

## 8 LITERATURVERZEICHNIS

- Ahn, J. & Johnstone, R.M. (1993)  
Origin of a soluble truncated transferrin receptor.  
*Blood*, **81**, 2442–51.
- Allen, D.H. & Tracy, P.B. (1995)  
Human coagulation factor V is activated to the functional cofactor by elastase and cathepsin G expressed at the monocyte surface.  
*J Biol Chem*, **270**, 1408–15.
- Althoff, K., Reddy, P., Voltz, N., Rose-John, S. & Müllberg, J. (2000)  
Shedding of interleukin-6 receptor and tumor necrosis factor alpha. Contribution of the stalk sequence to the cleavage pattern of transmembrane proteins.  
*Eur J Biochem*, **267**, 2624–31.
- Alvarez, E., Gironès, N. & Davis, R.J. (1989)  
Intermolecular disulfide bonds are not required for the expression of the dimeric state and functional activity of the transferrin receptor.  
*Embo J*, **8**, 2231–40.
- Alvarez, E., Gironès, N. & Davis, R.J. (1990)  
Inhibition of the receptor-mediated endocytosis of diferric transferrin is associated with the covalent modification of the transferrin receptor with palmitic acid.  
*J Biol Chem*, **265**, 16644–55.
- Amour, A., Knight, C.G., Webster, A., Slocombe, P.M., Stephens, P.E., Knäuper, V., Docherty, A.J. & Murphy, G. (2000)  
The in vitro activity of ADAM-10 is inhibited by TIMP-1 and TIMP-3.  
*FEBS Lett*, **473**, 275–9.
- Amour, A., Slocombe, P.M., Webster, A., Butler, M., Knight, C.G., Smith, B.J., Stephens, P.E., Shelley, C., Hutton, M., Knäuper, V., Docherty, A.J. & Murphy, G. (1998)  
TNF-alpha converting enzyme (TACE) is inhibited by TIMP-3.  
*FEBS Lett*, **435**, 39–44.
- Anders, A., Gilbert, S., Garten, W., Postina, R. & Fahrenholz, F. (2001)  
Regulation of the alpha-secretase ADAM10 by its prodomain and proprotein convertases.  
*Faseb J*, **15**, 1837–9.
- Anderssen, T., Halvorsen, H., Bajaj, S.P. & Osterud, B. (1993)  
Human leukocyte elastase and cathepsin G inactivate factor VII by limited proteolysis.  
*Thromb Haemost*, **70**, 414–7.
- Arribas, J., Coodly, L., Vollmer, P., Kishimoto, T.K., Rose-John, S. & Massague, J. (1996)  
Diverse cell surface protein ectodomains are shed by a system sensitive to metalloprotease inhibitors.  
*J Biol Chem*, **271**, 11376–82.

- Auld, D.S. (1995)  
Removal and replacement of metal ions in metallopeptidases.  
*Methods Enzymol*, **248**, 228–42.
- Barrett, A.J., Rawlings, N.D. & Woessner, J.F. eds. (1998)  
Handbook of Proteolytic Enzymes.  
*Academic Press, London*
- Baynes, R.D., Shih, Y.J. & Cook, J.D. (1991)  
Production of soluble transferrin receptor by K562 erythroleukaemia cells.  
*Br J Haematol*, **78**, 450–5.
- Baynes, R.D., Shih, Y.J., Hudson, B.G. & Cook, J.D. (1993)  
Production of the serum form of the transferrin receptor by a cell membrane-associated serine protease.  
*Proc Soc Exp Biol Med*, **204**, 65–9.
- Baynes, R.D., Shih, Y.J., Hudson, B.G. & Cook, J.D. (1994)  
Identification of the membrane remnants of transferrin receptor with domain-specific antibodies.  
*J Lab Clin Med*, **123**, 407–14.
- Beauchamp, J.R. & Woodman, P.G. (1994)  
Regulation of transferrin receptor recycling by protein phosphorylation.  
*Biochem J*, **303 ( Pt 2)**, 647–55.
- Bennett, M.J., Lebron, J.A. & Bjorkman, P.J. (2000)  
Crystal structure of the hereditary haemochromatosis protein HFE complexed with transferrin receptor.  
*Nature*, **403**, 46–53.
- Beutler, E., West, C. & Gelbart, T. (1997)  
HLA-H and associated proteins in patients with hemochromatosis.  
*Mol Med*, **3**, 397–402.
- Black, R.A., Rauch, C.T., Kozlosky, C.J., Peschon, J.J., Slack, J.L., Wolfson, M.F., Castner, B.J., Stocking, K.L., Reddy, P., Srinivasan, S., Nelson, N., Boiani, N., Schooley, K.A., Gerhart, M., Davis, R., Fitzner, J.N., Johnson, R.S., Paxton, R.J., March, C.J. & Cerretti, D.P. (1997)  
A metalloproteinase disintegrin that releases tumour-necrosis factor-alpha from cells.  
*Nature*, **385**, 729–33.
- Blow, A.M. (1977)  
Action of human lysosomal elastase on the oxidized B chain of insulin.  
*Biochem J*, **161**, 13–6.

