

CURRICULUM VITAE LENA CLAESSION-WELSH Nov 2018

Present appointment: Professor of Medical Biochemistry
Uppsala University, Department of Immunology, Genetics and
Pathology, Rudbeck Laboratory, Dag Hammarskjöldsv. 20
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Date and place of birth: October 15th, 1956, Mörlunda, Sweden

Education:

1975-1979 Uppsala University medical school, semester 1 - 8
1979-1984 Graduate student, Department of Cell Research, Uppsala
University. Dissertation April 6, 1984, entitled: "Association of
class II histocompatibility antigens with an invariant molecule;
implications for intracellular transport".
Supervisor: Per A. Peterson

Academic positions:

1981-1984 Graduate student, Dept. of Cell Research, Uppsala Univ.
1984-1986 Research associate, Dept. of Virology, University of Chicago
1986-1992 Assistant member, Ludwig Institute for Cancer Research
1992-1996 Associate member, Ludwig Institute for Cancer Research
1997- Professor in Medical Biochemistry, Uppsala University

Medical qualifications:

1979 Physician at the Rehabilitation clinic, Uppsala Academic
Hospital July 23 - Oct. 1
1980 Physician at the Medical and Geriatric clinic, Ulleråker
Hospital, June 1 - July 16

Academic honors and awards:

1984 EMBO long term fellowship
1987 Docent in Medical and Physiological Chemistry, Uppsala
University
1995 The Svedberg award, by the Swedish society for biochemistry
and molecular biology
1996 Erik K. Fernström award
1996 Anders Jahre's award for younger scientists
Göran Gustafsson's award in Medicine
Jubileumspriset", award by the "Svenska Läkarsällskapet"
Elected member of American Society for Biochemistry and
Molecular Biology
Elected member of the Royal Swedish Science Society,
Kungliga Vetenskapsakademien (KVA), class of medicine
2009 Elected "Wallenberg Scholar" by the Knut and Alice
Wallenberg foundation. Renewal 2016.
2014 Rudbeck award from the Uppsala läkarsällskap and the
Uppsala University Medical Faculty.
2015 Elected member of the Finnish Science Academy (Societas
scientiarum Fennica), bioscience section.

- 2017 Elected the Swedish Cancer Researcher of the year (Årets cancerforskare) by the Swedish Cancer Foundation.
- 2017 Elected member of the European Molecular Biology Organization (EMBO)
- 2017 Elected member of Academia Europaea

Editorial Boards: Previous member of editorial boards of Int. J. Biochemistry & Cell Biol. , Angiogenesis, Exp. Cell Research, Arteriosclerosis, Thrombosis and vascular biology (ATVB), Blood, Int J Cancer Editor for a book in the Critical Reviews on Oncology/ Hematology series "Vascular growth factors and angiogenesis", and special editions on angiogenesis for the journal Int. J. Biochem. Cell Biol., and Exp. Cell Res.

Science Signaling, editorial board member, ongoing
 Cancer Research, editorial board member, ongoing
 Circ Res, editorial board member, ongoing

Referee: Ad hoc referee for a very wide range of journals in biochemistry, cell biology and medicine such as J. Biol. Chem., EMBO J. J. Cell Biol., Nature series journals, PNAS; Cell Press journals. Expert referee on numerous occasions for grants and positions.

Conferences speaker: Annually invited to about 5-10 international conferences/individual seminars.

