

7 Literatur

Abe, A., Gregory, S., Lee, L., Killen, P. D., Brady, R. O., Kulkarni, A., and Shayman, J. A., (2000)

Reduction of globotriaosylceramide in Fabry disease mice by substrate deprivation.
J. Clin. Invest., **105**(11): 1563-1571

Andersson, U., Butters, T. D., Dwek, R. A., and Platt, F. M., (2000)

N-butyldeoxygalactonojirimycin: a more selective inhibitor of glycosphingolipid biosynthesis than N-butyldeoxynojirimycin, in vitro and in vivo.
Biochem. Pharmacol., **59**(7): 821-829

Basu, S., Kaufman, B., and Roseman, S., (1968)

Enzymatic synthesis of ceramide-glucose and ceramide-lactose by glycosyltransferases from embryonic chicken brain.
J. Biol. Chem., **243**(21): 5802-5804

Bektas, M., Dullin, Y., Wieder, T., Kolter, T., Sandhoff, K., Brossmer, R., Ihrig, P., Orfanos, C. E., and Geilen, C. C., (1998)

Induction of apoptosis by synthetic ceramide analogues in the human keratinocyte cell line HaCaT.
Exp. Dermatol., **7**(6): 342-349

Bektas, M., Orfanos, C. E., and Geilen, C. C., (2000)

Different vitamin D analogues induce sphingomyelin hydrolysis and apoptosis in the human keratinocyte cell line HaCaT.
Cell Mol Biol (Noisy-le-grand), **46**(1): 111-119

Bezombes, C., Segui, B., Cuvillier, O., Bruno, A. P., Uro-Coste, E., Gouaze, V., Andrieu-Abadie, N., Carpentier, S., Laurent, G., Salvayre, R., Jaffrezou, J. P., and Levade, T., (2001)

Lysosomal sphingomyelinase is not solicited for apoptosis signaling.
Faseb J., **15**(2): 297-299

Biedler, J. L., and Riehm, H., (1970)

Cellular resistance to actinomycin D in Chinese hamster cells in vitro: cross-resistance, radioautographic, and cytogenetic studies.
Cancer Res., **30**(4): 1174-1184

Bilderback, T. R., Grigsby, R. J., and Dobrowsky, R. T., (1997)

Association of p75(NTR) with caveolin and localization of neurotrophin-induced sphingomyelin hydrolysis to caveolae.
J Biol Chem, **272**(16): 10922-10927

Birbes, H., El Bawab, S., Hannun, Y. A., and Obeid, L. M., (2001)

Selective hydrolysis of a mitochondrial pool of sphingomyelin induces apoptosis.
Faseb J., **15**(14): 2669-2679

Bligh, E. G., and Dyer, W. J., (1959)

A rapid method of total lipid extraction and purification.
Can. J. Biochem. Physiol., **37**(2): 911-917

Boldin, S.A., and Futerman, A. H., (2000)

Up-regulation of glucosylceramide synthesis upon stimulation of axonal growth by basic fibroblast growth factor. Evidence for post-translational modification of glucosylceramide synthase.
J. Biol. Chem., **275**(14): 9905-9909

Bruggen, J., Fogh, J., and Sorg, C., (1981)

Tumor production in the nude mouse, fibrinolytic activity and cross-reactivity with antimelanoma sera of various human tumor cell lines.
J Cancer Res Clin Oncol, **102**(2): 141-152

Cabot, M. C., Giuliano, A. E., Volner, A., and Han, T. Y., (1996)

Tamoxifen retards glycosphingolipid metabolism in human cancer cells.
FEBS Lett., **394**(2): 129-131

Carter, W. G., and Hakomori, S., (1981)

A new cell surface, detergent-insoluble glycoprotein matrix of human and hamster fibroblasts. The role of disulfide bonds in stabilization of the matrix.
J. Biol. Chem., **256**(13): 6953-6960

Cestelli, A., White, F. V., and Costantino-Ceccarini, E., (1979)

The use of liposomes as acceptors for the assay of lipid glycosyltransferases from rat brain.
Biochim. Biophys. Acta, **572**(2): 283-292

Chujor, C. S., Feingold, K. R., Elias, P. M., Holleran, W. M., (1998)

Glucosylceramide synthase activity in murine epidermis: quantitation, localization, regulation, and requirement for barrier homeostasis.
J. Lipid Res., **39**(2): 277-285

Conzelmann, E., and Sandhoff, K., (1978)