- Brou, C., Logeat, F., Gupta, N., Bessia, C., LeBail, O., Doedens, J.R., Cumano, A., Roux, P., Black, R.A. & Israel, A. (2000)  
A novel proteolytic cleavage involved in Notch signaling: the role of the disintegrin-metalloprotease TACE.  
*Mol Cell*, **5**, 207–16.
- Butler, G.S., Will, H., Atkinson, S.J. & Murphy, G. (1997)  
Membrane-type-2 matrix metalloproteinase can initiate the processing of progelatinase A and is regulated by the tissue inhibitors of metalloproteinases.  
*Eur J Biochem*, **244**, 653–7.
- Buxbaum, J.D., Liu, K.N., Luo, Y., Slack, J.L., Stocking, K.L., Peschon, J.J., Johnson, R.S., Castner, B.J., Cerretti, D.P. & Black, R.A. (1998)  
Evidence that tumor necrosis factor alpha converting enzyme is involved in regulated alpha-secretase cleavage of the Alzheimer amyloid protein precursor.  
*J Biol Chem*, **273**, 27765–7.
- Chevrier, B., D'Orchymont, H., Schalk, C., Tarnus, C. & Moras, D. (1996)  
The structure of the *Aeromonas proteolytica* aminopeptidase complexed with a hydroxamate inhibitor. Involvement in catalysis of Glu151 and two zinc ions of the co-catalytic unit.  
*Eur J Biochem*, **237**, 393–8.
- Chitambar, C.R., Loebel, A.L. & Noble, N.A. (1991)  
Shedding of transferrin receptor from rat reticulocytes during maturation in vitro: soluble transferrin receptor is derived from receptor shed in vesicles.  
*Blood*, **78**, 2444–50.
- Chitambar, C.R. & Zivkovic, Z. (1989)  
Release of soluble transferrin receptor from the surface of human leukemic HL60 cells.  
*Blood*, **74**, 602–8.
- Chitambar, C.R. & Zivkovic-Gilgenbach, Z. (1990)  
Influence of cellular iron status on the release of soluble transferrin receptor from human promyelocytic leukemic HL60 cells.  
*J Lab Clin Med*, **116**, 345–53.
- Codony-Servat, J., Albanell, J., Lopez-Talavera, J.C., Arribas, J. & Baselga, J. (1999)  
Cleavage of the HER2 ectodomain is a pervanadate-activable process that is inhibited by the tissue inhibitor of metalloproteases-1 in breast cancer cells.  
*Cancer Res*, **59**, 1196–201.
- Crowe, P.D., Walter, B.N., Mohler, K.M., Otten-Evans, C., Black, R.A. & Ware, C.F. (1995)  
A metalloprotease inhibitor blocks shedding of the 80-kD TNF receptor and TNF processing in T lymphocytes.  
*J Exp Med*, **181**, 1205–10.
- Dassler, K., Kaup, M., Tauber, R. & Fuchs, H. (2003)  
Mutational suppression of transferrin receptor shedding can be compensated by distinct metalloproteases acting on alternative sites.  
*FEBS Lett.*, **536**, 25–9

- Davis, R.J. & Czech, M.P. (1986)  
Regulation of transferrin receptor expression at the cell surface by insulin-like growth factors, epidermal growth factor and platelet-derived growth factor.  
*Embo J*, **5**, 653–8.
- Davis, R.J., Johnson, G.L., Kelleher, D.J., Anderson, J.K., Mole, J.E. & Czech, M.P. (1986)  
Identification of serine 24 as the unique site on the transferrin receptor phosphorylated by protein kinase C.  
*J Biol Chem*, **261**, 9034–41.
- Dempsey, P.J., Meise, K.S., Yoshitake, Y., Nishikawa, K. & Coffey, R.J. (1997)  
Apical enrichment of human EGF precursor in Madin-Darby canine kidney cells involves preferential basolateral ectodomain cleavage sensitive to a metalloprotease inhibitor.  
*J Cell Biol*, **138**, 747–58.
- Dethlefsen, S.M., Raab, G., Moses, M.A., Adam, R.M., Klagsbrun, M. & Freeman, M.R. (1998)  
Extracellular calcium influx stimulates metalloproteinase cleavage and secretion of heparin-binding EGF-like growth factor independently of protein kinase C.  
*J Cell Biochem*, **69**, 143–53.
- Do, S.I. & Cummings, R.D. (1992)  
Presence of O-linked oligosaccharide on a threonine residue in the human transferrin receptor.  
*Glycobiology*, **2**, 345–53.
- Docherty, A.J., Lyons, A., Smith, B.J., Wright, E.M., Stephens, P.E., Harris, T.J., Murphy, G. & Reynolds, J.J. (1985)  
Sequence of human tissue inhibitor of metalloproteinases and its identity to erythroid-potentiating activity..  
*Nature*, **318**, 66–9.
- Doedens, J.R. & Black, R.A. (2000)  
Stimulation-induced down-regulation of tumor necrosis factor-alpha converting enzyme.  
*J Biol Chem*, **275**, 14598–607.
- Elenius, K., Corfas, G., Paul, S., Choi, C.J., Rio, C., Plowman, G.D. & Klagsbrun, M. (1997)  
A novel juxtamembrane domain isoform of HER4/ErbB4. Isoform-specific tissue distribution and differential processing in response to phorbol ester.  
*J Biol Chem*, **272**, 26761–8.
- English, W.R., Puente, X.S., Freije, J.M., Knäuper, V., Amour, A., Merryweather, A., Lopez-Otin, C. & Murphy, G. (2000)  
Membrane type 4 matrix metalloproteinase (MMP17) has tumor necrosis factor-alpha convertase activity but does not activate pro-MMP2.  
*J Biol Chem*, **275**, 14046–55.
- English, W.R., Velasco, G., Stracke, J.O., Knäuper, V. & Murphy, G. (2001)  
Catalytic activities of membrane-type 6 matrix metalloproteinase (MMP25).  
*FEBS Lett*, **491**, 137–42.