Conference organizer:

- Co-organizer, Keystone conference on signal transduction, 1996.
- Elected organizer of the Kloster Seeon Vascular Biology meeting in München, Germany (vice chair 2008, main chair 2010)
- Elected organizer of the Gordon Angiogenesis conference (vice chair 2009 and chair 2011)
- Organizer of the Uppsala-Karolinska joint vascular biology symposium 2010
- Organizer of the joint Chiba University Medical School and Uppsala University Symposium 2012
- Co-organizer of the International Vascular Biology Meeting (IVBM) 2018

Leadership (selected):

- Prodean for research education, Medical and Pharmaceutical Faculties, Uppsala University 2002-2006
- Member of the Uppsala University Med/Pharmaceutical faculty committee 2002-2006
- Vice head of Department of Genetics and Pathology, Uppsala University, 2006-2008
- Head of Department of Immunology, Genetics and Pathology, Uppsala University, 2008-2014
- Elected member of the Swedish Science Council steering board ("styrelseledamot, vetenskapsrådet") 2007-2008
- Deputy head of the Royal Swedish Academy Medicine Class
- Member of the Royal Swedish Academy board 2009-2015

- Director for the BioVis imaging platform, SciLife Laboratory, Uppsala Univ. , Sweden 2010-2014
- Co-director for the Swedish Science for Life Laboratory 2015-2017
- Member of the board of the Max IV synchrotron plant 2017-2019

Funding: Swedish Cancer foundation
Swedish Research council
The Knut and Alice Wallenberg Foundation
The Leducq Foundation

Patents

1. Kanzaki, T., Olofsson, A., Morén, A., Wernstedt, C., Hellman, U., Miyazono, K., Claesson-Welsh, L., and Heldin, C.-H. (1993). Isolated nucleotide sequence expressing human transforming growth factor beta1-binding protein. US patent no 5,177,197 (filed Feb. 27, 1990), European patent EP 0 377 855 B1 (filed Dec. 15, 1989).
2. Góñez, J., Saras, J., Claesson-Welsh, L., and Heldin, C.-H. (1995). Nucleotide sequences for novel protein tyrosine phosphatases. Australian patent no 683299 (filed Sept. 1, 1993). US patent no 5,821,075 (filed Sept. 1, 1994).
3. Góñez, L.J., Saras, J., Claesson-Welsh, L., and Heldin, C.-H. (2000). Nucleic acids coding for GLM 2, a novel protein tyrosine phosphatase. US patent no 6,066,472 (filed June 19, 1998).
4. Anna-Karin Olsson, Helena Larsson, Lena Claesson-Welsh. (2002). Histidine-rich glycoprotein.
US patent WO 02 076486A2.
Swedish patent 0301988-2
US provisional nr 60/485185

Teaching

Main supervisor for 21 graduated PhD students:

1. Anders Eriksson. Platelet-derived growth factor α - and β -receptors: Structure and characterization of signal transduction. Jan. 1992.
2. Stefan Wennström. Phosphoinositide 3-kinase, a regulator of platelet-derived growth factor-induced cytoskeletal rearrangements. Nov. 1994.
3. Koutaro Yokote. Interactions between the platelet-derived growth factor receptors and their downstream signaling molecules. Feb. 1996.
4. Eva Landgren. Fibroblast growth factor and vascular endothelial growth factor-induced signal transduction in angiogenesis. May 1997.
5. Sigrídur Valgeirsdóttir. Platelet-derived growth factor-induced signal transduction. May 1998.
6. Roya Hooshmand-Rad. Signal transduction pathways involved in PDGF receptor-induced cellular responses. Jan 1999.
7. Peter Klint. Fibroblast growth factor-induced signal transduction. March 1999.
8. Kui Huang. Signal transduction by vascular endothelial growth factor receptors. Feb 2001.
9. Helena Larsson. Regulation of angiogenesis. March 2001. Opponent: Dr. Jack Arbiser, Emory University, Atlanta.
10. Johan Dixelius. Endothelial differentiation and angiogenesis regulation. Dec 2002. Opponent: Dr. Bjorn Olsen, Harvard Medical School.