AB variant of infantile GM2 gangliosidosis: deficiency of a factor necessary for stimulation of hexosaminidase A-catalyzed degradation of ganglioside GM2 and glycolipid GA2.
Proc. Natl. Acad. Sci. USA, **75**(8): 3979-3983

Conzelmann, E., and Sandhoff, K., (1979)

Purification and characterization of an activator protein for the degradation of glycolipids GM2 and GA2 by hexosaminidase A.
Hoppe-Seyler's Z. Physiol. Chem., **360**(12): 1837-1849

Costantino-Ceccarini, E., and Cestelli, A., (1981)

A novel assay method for the biosynthesis of galactosyl- and glucosylceramides.
Methods Enzymol., **72**: 384-391

Costantino-Ceccarini, E., and Morell, P., (1973)

Synthesis of galactosylceramide and glucosylceramide by mouse kidney preparations.
J. Biol. Chem., **248**(23): 8240-8246

Coste, H., Martel, M. B., and Got, R., (1986)

Topology of glucosylceramide synthesis in Golgi membranes from porcine submaxillary glands.

Biochim. Biophys. Acta, **858**(1): 6-12

Cox, T., Lachmann, R., Hollak, C., Aerts, J., van Weely, S., Hrebicek, M., Platt, F., Butters, T., Dwek, R., Moyses, C., Gow, I., Elstein, D., and Zimran, A., (2000)

Novel oral treatment of Gaucher's disease with N-butyldeoxynojirimycin (OGT 918) to decrease substrate biosynthesis.

Lancet, **355**(9214): 1481-1485

Cremesti, A., Paris, F., Grassme, H., Holler, N., Tschopp, J., Fuks, Z., Gulbins, E., and Kolesnick, R., (2001)

Ceramide enables fas to cap and kill.

J. Biol. Chem., **276**(26): 23954-23961

Cuvillier, O., Rosenthal, D. S., Smulson, M. E., and Spiegel, S., (1998)

Sphingosine 1-phosphate inhibits activation of caspases that cleave poly(ADP-ribose) polymerase and lamins during Fas- and ceramide-mediated apoptosis in Jurkat T lymphocytes.

J. Biol. Chem., **273**(5): 2910-2916

Daniel, P. T., Wieder, T., Sturm, I., and Schulze-Osthoff, K., (2001)

The kiss of death: promises and failures of death receptors and ligands in cancer therapy.

Leukemia, **15**(7): 1022-1032

Deng, W., Li, R., Guerrero, M., Liu, Y., and Ladisch, S., (2002)

Transfection of glucosylceramide synthase antisense inhibits mouse melanoma formation.

Glycobiology, **12**(3): 145-152

Eberle, J., Garbe, C., and Orfanos, C. E., (1995)

Identification of genes specifically regulated in human melanoma cells.

Arch. Dermatol. Res., **287**(5): 421-427

El Bawab, S., Roddy, P., Qian, T., Bielawska, A., Lemasters, J. J., and Hannun, Y. A., (2000)

Molecular cloning and characterization of a human mitochondrial ceramidase.

J. Biol. Chem., **275**(28): 21508-21513

Elias, P. M., (1983)

Epidermal lipids, barrier function, and desquamation.

J. Invest. Dermatol., **80 Suppl**: 44s-49s

Ferrari, G., Anderson, B. L., Stephens, R. M., Kaplan, D. R., and Greene, L. A., (1995)

Prevention of apoptotic neuronal death by GM1 ganglioside. Involvement of Trk neurotrophin receptors.

J. Biol. Chem., **270**(7): 3074-3080

Fesus, L., (1993)

Biochemical events in naturally occurring forms of cell death.

FEBS Lett., **328**(1-2): 1-5

Futerman, A. H., and Pagano, R. E., (1991)

Determination of the intracellular sites and topology of glucosylceramide synthesis in rat liver.

Biochem. J., **280** (Pt 2): 295-302

Futerman, A. H., Stieger, B., Hubbard, A. L., and Pagano, R. E., (1990)

Sphingomyelin synthesis in rat liver occurs predominantly at the cis and medial cisternae of the Golgi apparatus.

J. Biol. Chem., **265**(15): 8650-8657

Garcia-Ruiz, C., Colell, A., Morales, A., Calvo, M., Enrich, C., and Fernandez-Checa, J. C., (2002)

Trafficking of ganglioside GD3 to mitochondria by tumor necrosis factor-alpha.

