

## PUBLIKATIONEN: Prof. Dr. Fred Schaper

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### Nr. Originalarbeiten

- [1] Kirchhoff S., Schaper F. and Hauser H. *Interferon regulatory factor 1 (IRF-1) mediates cell growth inhibition by transactivation of downstream target genes.* **Nucleic Acids Res.** 21, 2881-2889 (1993).
- [2] Dirks W., Schaper F. and Hauser H. *A new hybrid promoter directs transcription at identical start points in mammalian cells and in vitro.* **Gene** 149, 389-390 (1994).
- [3] Dirks W., Schaper F., Kirchhoff S., Morelle C. and Hauser H. *A multifunctional vector family for gene expression in mammalian cells.* **Gene** 149, 387-388 (1994).
- [4] Köster, M., Kirchhoff, S., Schaper, F., and Hauser, H. *Proliferation control of mammalian cells by the tumor suppressor IRF-1.* **Cytotechnology**, 18, 67-75 (1995).
- [5] Kirchhoff, S., Koromilas, A., Schaper, F., Grashoff, M., Sonenberg, N., and Hauser, H. *IRF-1 induced cell growth inhibition and interferon induction requires the activity of the protein kinase PKR.* **Oncogene**, 11, 439-445 (1995).
- [6] Kirchhoff, S., Köster, M., Wirth, M., Schaper, F., Gossen M., Bujard, H., and Hauser, H. *Identification of mammalian cell clones exhibiting highly regulated expression from inducible promoters.* **Trends Genet.**, 11, 219-220 (1995).
- [7] Kirchhoff, S., Kröger, A., Cruz, H., Tümmler, M., Schaper, F., Köster, M., and Hauser, H. *Regulation of cell growth by IRF-1 in BHK-21 cells.* **Cytotechnology**, 22, 147-156 (1996).
- [8] Schaper, F., Siewert, E., Gómez-Lechón, M.J., Gatsios, P., Sachs, M., Birchmeier, W., Heinrich, P.C., and Castell, J. *Hepatocyte growth factor scatter factor (HGF/SF) signals via the STAT3/APRF transcription factor in human hepatoma cells and hepatocytes.* **FEBS Lett.**, 405, 99-103 (1997).
- [9] Sharf, R., Meraro, D., Azriel, A., Thornton, A.M., Ozato, K., Petricoin, E.F., Lerner, A.C., Schaper, F., Hauser, H., and Levi, B.-Z. *Phosphorylation events modulate the ability of interferon consensus sequence binding protein to interact with interferon regulatory factors and to bind DNA.* **J. Biol. Chem.**, 272, 9785-9792 (1997).
- [10] Kirchhoff, S., Schaper, F., Oumard, A. and Hauser, H. *In vivo formation of IRF-1 homodimers.* **Biochimie**, 80, 659-664 (1998).
- [11] Schaper, F., Kirchhoff, S., Posern, G., Köster, M., Oumard, A., Sharf, R., Levi, B.-Z., and Hauser, H. *Functional domains of Interferon Regulatory Factor 1 (IRF-1).* **Biochem. J.**, 335, 147-157(1998).
- [12] Schaper, F., Gendo, C., Eck, M., Schmitz, J., Grimm, C., Anhuf, D., Kerr, I.M., and Heinrich, P.C. *Activation of SHP2 via the IL-6 signal transducing receptor protein gp130 requires JAK1 and limits acute-phase protein expression.* **Biochem. J.**, 335, 557-565 (1998).
- [13] Thiel, S., Dahmen, H., Martens, A., Müller-Newen, G., Schaper, F., Heinrich P.C., and Graeve, L. *Constitutive internalization and association with adaptor protein-2 of the interleukin-6 signal transducer gp130.* **FEBS Lett.**, 441, 231-234 (1998).
- [14] Haan, S., Hemmann, U., Haßiepen, U., Schaper, F., Schneider-Mergener, J., Wollmer, A., Heinrich, P.C., and Grötzinger, J. *Characterization and binding specificity of the monomeric STAT3-SH2 domain.* **J. Biol. Chem.**, 274, 1342-1348 (1999).

