Publications and presentations

2021

Scientific publications

- Exploring the molecular content of CHO exosomes during bioprocessing. Keysberg C, Hertel O, Schelletter L, Busche T, Sochart C, Kalinowski J, Hoffrogge R, Otte K, Noll T. Appl Microbiol Biotechnol. 2021 May;105(9):3673-3689. doi: 10.1007/s00253-021-11309-8. Epub 2021 May 3.
- Unveiling the CHO surfaceome: Identification of cell surface proteins reveals cell aggregation-relevant mechanisms.Klingler F, Mathias S, Schneider H, Buck T, Raab N, Zeh N, Shieh YW, Pfannstiel J, Otte K. Biotechnol Bioeng. 2021 Aug;118(8):3015-3028. doi: 10.1002/bit.27811. Epub 2021 May 14. PMID: 33951178
- Klingler F, Otte K (2021). Life at the periphery: How cell surface proteins can influence bioprocesses. Pharmind, 83 (9), 1241-1244.
- A blueprint from nature: miRNome comparison of plasma cells and CHO cells to optimize therapeutic antibody production. Raab N, Zeh N, Schlossbauer P, Mathias S, Lindner B, Stadermann A, Gamer M, Fischer S, Holzmann K, Handrick R,Otte K. N Biotechnol. 2021 Oct 25:S1871-6784(21)00094-7. doi: 10.1016/j.nbt.2021.10.005. Online ahead of print.
- Cell line development for continuous high cell density biomanufacturing: Exploiting hypoxia for improved productivity. Zeh N, Schlossbauer P, Raab N, Klingler F, Handrick R, Otte K. Metab Eng Commun. 2021 Jul 29;13:e00181. doi: 10.1016/j.mec.2021.e00181. eCollection 2021 Dec. PMID: 34401326

2020

Scientific publications

- Unraveling what makes a monoclonal antibody difficult-to-express: From intracellular accumulation to incomplete folding and degradation via ERAD. Mathias S, Wippermann A, Raab N, Zeh N, Handrick R, Gorr I, Schulz P, Fischer S, Gamer M, Otte K.Biotechnol Bioeng. 2020 Jan;117(1):5-16. doi: 10.1002/bit.27196. Epub 2019 Nov 15. PMID: 31631329
- Rational optimization of a monoclonal antibody improves the aggregation propensity and enhances the CMC properties along the entire pharmaceutical process chain. Bauer J, Mathias S, Kube S, Otte K, Garidel P, Gamer M, Blech M, Fischer S, Karow-Zwick AR. MAbs. 2020 Jan-Dec;12(1):1787121. doi: 10.1080/19420862.2020.1787121. PMID: 32658605 Free PMC article.
- Transferability of miRNA-technology to bioprocessing: Influence of cultivation mode and media.Leroux AC, Bartels E, Winter L, Mann M, Otte K, Zehe C. Biotechnol Prog. 2021 Mar;37(2):e3107. doi: 10.1002/btpr.3107. Epub 2020 Dec 30. PMID: 33300297
- Rational optimization of a monoclonal antibody improves the aggregation propensity and enhances the CMC properties along the entire pharmaceutical process chain. Bauer J, Mathias S, Kube S, Otte K, Garidel P, Gamer M, Blech M, Fischer S, Karow-Zwick AR. MAbs. 2020 Jan-Dec;12(1):1787121. doi: 10.1080/19420862.2020.1787121. PMID: 32658605 Free PMC article.