- Enns, C.A. & Sussman, H.H. (1981)  
Physical characterization of the transferrin receptor in human placenta.  
*J Biol Chem*, **256**, 9820-3.
- Eyries, M., Michaud, A., Deinum, J., Agrapart, M., Chomilier, J., Kramers, C. & Soubrier, F. (2001)  
Increased shedding of angiotensin-converting enzyme by a mutation identified in the stalk region.  
*J Biol Chem*, **276**, 5525–32.
- Feder, J.N., Penny, D.M., Irrinki, A., Lee, V.K., Lebron, J.A., Watson, N., Tsuchihashi, Z., Sigal, E., Bjorkman, P.J. & Schatzman, R.C. (1998)  
The hemochromatosis gene product complexes with the transferrin receptor and lowers its affinity for ligand binding.  
*Proc Natl Acad Sci U S A*, **95**, 1472–7.
- Feder, J.N., Tsuchihashi, Z., Irrinki, A., Lee, V.K., Mapa, F.A., Morikang, E., Prass, C.E., Starnes, S.M., Wolff, R.K., Parkkila, S., Sly, W.S. & Schatzman, R.C. (1997)  
The hemochromatosis founder mutation in HLA-H disrupts beta2-microglobulin interaction and cell surface expression.  
*J Biol Chem*, **272**, 14025–8.
- Ferguson, B.J., Skikne, B.S., Simpson, K.M., Baynes, R.D. & Cook, J.D. (1992)  
Serum transferrin receptor distinguishes the anemia of chronic disease from iron deficiency anemia.  
*J Lab Clin Med*, **119**, 385–90.
- Fishman, J.B. & Fine, R.E. (1987)  
A trans Golgi-derived exocytic coated vesicle can contain both newly synthesized cholinesterase and internalized transferrin.  
*Cell*, **48**, 157–64.
- Flowers, C.H., Skikne, B.S., Covell, A.M. & Cook, J.D. (1989)  
The clinical measurement of serum transferrin receptor.  
*J Lab Clin Med*, **114**, 368–77.
- Fuchs, H., Lücken, U., Tauber, R., Engel, A. & Geßner, R. (1998)  
Structural model of phospholipid-reconstituted human transferrin receptor derived by electron microscopy.  
*Structure*, **6**, 1235–43.
- Fuchs, H., Tauber, R. & Geßner, R. (2001)  
Determination of optimal non-denaturing elution conditions from affinity columns by a solid-phase screen.  
*Biotechniques*, **31**, 584, 586, 588–90, passim.
- Gadher, S.J., Schmid, T.M., Heck, L.W. & Woolley, D.E. (1989)  
Cleavage of collagen type X by human synovial collagenase and neutrophil elastase.  
*Matrix*, **9**, 109–15.

Golde, D.W., Bersch, N., Quan, S.G. & Lusic, A.J. (1980)  
Production of erythroid-potentiating activity by a human T-lymphoblast cell line. *Proc Natl Acad Sci U S A*, **77**, 593–6.

Gomez-Ortiz, M., Gomis-Ruth, F.X., Huber, R. & Aviles, F.X. (1997)  
Inhibition of carboxypeptidase A by excess zinc: analysis of the structural determinants by X-ray crystallography.  
*FEBS Lett*, **400**, 336–40.

Grandke, K. (2000)  
Der Sheddingprozess des Transferrinrezeptors. Entwicklung von Detektionsverfahren und Messung der Sheddaseaktivität.  
Diplomarbeit, Fachbereich Biologie, Chemie, Pharmazie, Freie Universität Berlin.

Gunshin, H., Allerson, C.R., Polycarpou-Schwarz, M., Rofts, A., Rogers, J.T., Kishi, F., Hentze, M.W., Rouault, T.A., Andrews, N.C. & Hediger, M.A. (2001)  
Iron-dependent regulation of the divalent metal ion transporter.  
*FEBS Lett*, **509**, 309–16.

Gunshin, H., Mackenzie, B., Berger, U.V., Gunshin, Y., Romero, M.F., Boron, W.F., Nussberger, S., Gollan, J.L. & Hediger, M.A. (1997)  
Cloning and characterization of a mammalian proton-coupled metal-ion transporter.  
*Nature*, **388**, 482–8.

Haro, H., Crawford, H.C., Fingleton, B., Shinomiya, K., Spengler, D.M. & Matrisian, L.M. (2000)  
Matrix metalloproteinase-7-dependent release of tumor necrosis factor-alpha in a model of herniated disc resorption.  
*J Clin Invest*, **105**, 143–50.

Hatsuzawa, K., Nagahama, M., Takahashi, S., Takada, K., Murakami, K. & Nakayama, K. (1992)  
Purification and characterization of furin, a Kex2-like processing endoprotease, produced in Chinese hamster ovary cells.  
*J Biol Chem*, **267**, 16094–9.

Hayes, G.R., Enns, C.A. & Lucas, J.J. (1992)  
Identification of the O-linked glycosylation site of the human transferrin receptor.  
*Glycobiology*, **2**, 355–9.

Hayes, G.R., Williams, A.M., Lucas, J.J. & Enns, C.A. (1997)  
Structure of human transferrin receptor oligosaccharides: conservation of site-specific processing.  
*Biochemistry*, **36**, 5276–84.

Heck, L.W., Blackburn, W.D., Irwin, M.H. & Abrahamson, D.R. (1990)  
Degradation of basement membrane laminin by human neutrophil elastase and cathepsin G.  
*Am J Pathol*, **136**, 1267–74.

- Herskovits, J.S., Burgess, C.C., Obar, R.A. & Vallee, R.B. (1993)  
Effects of mutant rat dynamin on endocytosis.  
*J Cell Biol*, **122**, 565–78.
- Howard, L., Lu, X., Mitchell, S., Griffiths, S. & Glynn, P. (1996)  
Molecular cloning of MADM: a catalytically active mammalian disintegrin-metalloprotease expressed in various cell types.  
*Biochem J*, **317 ( Pt 1)**, 45–50.
- Howard, L., Zheng, Y., Horrocks, M., Maciewicz, R.A. & Blobel, C. (2001)  
Catalytic activity of ADAM28.  
*FEBS Lett*, **498**, 82–6.
- Hu, H.Y. & Aisen, P. (1978)  
Molecular characteristics of the transferrin-receptor complex of the rabbit reticulocyte.  
*J Supramol Struct*, **8**, 349–60.
- Huebers, H.A., Beguin, Y., Pootrakul, P., Einspahr, D. & Finch, C.A. (1990)  
Intact transferrin receptors in human plasma and their relation to erythropoiesis.  
*Blood*, **75**, 102–7.
- Hunt, R.C. & Marshall-Carlson, L. (1986)  
Internalization and recycling of transferrin and its receptor. Effect of trifluoperazine on recycling in human erythroleukemic cells.  
*J Biol Chem*, **261**, 3681–6.
- Hussain, I., Powell, D.J., Howlett, D.R., Chapman, G.A., Gilmour, L., Murdock, P.R., Tew, D.G., Meek, T.D., Chapman, C., Schneider, K., Ratcliffe, S.J., Tattersall, D., Testa, T.T., Southan, C., Ryan, D.M., Simmons, D.L., Walsh, F.S., Dingwall, C. & Christie, G. (2000)  
ASP1 (BACE2) cleaves the amyloid precursor protein at the beta-secretase site.  
*Mol Cell Neurosci*, **16**, 609–19.
- Iacopetta, B., Carpentier, J.L., Pozzan, T., Lew, D.P., Gorden, P. & Orci, L. (1986)  
Role of intracellular calcium and protein kinase C in the endocytosis of transferrin and insulin by HL60 cells.  
*J Cell Biol*, **103**, 851–6.
- Inoue, D., Reid, M., Lum, L., Kratzschmar, J., Weskamp, G., Myung, Y.M., Baron, R. & Blobel, C.P. (1998)  
Cloning and initial characterization of mouse meltrin beta and analysis of the expression of four metalloprotease-disintegrins in bone cells.  
*J Biol Chem*, **273**, 4180–7.
- Itai, T., Tanaka, M. & Nagata, S. (2001)  
Processing of tumor necrosis factor by the membrane-bound TNF-alpha-converting enzyme, but not its truncated soluble form.  
*Eur J Biochem*, **268**, 2074–82.

