moscat J, Farese RV:
Activation of Protein Kinase C (alpha , beta , and zeta) by Insulin in 3T3/L1 Cells.
J.Biol.Chem. 1997, **272**: 2551-2558.
175. Abdullah LH, Conway JD, Cohn JA, Davis CW:
Protein kinase C and Ca²⁺ activation of mucin secretion in airway goblet cells.
Am.J.Physiol. 1997, **273**: L201-L210.
176. Beuers U, Probst I, Soroka C, Boyer JL, Kullak UG, Paumgartner G:
Modulation of protein kinase C by taurolithocholic acid in isolated rat hepatocytes.
Hepatology 1999, **29**: 477-482.
177. Cox ME, Parsons SJ:
Roles for protein kinase C and mitogen-activated protein kinase in nicotine-induced secretion from bovine adrenal chromaffin cells.
J.Neurochem. 1997, **69**: 1119-1130.
178. Gohda E, Kataoka H, Tsubouchi H, Daikilara Y, Yamamoto I:
Phorbol ester-induced secretion of human hepatocyte growth factor by human skin fibroblasts and its inhibition by dexamethasone.
FEBS Lett. 1992, **301**: 107-110.
179. Gohda E, Matsunaga T, Kataoka H, Takebe T, Yamamoto I:
Induction of hepatocyte growth factor in human skin fibroblasts by epidermal growth factor, platelet-derived

- growth factor and fibroblast growth factor.
Cytokine. 1994, **6**: 633-640.
180. Hong DH, Forstner JF, Forstner GG:
Protein kinase C-epsilon is the likely mediator of mucin exocytosis in human colonic cell lines.
Am.J.Physiol. 1997, **272**: G31-G37.
181. Laurent F, Benoliel AM, Capo C, Bongrand P:
Oxidative metabolism of polymorphonuclear leukocytes: modulation by adhesive stimuli.
J.Leukoc.Biol. 1991, **49**: 217-226.
182. Ludowyke RI, Scurr LL, McNally CM:
Calcium ionophore-induced secretion from mast cells correlates with myosin light chain phosphorylation by protein kinase C.
J.Immunol. 1996, **157**: 5130-5138.
183. Nemoz GE, Cordier BM, Filloux C, Cuber JC, Van OE, Chayvialle JA, Abello J:
Bombesin stimulates cholecystokinin secretion through mitogen-activated protein-kinase-dependent and - independent mechanisms in the enteroendocrine STC-1 cell line.
Biochem.J. 1998, **331**: 129-135.
184. Togo T, Alderton JM, Bi GQ, Steinhardt RA:
The mechanism of facilitated cell membrane resealing.
J.Cell Sci. 1999, **112**: 719-731.
185. Simon J-P, Ivanov IE, Shopsin B, Hersh D, Adesnik M, Sabatini DD:
The in vitro generation of post-Golgi vesicles carrying viral envelope glycoproteins requires an ARF-like GTP- binding protein and a protein kinase C associated with the Golgi apparatus.
J.Biol.Chem. 1996, **271**: 16952-16961.
186. Blackshear PJ, Lai WS, Tuttle JS, Stumpo DJ, Kennington E, Nairn AC, Sulik KK:
Developmental expression of MARCKS and protein kinase C in mice in relation to the exencephaly resulting from MARCKS deficiency.
Brain Res Dev.Brain Res 1996, **96**: 62-75.
187. Xing M, Tao L, Insel PA:
Role of extracellular signal-regulated kinase and PKC alpha in cytosolic PLA2 activation by bradykinin in MDCK-D1 cells [published erratum appears in Am J Physiol 1997 Aug;273(2 Pt 1):section C following table of contents].
Am.J.Physiol. 1997, **272**: C1380-C1387.
188. Pollo DA, Baldassare JJ, Honda T, Henderson PA, Talkad VD, Gardner JD:
Effects of cholecystokinin (CCK) and other secretagogues on isoforms of protein kinase C (PKC) in pancreatic acini.
Biochim.Biophys.Acta 1994, **1224**: 127-138.
189. Akita Y, Ohno S, Yajima Y, Konno Y, Saido TC, Mizuno K, Chida K, Osada S-I, Kuroki T, Kawashima S, Suzuki K:

- Overproduction of a Ca-independent protein kinase C isoenzyme, nPKC-epsilon, increases the secretion of prolactin from thyrotropin-releasing hormone-stimulated rat pituitary GH4C1 cells.
- J.Biol.Chem.* 1994, **269:** 4653-4660.
190. Fabbri M, Bannykh S, Balch WE:
Export of protein from the endoplasmic reticulum is regulated by a diacylglycerol/phorbol ester binding protein.
J Biol Chem 1994, **269:** 26848-26857.
191. Schäfer O:
Expression von PKCa und PKCz sowie Nachweis ihrer Beteiligung an der Vesikelbildung am trans-Golgi-Netzwerk.
Diplomarbeit an der FU, Berlin 1996.
192. Lehel C, Olah Z, Jakab G, Anderson WB:
Protein kinase C epsilon is localized to the Golgi via its zinc-finger domain and modulates Golgi function.
Proc.Natl.Acad.Sci.USA 1995, **92:** 1406-1410.
193. Nishizaki T, Walent JH, Kowalchyk JA, Martin TF:
A key role for a 145-kDa cytosolic protein in the stimulation of Ca(2+)-dependent secretion by protein kinase C.
J.Biol.Chem. 1992, **267:** 23972-23981.
194. Simon JP, Ivanov IE, Adesnik M, Sabatini DD:
The production of post-Golgi vesicles requires a protein kinase C-like molecule, but not its phosphorylating activity.
J.Cell Biol. 1996, **135:** 355-370.
195. Ktistakis NT, Brown HA, Waters MG, Sternweis PC, Roth MG:
Evidence that phospholipase D mediates ADP ribosylation factor-dependent formation of Golgi coated vesicles.
J.Cell Biol. 1996, **134:** 295-306.
196. Sabatini DD, Adesnik M, Ivanov IE, Simon JP:
Mechanism of formation of post Golgi vesicles from TGN membranes: Arf-dependent coat assembly and PKC-regulated vesicle scission.
Biocell. 1996, **20:** 287-300.
197. Hammond SM, Jenco SM, Nakashima S, Cadwallader K, Gu Q, Cook S, Nozawa Y, Prestwich GD, Frohman MA, Morris AJ:
Characterization of two alternatively spliced forms of phospholipase D1. Activation of the purified enzymes by phosphatidylinositol 4,5-bisphosphate, ADP-ribosylation factor, and Rho family monomeric GTP-binding proteins and protein kinase C-alpha.
J.Biol.Chem. 1997, **272:** 3860-3868.
198. Austin CD, Shields D:
Formation of nascent secretory vesicles from the trans-Golgi network of endocrine cells is inhibited by tyrosine kinase and phosphatase inhibitors.
J.Cell Biol. 1996, **135:** 1471-1483.