11. Charlotte Rolny. Angiogenic growth factors; Mechanism of action and function in vascular development. March 2003. Opponent: Dr. Andrius Kazlauskas, Harvard Medical School.
12. Lars Lundin. Heparan sulfate regulation of fibroblast growth factor (FGF) receptor-1 signal transduction. Dec. 2003. Opponent: Dr. Marco Presta, Univ. of Breisca.
13. Peetra Magnusson. June 2005. Fibroblast growth factor receptor -1 function in vasculo- and angiogenesis. Oponent: Dr. Anne Eichmann, College de France.
14. Ingrid Nilsson. June 2006. Hypoxia, PDGF and VEGF in vascular development. Opponent: Dr. Randall Johnson, UCSD.
15. Chunsik Lee. Dec 2006. Molecular mechanisms of action of histidine-rich glycoprotein in angiogenesis inhibition. Opponent: Prof. Jan Palmblad, KI
16. Lars Jakobsson. March 2007. Opponent: Dr. Elisabetta Dejana, Milan.
17. Dan Edholm. April 2008. Opponent: Dr. Victoria Bautch, Chapel Hill, North Carolina, USA.
18. Sofie Mellberg. Dec 2008. Opponent: Dr. Frank Böhmer, University of Jena.
19. Chiara Testini. Sept 2016. Opponent: Dr. Mauro Giacca, University of Pisa.
20. Ross Smith Dec 2018. Opponent: Dr. Mike Sapielha, University of Montreal.
21. Eric Morin. Dec 2018. Opponent: Dr. Hellmut Augustin, Cancer Center Heidelberg
22. Tor Persson Skare, half-time exam Feb 2019.

Thesis opponent

Served as a thesis opponent at numerous occasions in Sweden and Scandinavia. In 2007, for Ulrika Nilsson, Linköping Hälsouniversitet and for Maria Wirzenius, Helsinki University. During 2008, external examiner for Andrea Caprini, IFOM, Milan, Italy and in 2009 external examiner for Lucia Pattarini, Scuola Normale, Pisa, Italy. Jan 10 2011, Fredrik Wolfhagen-Sand.

Undergraduate teaching

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| 1979 | Teacher's assistant (Extra amanuens) at Dept. of Anatomy, 50 h |
| 1984 | Lecturer at The University of Chicago for undergraduates in a course entitled "Classical and Molecular Genetics", 30 h. |
| 1986-1988 | Lecturer in a 5 p evening course in Cell Biology, at The University of Uppsala, 2 x 45 min lecture entitled "Growth Factors", twice a year. |
| 1987- | Lecturer at different courses for undergraduates at Uppsala University twice a year, 3 x 45 min on " Signal transduction" in a Cell Biology course for pharmacology students. Twice a year, 6 x 45 min, in the medical students Cell Biology course on "Receptors and signal transduction". Once a year 3 x 45 min for Biomedical students. Lecturer on subjects related to "Angiogenesis" in various courses for graduate students at the different universities in Sweden. Organizer and lecturer of a 5p course in "Endothelial cell biology" at the Uppsala University. |

H-index and citations

Web of Science: h-index 84, citations total 26,648, without self-citations 25,690
 Google Scholar: h-index 97, citations 36,979