J. Biol. Chem., **277**(39): 36443-36448

Geilen, C. C., Barz, S., and Bektas, M., (2001)

Sphingolipid signaling in epidermal homeostasis. Current knowledge and new therapeutic approaches in dermatology.

Skin Pharmacol. Appl. Skin Physiol., **14**(5): 261-271

Geilen, C. C., Bektas, M., Wieder, T., and Orfanos, C. E., (1996)

The vitamin D3 analogue, calcipotriol, induces sphingomyelin hydrolysis in human keratinocytes.

FEBS Lett., **378**(1): 88-92

Geilen, C. C., Wieder, T., and Orfanos, C. E., (1997)

Ceramide signalling: regulatory role in cell proliferation, differentiation and apoptosis in human epidermis.

Arch. Dermatol. Res., **289**(10): 559-566

Giard, D. J., Aaronson, S. A., Todaro, G. J., Arnstein, P., Kersey, J. H., Dosik, H., and Parks, W. P., (1973)

In vitro cultivation of human tumors: establishment of cell lines derived from a series of solid tumors.

J. Natl. Cancer Inst., **51**(5): 1417-1423

Gillard, B. K., Clement, R. G., and Marcus, D. M., (1998)

Variations among cell lines in the synthesis of sphingolipids in de novo and recycling pathways.

Glycobiology, **8**(9): 885-890

- Gillies, R. J., Didier, N., and Denton, M., (1986)**
Determination of cell number in monolayer cultures.
Anal. Biochem., **159**(1): 109-113
- Gossen, M., Freundlieb, S., Bender, G., Muller, G., Hillen, W., and Bujard, H., (1995)**
Transcriptional activation by tetracyclines in mammalian cells.
Science, **268**(5218): 1766-1769
- Grassme, H., Schwarz, H., and Gulbins, E., (2001)**
Molecular mechanisms of ceramide-mediated CD95 clustering.
Biochem. Biophys. Res. Commun., **284**(4): 1016-1030
- Hakomori, S., (1981)**
Glycosphingolipids in cellular interaction, differentiation, and oncogenesis.
Ann. Rev. Biochem., **50**: 733-764
- Hakomori, S., (1993)**
Abnormal biantennary sugar chains in human choriocarcinoma.
Jpn J Cancer Res, **84**(9): inside front cover
- Hale, A. J., Smith, C. A., Sutherland, L. C., Stoneman, V. E., Longthorne, V. L., Culhane, A. C., and Williams, G. T., (1996)**
Apoptosis: molecular regulation of cell death.
Eur. J. Biochem., **236**(1): 1-26
- Hamanaka, S., Hara, M., Nishio, H., Otsuka, F., Suzuki, A., and Uchida, Y., (2002)**
Human epidermal glucosylceramides are major precursors of stratum corneum ceramides.
J. Invest. Dermatol., **119**(2): 416-423
- Hannun, Y. A., and Bell, R. M., (1989)**
Functions of sphingolipids and sphingolipid breakdown products in cellular regulation.
Science, **243**(4890): 500-507
- Hannun, Y. A., Luberto, C., and Argraves, K. M., (2001)**
Enzymes of sphingolipid metabolism: from modular to integrative signaling.
Biochemistry, **40**(16): 4893-4903
- Hillen, W., and Berens, C., (1994)**
Mechanisms underlying expression of Tn10 encoded tetracycline resistance.
Annu. Rev. Microbiol., **48**: 345-369
- Holzmann, B., Lehmann, J. M., Ziegler-Heitbrock, H. W., Funke, I., Riethmüller, G., and Johnson, J. P., (1988)**
Glycoprotein P3.58, associated with tumor progression in malignant melanoma, is a novel leukocyte activation antigen.
Int. J. Cancer, **41**(4): 542-547