Literatur

199. Morreale A, Mallon B, Beale G, Watson J, Rumsby M:
Ro31-8220 inhibits protein kinase C to block the phorbol ester-stimulated release of choline- and ethanolamine-metabolites from C6 glioma cells: p70 S6 kinase and MAPKAP kinase-1beta do not function downstream of PKC in activating PLD.
FEBS Lett. 1997, **417:** 38-42.
200. Nishizuka Y:
Studies and perspectives of protein kinase C in signal transduction.
Nippon.Ketsueki.Gakkai.Zasshi. 1988, **51:** 1321-1326.
201. Nishizuka Y:
Studies and perspectives of protein kinase C.
Science 1986, **233:** 305-312.
202. Schaphorst KL, Pavalko FM, Patterson CE, Garcia JG:
Thrombin-mediated focal adhesion plaque reorganization in endothelium: role of protein phosphorylation.
Am.J.Respir.Cell Mol.Biol. 1997, **17:** 443-455.
203. Beckerle MC:
The adhesion plaque protein, talin, is phosphorylated in vivo in chicken embryo fibroblasts exposed to a tumor-promoting phorbol ester.
Cell.Regul. 1990, **1:** 227-236.
204. Werth DK, Pastan I:
Vinculin phosphorylation in response to calcium and phorbol esters in intact cells.
J.Biol.Chem. 1984, **259:** 5264-5270.
205. Timar J, Tang D, Bazaz R, Haddad MM, Kimler VA, Taylor JD, Honn KV:
PKC mediates 12(S)-HETE-induced cytoskeletal rearrangement in B16a melanoma cells.
Cell Motil Cytoskeleton 1993, **26:** 49-65.
206. Fujikawa H, Tani E, Yamaura I, Ozaki I, Miyaji K, Sato M, Takahashi K, Imajoh OS:
Activation of protein kinases in canine basilar artery in vasospasm.
J.Cereb.Blood Flow Metab. 1999, **19:** 44-52.
207. Stasek JEJ, Patterson CE, Garcia JG:
Protein kinase C phosphorylates caldesmon77 and vimentin and enhances albumin permeability across cultured bovine pulmonary artery endothelial cell monolayers.
J Cell Physiol 1992, **153:** 62-75 *LHM: Bibliothek.
208. Brumell JH, Craig KL, Ferguson D, Tyers M, Grinstein S:
Phosphorylation and subcellular redistribution of pleckstrin in human neutrophils.
J.Immunol. 1997, **158:** 4862-4871.
209. Wheeler-Jones CPD, Learmonth MP, Aitken A:
Identification of 14-3-3 proteins in human platelets: effects of synthetic peptides on protein kinase C activation.
Biochem.J. 1996, **315:** 41-47.

Literatur

210. Omary MB, Baxter GT, Chou CF, Riopel CL, Lin WY, Strulovici B:
PKC epsilon-related kinase associates with and phosphorylates cytokeratin 8 and 18.
J.Cell Biol. 1992, **117**: 583-593.
211. Ku NO, Omary MB:
Identification of the major physiologic phosphorylation site of human keratin 18: potential kinases and a role in filament reorganization.
J.Cell Biol. 1994, **127**: 161-171.
212. Ho DT, Roberge M:
The antitumor drug fostriecin induces vimentin hyperphosphorylation and intermediate filament reorganization.
Carcinogenesis 1996, **17**: 967-972.
213. Bershadsky A, Chausovsky A, Becker E, Lyubimova A, Geiger B:
Involvement of microtubules in the control of adhesion-dependent signal transduction.
Curr.Biol 1996, **6**: 1279-1289.
214. Chapline C, Ramsay K, Klauck T, Jaken S:
Interaction cloning of protein kinase C substrates.
J Biol Chem 1993, **268**: 6858-6861.
215. Dubois T, Oudinet JP, Russo MF, Rothhut B:
In vivo and in vitro phosphorylation of annexin II in T cells: potential regulation by annexin V.
Biochem.J. 1995, **310**: 243-248.
216. Takeishi Y, Chu G, Kirkpatrick DM, Li Z, Wakasaki H, Kranias EG, King GL, Walsh RA:
In vivo phosphorylation of cardiac troponin I by protein kinase C β decreases cardiomyocyte calcium responsiveness and contractility in transgenic mouse hearts.
J.Clin.Invest. 1998, **102**: 72-78.
217. Kawamoto S, Hidaka H:
Ca $^{2+}$ -activated, phospholipid-dependent protein kinase catalyzes the phosphorylation of actin-binding proteins.
Biochem.Biophys.Res.Commun. 1984, **118**: 736-742.
218. Ainsztein AM, Purich DL:
Stimulation of tubulin polymerization by MAP-2. Control by protein kinase C-mediated phosphorylation at specific sites in the microtubule-binding region.
J.Biol.Chem. 1994, **269**: 28465-28471.
219. Matsuoka Y, Li X, Bennett V:
Adducin is an in vivo substrate for protein kinase C: phosphorylation in the MARCKS-related domain inhibits activity in promoting spectrin-actin complexes and occurs in many cells, including dendritic spines of neurons.
J.Cell Biol. 1998, **142**: 485-497.
220. Chalfant CE, Mischak H, Watson JE, Winkler BC, Goodnight J, Farese RV, Cooper DR:
Regulation of Alternative Splicing of Protein Kinase C[Image] by Insulin.
J.Biol.Chem. 1995, **270**: 13326-13332.