- Izumi, Y., Hirata, M., Hasuwa, H., Iwamoto, R., Umata, T., Miyado, K., Tamai, Y., Kurisaki, T., Sehara-Fujisawa, A., Ohno, S. & Mekada, E. (1998)  
A metalloprotease-disintegrin, MDC9/meltrin-gamma/ADAM9 and PKCdelta are involved in TPA-induced ectodomain shedding of membrane-anchored heparin-binding EGF-like growth factor.  
*Embo J*, **17**, 7260-72.
- Jandl, J.M., Imman, J.K., Simmons, R.L. & Allen, D.W. (1959)  
Transfer of iron from serum ion-binding protein to human reticulocytes.  
*J Clin Invest*, **38**, 161–184.
- Jin, M. & Snider, M.D. (1993)  
Role of microtubules in transferrin receptor transport from the cell surface to endosomes and the Golgi complex.  
*J Biol Chem*, **268**, 18390-7.
- Jing, S.Q. & Trowbridge, I.S. (1987)  
Identification of the intermolecular disulfide bonds of the human transferrin receptor and its lipid-attachment site.  
*Embo J*, **6**, 327–31.
- Johnstone, R.M. (1996)  
Cleavage of the transferrin receptor by human granulocytes: differential proteolysis of the exosome-bound TFR.  
*J Cell Physiol*, **168**, 333–45.
- Jordan, R.E., Nelson, R.M., Kilpatrick, J., Newgren, J.O., Esmon, P.C. & Fournel, M.A. (1989)  
Inactivation of human antithrombin by neutrophil elastase. Kinetics of the heparin-dependent reaction.  
*J Biol Chem*, **264**, 10493–500.
- Jung, T.M. & Dailey, M.O. (1990)  
Rapid modulation of homing receptors (gp90MEL-14) induced by activators of protein kinase C. Receptor shedding due to accelerated proteolytic cleavage at the cell surface.  
*J Immunol*, **144**, 3130-6.
- Kato, J., Kohgo, Y., Kondo, H., Nishisato, T., Sasaki, K., Tsushima, N., Hirayama, M., Fujikawa, K., Sintani, N., Miyazaki, E. & Niitsu, Y. (1992)  
Circulating transferrin receptor in acute leukemias.  
*Int J Hematol*, **56**, 161–5.
- Kawabata, H., Germain, R.S., Vuong, P.T., Nakamaki, T., Said, J.W. & Koeffler, H.P. (2000)  
Transferrin receptor 2-alpha supports cell growth both in iron-chelated cultured cells and in vivo.  
*J Biol Chem*, **275**, 16618–25.



- Kawabata, H., Nakamaki, T., Ikonomi, P., Smith, R.D., Germain, R.S. & Koeffler, H.P. (2001)  
Expression of transferrin receptor 2 in normal and neoplastic hematopoietic cells.  
*Blood*, **98**, 2714–9.
- Kawabata, H., Yang, R., HIRAMA, T., Vuong, P.T., Kawano, S., Gombart, A.F. & Koeffler, H.P. (1999)  
Molecular cloning of transferrin receptor 2. A new member of the transferrin receptor-like family.  
*J Biol Chem*, **274**, 20826–32.
- Kinoshita, T., Sato, H., Takino, T., Itoh, M., Akizawa, T. & Seiki, M. (1996)  
Processing of a precursor of 72-kilodalton type IV collagenase/gelatinase A by a recombinant membrane-type 1 matrix metalloproteinase.  
*Cancer Res*, **56**, 2535–8.
- Kittelberger, R., Neale, T.J., Francky, K.T., Greenhill, N.S. & Gibson, G.J. (1992)  
Cleavage of type VIII collagen by human neutrophil elastase.  
*Biochim Biophys Acta*, **1139**, 295–9.
- Klausner, R.D., Rouault, T.A. & Harford, J.B. (1993)  
Regulating the fate of mRNA: the control of cellular iron metabolism.  
*Cell*, **72**, 19–28.
- Kohgo, Y., Niitsu, Y., Nishisato, T., Kato, J., Kondo, H., Sasaki, K. & Urushizaki, I. (1988)  
Quantitation and characterization of serum transferrin receptor in patients with anemias and polycythemias.  
*Jpn J Med*, **27**, 64–70.
- Kohgo, Y., Nishisato, T., Kondo, H., Tsushima, N., Niitsu, Y. & Urushizaki, I. (1986)  
Circulating transferrin receptor in human serum.  
*Br J Haematol*, **64**, 277–81.
- Kolkenbrock, H., Essers, L., Ulbrich, N. & Will, H. (1999)  
Biochemical characterization of the catalytic domain of membrane-type 4 matrix metalloproteinase.  
*Biol Chem*, **380**, 1103–8.
- Kopan, R., Schroeter, E.H., Weintraub, H. & Nye, J.S. (1996)  
Signal transduction by activated mNotch: importance of proteolytic processing and its regulation by the extracellular domain.  
*Proc Natl Acad Sci U S A*, **93**, 1683–8.
- Laemmli, U.K. (1970)  
Cleavage of structural proteins during the assembly of the head of bacteriophage T4.  
*Nature*, **227**, 680-5.