I. RESEARCH ARTICLES

1. Trägårdh L, Kämpe O, Hammerling U, Böhme J, Claesson L, and Peterson PA (1980) β 2-microglobulin and transplantation antigens. *Scand. J. Clin. Lab. Invest.* 40, Suppl. 154
2. Tötterman T, Nilsson K, Claesson L, Simonsson B, and Åman P (1981) Differentiation of chronic lymphocytic leukemia cells in vitro. I. Phorbol ester induced changes in the synthesis of immunoglobulin and HLA-DR. *Human Lymphocyte Differentiation* 1, 13-26
3. Palacios R, Möller G, Claesson L and Peterson PA (1981) HLA-DR antigens induce proliferation and cytotoxicity of T cells against haptenated (TNP and FITC) self structures. *Immunogenetics* 14, 357-382
4. Palacios R, Claesson L, Möller G, Peterson PA and Möller E (1982) The alpha chain but not the beta chain of HLA-DR antigens participates in activation of T cells in autologous mixed lymphocyte reaction. *Immunogenetics* 15, 341-356
5. Wiman K, Claesson L, Rask L, Trägårdh L, and Peterson PA (1982) Purification and partial amino acid sequence of papain-solubilized HLA-DR transplantation antigens. *Biochemistry* 21, 5351-5358
6. Kvist S, Wiman K, Claesson L, Peterson PA and Dobberstein B (1982) Membrane insertion and oligomeric assembly of HLA-DR histocompatibility antigens. *Cell* 29, 61-69
7. Wiman K, Larhammar D, Claesson L, Gustafsson K, Schenning L, Bill P, Böhme J, Denaro M, Dobberstein B, Hammerling U, Kvist S, Servenius B, Sundelin J, Peterson PA and Rask L (1982) Isolation and identification of a cDNA clone corresponding to an HLA-DR antigen β chain. *Proc. Natl. Acad. Sci. USA* 79, 1703-1707
8. Larhammar D, Schenning L, Gustafsson K, Wiman K, Claesson L, Rask L, and Peterson PA (1982) Complete amino acid sequence of an HLA-DR antigen β chain as predicted from the nucleotide sequence, similarities with immunoglobulins and HLA-A, B, C antigens. *Proc. Natl. Acad. Sci. USA* 79, 3687-3691
9. Larhammar D, Wiman K, Schenning L, Claesson L, Gustafsson K, Peterson PA and Rask L (1981) Evolutionary relationship between HLA-R antigen β chains, HLA-A, B, C antigen subunits and immunoglobulin chains. *Scand. J. Immunol.* 14, 617-622
10. Gustafsson K, Bill P, Larhammar, D Wiman K, Claesson L, Schenning L, Servenius B, Sundelin J, Rask L and Peterson PA (1982) Isolation and identification of a cDNA clone coding for an HLA-DR transplantation antigen α chain. *Scand. J. Immunol.* 16, 303-308
11. Larhammar D, Gustafsson K, Claesson L, Bill B, Wiman K, Schenning L, Sundelin J, Widmark E, Peterson PA and Rask L (1982) Alpha chain of HLA DR transplantation antigen is a member of the same protein superfamily as the immunoglobulins. *Cell* 30, 153-161
12. Claesson L and Peterson PA (1983) Association of the human gamma chain with class II transplantation antigens during intracellular transport. *Biochemistry* 22, 3206-3213
13. Peyrieras N, Bause E, Legler G, Vasilov R, Claesson L, Peterson PA and Ploegh H (1983) Effects of the glucosidase inhibitors nojirimycin and deoxynojirimycin on the biosynthesis of membrane and secreted glycoproteins. *EMBO J.* 2, 823-832
14. Claesson L, Larhammar D, Rask L and Peterson PA (1983) cDNA clone for the human invariant gamma chain of class II histocompatibility antigens and its implications for the protein structure. *Proc. Natl. Acad. Sci. U.S.A.* 80, 7395-7399
15. Claesson-Welsh L, Barker PE, Larhammar D, Rask L, Ruddle FH and Peterson PA (1984) The gene encoding the human class II antigen-associated gamma chain is located on chromosome 5. *Immunogenetics* 20, 89-90
16. Claesson-Welsh L, Ploegh H and Peterson PA (1986) Determination of attachment sites for N-linked carbohydrate groups of class II histocompatibility α chain and analysis of possible O-linked glycosylation of α and gamma chains. *Mol. Immunol.* 23, 15-25
17. Claesson-Welsh L, Scheynius A, Tjernlund U and Peterson PA (1986) Cell surface expression of the invariant gamma chain of class II histocompatibility antigens in human skin. *J. Immunol.* 136, 484-489
18. Claesson-Welsh L and Peterson PA (1986) Implication of the invariant gamma chain on the intracellular transport of class II histocompatibility antigens. *J. Immunol.* 135, 3551-3557