Literatur

221. Municio MM, Lozano J, Sanchez P, Moscat J, Diaz MM:
Identification of heterogeneous ribonucleoprotein A1 as a novel substrate for protein kinase C zeta.
J Biol Chem 1995, **270**: 15884-15891.
222. Hocevar BA, Burns DJ, Fields AP:
Identification of protein kinase C (PKC) phosphorylation sites on human lamin B. Potential role of PKC in nuclear lamina structural dynamics.
J.Biol.Chem. 1993, **268**: 7545-7552.
223. Goss VL, Hocevar BA, Thompson LJ, Stratton CA, Burns DJ, Fields AP:
Identification of nuclear beta II protein kinase C as a mitotic laminin kinase.
J.Biol.Chem. 1994, **269**: 19074-19080.
224. Berra E, Diaz MM, Lozano J, Frutos S, Municio MM, Sanchez P, Sanz L, Moscat J:
Evidence for a role of MEK and MAPK during signal transduction by protein kinase C zeta.
EMBO J. 1995, **14**: 6157-6163.
225. Diaz-Meco MT, Lozano J, Municio MM, Berra E, Frutos S, Sanz L, Moscat J:
Evidence for in vitro and in vivo interaction of Ras with protein kinase C zeta.
J.Biol.Chem. 1994, **269**: 31706-31710.
226. Tagawa M, Griffith LC:
Murine T-cell differentiation antigen CD8 is a direct substrate of protein kinase C.
Biochem.Biophys.Res.Commun. 1990, **170**: 10-16.
227. Aragay AM, Quick MW:
Functional regulation of Galphai6 by protein kinase C.
J.Biol.Chem. 1999, **274**: 4807-4815.
228. Chibalin AV, Vasilets LA, Hennekes H, Pralong D, Geering K:
Phosphorylation of Na,K-ATPase alpha-subunits in microsomes and in homogenates of Xenopus oocytes resulting from the stimulation of protein kinase A and protein kinase C.
J.Biol.Chem. 1992, **267**: 22378-22384.
229. Moyers JS, Bouton AH, Parsons SJ:
The sites of phosphorylation by protein kinase C and an intact SH2 domain are required for the enhanced response to beta-adrenergic agonists in cells overexpressing c-src.
Mol Cell Biol 1993, **13**: 2391-2400.
230. Borghini I, Geering K, Gjinovci A, Wollheim CB, Pralong WF:
In vivo phosphorylation of the Na,K-ATPase alpha subunit in sciatic nerves of control and diabetic rats: effects of protein kinase modulators.
Proc.Natl Acad.Sci.U.S.A. 1994, **91**: 6211-6215.
231. Baudier J, Bronner C, Kligman D, Cole RD:
Protein kinase C substrates from bovine brain. Purification and characterization of neuromodulin, a neuron-specific calmodulin-binding protein.
J Biol Chem 1989, **264**: 1824-1828.

Literatur

232. Palmer RH, Schonwasser DC, Rahman D, Pappin DJ, Herget T, Parker PJ:
PRK1 phosphorylates MARCKS at the PKC sites: serine 152, serine 156 and serine 163.
FEBS Lett. 1996, **378**: 281-285.
233. Son H, Davis PJ, Carpenter DO:
Time course and involvement of protein kinase C-mediated phosphorylation of F1/GAP-43 in area CA3 after mossy fiber stimulation.
Cell Mol.Neurobiol. 1997, **17**: 171-194.
234. Schaechter JD, Benowitz LI:
Activation of protein kinase C by arachidonic acid selectively enhances the phosphorylation of GAP-43 in nerve terminal membranes.
J Neurosci 1993, **13**: 4361-4371.
235. Ramakers GMJ, de Graan PNE, Urban IJ, Kraay D, Tang T, Pasinelli P:
Temporal Differences in the Phosphorylation State of Pre- and Postsynaptic Protein Kinase C Substrates B-50/GAP-43 and Neurogranin during Long Term Potentiation.
J.Biol.Chem. 1995, **270**: 13892-13898.
236. Ramakers GMJ, Gerendasy DD, de Graan PNE:
Substrate Phosphorylation in the Protein Kinase C gamma Knockout Mouse.
J.Biol.Chem. 1999, **274**: 1873-1874.
237. Azzazy HM, Gross GW, Wu MC:
Production and characterization of antibodies against C-terminal peptide of protein F1: a novel phosphorylation at serine 209 of the peptide by protein kinase C.
Neurochem.Res 1994, **19**: 275-282.
238. Kim J, Shishido T, Jiang X, Aderem A, McLaughlin S:
Phosphorylation, high ionic strength, and calmodulin reverse the binding of MARCKS to phospholipid vesicles.
J.Biol.Chem. 1994, **269**: 28214-28219.
239. Houbre D, Duportail G, Deloulme JC, Baudier J:
The interactions of the brain-specific calmodulin-binding protein kinase C substrate, neuromodulin (GAP 43), with membrane phospholipids.
J.Biol.Chem. 1991, **266**: 7121-7131.
240. Baudier J, Deloulme JC, Van DA, Black D, Matthes HW:
Purification and characterization of a brain-specific protein kinase C substrate, neurogranin (p17). Identification of a consensus amino acid sequence between neurogranin and neuromodulin (GAP43) that corresponds to the protein kinase C phosphorylation site and the calmodulin-binding domain.
J.Biol.Chem. 1991, **266**: 229-237.
241. Widmer F, Caroni P:
Phosphorylation-site mutagenesis of the growth-associated protein GAP-43 modulates its effects on cell spreading and morphology.
J Cell Biol 1993, **120**: 503-512.