2019

Scientific publications

- Zeh N, Schneider H, Mathias S, Raab N, Kleemann M, Schmidt-Hertel S, Weis B, Wissing S, Strempel N, Handrick R, **Otte K (2019).** Human CAP cells represent a novel source for functional, miRNA-loaded exosome production. PLoS One 28, 14(8):e0221679. doi: 10.1371/journal.pone.0221679
- Raab N, Mathias S, Alt K, Handrick R, Fischer S, Schmieder V, Jadhav V, Borth N, **Otte K (2019).** CRISPR/Cas9-Mediated Knockout of MicroRNA-744 Improves Antibody Titer of CHO Production Cell Lines. Biotechnol J 14(5), doi: 10.1002/biot.201800477
- Fischer S, **Otte K (2019).** CHO cell engineering for improved process performance and product quality. Cell culture Engineering: Recombinant Protein Production, ISBN: 978-3-527-81140-3, 207-250
- Mathias S, Wippermann A, Raab N, Zeh N, Handrick R, Gorr I, Schulz P, Fischer S, Gamer M, **Otte K (2019).** Unraveling what makes a monoclonal antibody difficult-to-express: From intracellular accumulation to incomplete folding and degradation via ERAD. Biotechnol Bioeng, doi: 10.1002/bit.27196
- Herdoiza Padilla E, Crauwels P, Bergner T, Wiederspohn N, Förstner S, Rinas R, Ruf A, Kleemann M, Handrick R, Tuckermann J, **Otte K**, Walther P, Riedel CU **(2019).** miR-124-5p Regulates Phagocytosis of Human Macorphages by Targeting the Actin Cytoskeleton via the ARP2/3 Complex. Front Immunology 10, doi: 10.3389/fimmu.2019.02210
- Kleemann M, Schneider H, Unger K, Bereuther J, Fischer S, Sander P, Marion Schneider E, Fischer-Posovszky P, Riedel CU, Handrick R, **Otte K (2019).** Induction of apoptosis in ovarian cancer cells by miR-493-3p directly targeting AKT2, STK38L, HMGA2, ETS1 and E2F5. Cell Mol Life Sci 76(3), 539-559

Invited conference presentations

- **Kerstin Otte**, Difficult to express proteins:
  Identification of intracellular production bottlenecks in CHO cells
  Bioprocess Summit Europe, Lisbon (Portugal), 19.-21.3.**2019**
- **Kerstin Otte**, Forschung gemeinsam mit Unternehmen
  Forschung an HAW, Bernhäuser Forst, 28.-29.3.**2019**
- **Kerstin Otte**, Engineering of mammalian cell lines to remove production bottlenecks
  RPP10 A comparative view on host physiology, Kreta (Griechenland), 24.-27.4.**2019**
- **Kerstin Otte**, Molecular Modulation of Cellular Signaling to Enhance protein production
  Gordon Research Conference Biotherapeutics and Vaccines Development, Houston (USA), 6.-11.1.**2019**

2018

Scientific publications

- Kleemann M, Schneider H, Unger K, Sander P, Schneider EM, Fischer-Posovszky P, Handrick R, **Otte K (2018)**. MiR-744-5p inducing cell death by directly targeting HNRNPC and NFIX in ovarian cancer cells. Sci Rep 8(1), 9020
- Weis BL, Guth N, Fischer S, Wissing S, Fradin S, Holzmann KH, Handrick R, **Otte K (2018).** Stable miRNA overexpression in human CAP cells: Engineering alternative production systems for advanced manufacturing of biologics using miR-136 and miR-3074. Biotechnol Bioeng 115(8), 2027-2038
- Mathias S, Fischer S, Handrick R, Fieder J, Schulz P, Bradl H, Gorr I, Gamer M, **Otte K (2018)**. Visualisation of intracellular production bottlenecks in suspension-adapted CHO cells producing complex biopharmaceuticals using fluorescence microscopy. J Biotechnol, 271, 47-55
- Flum M, Kleemann M, Schneider H, Weis B, Fischer S, Handrick R, **Otte K (2018)** miR-217-5p induces apoptosis by directly targeting PRKCI, BAG3, ITGAV and MAPK1 in colorectal cancer cells. J Cell Commun Signal 12(2), 451-466