19. Hansson, GK, Johansson L, Holm J and Claesson-Welsh L (1986) Differential expression of class II MHC antigens in atherosclerosis. *Clinical Exp. Immunol.* 64, 261-268
20. Claesson-Welsh L and Spear PG (1986) Oligomerization of Herpes simplex virus glycoprotein B. *J. Virol.* 60, 803-806
21. Claesson-Welsh L and Spear PG (1987) Amino-terminal sequence, synthesis and membrane insertion of glycoprotein B of Herpes simplex virus type 1. *J. Virol.* 61, 1-7
22. Claesson-Welsh L, Rönstrand L and Heldin CH (1987) Biosynthesis and intracellular transport of the receptor for platelet-derived growth factor. *Proc. Natl. Acad. Sci. U.S.A.* 84, 8796-8800
23. Claesson-Welsh L, Eriksson A, Morén A, Severinsson L, Ek B, Östman A, Betsholtz C, and Heldin CH (1988) cDNA cloning and expression of a human PDGF receptor specific for B-chain-containing PDGF molecules. *Mol. Cell. Biol.* 8, 3476-3486
24. Nistér M, Libermann TA, Betsholtz C, Pettersson M, Claesson-Welsh L, Heldin CH, Schlessinger J and Westermark B (1988) Expression of messenger RNAs for platelet-derived growth factor and transforming growth factor- α and their receptors in human malignant glioma cell lines. *Cancer Res.* 48, 3910-3918
25. Rönstrand L, Terracio L, Claesson-Welsh L, Heldin CH, Rubin K (1988) Characterization of two monoclonal antibodies reactive with the external domain of the platelet-derived growth factor receptor. *J. Biol. Chem.* 263, 10429-10435
26. Terracio L, Rönstrand L, Tingström A, Rubin K, Claesson-Welsh L, Funa K and Heldin CH (1988) Induction of PDGF receptor expression in smooth muscle cells and fibroblasts upon tissue culturing. *J. Cell. Biol.* 107, 1947-1957
27. Rubin K, Tingström A, Hansson GK, Larsson E, Rönstrand L, Klareskog L, Claesson-Welsh L, Heldin CH, Fellström B, Terracio L (1988) Induction of PDGF B-type receptors for PDGF in vascular inflammation: Possible implications for the development of vascular proliferative lesions. *Lancet* June, 1353-1356
28. Heldin NE, Gustavsson B, Claesson-Welsh L, Hammacher A, Mark J, Heldin CH, Westermark B (1988) Aberrant expression of receptors for platelet-derived growth factor in an anaplastic thyroid carcinoma cell line. *Proc. Natl. Acad. Sci.* 85, 9302-9306
29. Severinsson L, Claesson-Welsh L, Heldin CH (1989) A B-type PDGF receptor lacking most of the intracellular domain escapes degradation after ligand binding. *Eur. J. Biochem.* 182, 679-686
30. Claesson-Welsh L, Hammacher A, Westermark B, Heldin CH, and Nistér M (1989) Identification and structural analysis of the A-type receptor for PDGF; similarities with the B-type receptor. *J. Biol. Chem.* 264, 1742-1747
31. Claesson-Welsh L, Eriksson A, Westermark B, Heldin CH (1989) cDNA cloning and expression of the human A type PDGF receptor establishes structural similarity to the B type PDGF receptor. *Proc. Natl. Acad. Sci.* 86, 4917-4921
32. Stenman G, Eriksson A, Claesson-Welsh L (1989) Human PDGFA receptor gene maps to the same region on chromosome 4 as the KIT oncogene. *Genes, Chromosomes & Cancer* 1, 155-158
33. Welsh M, Claesson-Welsh L, Hallberg A, Welsh N, Betsholtz C, Arkhammar P, Nilsson T, Heldin CH, Berggren PO (1990) Co-expression of platelet-derived growth factor (PDGF) B chain and the PDGF β -receptor in isolated pancreatic islet cells stimulates DNA synthesis. *Proc. Natl. Acad. Sci.* 87, 5807-5811
34. Westermark B, Siegbahn A, Heldin CH, Claesson-Welsh L (1990) The B type receptor for platelet-derived growth factor mediates a chemotactic response via ligand-induced activation of the receptor protein tyrosine kinase. *Proc. Natl. Acad. Sci.* 87, 128-132
35. Jin P, Rahm M, Claesson-Welsh L, Heldin CH, Sejersen T (1990) Expression of PDGF A-chain gene and β -receptor genes during rat myoblast differentiation. *J. Cell Biol.* 110, 1665-1672
36. Severinsson L, Ek B, Mellström K, Claesson-Welsh L, Heldin CH (1990) Deletion of the kinase insert of the B-type PDGF receptor affects receptor kinase activity and signal transduction. *Mol. Cell. Biol.* 10, 801-809