Literatur

242. Shimkets RA, Lifton R, Canessa CM:
In vivo phosphorylation of the epithelial sodium channel.
Proc.Natl.Acad.Sci.USA 1998, **95**: 3301-3305.
243. Standaert ML, Bandyopadhyay G, Galloway L, Soto J, Ono Y, Kikkawa U, Farese RV, Leitges M:
Effects of knockout of the protein kinase C beta gene on glucose transport and glucose homeostasis.
Endocrinology 1999, **140**: 4470-4477.
244. Shackelford DA, Trowbridge IS:
Identification of lymphocyte integral membrane proteins as substrates for protein kinase C. Phosphorylation of the interleukin-2 receptor, class I HLA antigens, and T200 glycoprotein.
J.Biol.Chem. 1986, **261**: 8334-8341.
245. Hilfiker S, Pieribone VA, Nordstedt C, Greengard P, Czernik AJ:
Regulation of synaptotagmin I phosphorylation by multiple protein kinases.
J.Neurochem. 1999, **73**: 921-932.
246. Kanoh H, Yamada K, Sakane F, Imaizumi T:
Phosphorylation of diacylglycerol kinase in vitro by protein kinase C.
Biochem.J. 1989, **258**: 455-462.
247. McClure SJ, Robinson PJ:
Dynamin, endocytosis and intracellular signalling (review).
Mol.Membr.Biol. 1996, **13**: 189-215.
248. Schaap D, van-der WJ, van BW, van-der BR, Ploegh HL:
Diacylglycerol kinase is phosphorylated in vivo upon stimulation of the epidermal growth factor receptor and serine/threonine kinases, including protein kinase C-epsilon.
Biochem.J. 1993, **289**: 875-881.
249. Aderem A:
Signal transduction and the actin cytoskeleton: the roles of MARCKS and profilin.
Trends.Biochem Sci. 1992, **17**: 438-443.
250. Taniguchi H, Manenti S:
Interaction of myristoylated alanine-rich protein kinase C substrate (MARCKS) with membrane phospholipids.
J Biol Chem 1993, **268**: 9960-9963.
251. Müsch A, Cohen D, Rodriguez-Boulan E:
Myosin II is involved in the production of constitutive transport vesicles from the TGN.
J.Cell Biol. 1997, **138**: 291-306.
252. Laemmli UK:
Cleavage of structural proteins during assembly of the head of bacteriophage T4.
Nature(London) 1969, **227**: 680-685.
253. Summers MD, Smith GE:
A Manual of Methods for Baculovirus Vectors and Insect Cell Culture

- Procedures.
- Texas Agricultural Experiment station* 1987, **1555**.
254. Tooze SA, Huttner WB:
Cell-free formation of immature secretory granules and constitutive secretory vesicles from trans-Golgi network.
Meth. Enzymol. 1992, **219**: 81-93.
255. Miller SG, Moore HP:
Biochemical analysis of constitutive secretion in a semiintact cell system.
Cell Biophys. 1991, **19**: 35-43.
256. Heukeshoven J, Dernick R:
Improved silver staining procedure for fast staining in PhastSystem Development Unit. I. Staining of sodium dodecyl sulfate gels.
Electrophoresis 1988, **9**: 28-32.
257. Bradford MM:
A rapid and sensitive method for the quantitation of microgram quantities of protein utilizing the principles of protein-dye binding.
Anal. Biochem. 1976, **72**: 248-254.
258. Baldo A, Sniderman AD, St LS, Zhang XJ, Cianflone K:
Signal transduction pathway of acylation stimulating protein: involvement of protein kinase C.
J. Lipid Res. 1995, **36**: 1415-1426.
259. Hartinger J, Stenius K, Högemann D, Jahn R:
16-BAC/SDS-PAGE: A two-dimensional gel electrophoresis system suitable for the separation of integral membrane proteins.
Anal. Biochem. 1996, **240**: 126-133.
260. Görg A., Boguth G, Obermaier C, Hader A, Weiss W:
2-D electrophoresis with immobilised pH gradients using IPGphor Isoelectric Focusing System.
Life Science News (Amersham Pharmacia Biotech) 1998, **1**: 4-6.
261. Hannun YA, Loomis CR, Bell RM:
Activation of protein kinase C by Triton X-100 mixed micelles containing diacylglycerol and phosphatidylserine.
J Biol Chem 1985, **260**: 10039-10043.
262. Otto A, Thiede B, Müller E-C, Scheler C, Wittmann-Liebold B, Jungblut P:
Identification of human myocardial proteins separated by two-dimensional electrophoresis using an effective sample preparation for mass spectrometry.
Electrophoresis 1996, **17**: 1643-1650.
263. Lougarre A, Bride JM, Fournier D:
Is the insect glutathione S-transferase I gene family intronless?
Insect Mol. Biol. 1999, **8**: 141-143.

Literatur

264. Dixon DP, Cummins, Cole DJ, Edwards R:
Glutathione-mediated detoxification systems in plants.
Curr.Opin.Plant Biol. 1998, **1**: 258-266.
265. Estonius M, Forsberg L, Danielsson O, Weinander R, Kelner MJ, Morgenstern R:
Distribution of microsomal glutathione transferase 1 in mammalian tissues. A predominant alternate first exon in human tissues.
Eur.J.Biochem. 1999, **260**: 409-413.
266. Nay B, Fournier D, Baudras A, Baudras B:
Mechanism of an insect glutathione S-transferase: kinetic analysis supporting a rapid equilibrium random sequential mechanism with housefly I1 isoform.
Insect Biochem.Mol.Biol. 1999, **29**: 71-79.
267. Transductions Laboratories U. PKC Sampler Kit. 24.11.98. 1998. Lexington, USA, Transduction Laboratories.
Ref Type: Pamphlet
268. Ducher L, Croquet F, Gil S, Davy J, Feger J, Brehier A:
Differential expression of five protein kinase C isoenzymes in FAO and HepG2 hepatoma cell lines compared with normal rat hepatocytes.
Biochem.Biophys.Res.Commun. 1995, **217**: 546-553.
269. Transductions Laboratories. Coated Vesicle Sampler Kit. [S88580]. 1998. **133 Venture Court, Lexington, KY 40511-2624**, USA, Transductions Laboratories.
Ref Type: Catalog
270. Beckers CJM, Rothman JE:
Transport between Golgi cisternae.
Meth.Enzymol. 1992, **219**: 5-12.
271. Chanat E, Weiss U, Huttner WB, Tooze SA:
Reduction of the disulfide bond of chromogranin B (secretogranin I) in the trans-Golgi network causes its missorting to the constitutive secretory pathways.
EMBO J 1993, **12**: 2159-2168.
272. Barthel A, Nickel W, Tonko C, Soling HD:
Sorting and budding of constitutive secretory vesicles in hepatocytes and hepatoma cells.
Adv.Enzyme Regul. 1995, **35**: 283-292.
273. Seaman MNJ, Sowerby PJ, Robinson MS:
Cytosolic and membrane-associated proteins involved in the recruitment of AP-1 adaptors onto the trans-Golgi network.
J.Biol.Chem. 1996, **271**: 25446-25451.
274. Zizioli D, Meyer C, Guhde G, Saftig P, von Figura K, Schu P:
Early embryonic death of mice deficient in gamma-adaptin.
J.Biol.Chem. 1999, **274**: 5385-5390.