- Lammich, S., Kojro, E., Postina, R., Gilbert, S., Pfeiffer, R., Jasionowski, M., Haass, C. & Fahrenholz, F. (1999)  
Constitutive and regulated alpha-secretase cleavage of Alzheimer's amyloid precursor protein by a disintegrin metalloprotease.  
*Proc Natl Acad Sci U S A*, **96**, 3922–7.
- Lawrence, C.M., Ray, S., Babyonyshev, M., Galluser, R., Borhani, D.W. & Harrison, S.C. (1999)  
Crystal structure of the ectodomain of human transferrin receptor.  
*Science*, **286**, 779–82.
- Lesley, J., Schulte, R. & Woods, J. (1989)  
Modulation of transferrin receptor expression and function by anti-transferrin receptor antibodies and antibody fragments.  
*Exp Cell Res*, **182**, 215–33.
- Loechel, F., Fox, J.W., Murphy, G., Albrechtsen, R. & Wewer, U.M. (2000)  
ADAM 12-S cleaves IGFBP-3 and IGFBP-5 and is inhibited by TIMP-3.  
*Biochem Biophys Res Commun*, **278**, 511–5.
- Loechel, F., Gilpin, B.J., Engvall, E., Albrechtsen, R. & Wewer, U.M. (1998)  
Human ADAM 12 (meltrin alpha) is an active metalloprotease.  
*J Biol Chem*, **273**, 16993–7.
- Lopez-Perez, E., Zhang, Y., Frank, S.J., Creemers, J., Seidah, N. & Checler, F. (2001)  
Constitutive alpha-secretase cleavage of the beta-amyloid precursor protein in the furin-deficient LoVo cell line: involvement of the pro-hormone convertase 7 and the disintegrin metalloprotease ADAM10.  
*J Neurochem*, **76**, 1532–9.
- Lum, L., Reid, M.S. & Blobel, C.P. (1998)  
Intracellular maturation of the mouse metalloprotease disintegrin MDC15.  
*J Biol Chem*, **273**, 26236–47.
- Lunn, C.A., Fan, X., Dalie, B., Miller, K., Zavodny, P.J., Narula, S.K. & Lundell, D. (1997)  
Purification of ADAM 10 from bovine spleen as a TNFalpha convertase. *FEBS Lett*, **400**, 333–5.
- Mattia, E., Rao, K., Shapiro, D.S., Sussman, H.H. & Klausner, R.D. (1984)  
Biosynthetic regulation of the human transferrin receptor by desferrioxamine in K562 cells.  
*J Biol Chem*, **259**, 2689–92.
- May, W.S. & Tyler, G. (1987)  
Phosphorylation of the surface transferrin receptor stimulates receptor internalization in HL60 leukemic cells.  
*J Biol Chem*, **262**, 16710–8.
- Mellman, I. (1996)  
Endocytosis and molecular sorting.  
*Annu Rev Cell Dev Biol*, **12**, 575–625.

- Mohler, K.M., Sleath, P.R., Fitzner, J.N., Cerretti, D.P., Alderson, M., Kerwar, S.S., Torrance, D.S., Otten-Evans, C., Greenstreet, T., Weerawarna, K., Kronheim, S.R., Petersen, M., Gerhart, M., Kozlowsky, C.J., & Black, R. A (1994)  
Protection against a lethal dose of endotoxin by an inhibitor of tumour necrosis factor processing.  
*Nature*, **370**, 218–20.
- Moss, M.L., Jin, S.L., Milla, M.E., Burkhart, W., Carter, H.L., Chen, W.J., Clay, W.C., Didsbury, J.R., Hassler, D., Hoffman, C.R., Kost, T.A., Lambert, M.H., Leesnitzer, M.A., McCauley, P., McGeehan, G., Mitchell, J., Moyer, M., Pahel, G., Rocque, W., Overton, L.K., Schoenen, F., Seaton, T., Su, J.L., Warner, J., Willard, D. & Becherer, J.D. (1997)  
Cloning of a disintegrin metalloproteinase that processes precursor tumour-necrosis factor- $\alpha$ .  
*Nature*, **385**, 733–6.
- Muller-Eberhard, U., Liem, H.H., Grasso, J.A., Giffhorn-Katz, S., DeFalco, M.G. & Katz, N.R. (1988)  
Increase in surface expression of transferrin receptors on cultured hepatocytes of adult rats in response to iron deficiency.  
*J Biol Chem*, **263**, 14753–6.
- Mullner, E.W. & Kuhn, L.C. (1988)  
A stem-loop in the 3' untranslated region mediates iron-dependent regulation of transferrin receptor mRNA stability in the cytoplasm.  
*Cell*, **53**, 815–25.
- Núñez, M.T., Gaete, V., Watkins, J.A. & Glass, J. (1990)  
Mobilization of iron from endocytic vesicles. The effects of acidification and reduction.  
*J Biol Chem*, **265**, 6688–92.
- Okuyama, M., Yamaguchi, S., Yamaoka, M., Nitobe, J., Fujii, S., Yoshimura, T. & Tomoike, H. (2000)  
Nitric oxide enhances expression and shedding of tumor necrosis factor receptor I (p55) in endothelial cells.  
*Arterioscler Thromb Vasc Biol*, **20**, 1506–11.
- Orberger, G., Geyer, R., Stirn, S. & Tauber, R. (1992)  
Structure of the N-linked oligosaccharides of the human transferrin receptor.  
*Eur J Biochem*, **205**, 257–67.
- Owen, C.A. & Campbell, E.J. (1999)  
The cell biology of leukocyte-mediated proteolysis.  
*J Leukoc Biol*, **65**, 137–50.
- Owen, C.A., Campbell, M.A., Sannes, P.L., Boukedes, S.S. & Campbell, E.J. (1995)  
Cell surface-bound elastase and cathepsin G on human neutrophils: a novel, non-oxidative mechanism by which neutrophils focus and preserve catalytic activity of serine proteinases.  
*J Cell Biol*, **131**, 775–89.