37. Leveen P, Claesson-Welsh L, Heldin CH, Westermark B, Betsholtz C (1990) Expression of messenger RNAs for platelet-derived growth factor and its receptors in human sarcoma cell lines. *Int. J. Cancer* 46, 1066-1070
38. Sjölund M, Rahm M, Claesson-Welsh L, Sejersen T, Heldin CH, Thyberg J (1990) Expression of PDGF α - and β -receptors in rat arterial smooth muscle cells is phenotype and growth state dependent. *Growth Factors* 3, 191-203
39. Kanzaki T, Olofsson A, Morén A, Wernstedt C, Hellman U, Miyazono K, Claesson-Welsh L, Heldin CH (1990) TGF- β 1 binding protein: A component of the large latent complex of TGF- β 1 with multiple repeat sequences. *Cell* 61, 1051-1061
40. Wennström S, Sandström C, Claesson-Welsh L (1991) cDNA cloning and expression of a human FGF receptor which binds acidic and basic FGF. *Growth Factors* 4, 197-208
41. Sorkin A, Westermark B, Heldin CH, Claesson-Welsh L (1991) Effect of receptor kinase inactivation on the rate of internalization and degradation of PDGF and the PDGF β -receptor. *J. Cell Biol.*, 112, 469-478
42. Nistér M, Claesson-Welsh L, Heldin CH, Westermark B (1991) Differential expression of PDGF receptors in human malignant glioma cell lines. *J. of Biol. Chem.* 266, 16755-16763
43. Versnel MA, Claesson-Welsh L, Hammacher A, Bouts MJ, van der Kwast TH, Eriksson A, Willemsen R, Weima SM, Hoogsteden HC, Hagemeyer A and Heldin CH (1991) Human malignant mesothelioma cell lines express PDGF β -receptors whereas cultured normal mesothelial cells express predominantly PDGF α -receptors. *Oncogene* 6, 2005-2011
44. Partanen J, Mäkelä TP, Eerola E, Korhonen J, Hirvonen H, Claesson-Welsh L, Alitalo K (1991) FGFR-4, a novel acidic fibroblast growth factor receptor with a distinct expression pattern. *EMBO J.* 10, 1347-1354
45. Mori S, Claesson-Welsh L, Heldin CH (1991) Identification of a hydrophobic region in the carboxyl-terminus of the platelet-derived growth factor β -receptor which is important for ligand-mediated endocytosis. *J. Biol. Chem.* 266, 21158-21164
46. Eriksson A, Nistér M, Leveen P, Westermark B, Heldin CH, Claesson-Welsh L (1991) Induction of platelet-derived growth factor α - and β receptor mRNA and protein by platelet-derived growth factor-BB. *J. Biol. Chem.* 266, 21138-21144
47. Blume-Jensen P, Claesson-Welsh L, Siegbahn A, Zsebo KM, Westermark B, Heldin CH (1991) Activation of the human c-kit product by ligand-induced dimerization mediates circular actin reorganization and chemotaxis. *EMBO J.* 10, 4121-4128
48. Holmgren L, Claesson-Welsh L, Heldin CH, Ohlsson R (1992) The expression of PDGF α - and β -receptors in subpopulations of PDGF-producing cells implicates autocrine stimulatory loops in the control of proliferation of invasive cytotrophoblasts. *Growth Factors* 6, 219-242
49. Eriksson A, Rorsman C, Ernlund A, Claesson-Welsh L, Heldin CH (1992) Ligand-induced homo- and hetero-dimerization of platelet-derived growth factor α - and β receptors in intact cells. *Growth Factors* 6, 1-14
50. Mares J, Claesson-Welsh L, Welsh M (1992) A chimera between platelet-derived growth factor β -receptor and fibroblast growth factor receptor-1 stimulates pancreatic β -cell DNA synthesis in the presence of PDGF-BB. *Growth Factors* 6, 93-101
51. Eriksson A, Siegbahn A, Westermark B, Heldin CH, Claesson-Welsh L (1992) PDGF α - and β -receptors activate unique and common signal transduction pathways. *EMBO J.* 11, 543-550
52. Mori S, Heldin CH, Claesson-Welsh L (1992) Ligand-induced poly-ubiquitination of the platelet-derived growth factor β -receptor. *J. Biol. Chem.*, 267, 6429-6434
53. Wennström S, Landgren E, Blume-Jensen P, Claesson-Welsh L (1992) The platelet-derived growth factor β -receptor kinase insert confers specific signalling properties to a chimeric fibroblast growth factor receptor. *J. Biol. Chem.*, 267, 13749-13756
54. Hermanson M, Funa K, Hartman M, Claesson-Welsh L, Heldin CH, Westermark B, Nistér M (1992) Platelet-derived growth factor (PDGF) and its receptors in human glioma tissue; expression of mRNA and protein suggests the presence of two autocrine loops. *Cancer Res.* 52, 3213-3219