Literatur

275. Bursztajn S, Vincent S, Brodsky FM, Benes F, Morris SA:
A novel AP180-related protein in vesicles that concentrate at acetylcholine receptor clusters.
J.Cell Biochem. 1998, **68:** 457-471.
276. Gaffet P, Jones AT, Clague MJ:
Inhibition of calcium-independent mannose 6-phosphate receptor incorporation into trans-Golgi network-derived clathrin-coated vesicles by wortmannin.
J.Biol.Chem. 1997, **272:** 24170-24175.
277. Haigh J, McVeigh J, Greer P:
The fps/fes tyrosine kinase is expressed in myeloid, vascular endothelial, epithelial, and neuronal cells and is localized in the trans-golgi network.
Cell Growth Differ. 1996, **7:** 931-944.
278. Torii S, Banno T, Watanabe T, Ikehara Y, Murakami K, NAKAYAMA K:
Cytotoxicity of brefeldin A correlates with its inhibitory effect on membrane binding of COP coat proteins.
J.Biol.Chem. 1995, **270:** 11574-11580.
279. Okimoto T, Seguchi T, Ono M, Nakayama Y, Funatsu G, Fujiwara T, Kuwano M:
Brefeldin A protects ricin-induced cytotoxicity in human cancer KB cell line, but not in its resistant counterpart with altered Golgi structures.
Cell Struct.Funct. 1993, **18:** 241-251.
280. Ocri L, Ravazzola M, Amherdt M, Louvard D, Perrelet A:
Clathrin-immunoreactive sites in the Golgi apparatus are concentrated at the trans pole in polypeptide hormone-secreting cells.
Proc.Natl.Acad.Sci.USA 1985, **82:** 5385-5389.
281. Schroder S, Ungewickell E:
Subunit interaction and function of clathrin-coated vesicle adaptors from the Golgi and the plasma membrane.
J.Biol.Chem. 1991, **266:** 7910-7918.
282. Malide D, Cushman SW:
Morphological effects of wortmannin on the endosomal system and GLUT4-containing compartments in rat adipose cells.
AU.
J.Cell Sci. 1997, **110:** 2795-2806.
283. van Delft S, Schumacher C, Hage W, Verkleij AJ, van Bergen en Henegouwen PM:
Association and colocalization of Eps15 with adaptor protein-2 and clathrin.
J.Cell Biol. 1997, **136:** 811-821.
284. Hashiramoto M, James DE:
Characterization of insulin-responsive GLUT4 storage vesicles isolated from 3T3-L1 adipocytes.
Mol.Cell Biol. 2000, **20:** 416-427.

Literatur

285. Ayad N, Hull M, Mellman I:
Mitotic phosphorylation of rab4 prevents binding to a specific receptor on endosome membranes.
EMBO J. 1997, **16:** 4497-4507.
286. Cussac D, Leblanc P, L'Heritier A, Bertoglio J, Lang P, Kordon C, Enjalbert A, Saltarelli D:
Rho proteins are localized with different membrane compartments involved in vesicular trafficking in anterior pituitary cells.
Mol.Cell Endocrinol. 1996, **119:** 195-206.
287. Lazzarino DA, Blier P, Mellman I:
The monomeric guanosine triphosphatase rab4 controls an essential step on the pathway of receptor-mediated antigen processing in B cells.
J.Exp.Med. 1998, **188:** 1769-1774.
288. Sheff DR, Daro EA, Hull M, Mellman I:
The receptor recycling pathway contains two distinct populations of early endosomes with different sorting functions.
J.Cell Biol. 1999, **145:** 123-139.
289. Ichimura T:
[Transcytosis of immunoglobulin IgG].
Kaibogaku Zasshi. 1998, **73:** 595-602.
290. Devuyst O, Christie PT, Courtoy PJ, Beauwens R, Thakker RV:
Intra-renal and subcellular distribution of the human chloride channel, CLC-5, reveals a pathophysiological basis for Dent's disease.
Hum.Mol.Genet. 1999, **8:** 247-257.
291. Hannun YA, Bell RM:
Phorbol ester binding and activation of protein kinase C on triton X-100 mixed micelles containing phosphatidylserine.
J Biol Chem 1986, **261:** 9341-9347.
292. Hannun YA, Loomis CR, Bell RM:
Protein kinase C activation in mixed micelles. Mechanistic implications of phospholipid, diacylglycerol, and calcium interdependencies.
J Biol Chem 1986, **261:** 7184-7190.
293. Capasso JM, Keenan TW, Abeijon C, Hirschberg CB:
Mechanism of phosphorylation in the lumen of the Golgi apparatus. Translocation of adenosine 5'-triphosphate into Golgi vesicles from rat liver and mammary gland.
J.Biol.Chem. 1989, **264:** 5233-5240.
294. Csukai M, Chen C-H, De Matteis MA, Mochly-Rosen D:
The coatomer protein β (prime)-COP, a selective binding protein (RACK) for protein kinase C ϵ .
J.Biol.Chem. 1997, **272:** 29200-29206.