- [15] Thiel, S., Behrmann, I., Timmermann, A., Dahmen, H., Müller-Newen, G., Schaper, F., Tavernier, J., Pitard, V., Heinrich, P.C., and Graeve, L. *Identification of a Leu-Ile internalization motif within the cytoplasmic domain of the leukaemia inhibitory factor receptor.* **Biochem. J.**, 339, 15-19 (1999).
- [16] Siewert, E., Müller-Esterl, W., Starr, R., Heinrich, P.C., and Schaper, F. *Different protein turnover of interleukin-6-type cytokine signalling components.* **Eur. J. Biochem.**, 265, 251-257 (1999).
- [17] Bode, J.G., Nimmegern, A., Schmitz, J., Schaper, F., Schmitt, M., Frisch, W., Häussinger, D., Heinrich, P.C., and Graeve, L. *LPS and TNF induce SOCS3 mRNA and inhibit IL-6-induced activation of STAT3 in macrophages.* **FEBS Lett.**, 463, 365-370 (1999).
- [18] Schmitz, J., Dahmen, H., Grimm, C., Gendo, C., Müller-Newen, G., Heinrich, P.C., and Schaper, F. *The cytoplasmic tyrosine motifs in full length gp130 have different roles in IL-6 signal transduction.* **J. Immunol.**, 164, 848-854 (2000).
- [19] Haan, S., Kortylewski, M., Behrmann, I., Müller-Esterl, W., Heinrich, P.C., and Schaper, F. *Cytoplasmic STAT proteins associate prior to activation.* **Biochem. J.**, 345, 417-421 (2000).
- [20] Müller-Newen, G., Küster, A., Wijdenes, J., Schaper, F., and Heinrich, P.C. *Studies on the interleukin-6-type cytokine signal transducer gp130 reveal a novel mechanism of receptor activation by monoclonal antibodies* **J. Biol. Chem.**, 275, 4579-4586 (2000).
- [21] Schmitz, J., Weissenbach, M., Haan, S., Heinrich, P.C., and Schaper, F. *SOCS3 exerts its inhibitory function on interleukin-6 signal transduction through the SHP2 recruitment site of gp130.* **J. Biol. Chem.**, 275, 12848-12856 (2000).
- [22] Böldicke, T., Struck, F., Schaper, F., Tegge, W., Sobek, H., Villbrandt, B., Lankenau, P., and Böcher M. *A new peptide-affinity tag for the detection and affinity purification of recombinant proteins with a monoclonal antibody.* **J. Immunol. Meth.**, 240, 165-183 (2000).
- [23] Terstegen, L., Gatsios, P., Bode, J.G., Schaper, F., Heinrich, P.C., and Graeve, L. *The inhibition of interleukin-6-dependent STAT activation by mitogen-activated protein kinase depends on tyrosine-759 in the cytoplasmic tail of gp130.* **J. Biol. Chem.**, 275, 18810-18817 (2000).
- [24] Terstegen, L., Maassen, B.G., Radtke, S., Behrmann, I., Schaper, F., Heinrich, P.C., Graeve, L., and Gatsios, P. *Differential inhibition of IL-6-type cytokine-induced STAT activation by PMA.* **FEBS Lett.**, 478, 100-104 (2000).
- [25] Anhuf, D., Weissenbach, M., Schmitz, J., Sobota, R., Hermanns, H.M., Radtke, S., Linnemann, S., Behrmann, I., Heinrich, P.C., and Schaper, F. *Signal transduction of IL-6, LIF and OSM: Structural receptor requirements for signal attenuation.* **J. Immunol.**, 165, 2535-2543 (2000).
- [26] Rödel, B., Tavassoli, K., Karsunky, H., Schmidt, T., Schaper, F., Heinrich, P.C., Shuai, K., Elsässer, H.P., and Möröy, T. *The zinc finger protein Gfi-1 can enhance STAT3 signaling by interacting with the STAT3-inhibitor PIAS3.* **EMBO J.**, 19, 5845-5855 (2000).
- [27] Hermanns, H.M., Radtke, S., Schaper, F., Heinrich, P.C., and Behrmann, I. *Non-redundant signal transduction of interleukin-6-type cytokines. The adaptor protein shc is specifically recruited to the oncostatin M receptor.* **J. Biol. Chem.**, 275, 40742-40748 (2000).
- [28] Campbell, J.S., Prichard, L., Schaper, F., Schmitz, J., Stephenson-Famy, A., Rosenfeld, M.E., Argast, G. M., Heinrich, P.C., and Fausto, N. *Expression of suppressors of cytokine signaling during liver regeneration.* **J. Clin. Invest.**, 107, 1285-1292 (2001).
- [29] Bode, J.G., Fischer, R., Häussinger, D., Graeve, L., Heinrich, P.C., and Schaper, F. *The inhibitory effect of IL-1 $\beta$  on IL-6 induced  $\alpha_2$ -macroglobulin expression is due to activation on NF- $\kappa$ B.* **J. Immunol.**, 167, 1469-1481 (2001).