- Ichikawa, S., Sakiyama, H., Suzuki, G., Hidari, K. I., and Hirabayashi, Y., (1996)**
Expression cloning of a cDNA for human ceramide glucosyltransferase that catalyzes the first glycosylation step of glycosphingolipid synthesis.
Proc. Natl. Acad. Sci. USA, **93**(10): 4638-4643
- Jaffrezou, J. P., Levade, T., Beltaieb, A., Andrieu, N., Bezombes, C., Maestre, N., Vermeersch, S., Rouse, A., and Laurent, G., (1996)**
Daunorubicin-induced apoptosis: triggering of ceramide generation through sphingomyelin hydrolysis.
Embo J., **15**(10): 2417-2424
- Jeckel, D., Karrenbauer, A., Burger, K. N., van Meer, G., and Wieland, F., (1992)**
Glucosylceramide is synthesized at the cytosolic surface of various Golgi subfractions.
J. Cell Biol., **117**(2): 259-267
- Juliano, R. L., and Ling, V., (1976)**
A surface glycoprotein modulating drug permeability in Chinese hamster ovary cell mutants.
Biochim. Biophys. Acta, **455**(1): 152-162
- Karlsson, K. A., (1989)**
Animal glycosphingolipids as membrane attachment sites for bacteria.
Annu. Rev. Biochem., **58**: 309-350
- Kim, H. J., Mun, J. Y., Chun, Y. J., Choi, K. H., and Kim, M. Y., (2001)**
Bax-dependent apoptosis induced by ceramide in HL-60 cells.
FEBS Lett., **505**(2): 264-268
- Kolter, T., and Sandhoff, K., (1999)**
Sphingolipide - ihre Stoffwechselwege und die Pathobiochemie neurodegenerativer Erkrankungen.
Angew. Chem., **111**: 1632-1670
- Komori, H., Ichikawa, S., Hirabayashi, Y., and Ito, M., (1999)**
Regulation of intracellular ceramide content in B16 melanoma cells. Biological implications of ceramide glycosylation.
J. Biol. Chem., **274**(13): 8981-8987
- Komori, H., Ichikawa, S., Hirabayashi, Y., and Ito, M., (2000)**
Regulation of UDP-glucose:ceramide glucosyltransferase-1 by ceramide.
FEBS Lett., **475**(3): 247-250
- Kristal, B. S., and Brown, A. M., (1999)**
Apoptogenic ganglioside GD3 directly induces the mitochondrial permeability transition.
J. Biol. Chem., **274**(33): 23169-23175

- Lannert, H., Gorgas, K., Meissner, I., Wieland, F. T., and Jeckel, D., (1998)**
Functional organization of the Golgi apparatus in glycosphingolipid biosynthesis. Lactosylceramide and subsequent glycosphingolipids are formed in the lumen of the late Golgi.
J. Biol. Chem., **273**(5): 2939-2946
- Lavie, Y., Cao, H., Bursten, S. L., Giuliano, A. E., and Cabot, M. C., (1996)**
Accumulation of glucosylceramides in multidrug-resistant cancer cells.
J. Biol. Chem., **271**(32): 19530-19536
- Lavie, Y., Cao, H., Volner, A., Lucci, A., Han, T. Y., Geffen, V., Giuliano, A. E., and Cabot, M. C., (1997)**
Agents that reverse multidrug resistance, tamoxifen, verapamil, and cyclosporin A, block glycosphingolipid metabolism by inhibiting ceramide glycosylation in human cancer cells.
J. Biol. Chem., **272**(3): 1682-1687
- Ledeen, R. W., and Yu, G., (1992)**
Ganglioside function in the neuron.
Trends Glycosci. Glycotechnol., **4**: 174-187
- Levade, T., Salvayre, R., and Douste-Blazy, L., (1986)**
Sphingomyelinases and Niemann-Pick disease.
J. Clin. Chem. Clin. Biochem., **24**(4): 205-220
- Liu, P., and Anderson, R. G., (1995)**
Compartmentalized production of ceramide at the cell surface.
J. Biol. Chem., **270**(45): 27179-27185
- Liu, Y. Y., Han, T. Y., Giuliano, A. E., and Cabot, M. C., (1999a)**
Expression of glucosylceramide synthase, converting ceramide to glucosylceramide, confers adriamycin resistance in human breast cancer cells.
J. Biol. Chem., **274**(2): 1140-1146
- Liu, Y. Y., Han, T. Y., Giuliano, A. E., Hansen, N., and Cabot, M. C., (2000)**
Uncoupling ceramide glycosylation by transfection of glucosylceramide synthase antisense reverses adriamycin resistance.
J. Biol. Chem., **275**(10): 7138-7143
- Liu, Y. Y., Han, T. Y., Giuliano, A. E., Ichikawa, S., Hirabayashi, Y., and Cabot, M. C., (1999b)**
Glycosylation of ceramide potentiates cellular resistance to tumor necrosis factor-alpha-induced apoptosis.
Exp. Cell Res., **252**(2): 464-470
- Lockshin, A., Giovanella, B. C., De Ipolyi, P. D., Williams, L. J., Jr., Mendoza, J. T., Yim, S. O., and Stehlin, J. S., Jr., (1985)**
Exceptional lethality for nude mice of cells derived from a primary human melanoma.
Cancer Res., **45**(1): 345-350

Luberto, C., Hassler, D. F., Signorelli, P., Okamoto, Y., Sawai, H., Boros, E., Hazen-Martin, D. J., Obeid, L. M., Hannun, Y. A., and Smith, G. K., (2002)
Inhibition of tumor necrosis factor-induced cell death in MCF7 by a novel inhibitor of neutral sphingomyelinase.