Literatur

295. Maier O. In vitro budding assay, conditions. 1997.
Ref Type: Personal Communication
296. Dionne MA, Sanchez A, Compton DA:
ch-TOGp is required for microtubule aster formation in a mammalian mitotic extract.
J.Biol.Chem. 2000, **275**: 12346-12352.
297. Courage C, Bradder SM, Jones T, Schultze-Mosgau MH, Gescher A:
Characterisation of novel human lung carcinoma cell lines selected for resistance to anti-neoplastic analogues of staurosporine.
Int.J.Cancer 1997, **73**: 763-768.
298. Persaud SJ, Jones PM:
Inhibition of glucose-stimulated insulin secretion by Ro31-8220, a protein kinase C inhibitor.
Endocrin.J. 1995, **3**: 285-289.
299. Newton AC, Johnson JE:
Protein kinase C: a paradigm for regulation of protein function by two membrane-targeting modules.
Biochim Biophys Acta 1998, **1376**: 155-172.
300. Medkova M, Cho W:
Interplay of C1 and C2 domains of protein kinase C-alpha in its membrane binding and activation.
J.Biol.Chem. 1999, **274**: 19852-19861.
301. Niggli V, Zimmermann A, Keller H:
Inhibition of protein kinase C-dependent protein phosphorylation correlates with increased polarity and locomotion in Walker 256 carcinosarcoma cells.
Int.J.Cancer 1996, **65**: 473-478.
302. Swiss Institute of Bioinformatics (SIB). PROSITE. The ExPASy Molecular Biology Server . 2000. Prosite
Phosphorylation sites in sequenzed proteins. Radau, B. 24-7-2000.
Ref Type: Electronic Citation
303. Görg A., Postel W, Günther S, Weser J:
Improved horizontal two-dimensional electrophoresis with hybrid isoelectric focusing in immobilized pH gradients in the first dimension and laying-on transfer to the second dimension.
Electrophoresis 1985, **6**: 599-604.
304. Musante L, Candiano G, Ghiggeri GM:
Resolution of fibronectin and other uncharacterized proteins by two-dimensional polyacrylamide electrophoresis with thiourea.
J.Chromatogr.B.Biomed.Sci.Appl. 1998, **705**: 351-356.
305. Rabilloud T:
Use of thiourea to increase the solubility of membrane proteins in two-dimensional electrophoresis.
Electrophoresis 1998, **19**: 758-760.

Literatur

306. Rabilloud T, Adessi C, Giraudel A, Lunardi J:
Improvement of the solubilization of proteins in two-dimensional electrophoresis with immobilized pH gradients.
Electrophoresis 1997, **18**: 307-316.
307. Pasquali C, Fialka I, Huber LA:
Preparative two-dimensional gel electrophoresis of membrane proteins.
Electrophoresis 1997, **18**: 2573-2581.
308. Berkelman T, Stenstedt T:
2-D Electrophoresis using immobilized pH gradients - Principles and Methods, edn Rev. A. amersham pharmacia biotech; 1998.
309. Blum H, Beier H, Gross HJ:
Improved silver staining of plant proteins, RNA and DNA in polyacrylamide gels.
Electrophoresis 1987, **8**: 93-99.
310. Shevchenko A, Wilm M, Vorm O, Mann M:
Mass spectrometric sequencing of proteins silver-stained polyacrylamide gels.
Anal.Biochem. 1996, **68**: 850-858.
311. Cooper:
Färbung mit Coomassie-Brilliantblau. In *Biochemische Arbeitsmethoden*. Edited by Cooper. Walter de Gruyter; 1981:200-201.
312. Scherer PE, Lederkremer GZ, Williams S, Fogliano M, Baldini G, Lodish HF:
Cab45, a novel Ca^{2+} -binding protein localized to the Golgi lumen.
J.Cell Biol. 1996, **133**: 257-268.
313. Hirschberg CB:
Transporters of nucleotide sugars, nucleotide sulfate and ATP in the Golgi apparatus membrane: where next?
Glycobiology 1997, **7**: 169-171.
314. Carlino A, Toledo H, Skaleris D, DeLisio R, Weissbach H, Brot N:
Interactions of liver Grp78 and Escherichia coli recombinant Grp78 with ATP: multiple species and disaggregation.
Proc.Natl.Acad.Sci.USA 1992, **89**: 2081-2085.
315. O'Connell KL, Stults JT:
Identification of mouse liver proteins on twodimensional electrophoresis gels by matrix-assisted laser desorption/ionization mass spectrometry of in situ enzymatic digests.
Electrophoresis 1997, **18**: 349-359.
316. Singh SS, Chauhan A, Murakami N, Styles J, Elzinga M, Chauhan VP:
Phosphoinositide-dependent in vitro phosphorylation of profilin by protein kinase C. Phospholipid specificity and localization of the phosphorylation site.
Recept.Signal.Transduct. 1996, **6**: 77-86.
317. Corradin S. MacMarcks in HepG2-sample. Edited by Radau B. 1999.
Ref Type: Personal Communication

318. Verghese GM, Johnson JD, Vasulka C, Haupt DM, Stumpo DJ, Blackshear PJ:
Protein kinase C-mediated phosphorylation and calmodulin binding of recombinant myristoylated alanine-rich C kinase substrate (MARCKS) and MARCKS-related protein.
J Biol Chem 1994, **269**: 9361-9367.
319. Glaser M, Wanaski S, Buser CA, Boguslavsky V, Rashidzada W, Morris A, Rebecchi M, Scarlata SF, Runnels LW, Prestwich GD, Chen J, Aderem A, Ahn J, McLaughlin S:
Myristoylated alanine-rich C kinase substrate (MARCKS) produces reversible inhibition of phospholipase C by sequestering phosphatidylinositol 4,5-bisphosphate in lateral domains.
J Biol Chem 1996, **271**: 26187-26193.
320. Morash SC, Rose SD, Byers DM, Ridgway ND, Cook HW:
Overexpression of myristoylated alanine-rich C-kinase substrate enhances activation of phospholipase D by protein kinase C in SK-N-MC human neuroblastoma cells.
Biochem.J. 1998, **332**: 321-327.
321. Cabell CH, Verghese GM, Rankl NB, Burns DJ, Blackshear PJ:
MARCKS phosphorylation by individual protein kinase C isozymes in insect Sf9 cells.
Proc.Assoc.Am.Physicians. 1996, **108**: 37-46.
322. Amess B, Manjarrez HH, Howell SA, Learmonth M, Aitken A:
Multisite phosphorylation of the 80 kDa (MARCKS) protein kinase C substrate in C3H/10T1/2 fibroblasts.
Quantitative analysis of individual sites by solid-phase microsequencing.
FEBS Lett. 1992, **297**: 285-291.
323. Uberall F, Giselbrecht S, Hellbert K, Fresser F, Bauer B, Gschwendt M, Grunicke HH, Baier G:
Conventional PKC-alpha, novel PKC-epsilon and PKC-theta, but not atypical PKC-lambda are MARCKS kinases in intact NIH 3T3 fibroblasts.
J.Biol.Chem. 1997, **272**: 4072-4078.
324. Fujise A, Mizuno K, Ueda Y, Osada S, Hirai S, Takayanagi A, Shimizu N, Owada MK, Nakajima H, Ohno S:
Specificity of the high affinity interaction of protein kinase C with a physiological substrate, myristoylated alanine-rich protein kinase C substrate.
J Biol Chem 1994, **269**: 31642-31648.
325. Vergeres G, Ramsden JJ:
Binding of MARCKS (myristoylated alanine-rich C kinase substrate)-related protein (MRP) to vesicular phospholipid membranes.
Biochem.J. 1998, **330**: 5-11.
326. Allen LH, Aderem A:
A role for MARCKS, the alpha isozyme of protein kinase C and myosin I in zymosan phagocytosis by macrophages.
J Exp.Med. 1995, **182**: 829-840.
327. Hartwig JH, Thelen M, Rosen A, Janmey PA, Laird AC, Aderem A:
MARCKS is an actin filament crosslinking protein regulated by protein kinase C and calcium-calmodulin.
Nature 1992, **356**: 618-622.