55. Sorkin A, Eriksson A, Heldin CH, Westermark B, Claesson-Welsh L (1993) Pool of ligand-bound platelet-derived growth factor β -receptors remain activated and tyrosine-phosphorylated after internalization. *J. Cell Physiol.* 156, 373-382
56. Rönstrand L, Mori S, Arvidsson AK, Eriksson A, Wernstedt C, Hellman U, Claesson-Welsh L, Heldin CH (1992) Identification of two carboxyterminal autophosphorylation sites in the PDGF β -receptor. Involvement in the interaction with phospholipase C- γ . *EMBO J.*, 11, 3911-3919
57. Arvidsson AK, Heldin CH, Claesson-Welsh L (1992) Transduction of circular membrane ruffling by the PDGF β -receptor is dependent on its kinase insert. *Cell growth and differentiation*, 3, 881-887
58. Mori S, Heldin CH, Claesson-Welsh L (1993) Ligand-induced ubiquitination of the platelet-derived growth factor β -receptor plays a negative regulatory role in its mitogenic signaling. *J. Biol. Chem.*, 268, 577-583
59. Ichijo H, Hellman U, Wernstedt C, Góñez LJ, Claesson-Welsh L, Heldin CH, Miyazono K (1993). Molecular cloning and characterization of ficolin, a multimeric protein with fibrinogen- and collagen-like domains. *J. Biol. Chem.*, 268, 14505-14513
60. Wennström S, Siegbahn A, Yokote K, Arvidsson AK, Heldin CH, Mori S, Claesson-Welsh L (1994) Membrane ruffling and chemotaxis transduced by the PDGF β -receptor require the binding site for phosphatidylinositol 3' kinase. *Oncogene*, 9, 651-660
61. Mosselman S, Claesson-Welsh L, Kamphui JS, van Zoelen EJJ (1993) Developmentally regulated expression of two novel platelet-derived growth factor α -receptor transcripts in human teratocarcinoma cells. *Cancer Res.*, 54, 220-225
62. Mori S, Rönstrand L, Yokote K, Engström Å, Courtneidge SA, Claesson-Welsh L, Heldin CH (1993) Identification of two juxtamembrane autophosphorylation sites in the PDGF β -receptor; involvement in the interaction with Src family tyrosine kinases. *EMBO J.*, 12, 2257-2264
63. Mori S, Rönstrand L, Claesson-Welsh L, Heldin CH (1994) A tyrosine residue in the juxtamembrane segment of the platelet-derived growth factor β receptor is critical for ligand-mediated endocytosis. *J. Biol. Chem.*, 7, 4917-4921
64. Welsh M, Mares J, Karlsson T, Lavergne C, Bréant B, Claesson-Welsh L (1994) Shb is a ubiquitously expressed Src homology 2 protein. *Oncogene*, 9, 19-27
65. Öberg C, Waltenberger J, Claesson-Welsh L, Welsh M (1994) Expression of protein tyrosine kinases in islet cells: Possible role of the Flk-1 receptor for β cell maturation from duct cells. *Growth Factors*, 10, 115-12