J. Biol. Chem., **277**(43): 41128-41139

Lucci, A., Cho, W. I., Han, T. Y., Giuliano, A. E., Morton, D. L., and Cabot, M. C., (1998)

Glucosylceramide: a marker for multiple-drug resistant cancers.

Anticancer Res., **18**(1B): 475-480

Lucci, A., Han, T. Y., Liu, Y. Y., Giuliano, A. E., and Cabot, M. C., (1999)

Multidrug resistance modulators and doxorubicin synergize to elevate ceramide levels and elicit apoptosis in drug-resistant cancer cells.

Cancer, **86**(2): 300-311

Mandon, E. C., Ehses, I., Rother, J., van Echten, G., and Sandhoff, K., (1992)

Subcellular localization and membrane topology of serine palmitoyltransferase, 3-dehydrosphinganine reductase, and sphinganine N-acyltransferase in mouse liver.

J. Biol. Chem., **267**(16): 11144-11148

Marks, D. L., Wu, K., Paul, P., Kamisaka, Y., Watanabe, R., and Pagano, R. E., (1999)

Oligomerization and topology of the Golgi membrane protein glucosylceramide synthase.

J Biol Chem, **274**(1): 451-456

Markwell, M. A., Svennerholm, L., and Paulson, J. C., (1981)

Specific gangliosides function as host cell receptors for Sendai virus.

Proc. Natl. Acad. Sci. USA, **78**(9): 5406-5410

Mathias, S., Pena, L. A., and Kolesnick, R. N., (1998)

Signal transduction of stress via ceramide.

Biochem. J., **335 (Pt 3)**: 465-480

Matsko, C. M., Hunter, O. C., Rabinowich, H., Lotze, M. T., and Amoscato, A. A., (2001)

Mitochondrial lipid alterations during Fas- and radiation-induced apoptosis.

Biochem. Biophys. Res. Commun., **287**(5): 1112-1120

Misasi, R., Dionisi, S., Farilla, L., Carabba, B., Lenti, L., Di Mario, U., and Dotta, F., (1997)

Gangliosides and autoimmune diabetes.

Diabetes. Metab. Rev., **13**(3): 163-179

Miyake, Y., Kozutsumi, Y., Nakamura, S., Fujita, T., and Kawasaki, T., (1995)

Serine palmitoyltransferase is the primary target of a sphingosine-like immunosuppressant, ISP-1/myriocin.

Biochem. Biophys. Res. Commun., **211**(2): 396-403

Miyaura, C., Abe, E., Kuribayashi, T., Tanaka, H., Konno, K., Nishii, Y., and Suda, T., (1981)

1 alpha,25-Dihydroxyvitamin D₃ induces differentiation of human myeloid leukemia cells.

Biochem. Biophys. Res. Comm., **102**(3): 937-943

Morjani, H., Aouali, N., Belhoussine, R., Veldman, R. J., Levade, T., and Manfait, M., (2001)

Elevation of glucosylceramide in multidrug-resistant cancer cells and accumulation in cytoplasmic droplets.

Int. J. Cancer, **94**(2): 157-165

Müller-Wieprecht, V., Riebeling, C., Alexander, C., Scholz, F. R., Hoer, A., Wieder, T., Orfanos, C. E., and Geilen, C. C., (1998)

Expression and regulation of phospholipase D in the human keratinocyte cell line HaCaT.

FEBS Lett, **425**(2): 199-203

Müller-Wieprecht, V., Riebeling, C., Stooss, A., Orfanos, C. E., and Geilen, C. C., (2000)

Bcl-2 transfected HaCaT keratinocytes resist apoptotic signals of ceramides, tumor necrosis factor alpha and 1 alpha, 25-dihydroxyvitamin D(3).

Arch. Dermatol. Res., **292**(9): 455-462

Nagai, Y., Nakaishi, H., and Sanai, Y., (1986)

Gene transfer as a novel approach to the gene-controlled mechanism of the cellular expression of glycosphingolipids.