Literatur

328. Valderrama F, Luna A, Babi T, Martinez-Menárguez JB, Ballesta J, Barth H, Chaponnier C, Renau-Piqueras J, Egea G:
The Golgi-associated COPI-coated buds and vesicles contain β/γ -actin.
Proc.Natl.Acad.Sci.USA 2000, **97:** 1560-1565.
329. Valderrama F, Babia T, Ayala I, Kok JW, Renau PJ, Egea G:
Actin microfilaments are essential for the cytological positioning and morphology of the Golgi complex.
Eur.J.Cell Biol. 1998, **76:** 9-17.
330. Turbedsky K, Pollard TD, Bresnick AR:
A subset of protein kinase C phosphorylation sites on the myosin II regulatory light chain inhibits phosphorylation by myosin light chain kinase.
Biochemistry 1997, **36:** 2063-2067.
331. Murakami N, Elzinga M, Singh SS, Chauhan VP:
Direct binding of myosin II to phospholipid vesicles via tail regions and phosphorylation of the heavy chains by protein kinase C.
J.Biol.Chem. 1994, **269:** 16082-16090.
332. Andrea JE, Walsh MP:
Protein kinase C of smooth muscle.
Hypertension 1992, **20:** 585-595.
333. Fitzgerald ML, Reed GL:
Rab6 is phosphorylated in thrombin-activated platelets by a protein kinase C-dependent mechanism: effects on GTP/GDP binding and cellular distribution.
Biochem J 1999, **342:** 353-360.
334. Jones SM, Crosby JR, Salamero J, Howell KE:
A cytosolic complex of p62 and rab6 associates with TGN38/41 and is involved in budding of exocytic vesicles from the trans-Golgi network.
J.Cell Biol. 1993, **122:** 775-788.
335. Huber LA, Pimplikar S, Parton RG, Virta H, Zerial M, Simons K:
Rab8, a small GTPase involved in vesicular traffic between TGN and the basolateral plasma membrane.
J.Cell Biol. 1993, **123:** 35-45.
336. Karnigian A, Zahraoui A, Tavitian A:
Identification of small GTP-binding rab proteins in human platelets: thrombin-induced phosphorylation of rab3B, rab6, and rab8 proteins.
Proc.Natl.Acad.Sci.USA 1993, **90:** 7647-7651.
337. Ren M, Zeng J, De-Lemos CC, Rosenfeld M, Adesnik M, Sabatini DD:
In its active form, the GTP-binding protein rab8 interacts with a stress-activated protein kinase.
Proc.Natl.Acad.Sci.USA 1996, **93:** 5151-5155.
338. Deretic D, Huber LA, Ransom N, Mancini M, Simons K, Papermaster DS:
rab8 in retinal photoreceptors may participate in rhodopsin transport and in rod outer segment disk

- morphogenesis.
J.Cell Sci. 1995, **108**: 215-224.
339. Huber LA, de Hoop MJ, Dupree P, Zerial M, Simons K, Dotti C:
Protein transport to the dendritic plasma membrane of cultured neurons is regulated by rab8p.
J.Cell Biol. 1993, **123**: 47-55.
340. Blankson H, Holen I, Seglen PO:
Disruption of the cytokeratin cytoskeleton and inhibition of hepatocytic autophagy by okadaic acid.
Exp.Cell Res. 1995, **218**: 522-530.
341. Montes JF, Estrada G, Lopez-Tejero MD, Garcia-Valero J:
Changes in the enterocyte cytoskeleton in newborn rats exposed to ethanol in utero.
Gut 1996, **38**: 846-852.
342. Chou CF, Omary MB:
Phorbol acetate enhances the phosphorylation of cytokeratins 8 and 18 in human colonic epithelial cells.
FEBS Lett. 1991, **282**: 200-204.
343. Cadrin M, Anderson NM, Aasheim LH, Kawahara H, Franks DJ, French SW:
Modifications in cytokeratin and actin in cultured liver cells derived from griseofulvin-fed mice.
Lab.Invest. 1995, **72**: 453-460.
344. Sengupta D, Gumkowski FD, Tang LH, Chilcote DJ, Jamieson JD:
Localization of cellubrevin to the Golgi complex in pancreatic acinar cells.
Eur.J.Cell Biol. 1996, **70**: 306-314.
345. Foster LJ, Yeung B, Mohtashami M, Ross K, Trimble WS, Klip A:
Binary interactions of the SNARE proteins syntaxin-4, SNAP23, and VAMP-2 and their regulation by phosphorylation.
Biochemistry 1998, **37**: 11089-11096.
346. Martin S, Tellam J, Livingstone C, Slot JW, Gould GW, James DE:
The glucose transporter (GLUT-4) and vesicle-associated membrane protein-2 (VAMP-2) are segregated from recycling endosomes in insulin-sensitive cells.
J.Cell Biol. 1996, **134**: 625-635.
347. Wong SH, Zhang T, Xu Y, Subramaniam VN, Griffiths G, Hong W:
Endobrevin, a novel synaptobrevin/VAMP-like protein preferentially associated with the early endosome.
Mol.Biol.Cell 1998, **9**: 1549-1563.
348. Utsumi T, Tokunaga T, Horii J, Edashige K, Utsumi K, Koga D, Ide A:
Myristoylation of protein at a distinct position allows its phosphorylation by protein kinase C.
Arch.Biochem Biophys 1994, **313**: 337-345.
349. Freiden PJ, Gaut JR, Hendershot LM:
Interconversion of three differentially modified and assembled forms BiP.
EMBO J. 1992, **11**: 63-70.