- Pan, D. & Rubin, G.M. (1997)  
Kuzbanian controls proteolytic processing of Notch and mediates lateral inhibition during Drosophila and vertebrate neurogenesis.  
*Cell*, **90**, 271–80.
- Parkkila, S., Waheed, A., Britton, R.S., Bacon, B.R., Zhou, X.Y., Tomatsu, S., Fleming, R.E. & Sly, W.S. (1997)  
Association of the transferrin receptor in human placenta with HFE, the protein defective in hereditary hemochromatosis.  
*Proc Natl Acad Sci U S A*, **94**, 13198–202.
- Parvathy, S., Oppong, S.Y., Karran, E.H., Buckle, D.R., Turner, A.J. & Hooper, N.M. (1997)  
Angiotensin-converting enzyme secretase is inhibited by zinc metalloprotease inhibitors and requires its substrate to be inserted in a lipid bilayer.  
*Biochem J*, **327 ( Pt 1)**, 37–43.
- Pei, D. (1999)  
Identification and characterization of the fifth membrane-type matrix metalloproteinase MT5-MMP.  
*J Biol Chem*, **274**, 8925–32.
- Peschon, J.J., Slack, J.L., Reddy, P., Stocking, K.L., Sunnarborg, S.W., Lee, D.C., Russell, W.E., Castner, B.J., Johnson, R.S., Fitzner, J.N., Boyce, R.W., Nelson, N., Kozlosky, C.J., Wolfson, M.F., Rauch, C.T., Cerretti, D.P., Paxton, R.J., March, C.J. & Black, R.A. (1998)  
An essential role for ectodomain shedding in mammalian development.  
*Science*, **282**, 1281–4.
- Pikul, S., McDow Dunham, K.L., Almstead, N.G., De, B., Natchus, M.G., Anastasio, M.V., McPhail, S.J., Snider, C.E., Taiwo, Y.O., Rydel, T., Dunaway, C.M., Gu, F. & Mieling, G.E. (1998)  
Discovery of potent, achiral matrix metalloproteinase inhibitors.  
*J Med Chem*, **41**, 3568–71.
- Pinckard, J.K., Sheehan, K.C., Arthur, C.D. & Schreiber, R.D. (1997)  
Constitutive shedding of both p55 and p75 murine TNF receptors in vivo.  
*J Immunol*, **158**, 3869–73.
- Pipoly, D.J. & Crouch, E.C. (1987)  
Degradation of native type IV procollagen by human neutrophil elastase. Implications for leukocyte-mediated degradation of basement membranes.  
*Biochemistry*, **26**, 5748–54.
- Powell, W.C., Fingleton, B., Wilson, C.L., Boothby, M. & Matrisian, L.M. (1999)  
The metalloproteinase matrilysin proteolytically generates active soluble Fas ligand and potentiates epithelial cell apoptosis.  
*Curr Biol*, **9**, 1441–7.

- Powers, J.C., Kam, C.M., Narasimhan, L., Oleksyszyn, J., Hernandez, M.A. & Ueda, T. (1989)  
Mechanism-based isocoumarin inhibitors for serine proteases: use of active site structure and substrate specificity in inhibitor design.  
*J Cell Biochem*, **39**, 33–46.
- Punnonen, K., Irjala, K. & Rajamaki, A. (1994)  
Iron-deficiency anemia is associated with high concentrations of transferrin receptor in serum.  
*Clin Chem*, **40**, 774–6.
- Ramchandran, R. & Sen, I. (1995)  
Cleavage processing of angiotensin-converting enzyme by a membrane-associated metalloprotease.  
*Biochemistry*, **34**, 12645–52.
- Remold-O'Donnell, E. & Parent, D. (1995)  
Specific sensitivity of CD43 to neutrophil elastase.  
*Blood*, **86**, 2395–402.
- Rice, A. & Banda, M.J. (1995)  
Neutrophil elastase processing of gelatinase A is mediated by extracellular matrix.  
*Biochemistry*, **34**, 9249–56.
- Robache-Gallea, S., Morand, V., Bruneau, J.M., Schoot, B., Tagat, E., Realo, E., Chouaib, S. & Roman-Roman, S. (1995)  
In vitro processing of human tumor necrosis factor-alpha.  
*J Biol Chem*, **270**, 23688–92.
- Roberts, S.B., Ripellino, J.A., Ingalls, K.M., Robakis, N.K. & Felsenstein, K.M. (1994)  
Non-amyloidogenic cleavage of the beta-amyloid precursor protein by an integral membrane metalloendopeptidase.  
*J Biol Chem*, **269**, 3111–6.
- Roetto, A., Totaro, A., Piperno, A., Piga, A., Longo, F., Garozzo, G., Cali, A., De Gobbi, M., Gasparini, P. & Camaschella, C. (2001)  
New mutations inactivating transferrin receptor 2 in hemochromatosis type 3.  
*Blood*, **97**, 2555–60.
- Roghani, M., Becherer, J.D., Moss, M.L., Atherton, R.E., Erdjument-Bromage, H., Arribas, J., Blackburn, R.K., Weskamp, G., Tempst, P. & Blobel, C.P. (1999)  
Metalloprotease-disintegrin MDC9: intracellular maturation and catalytic activity.  
*J Biol Chem*, **274**, 3531–40.
- Rutledge, E.A., Gaston, I., Root, B.J., McGraw, T.E. & Enns, C.A. (1998)  
The transferrin receptor cytoplasmic domain determines its rate of transport through the biosynthetic pathway and its susceptibility to cleavage early in the pathway.  
*J Biol Chem*, **273**, 12169–75.