- [30] Strobl, B., Arulampalam, V., Is'harc, H., Newman, S.J., Schlaak, J.F., Watling, D., Costa-Pereira, A.P., Schaper, F., Behrmann, I., Sheehan, K.C.F., Schreiber, R.D., Horn, F., Heinrich P.C. and Kerr I.M. *A completely foreign receptor can mediate an interferon-gamma-like response.* **EMBO J.**, 20, 5431-5442 (2001).
- [31] Bode, J. G., Ludwig, S., Correia Freitas, C.A., Schaper, F., Ruhl, M., Melmed, S., Heinrich, P.C., and Häussinger, D. *The MKK6/p38 mitogen-activated protein kinase pathway is capable of inducing SOCS3 gene expression and inhibits IL-6-induced transcription.* **Biol. Chem.**, 382, 1447-1453 (2001).
- [32] Friederichs, K., Schmitz, J., Weissenbach, M., Heinrich, P.C., Schaper, F. *Interleukin-6-induced proliferation of pre-B-cells mediated by receptor complexes lacking the SHP2/SOCS3 recruitment sites revisited.* **Eur. J. Biochem.**, 268, 6401-6407 (2001).
- [33] Lehmann, U.; Schmitz, J.; Weissenbach, M.; Sobota, R. M.; Hörtner, M.; Friederichs, K.; Behrmann, I.; Tsiaris, W.; Sasaki, A.; Schneider-Mergener, J.; Yoshimura, A.; Neel, B. G.; Heinrich, P. C.; Schaper, F. *SHP2 and SOCS3 contribute to Y759-dependent attenuation of IL-6-signaling through gp130.* **J. Biol. Chem.**, 278, 661-671 (2003).
- [34] Bode, J. G.; Ludwig, S.; Ehrhardt, C.; Ehrhardt, A.; Albrecht, U.; Schaper, F.; Heinrich, P. C.; Häussinger, D. *IFN- $\alpha$  antagonistic activity of HCV core protein involves induction of suppressor of cytokine signaling-3.* **FASEB J.**, 17, 488-490. full text: 10.1096/fj.02-0664fje (2003).
- [35] Niemand, C.; Nimmegern, A.; Haan, S.; Fischer, P.; Schaper, F.; Rossaint, R.; Heinrich, P. C.; Müller-Newen, G. *Activation of STAT3 by IL-6 and IL-10 in primary human macrophages is differentially modulated by SOCS3.* **J. Immunol.**, 170, 3263-3272 (2003)
- [36] Bode, J. G.; Schweigart, J.; Kehrmann, J.; Ehltling, C.; Schaper, F.; Heinrich P. C.; Häussinger, D. *TNF- $\alpha$  induces tyrosine-phosphorylation and recruitment of SHP2 to the gp130 signal-transducing subunit of the IL-6 receptor complex.* **J. Immunol.**, 170, 257-266 (2003).
- [37] Fischer, P.; Lehmann, U.; Sobota, R. M.; Schmitz, J.; Niemand, C.; Linnemann, S.; Haan, S.; Yoshimura, A.; Johnston, J. A.; Behrmann, I.; Müller-Newen, G.; Heinrich, P. C.; Schaper, F. *The role of the inhibitors of interleukin-6 signal transduction SHP2 and SOCS3 for desensitisation of interleukin-6 signalling.* **Biochem. J.**, 378, 449-460 (2004).
- [38] Weissenbach, M.; Clahsen, T.; Weber, C.; Spitzer, D.; Wirth D.; Vestweber, D.; Heinrich, P.C.; Schaper F. *Interleukin-6 is a direct mediator of T cell migration.* **Eur. J. Immunol.**, 34, 2895-2906 (2004).
- [39] Zhao, L.; Hart, S.; Chen J.; Melenhorst, J. J.; Bierie, B; Ernst, M.; Stewart, C.; Schaper, F.; Heinrich, P. C.; Ullrich, A.; Robinson, G. W.; Hennighausen, L. *Mammary gland remodeling depends on gp130 signaling through Stat3 and MAPK.* **J. Biol. Chem.** 279, 44093-44100 (2004).
- [40] Yang, X.-P.; Albrecht, U.; Zakowski, V.; Sobota, R.M.; Häussinger, D.; Heinrich, P.C.; Ludwig, S.; Bode, J.; Schaper F. *Dual function of IL-1 $\beta$  for the regulation of interleukin-6-induced suppressor of cytokine signalling expression.* **J. Biol. Chem.** 279, 45279-45289 (2004).
- [41] Clahsen, T.; Lehmann, U.; Stross, C.; Hermanns, H. M.; Volkmer-Engert, R.; Schneider-Mergener, J.; Heinrich, P. C.; Schaper, F. *The tyrosine 974 within the LIF-R-chain of the gp130/LIF-R heteromeric receptor mediates negative regulation of LIF signalling.* **Cell. Signal.** 17, 559-569 (2005).
- [42] Sommer, U.; Schmid, C.; Sobota, R.M.; Lehmann, U.; Johnston, J.A.; Schaper, F.; Heinrich, P.C.; Haan, S. *Mechanisms of SOCS3 phosphorylation upon interleukin-6 stimulation. Contributions of Src- and receptor-tyrosine kinases.* **J. Biol. Chem.** 280, 31478-31488 (2005).
- [43] Yang, X.-P.; Schaper, F.; Teubner, A.; Lammert, F.; Heinrich, P.C.; Matern, S.; Siewert, E. *Interleukin-6 plays a crucial role in the hepatic expression of SOCS3 during acute inflammatory processes in vivo.* **J. Hepatol.** 43, 704-710 (2005).