66. Yokote K, Mori S, Hansen K, McGlade J, Pawson T, Heldin CH, Claesson-Welsh L (1994) Direct interaction between Shc and the PDGF β -receptor. *J. Biol. Chem.*, 269, 15337-15343
67. Wennström S, Hawkins PT, Cooke F, Jackson T, Hara K, Yonezawa K, Kasuga M, Claesson-Welsh L, Stephens L (1994) Activation of phosphoinositide 3-kinase is required for PDGF-stimulated membrane ruffling. *Current Biology*, 4, 385-393
68. Rupp E, Siegbahn A, Rönstrand L, Wernstedt C, Claesson-Welsh L, Heldin CH (1994) A unique autophosphorylation site in the PDGF α -receptor from a heterodimeric receptor complex. *Eur. J. Biochem.*, 225, 29-41
69. Waltenberger J, Claesson-Welsh L, Siegbahn A, Shibuya M, Heldin CH (1994) Different signal transduction properties of KDR and Flt 1, two receptors for vascular endothelial growth factor. *J. Biol. Chem.*, 269, 26988-26995
70. Saras J, Claesson-Welsh L, Heldin CH, Góñez J (1994) Cloning and characterization of PTPL1, a protein tyrosine phosphatase with similarities to cytoskeletal associated proteins. *J. Biol. Chem.*, 269, 24082-24089
71. Arvidsson AK, Rupp E, Nånberg E, Downward J, Rönstrand L, Wennström S, Heldin CH, Claesson-Welsh L (1994) Tyr716 in the PDGF β receptor kinase insert is required for Grb2-binding and Ras function. *Mol. Cell. Biol.*, 14, 6715-6726
72. Usuki K, Góñez LJ, Wernstedt C, Morén A, Miyazono K, Claesson-Welsh L, Heldin CH (1994) Structural properties of 3.0- and 3.2-kb transcripts encoding platelet-derived endothelial cell growth factor/thymidine phosphorylase in A431 cell. *Biochim. Biophys. Acta*, 1222, 411-414

73. Pajusola K, Aprelikova O, Pelicci G, Weich H, Claesson-Welsh L, Alitalo K (1994) Signalling properties of FLT4, a proteolytically processed receptor tyrosine kinase, which is related to two VEGF receptors. *Oncogene*, 9, 3545-3555
74. Morén A, Stenman G, Olofsson A, ten Dijke P, Kanzaki T, Claesson-Welsh L, Miyazono K, Heldin CH (1994) Identification and characterization of LTBP-2, a novel latent transforming growth factor- β binding protein. *J. Biol. Chem.*, 269, 32469-32478
75. Xiu-Fen Ming, B.Th. Burgering, S. Wennström, L. Claesson-Welsh, C.-H. Heldin, J.L. Bos, S.C. Kozma, and G. Thomas (1994) Activation of p70/p85S6 kinase by a pathway independent of p21ras. *Nature*, 371, 426-429
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