- Rutledge, E.A., Green, F.A. & Enns, C.A. (1994a)  
Generation of the soluble transferrin receptor requires cycling through an endosomal compartment.  
*J Biol Chem*, **269**, 31864–8.
- Rutledge, E.A., Root, B.J., Lucas, J.J. & Enns, C.A. (1994b)  
Elimination of the O-linked glycosylation site at Thr 104 results in the generation of a soluble human-transferrin receptor.  
*Blood*, **83**, 580-6.
- R'Zik, S. & Beguin, Y. (2001)  
Serum soluble transferrin receptor concentration is an accurate estimate of the mass of tissue receptors.  
*Exp Hematol*, **29**, 677–85.
- Sadallah, S., Hess, C., Miot, S., Spertini, O., Lutz, H. & Schifferli, J.A. (1999)  
Elastase and metalloproteinase activities regulate soluble complement receptor 1 release.  
*Eur J Immunol*, **29**, 3754–61.
- Schlöndorff, J., Becherer, J.D. & Blobel, C.P. (2000)  
Intracellular maturation and localization of the tumour necrosis factor alpha convertase (TACE).  
*Biochem J*, **347 Pt 1**, 131–8.
- Schlöndorff, J., Lum, L. & Blobel, C.P. (2001)  
Biochemical and pharmacological criteria define two shedding activities for TRANCE/OPGL that are distinct from the tumor necrosis factor alpha convertase.  
*J Biol Chem*, **276**, 14665–74.
- Schneider, C., Owen, M.J., Banville, D. & Williams, J.G. (1984)  
Primary structure of human transferrin receptor deduced from the mRNA sequence.  
*Nature*, **311**, 675–8.
- Schneider, C., Sutherland, R., Newman, R. & Greaves, M. (1982)  
Structural features of the cell surface receptor for transferrin that is recognized by the monoclonal antibody OKT9.  
*J Biol Chem*, **257**, 8516–22.
- Schonhorn, J.E., Akompong, T. & Wessling-Resnick, M. (1995)  
Mechanism of transferrin receptor down-regulation in K562 cells in response to protein kinase C activation.  
*J Biol Chem*, **270**, 3698–705.
- Schwager, S.L., Chubb, A.J., Scholle, R.R., Brandt, W.F., Mentele, R., Riordan, J.F., Sturrock, E.D. & Ehlers, M.R. (1999)  
Modulation of juxtamembrane cleavage ("shedding") of angiotensin-converting enzyme by stalk glycosylation: evidence for an alternative shedding protease.  
*Biochemistry*, **38**, 10388–97.

- Seiser, C., Teixeira, S. & Kuhn, L.C. (1993)  
Interleukin-2-dependent transcriptional and post-transcriptional regulation of transferrin receptor mRNA.  
*J Biol Chem*, **268**, 13074–80.
- Seligman, P.A., Schleicher, R.B. & Allen, R.H. (1979)  
Isolation and characterization of the transferrin receptor from human placenta.  
*J Biol Chem*, **254**, 9943–6.
- Shih, Y.J., Baynes, R.D., Hudson, B.G., Flowers, C.H., Skikne, B.S. & Cook, J.D. (1990)  
Serum transferrin receptor is a truncated form of tissue receptor.  
*J Biol Chem*, **265**, 19077–81.
- Shimada, T., Nakamura, H., Ohuchi, E., Fujii, Y., Murakami, Y., Sato, H., Seiki, M. & Okada, Y. (1999)  
Characterization of a truncated recombinant form of human membrane type 3 matrix metalloproteinase.  
*Eur J Biochem*, **262**, 907–14.
- Shirakabe, K., Wakatsuki, S., Kurisaki, T. & Fujisawa-Sehara, A. (2001)  
Roles of Meltrin beta /ADAM19 in the processing of neuregulin.  
*J Biol Chem*, **276**, 9352–8.
- Skikne, B.S., Flowers, C.H. & Cook, J.D. (1990)  
Serum transferrin receptor: a quantitative measure of tissue iron deficiency.  
*Blood*, **75**, 1870-6.
- Skovronsky, D.M., Fath, S., Lee, V.M. & Milla, M.E. (2001)  
Neuronal localization of the TNFalpha converting enzyme (TACE) in brain tissue and its correlation to amyloid plaques.  
*J Neurobiol*, **49**, 40-6.
- Slack, B.E., Ma, L.K. & Seah, C.C. (2001)  
Constitutive shedding of the amyloid precursor protein ectodomain is up-regulated by tumour necrosis factor-alpha converting enzyme.  
*Biochem J*, **357**, 787–94.
- Snider, M.D. & Rogers, O.C. (1985)  
Intracellular movement of cell surface receptors after endocytosis: resialylation of asialo-transferrin receptor in human erythroleukemia cells.  
*J Cell Biol*, **100**, 826–34.
- Solomon, K.A., Covington, M.B., DeCicco, C.P. & Newton, R.C. (1997)  
The fate of pro-TNF-alpha following inhibition of metalloprotease-dependent processing to soluble TNF-alpha in human monocytes.  
*J Immunol*, **159**, 4524–31.

Steiner, H., Duff, K., Capell, A., Romig, H., Grim, M.G., Lincoln, S., Hardy, J., Yu, X., Picciano, M., Fichtler, K., Citron, M., Kopan, R., Pesold, B., Keck, S., Baader, M., Tomita, T., Iwatsubo, T., Baumeister, R. & Haass, C. (1999)

A loss of function mutation of presenilin-2 interferes with amyloid beta-peptide production and notch signaling.

*J Biol Chem*, **274**, 28669–73.

Steinhusen, U., Weiske, J., Badock, V., Tauber, R., Bommert, K. & Huber, O. (2001)  
Cleavage and shedding of E-cadherin after induction of apoptosis.

*J Biol Chem*, **276**, 4972–80.

Sternlicht, M.D. & Werb, Z. (2001)

How matrix metalloproteinases regulate cell behavior.