- [44] Lehmann, U.; Sommer, U.; Smyczek, T.; Hörtner, M.; Frisch, W.; Volkmer-Engert, R.; Heinrich, P.C.; Schaper, F.; Haan, S. *Determinants governing the potency of STAT3 activation via the individual STAT3-recruiting motifs of gp130*. **Cell. Signal.** 18, 40-49 (2006).
- [45] Stross, C.; Radtke, S.; Clahsen, T.; Gerlach, C.; Volkmer-Engert, R.; Schaper, F.; Heinrich, P.C.; Hermanns, H.M. *Oncostatin M signalling is negatively regulated by a direct interaction of suppressor of cytokine signalling (SOCS3) and Janus kinase*. **J. Biol.Chem.** 281, 8458-8468 (2006).
- [46] Tron, K.; Samoylenko, A.; Musikowski, G.; Kobe, F.; Immenschuh, S.; Schaper, F.; Ramadori, G.; Kietzmann, T. *Regulation of rat heme oxygenase-1 expression by interleukin-6 via the JAK/STAT pathway in hepatocytes*. **J. Hepatol.** 45, 72-80 (2006).
- [47] Ehltling, C.; Lai, W.S.; Schaper, F.; Brenndörfer, E.D.; Matthes, R.-J.; Heinrich, P.C.; Ludwig, S.; Blackshear, P. J.; Gaestel, M.; Häussinger, D.; Bode, J.G. *Regulation of suppressor of cytokine signaling 3 mRNA stability by TNF $\alpha$  involves activation of the MKK6/p38<sup>MAPK</sup> cascade*. **J. Immunol.** 178, 2813-2826 (2007).
- [48] Albrecht, U.; Yang, X.; Asselta, R.; Keitel, V.; Tenchini, M. L.; Ludwig, S.; Heinrich, P. C.; Häussinger, D.; Schaper, F.<sup>#</sup>; Bode, J. G.<sup>#</sup> *Activation of NF- $\kappa$ B by IL-1 $\beta$  blocks IL-6-induced sustained STAT3 activation and STAT3-dependent gene expression of the human g-fibrinogen gene*. **Cell. Signal.** 19, 1866-1878 (2007).
- [49] Sobota, R. M.; Müller, J. P.; Heinrich, P. C.; Schaper, F. *Prostaglandin E1 inhibits interleukin-6-induced MCP-1 expression by interfering specifically in IL-6-dependent ERK1/2 but not STAT3 activation*. **Biochem. J.** 412, 65-72 (2008).
- [50] Sobota, R. M.; Müller, P. J.; Khouri, C., Ullrich, A.; Poli, V., Noguchi, T.; Heinrich, P.C., Schaper, F. *SHPS-1/SIRP1a contributes to interleukin-6 signalling*. **Cell. Signal.** 20, 1385-1391 (2008).
- [51] Clahsen, T.; Schaper, F. *Interleukin-6 acts in the fashion of a classical chemokine on monocytic cells by inducing integrin activation, cell adhesion, actin polymerization, chemotaxis and trans-migration*. **J. Leukocyte Biol.** 84, 1521-1529 (2008).
- [52] Eulendorf, R.; Schaper, F. *A new mechanism for the regulation of Gab1 recruitment to the plasma membrane*. **J. Cell. Science** 122, 55-64 (2009).
- [53] Radtke, S.; Wüller, S.; Yang, X-P.; Lippok, B.E.; Mütze, B.; Mais, C.; Schmitz-Van de Leur, H.; Stross, C.; Bode, J. G., Gaestel, M.; Heinrich, P.C.; Behrmann, I.; Schaper, F.<sup>#</sup>; Hermanns, H. M.<sup>#</sup> *Cross regulation of cytokine signalling: Pro-inflammatory cytokines restrict IL-6 signalling through receptor internalisation and degradation*. **J. Cell. Science** 123, 947-959 (2010).
- [54] Quaiser, T., Dittrich, A., Schaper, F., Mönnigmann, M. *A simple work flow for biologically inspired model reduction - application to early JAK-STAT signalling*. **BMC Syst. Biol.** 5 (1) 30 (2011). doi:10.1186/1752-0509-5-30
- [55] Khouri, C., Dittrich, A., Dutton-Sackett, S., Denecke, B., Trautwein, C., Schaper, F. *Glucagon counteracts interleukin-6 dependent gene expression by redundant action of Epac and PKA*. **Biol. Chem.** 392, 1123-1134 (2011).
- [56] Ryll, A., Samaga, R., Schaper, F., Alexopoulos, L., Klamt, S. *Large-scale network models of IL-1 and IL-6 signalling and their hepatocellular specification*. **Mol. BioSyst.** 7, 3253-3270 (2011).
- [57] Dittrich, A., Khouri, C., Dutton-Sackett, S., Ehltling, C., Böhmer, O., Albrecht, U., Bode, J. G., Trautwein, C., Schaper, F. *Glucocorticoids increase interleukin-6 dependent gene induction by interfering with the expression of the SOCS3 feedback inhibitor*. **Hepatology.** 55, 256-266 (2012).
- [58] Dittrich, A., Quaiser, T., Khouri, C., Görtz, D., Mönnigmann, M., Schaper, F. *Model-driven experimental analysis of the function of SHP2 in IL-6-induced Jak/STAT signalling*. **Mol. Biosyst.** 8, 2119-2134 (2012).