Chem. Phys. Lipids, **42**(1-3): 91-103

Nicholson, K. M., Quinn, D. M., Kellett, G. L., and Warr, J. R., (1999)

Preferential killing of multidrug-resistant KB cells by inhibitors of glucosylceramide synthase.

Br. J. Cancer., **81**(3): 423-430

Obeid, L. M., Linardic, C. M., Karolak, L. A., and Hannun, Y. A., (1993)

Programmed cell death induced by ceramide.

Science, **259**(5102): 1769-1771

Okamoto, T., Schlegel, A., Scherer, P. E., and Lisanti, M. P., (1998)

Caveolins, a family of scaffolding proteins for organizing "preassembled signaling complexes" at the plasma membrane.

J Biol Chem, **273**(10): 5419-5422

Okazaki, T., Bell, R. M., and Hannun, Y. A., (1989)

Sphingomyelin turnover induced by vitamin D₃ in HL-60 cells. Role in cell differentiation.

J. Biol. Chem., **264**(32): 19076-19080

Olshefski, R., and Ladisch, S., (1998)

Synthesis, shedding, and intercellular transfer of human medulloblastoma gangliosides: abrogation by a new inhibitor of glucosylceramide synthase.

J Neurochem, **70**(2): 467-472

Paul, P., Kamisaka, Y., Marks, D. L., and Pagano, R. E., (1996)

Purification and characterization of UDP-glucose:ceramide glucosyltransferase from rat liver Golgi membranes.

J. Biol. Chem., **271**(4): 2287-2293

Peguet-Navarro, J., Sporttouch, M., Popa, I., Berthier, O., Schmitt, D., Potoukalian, J. (2003)

Gangliosides from human melanoma tumors impair dendritic cell differentiation from monocytes and induce their apoptosis.

J. Immunol., **170**(7): 3488-3494

Persidis, A., (1999)

Cancer multidrug resistance.

Nat Biotechnol, **17**(1): 94-95

Raisova, M., Goltz, G., Bektas, M., Bielawska, A., Riebeling, C., Hossini, A. M., Eberle, J., Hannun, Y. A., Orfanos, C. E., and Geilen, C. C., (2002)

Bcl-2 overexpression prevents apoptosis induced by ceramidase inhibitors in malignant melanoma and HaCaT keratinocytes.

FEBS Lett., **516**(1-3): 47-52

Raisova, M., Hossini, A. M., Eberle, J., Riebeling, C., Wieder, T., Sturm, I., Daniel, P. T., Orfanos, C. E., and Geilen, C. C., (2001)

The Bax/Bcl-2 ratio determines the susceptibility of human melanoma cells to CD95/Fas-mediated apoptosis.

J. Invest. Dermatol., **117**(2): 333-340

Ramu, A., Glaubiger, D., and Weintraub, H., (1984)

Differences in lipid composition of doxorubicin-sensitive and -resistant P388 cells.

Cancer Treat Rep, **68**(4): 637-641

Riboni, L., Viani, P., Bassi, R., Prinetti, A., and Tettamanti, G., (1997)

The role of sphingolipids in the process of signal transduction.

Prog. Lipid. Res., **36**(2-3): 153-195

Riebeling, C., Forsea, A. M., Raisova, M., Orfanos, C. E., and Geilen, C. C., (2002)

The bisphosphonate pamidronate induces apoptosis in human melanoma cells in vitro.

Br. J. Cancer., **87**(3): 366-371

Rother, J., van Echten, G., Schwarzmann, G., and Sandhoff, K., (1992)

Biosynthesis of sphingolipids: dihydroceramide and not sphinganine is desaturated by cultured cells.

Biochem. Biophys. Res. Commun., **189**(1): 14-20

Saiki, R. K., Scharf, S., Faloona, F., Mullis, K. B., Horn, G. T., Erlich, H. A., and Arnheim, N., (1985)

Enzymatic amplification of beta-globin genomic sequences and restriction site analysis for diagnosis of sickle cell anemia.

Science, **230**(4732): 1350-1354

Sando, G. N., Howard, E. J., and Madison, K. C., (1996)

Induction of ceramide glucosyltransferase activity in cultured human keratinocytes. Correlation with culture differentiation.