*Annu Rev Cell Dev Biol*, **17**, 463–516.

Stocker, W., Grams, F., Baumann, U., Reinemer, P., Gomis-Ruth, F.X., McKay, D.B. & Bode, W. (1995)

The metzincins--topological and sequential relations between the astacins, adamalysins, serralytins, and matrixins (collagenases) define a superfamily of zinc-peptidases.

*Protein Sci*, **4**, 823–40.

Suzuki, M., Raab, G., Moses, M.A., Fernandez, C.A. & Klagsbrun, M. (1997)

Matrix metalloproteinase-3 releases active heparin-binding EGF-like growth factor by cleavage at a specific juxtamembrane site.

*J Biol Chem*, **272**, 31730-7.

Tanaka, M., Itai, T., Adachi, M. & Nagata, S. (1998)

Downregulation of Fas ligand by shedding.

*Nat Med*, **4**, 31–6.

Tanner, L.I. & Lienhard, G.E. (1987)

Insulin elicits a redistribution of transferrin receptors in 3T3-L1 adipocytes through an increase in the rate constant for receptor externalization.

*J Biol Chem*, **262**, 8975–80.

Thatte, H.S., Bridges, K.R. & Golan, D.E. (1994)

Microtubule inhibitors differentially affect translational movement, cell surface expression, and endocytosis of transferrin receptors in K562 cells.

*J Cell Physiol*, **160**, 345–57.

Trowbridge, I.S. & Collawn, J.F. (1992)

Structural requirements for high efficiency endocytosis of the human transferrin receptor.

*J Inorg Biochem*, **47**, 209–17.

Trowbridge, I.S. & Omary, M.B. (1981)

Human cell surface glycoprotein related to cell proliferation is the receptor for transferrin.

*Proc Natl Acad Sci U S A*, **78**, 3039–43.



- Turkewitz, A.P., Amatruda, J.F., Borhani, D., Harrison, S.C. & Schwartz, A.L. (1988)  
A high yield purification of the human transferrin receptor and properties of its major extracellular fragment.  
*J Biol Chem*, **263**, 8318–25.
- Vassar, R., Bennett, B.D., Babu-Khan, S., Kahn, S., Mendiaz, E.A., Denis, P., Teplow, D.B., Ross, S., Amarante, P., Loeloff, R., Luo, Y., Fisher, S., Fuller, J., Edenson, S., Lile, J., Jarosinski, M.A., Biere, A.L., Curran, E., Burgess, T., Louis, J.C., Collins, F., Treanor, J., Rogers, G. & Citron, M. (1999)  
Beta-secretase cleavage of Alzheimer's amyloid precursor protein by the transmembrane aspartic protease BACE.  
*Science*, **286**, 735–41.
- Vey, M., Schafer, W., Berghofer, S., Klenk, H.D. & Garten, W. (1994)  
Maturation of the trans-Golgi network protease furin: compartmentalization of propeptide removal, substrate cleavage, and COOH-terminal truncation.  
*J Cell Biol*, **127**, 1829–42.
- Vidricaire, G., Denault, J.B. & Leduc, R. (1993)  
Characterization of a secreted form of human furin endoprotease.  
*Biochem Biophys Res Commun*, **195**, 1011–8.
- Vincent, B., Paitel, E., Saftig, P., Frobert, Y., Hartmann, D., De Strooper, B., Grassi, J., Lopez-Perez, E. & Checler, F. (2001)  
The disintegrins ADAM10 and TACE contribute to the constitutive and phorbol ester-regulated normal cleavage of the cellular prion protein.  
*J Biol Chem*, **276**, 37743–6.
- Ward, J.H., Kushner, J.P. & Kaplan, J. (1982)  
Regulation of HeLa cell transferrin receptors.  
*J Biol Chem*, **257**, 10317–23.
- West, A.P., Jr., Bennett, M.J., Sellers, V.M., Andrews, N.C., Enns, C.A. & Bjorkman, P.J. (2000)  
Comparison of the interactions of transferrin receptor and transferrin receptor 2 with transferrin and the hereditary hemochromatosis protein HFE.  
*J Biol Chem*, **275**, 38135–8.
- Will, H., Atkinson, S.J., Butler, G.S., Smith, B. & Murphy, G. (1996)  
The soluble catalytic domain of membrane type 1 matrix metalloproteinase cleaves the propeptide of progelatinase A and initiates autoproteolytic activation. Regulation by TIMP-2 and TIMP-3.  
*J Biol Chem*, **271**, 17119–23.
- Woith, W., Nusslein, I., Antoni, C., Dejica, D.I., Winkler, T.H., Herrmann, M., Pirner, K., Kalden, J.R. & Manger, B. (1993)  
A soluble form of the human transferrin receptor is released by activated lymphocytes in vitro.  
*Clin Exp Immunol*, **92**, 537–42.

- Wolfe, M.S., Xia, W., Ostaszewski, B.L., Diehl, T.S., Kimberly, W.T. & Selkoe, D.J. (1999)  
Two transmembrane aspartates in presenilin-1 required for presenilin endoproteolysis and  
gamma-secretase activity.  
*Nature*, **398**, 513–7.
- Woods, J.W., Doriaux, M. & Farquhar, M.G. (1986)  
Transferrin receptors recycle to cis and middle as well as trans Golgi cisternae in Ig-secreting  
myeloma cells.  
*J Cell Biol*, **103**, 277–86.
- Yamashiro, D.J., Tycko, B., Fluss, S.R. & Maxfield, F.R. (1984)  
Segregation of transferrin to a mildly acidic (pH 6.5) para-Golgi compartment in the recycling  
pathway.  
*Cell*, **37**, 789–800.
- Yasutake, A. & Powers, J.C. (1981)  
Reactivity of human leukocyte elastase and porcine pancreatic elastase toward peptide 4-  
nitroanilides containing model desmosine residues. Evidence that human leukocyte elastase is  
selective for cross-linked regions of elastin.  
*Biochemistry*, **20**, 3675–9.