- [59] Thiem, S., Pierce, T. P., Palmieeri, M., Putoczki, T. L., Buchert, M., Preaudet, A., Farid, R. O., Love, C., Catimel, B., Lei, Z., Rozen, S., Gopalakrishnan, V., Schaper, F., Hallek, M., Boussioutas, A., Tan, P., Jarnicki, A., Ernst, M. *Therapeutic mTOR1 inhibition restricts inflammation associated gastrointestinal tumorigenesis in mice.* **J. Clin. Invest.** 123, 767-781 (2013).
- [60] Müller, P. J., Rigbolt, K. G., Paterok, D., Piehler, J., Vanselow, J., Lasonder, E., Andersen, J. S., Schaper, F.<sup>#</sup>, Sobota, R. M.<sup>#</sup> *Protein tyrosine phosphatase SHP2/PTPN11 mistargeting as a consequence of SH2-domains point mutations associated with Noonan syndrome and leukemia* **J. Proteomics** 84, 132-147 (2013).
- [61] Wolf, A., Eulenfeld, R., Gäbler, K., Rolvering, C., Haan, S., Behrmann, I., Denecke, B., Haan, C., Schaper, F. *JAK2-V617F-induced MAPK activity is regulated by PI3K and acts synergistically with PI3K on the proliferation of JAK2-V617F-positive cells* **JAK-STAT** 2:3, e24574 (2013).
- [62] Bläthke, M.A., Dittrich, A., Rohr, C., Heiner, M.<sup>#</sup>, Schaper, F.<sup>#</sup>, Marwan, W.<sup>#</sup>, *JAK/STAT signalling--an executable model assembled from molecule-centred modules demonstrating a module-oriented database concept for systems and synthetic biology.* **Mol. Biosyst.** 9, 1290-1307 (2013).
- [63] Wolf, A., Eulenfeld, R., Bongartz, H., Hessenkemper, W., Simister, P.C., Lievens, S., Tavernier, J., Feller, S.M., Schaper, F., *MAPK-induced Gab1 translocation to the plasma membrane depends on a regulated intramolecular switch.* **Cell. Signal.** 27, 340-352 (2015).
- [64] Pinno, J., Bongartz, H., Klepsch, O., Wundrack, N., Poli, V., Schaper, F., Dittrich, A., *Interleukin-6 influences stress-signalling by reducing the expression of the mTOR-Inhibitor REDD1 in a STAT3-dependent manner.* **Cell. Signal.** 28, 907-916 (2016).
- [65] Bongartz, H., Hessenkemper, W., Müller, C., Fensky, M., Fritsch, J., Mandel, K., Behrmann, I., Haan, C., Fischer, T., Feller, S.M., Schaper, F. *The multi-site docking protein Gab1 is constitutively phosphorylated independent from its recruitment to the plasma membrane in Jak2-V617F-positive cells and mediates proliferation of human erythroleukaemia cells.* **Cell. Signal.** 35, 37-47 (2017).
- [66] Williams, J.J.L., Alotaq, N., Mullen, W., Burchmore, R., Liu, L., Baillie, G., Schaper, F., Pilch, P.F., Palmer, T.M. *Interaction of suppressor of cytokine signalling 3 with cavin-1 links SOCS3 function and cavin-1 stability.* **Nat. Commun.** 9 (1): 168. doi: 10.1038/s41467-017-02585-y (2018).
- [67] Thiele, S., Heise, S., Hessenkemper, W., Bongartz, H., Fensky, M., Schaper, F., Klamt, S. *Designing optimal experiments to discriminate interaction graph models.* **IEEE/ACM Trans. Comput. Biol. Bioinform.** 16 (3), 925-935 (2019).
- [68] Billing, U., Jetka, T., Nortmann, L., Wundrack, N., Komorowski, M., Waldherr, S., Schaper, F., Dittrich, A. *Robustness and Information Transfer within IL-6-induced JAK/STAT Signalling.* **Commun. Biol.** 2:27. doi: 10.1038/s42003-018-0259-4. (2019).
- [69] Reeh, H., Rudolph, N., Billing, U., Christen, H., Streif, S., Bullinger, E., Schliemann-Bullinger, M., Findeisen, R., Schaper, F., Huber, H.J., Dittrich, A. *Response to IL-6 trans- and IL-6 classic signalling is determined by the ratio of the IL-6 receptor  $\alpha$  to gp130 expression: fusing experimental insights and dynamic modelling.* **Cell Commun. Signal.** 17:46. doi.org/10.1186/s12964-019-0356-0 (2019).
- [70] Klepsch, O., Namer, L.S., Köhler, N., Kaempfer, R., Dittrich, A., Schaper, F. *Intragenic regulation of SOCS3 isoforms.* **Cell Commun. Signal.** 17:70. doi: 10.1186/s12964-019-0379-6.(2019).
- [71] Bongartz, H., Gille, K., Hessenkemper, W., Mandel, K., Lewitzky, M., Feller, S.M., Schaper, F. *The multi-site docking protein Grb2-associated binder 1 enhances interleukin-6-induced MAPK-pathway activation in an SHP2-, Grb2-, and time-dependent manner.* **Cell Commun. Signal.** 17:135 doi: 10.1186/s12964-019-0451-2. (2019).