J. Biol. Chem., **271**(36): 22044-22051

Schissel, S. L., Jiang, X., Tweedie-Hardman, J., Jeong, T., Camejo, E. H., Najib, J., Rapp, J. H., Williams, K. J., and Tabas, I., (1998a)

Secretory sphingomyelinase, a product of the acid sphingomyelinase gene, can hydrolyze atherogenic lipoproteins at neutral pH. Implications for atherosclerotic lesion development.

J. Biol. Chem., **273**(5): 2738-2746

Schissel, S. L., Keesler, G. A., Schuchman, E. H., Williams, K. J., and Tabas, I., (1998b)

The cellular trafficking and zinc dependence of secretory and lysosomal sphingomyelinase, two products of the acid sphingomyelinase gene.

J. Biol. Chem., **273**(29): 18250-18259

Scorrano, L., Petronilli, V., Di Lisa, F., and Bernardi, P., (1999)

Commitment to apoptosis by GD3 ganglioside depends on opening of the mitochondrial permeability transition pore.

J. Biol. Chem., **274**(32): 22581-22585

Segui, B., Cuvillier, O., Adam-Klages, S., Garcia, V., Malagarie-Cazenave, S., Leveque, S., Caspar-Bauguil, S., Coudert, J., Salvayre, R., Kronke, M., and Levade, T., (2001)

Involvement of FAN in TNF-induced apoptosis.

J. Clin. Invest., **108**(1): 143-151

Serrone, L., and Hersey, P., (1999)

The chemoresistance of human malignant melanoma: an update.

Melanoma Res., **9**(1): 51-58

Shayman, J. A., and Abe, A., (2000)

Glucosylceramide synthase: assay and properties.

Methods Enzymol., **311**: 42-49

Shukla, G. S., and Radin, N. S., (1990)

Glucosylceramide synthase of mouse kidney: further characterization with an improved assay method.

Arch Biochem Biophys, **283**(2): 372-378

Sietsma, H., Veldman, R. J., Kolk, D., Ausema, B., Nijhof, W., Kamps, W., Vellenga, E., and Kok, J. W., (2000)

1-phenyl-2-decanoylamino-3-morpholino-1-propanol chemosensitizes neuroblastoma cells for taxol and vincristine.

Clin. Cancer. Res., **6**(3): 942-948

Simons, K., and Ikonen, E., (1997)

Functional rafts in cell membranes.

Nature, **387**(6633): 569-572

Siskind, L. J., Kolesnick, R. N., and Colombini, M., (2002)

Ceramide channels increase the permeability of the mitochondrial outer membrane to small proteins.

J. Biol. Chem., **277**(30): 26796-26803

Smart, E. J., Graf, G. A., McNiven, M. A., Sessa, W. C., Engelman, J. A., Scherer, P. E., Okamoto, T., and Lisanti, M. P., (1999)

Caveolins, liquid-ordered domains, and signal transduction.

Mol. Cell. Biol., **19**(11): 7289-7304

Smith, P. K., Krohn, R. I., Hermanson, G. T., Mallia, A. K., Gartner, F. H., Provenzano, M. D., Fujimoto, E. K., Goeke, N. M., Olson, B. J., and Klenk, D. C., (1985)

Measurement of protein using bicinchoninic acid.

Anal Biochem, **150**(1): 76-85

Spiegel, S., (1999)

Sphingosine 1-phosphate: a prototype of a new class of second messengers.

J. Leukoc. Biol., **65**(3): 341-344

Spiegel, S., (2000)

Sphingosine 1-phosphate: a ligand for the EDG-1 family of G-protein-coupled receptors.

Ann. N. Y. Acad. Sci., **905**: 54-60

Tauber, R., Park, C. S., and Reutter W., (1983)

Intramolecular heterogeneity of degradation in plasma membrane glycoproteins: evidence for a general characteristic.

Proc. Natl. Acad. Sci. U. S. A., **80**(13): 4026-4029

Tepper, A. D., Diks, S. H., van Blitterswijk, W. J., and Borst, J., (2000)

Glucosylceramide synthase does not attenuate the ceramide pool accumulating during apoptosis induced by CD95 or anti-cancer regimens.

J. Biol. Chem., **275**(44): 34810-34817

Thurin, J., Thurin, M., Herlyn, M., Elder, D. E., Steplewski, Z., Clark, W. H., Jr., and Koprowski, H., (1986)

GD2 ganglioside biosynthesis is a distinct biochemical event in human melanoma tumor progression.