Literatur

350. Nakai A, Kawatani T, Ohi S, Kawasaki H, Yoshimori T, Tashiro Y, Miyata Y, Yahara I, Satoh M, Nagata K: Expression and phosphorylation of BiP/GRP78, a molecular chaperone in the endoplasmic reticulum, during the differentiation of a mouse myeloblastic cell line.
Cell Struct.Funct. 1995, **20**: 33-39.
351. Weber K, Johnsson N, Plessmann U, Van PN, Soling HD, Ampe C, Vandekerckhove J: The amino acid sequence of protein II and its phosphorylation site for protein kinase C; the domain structure Ca²⁺-modulated lipid binding proteins.
EMBO J. 1987, **6**: 1599-1604.
352. Edashige K, Utsumi T, Sato EF, Ide A, Kasai M, Utsumi K: Requirement of protein association with membranes for phosphorylation by protein kinase C.
Arch.Biochem Biophys 1992, **296**: 296-301.
353. Rothhut B:
Participation of annexins in protein phosphorylation.
Cell Mol.Life Sci. 1997, **53**: 522-526.
354. Hansson A, Skoglund G, Lassing I, Lindberg U, Ingelman SM:
Protein kinase C-dependent phosphorylation of profilin is specifically stimulated by phosphatidylinositol bisphosphate (PIP2).
Biochem Biophys Res Commun. 1988, **150**: 526-531.
355. Schlüter K, Jockusch BM, Rothkegel M:
Profilins as regulators of actin dynamics.
Biochim.Biophys.Acta 1997, **1359**: 97-109.
356. Goldschmidt-Clermont PJ, Machesky LM, Baldassare JJ, Pollard TD:
The actin-binding protein profilin binds to PIP2 and inhibits its hydrolysis by phospholipase C.
Science 1990, **247**: 1575-1578.
357. Singh SS, Chauhan A, Murakami N, Chauhan VP:
Profilin and gelsolin stimulate phosphatidylinositol 3-kinase activity.
Biochemistry 1996, **35**: 16544-16549.
358. Toker A, Meyer M, Reddy KK, Falck JR, Aneja R, Aneja S, Parra A, Burns DJ, Ballas LM, Cantley LC:
Activation of protein kinase C family members by the novel polyphosphoinositides PtdIns-3,4-P2 and PtdIns-3,4,5-P3.
J Biol Chem 1994, **269**: 32358-32367.
359. Witke W, Podtelejnikov AV, Di Nardo A, Sutherland JD, Gurniak CB, Dotti C, Mann M:
In mouse brain profilin I and profilin II associate with regulators of the endocytic pathway and actin assembly.
EMBO J. 1998, **17**: 967-976.
360. Arber S, Barbayannis FA, Hanser H, Schneider C, Stanyon CA, Bernard O, Caroni P:
Regulation of actin dynamics through phosphorylation of cofilin by LIM-kinase.
Nature 1998, **393**: 805-809.

361. Yang N, Higuchi O, Ohashi K, Nagata K, Wada A, Kangawa K, Nishida E, Mizuno K:
Cofilin phosphorylation by LIM-kinase 1 and its role in Rac-mediated actin reorganization.
Nature 1998, **393**: 809-812.
362. Kaiser K, Stelzer G, Meisterernst M:
The coactivator p15 (PC4) initiates transcriptional activation during TFIIA-TFIID-promoter complex formation.
EMBO J. 1995, **14**: 3520-3527.
363. Chapline C, Mousseau B, Ramsay K, Duddy S, Li Y, Kiley SC, Jaken S:
Identification of a major protein kinase C-binding protein and substrate in rat embryo fibroblasts. Decreased expression in transformed cells.
J.Biol.Chem. 1996, **271**: 6417-6422.
364. Jaken S, Radau B. GST-PKC α in 2D-Overlay assays. Edited by Radau B. 1998.
Ref Type: Personal Communication
365. Blobel GC, Stribling DS, Fabbro D, Stabel S, Hannun YA:
Protein kinase C beta II specifically binds to and is activated by F-actin [published erratum appears in *J Biol Chem* 1996 Nov 22;271(47):30297].
J.Biol.Chem. 1996, **271**: 15823-15830.
366. Prekeris R, Mayhew MW, Cooper JB, Terrian DM:
Identification and localization of an actin-binding motif that is unique to the epsilon isoform of protein kinase C and participates in the regulation of synaptic function.
J Cell Biol 1996, **132**: 77-90.
367. Cowell HE, Garrod DR:
Activation of protein kinase C modulates cell-cell and cell-substratum adhesion of a human colorectal carcinoma cell line and restores 'normal' epithelial morphology.
Int.J Cancer 1999, **80**: 455-464.
368. Dong J, Radau B, Otto A, Müller E-C, Lindschau C, Westermann P:
profilin 1 attached to the Golgi is required for the formation of constitutive transport vesicles at the *trans-Golgi* network.
Biochim.Biophys.Acta 2000, **1497**: 253-260.
369. Westermann P. Kolokalisation von Annexin IV und TGN38 in HepG2-Zellen. 2000.
Ref Type: Unpublished Work
370. Ishitsuka R, Kojima K, Utsumi H, Ogawa H, Matsumoto I:
Glycosaminoglycan binding properties of annexin IV, V, and VI.
J.Biol.Chem. 1998, **273**: 9935-9941.
371. Dong J. Buddingeffizienz von HepG2. Edited by Westermann P. 2000.
Ref Type: Unpublished Work