- [72] Fiebelkow, J., Guendel, A., Guendel, B., Mehwald, N., Jetka, T., Komorowski, M., Waldherr, S., Schaper, F., Dittrich, A. *The tyrosine phosphatase SHP2 increases robustness and information transfer within IL-6-induced JAK/STAT signalling.* **Cell Commun. Signal.** 19:94  
DOI: 10.1186/s12964-021-00770-7. (2021).
- [73] Bongartz, H., Seiß, E. A., Bock, J., Schaper, F. *Glucocorticoids attenuate interleukin-6-induced cFos and Egr1 expression and impair neuritogenesis in PC12 cells.* **J. Neurobiochem.** 157 (3) 532-549, DOI: 10.1111/jnc.15305. (2021).
- [74] Maurer, V., Zarinwall, A., Wang, Z., Wundrack, S., Wundrack, N., Ag Seleci, D., Helm, V., Otenko, D., Frank, C., Schaper, F., Stosch, R., Garnweitner, G. *All-in-one superparamagnetic and SERS-active niosomes for dual-targeted in vitro detection of breast cancer cells.* **Sens. Dign.** DOI: 10.1039/D2SD00020B. (2022)
- [75] Köhler, N., Wundrack, W., Schulz, S., Bartonitz, F., Schaper, F., Dittrich, A. *Non-canonical STAT3 function reduces REDD1 transcription.* **FEBS J.** 290, 1765-1781, DOI:10.1111/febs.16679. (2023)

Nr. **Übersichtsartikel**

- [Ü1] Heinrich, P. C., Behrmann, I., Müller-Newen, G., Schaper, F., Graeve, L. *IL-6-type cytokine signalling through the gp130/Jak/STAT pathway.* **Biochem. J.**, 334: 297-314 (1998).
- [Ü2] Heinrich, P.C., Bode, J.,G., Decker, M., Graeve, L., Martens, A., Müller-Newen, G., Pflanz, S., Schaper, F., Schmitz, J. *Termination and modulation of IL-6-type cytokine signaling.* **Adv. Exp. Med. Biol.**, 495, 153-160 (2001).
- [Ü3] Heinrich, P. C., Behrmann, I., Haan, S., Hermanns, H. M., Müller-Newen, G., Schaper, F. *Principles of IL-6-type cytokine signalling and its regulation.* **Biochem. J.**, 374: 1-20 (2003).
- [Ü4] Friedrich, K., Lindquist, J.A., Entschladen, F., Serfling, E., Thiel, G., Kieser, A., Giehl, K., Ehrhardt, C., Feller, S.M., Ullrich, O., Schaper, F., Janssen, O., Hass, R. *Signal transduction in the footsteps of Goethe and Schiller.* **Cell. Commun. Signal.** 7:2 (2009).
- [Ü5] Entschladen, F., Lindquist, J.A., Serfling, E., Thiel, G., Kieser, A., Giehl, K., Ehrhardt, C., Feller, S.M., Ullrich, O., Schaper, F., Janssen, O., Hass, R., Friedrich, K. *Signal Transduction-Receptors, Mediators, and Genes.* **Sci. Signal.** 2 (63):mr3 (2009).
- [Ü6] Simister, P.C., Schaper, F., O'Reilly, N., McGowan, S., Feller, S.M. *Self-Organization and Regulation of Intrinsically Disordered Proteins with Folded N-Termini.* **PLoS Biol.** 9(2): e1000591. doi:10.1371/journal.pbio.1000591 (2011).
- [Ü7] Bode, J.G., Albrecht, U., Häussinger, D., Heinrich, P.C., Schaper, F., *Hepatic acute-phase proteins – regulation by IL-6- and IL-1-type cytokines involving STAT3 and its cross talk with NF-κB-dependent signaling.* **Eur. J. Cell. Biol.**, 91:496-505 (2012).
- [Ü8] Eulendorf, R., Dittrich, A., Khouri, C., Müller, P.J., Mütze, B., Wolf, A., Schaper, F. *Interleukin-6 signalling: more than Jaks and STATs.* **Eur. J. Cell. Biol.**, 91:486-495 (2012).
- [Ü9] Garbers, C., Hermanns, H.M., Schaper, F., Müller-Newen, G., Grötzinger, J., Rose-John, S., Scheller, J. *Plasticity and cross-talk of interleukin 6-type cytokines.* **Cytokine & Growth Factor Reviews**, 23, 85-97 (2012).
- [Ü10] Schaper, F., Rose-John, S. *Interleukin-6: Biology, Signaling and Strategies of Blockade.* **Cytokine & Growth Factor Reviews**, 26, 475-487 (2015).