FEBS Lett., **208**(1): 17-22

Touchstone, J. C., Levin, S. S., Dobbins, M. F., Matthews, L., Beers, P. C., and Gabbe, S. G., (1983)

(3-sn-Phosphatidyl)cholines (lecithins) in amniotic fluid.

Clin. Chem., **29**(11): 1951-1954

Trauth, B. C., Klas, C., Peters, A. M., Matzku, S., Moller, P., Falk, W., Debatin, K. M., and Krammer, P. H., (1989)

Monoclonal antibody-mediated tumor regression by induction of apoptosis.

Science, **245**(4915): 301-305

Tsuchida, T., Saxton, R. E., and Irie, R. F., (1987)

Gangliosides of human melanoma: GM2 and tumorigenicity.

J. Natl. Cancer Inst., **78**(1): 55-60

Uchida, Y., Hara, M., Nishio, H., Sidransky, E., Inoue, S., Otsuka, F., Suzuki, A., Elias, P. M., Holleran, W. M., and Hamanaka, S., (2000)

Epidermal sphingomyelins are precursors for selected stratum corneum ceramides.

J. Lipid Res., **41**(12): 2071-2082

Uchida, Y., Murata, S., Schmuth, M., Behne, M. J., Lee, J. D., Ichikawa, S., Elias, P. M., Hirabayashi, Y., and Holleran, W. M., (2002)

Glucosylceramide synthesis and synthase expression protect against ceramide-induced stress.

J. Lipid Res., **43**(8): 1293-1302

van Echten, G., and Sandhoff, K., (1993)

Ganglioside metabolism. Enzymology, Topology, and regulation.

J. Biol. Chem., **268**(8): 5341-5344

Varki, A., (1993)

Biological roles of oligosaccharides: all of the theories are correct.

Glycobiology, **3**(2): 97-130

Veldman, R. J., Klappe, K., Hinrichs, J., Hummel, I., van der Schaaf, G., Sietsma, H., and Kok, J. W., (2002)

Altered sphingolipid metabolism in multidrug-resistant ovarian cancer cells is due to uncoupling of glycolipid biosynthesis in the Golgi apparatus.

Faseb J., **16**(9): 1111-1113

Vielhaber, G., Pfeiffer, S., Brade, L., Lindner, B., Goldmann, T., Vollmer, E., Hintze, U., Wittern, K. P., and Wepf, R., (2001)

Localization of ceramide and glucosylceramide in human epidermis by immunogold electron microscopy.

J. Invest. Dermatol., **117**(5): 1126-1136

von Haefen, C., Wieder, T., Gillissen, B., Starck, L., Graupner, V., Dorken, B., and Daniel, P. T., (2002)

Ceramide induces mitochondrial activation and apoptosis via a Bax-dependent pathway in human carcinoma cells.

Oncogene, **21**(25): 4009-4019

Vunnam, R. R., and Radin, N. S., (1979)

Short chain ceramides as substrates for glucocerebrosidase. Differences between liver and brain enzymes.

Biochim. Biophys. Acta, **573**(1): 73-82

Watanabe, R., Wu, K., Paul, P., Marks, D. L., Kobayashi, T., Pittelkow, M. R., and Pagano, R. E., (1998)

Up-regulation of glucosylceramide synthase expression and activity during human keratinocyte differentiation.

J. Biol. Chem., **273**(16): 9651-9655

Wieder, T., Orfanos, C. E., and Geilen, C. C., (1998)

Induction of ceramide-mediated apoptosis by the anticancer phospholipid analog, hexadecylphosphocholine.

J. Biol. Chem., **273**(18): 11025-11031

Wu, K., Marks, D. L., Watanabe, R., Paul, P., Rajan, N., and Pagano, R. E., (1999)

Histidine-193 of rat glucosylceramide synthase resides in a UDP-glucose- and inhibitor (D-threo-1-phenyl-2-decanoylamino-3-morpholinopropan-1-ol)-binding region: a biochemical and mutational study.

Biochem. J., **341** (Pt 2): 395-400

Yamashita, T., Wada, R., Sasaki, T., Deng, C., Bierfreund, U., Sandhoff, K., and Proia, R. L., (1999)

A vital role for glycosphingolipid synthesis during development and differentiation.

Proc. Natl. Acad. Sci. USA, **96**(16): 9142-9147

Yonehara, S., Ishii, A., and Yonehara, M., (1989)

A cell-killing monoclonal antibody (anti-Fas) to a cell surface antigen co-downregulated with the receptor of tumor necrosis factor.

J. Exp. Med., **169**(5): 1747-1756