- [Ü11] Dittrich, A., Hessenkemper, W., Schaper, F. *Systems Biology of IL-6, IL-12 family cytokines*. **Cytokine & Growth Factor Reviews**, 26, 595-602 (2015).
- [Ü12] Rose-John, S., Scheller, J., Schaper, F. "Family reunion" A structured view on the composition of the receptor complexes of interleukin-6-type and interleukin-12-type cytokines. **Cytokine & Growth Factor Reviews**, 26, 471-474 (2015).
- [Ü13] Schaper, F., Jetka, T., Dittrich, A. *Decoding cellular communication – an information theoretic perspective on cytokine and endocrine signalling*. **Curr. Opin. Endocrine Metabol. Res.** DOI: 10.1016/j.coemr.2022.100351. (2022).

Nr. **Buchbeiträge**

- [B1] Heinrich, P. C., Behrmann, I., Graeve, L., Grötzinger, J., Haan, S., Horn, F., Horsten, U., Kerr, I. M., May, P., Müller-Newen, G., Schaper, F., Terstegen, L., Thiel, S. The acute-phase response of the liver: Molecular mechanism of IL-6 signaling from the plasma membrane to the nucleus in *Häussinger, D.; Heinrich, P. C. (eds.): Signalling in the liver. Kluwer Academic Publishers Dordrecht/ Boston/London (1998) pp. 55-77.*
- [B2] Heinrich, P.C., Behrmann, I., Bode, J. G., Gatsios, P., Graeve, L., Hermanns, H., Müller-Newen, G., Timmesgern, A., Pflanz, S., Radtke, S., Schaper, F., Schmitz, J., Siewert, E., Terstegen, L., Thiel, S., Weissenbach, M. Termination and modulation of IL-6-type cytokine signalling through the gp130/Jak/STAT pathway in: *Andus, T., Rogler, G., Schlottmann, K., Frick, E., Adler, G.; Zeitz, M., Schmiegel, W., Schölmerich J. (eds.): Cytokines and cell homeostasis in the gastrointestinal tract. Kluwer Academic Publishers, Dordrecht/Boston/London (2000) pp. 206-228.*
- [B3] Heinrich, P.C., Bode, J.G., Graeve, L., Haan, S., Martens, A., Müller-Newen, G., Nimmersgern, A., Schaper, F., Schmitz, J., Siewert, E. IL-6-type cytokines and signaling in inflammation. in: *Trull, A. K., Demers, L. M., Holt, D. W., Johnston, A., Tredger, J. M., Price C. P. (eds.): Biomarkers of Disease. Cambridge University Press, Cambridge, UK (2002) pp. 256-262.*
- [B4] Heinrich, P.C., Bode, J.G., Decker, M., Graeve, L., Martens, A., Müller-Newen, G., Pflanz, S., Schaper, F., Schmitz, J. Termination and modulation of IL-6-type cytokine signaling. in: *Mackiewicz, A., (ed.): Progress in Basics and Clinical Immunology (Proceedings of EFIS 2000), Kluwer Academic Publishers, Dordrecht, NL (2001) pp. 153-160.*
- [B5] Heinrich, P.C., Barthel, A., Behrmann, I., Feld, F., Grötzinger, J., Haan, C., Hermanns, H.M., Joost, H-G., Kerr, I.M., Kortylewski, M., Lehmann, U., Müller-Newen, G., Radtke, S., Roth, R., Schaper, F., Timmermann, A. (2002) Regulation of Interleukin-6-type cytokine signaling. in: *Gressner, A., Matern, S., Heinrich, P.C., (eds.): Cytokines in Liver Injury and Repair Kluwer Academic Publishers, Dordrecht/Boston/London (2002) pp. 221-237.*
- [B6] Heinrich, P. C., Behrmann, I., Haan, S., Hermanns, H. M., Müller-Newen, G., Schaper, F. Structural basis of receptor-JAK-STAT interactions. in *Sehgal, P. B., Levy, D. E., Hirano, T. (eds.): Signal Transducers and Activators of Transcription (STATs): Activation and Biology (2003) Kluwer Academic Publishers, Dordrecht/Boston/London (2003) pp. 43-53.*
- [B7] Blätke, M. A., Dittrich, A., Heiner, M., Schaper, F., Marwan, W. JAK-STAT Signalling as example for a database-supported modular modelling concept. in *Gilbert, D., Heiner, M. (eds.): Computational Methods in Systems Biology – Proceedings 10th International Conference, CMSB (2012) Springer-Verlag Berlin Heidelberg (2012) pp. 362-365.*
- [B8] Dittrich, A., Siewert, E., Schaper, F. Determination of protein turnover rates in the Jak/STAT pathway using a radioactive pulse-chase approach. *Methods Mol. Biol.* 967, 69-80 (2013).

- [B9] Rudolph, N., Meyer, T., Franzen, K., Garbers, C., Schaper, F., Streif, S., Dittrich, A., Findeisen, R. A two-level approach for fusing early signaling events and long term cellular responses. Proc. International Symposium on Advanced Control of Chemical Processes (ADCHEM) (2015) pp. 1229-1234.

Nr. **Lehrbuchbeiträge**

- [L1] Heinrich, P.C., Schaper, F., Timmermann, A., Martens, A., Lehmann, U., *Kapitel 28: Endokrine Funktionen II: Zytokine.* in: *Löffler, G., Petrides, P.E. (eds.): Biochemie und Pathobiochemie 7. Auflage.* Springer-Verlag Berlin Heidelberg (2003) pp. 813-835
- [L2] Heinrich, P.C., Haan, S., Hermanns, H.M., Löffler, G., Müller-Newen, G., Schaper, F., *Kapitel 25: Kommunikation zwischen Zellen: Extrazelluläre Signalmoleküle, Rezeptoren und Signaltransduktion.* in: *Löffler, G., Petrides, P.E., Heinrich, P.C. (eds.): Biochemie und Pathobiochemie 8. Auflage.* Springer-Verlag Berlin Heidelberg (2006) pp. 755-807
- [L3] Müller-Newen, G., Heinrich, P.C., Hermanns, H.M., Schaper, F., *Kapitel 33: Prinzipien zellulärer Kommunikation.* in: *Heinrich, P.C., Müller M., Graeve, L., (eds.): Löffler/Petrides Biochemie und Pathobiochemie 9. Auflage.* Springer-Verlag Berlin Heidelberg (2014) pp. 393-406
- [L4] Heinrich, P.C., Haan, S., Hermanns, H.M., Müller-Newen, G., Schaper, F., *Kapitel 34: Mediatoren.* in: *Heinrich, P.C., Müller M., Graeve, L., (eds.): Löffler/Petrides Biochemie und Pathobiochemie 9. Auflage.* Springer-Verlag Berlin Heidelberg (2014) pp. 407-410
- [L5] Heinrich, P.C., Haan, S., Hermanns, H.M., Müller-Newen, G., Schaper, F., *Kapitel 35: Rezeptoren und ihre Signaltransduktion.* in: *Heinrich, P.C., Müller M., Graeve, L., (eds.): Löffler/Petrides Biochemie und Pathobiochemie 9. Auflage.* Springer-Verlag Berlin Heidelberg (2014) pp. 411-441
- [L6] Müller-Newen, G., Heinrich, P.C., Hermanns, H.M., Schaper, F., *Kapitel 33: Prinzipien zellulärer Kommunikation.* in: *Heinrich, P.C., Müller M., Graeve, L., (eds.): Löffler/Petrides Biochemie und Pathobiochemie 10. Auflage.* Springer-Verlag Berlin Heidelberg (2022) pp. 513-526
- [L7] Heinrich, P.C., Haan, S., Hermanns, H.M., Müller-Newen, G., Schaper, F., *Kapitel 34: Mediatoren.* in: *Heinrich, P.C., Müller M., Graeve, L., (eds.): Löffler/Petrides Biochemie und Pathobiochemie 10. Auflage.* Springer-Verlag Berlin Heidelberg (2022) pp. 527-532
- [L8] Heinrich, P.C., Haan, S., Hermanns, H.M., Müller-Newen, G., Schaper, F., *Kapitel 35: Rezeptoren und ihre Signaltransduktion.* in: *Heinrich, P.C., Müller M., Graeve, L., (eds.): Löffler/Petrides Biochemie und Pathobiochemie 10. Auflage.* Springer-Verlag Berlin Heidelberg (2022) pp. 533-571