Invited conference presentations

- **Kerstin Otte,** CRISPR/CAS9 mediated knockout of microRNAs for precise cell engineering
  Cell Culture Engineering (CCE) XVI, Tampa (USA), 6-11.5.**2018**
- **Kerstin Otte,** CRISPR/CAS9 MEDIATED KNOCKOUT OF MICRORNAS FOR PECISE CELL ENGINEERING
  Cell Culture Engineering (CCE) XVI, Tampa (USA), 6-11.5.**2018**
- **Kerstin Otte,** Identification of intracellular production bottlenecks in suspension-adapted CHO cells producing complex biopharmaceuticals using fluorescence microscopy
  PEGS Boston 2018, Boston (USA), 30.4.-4.5.**2018**
- **Kerstin Otte,** Latest developments on MicroRNAs for Next-Generation Cell Engineering
  11th Annual Proteins & Antibodies Congress, London (UK), 16-18.4.**2018**
- **Kerstin Otte,** ENGINEERING OF EXOSOMES FOR TARGETED DELIVERY OF THERAPEUTIC MICRORNAS
  BPI WEST, San Francisco (USA), 19-22.3.**2018**

2017

Scientific publications

- Marquart K, Schuler P, Gamer M, Schulz P, **Otte K**, Bradl H, Gorr H, Fischer S **(2017)** Optimized Delivery of Small Regulatory RNAs into Industrial CHO Cell Lines Enables High-Throughput microRNA Screening. JSM Biotechnol Bioeng 4 (1), 1074

- Schoellhorn M, Fischer S, Wagner A, Handrick R, **Otte K (2017)** miR-143 targets MAPK7 in CHO cells and induces a hyperproductive phenotype to enhance production of difficult-to-express proteins. Biotechnol Prog. Apr 3. doi: 10.1002/btpr.2475

Invited conference presentations

- **Kerstin Otte**, Effective MicroRNAs for Next-Generation CHO Cell Engineering
  The 2nd International Advanced Biomanufacturing Conference, Sheffield (UK), 22-23.5.**2017**
- **Kerstin Otte**, The latest research findings on engineering cell lines by using MicroRNAs
  Bioprocess International European Summit, Cell Line Development & Engineering, Amsterdam (Netherlands), 24.-27.4.**2017**
- **Kerstin Otte,** MicroRNAs for optimized production: towards a deeper understanding of underlying mechanisms
  Cell Culture and Downstream World Congress 2017, Munich (Germany), 16.1.**2017**

2016

Scientific publications

- Kleemann M, Bereuther J, Fischer S, Marquart K, Hänle S, Unger K, Jendrossek V, Riedel C, Handrick R, **Otte K (2016)** Investigation on tissue specific effects of pro-apoptotic miR-147b as a potential biomarker in ovarian cancer prognosis. Oncotarget Nov 4. doi: 10.18632/oncotarget.13095
- Emmerling VV, Fischer S, Kleemann M, Handrick R, Kochanek S, **Otte K (2016)** miR-483 is a self-regulating microRNA and activates its own expression via USF1 in human cells. Int J Biochem Cell Biol. doi: 10.1016/j.biocel.2016.09.022.
- Stiefel F, Fischer S, Sczyrba A, **Otte K**, Hesse F **(2016)** miRNA profiling of high, low and non-producing CHO cells during biphasic fed-batch cultivation reveals process relevant targets for host cell engineering. J Biotechnol. 2016 May 10;225:31-43. doi: 10.1016/j.jbiotec.2016.03.028
- Schrade A, Kyrönlahti A, Akinrinade O, Pihlajoki M, Fischer S, Rodriguez VM, **Otte K**, Velagapudi V, Toppari J, Wilson DB, Heikinheimo M **(2016)** GATA4 regulates blood-testis barrier function and lactate metabolism in mouse Sertoli cells. Endocrinology. 2016 Mar 14:en20151927
- Fischer S, Handrick R, **Otte K (2016)** Pushing the limits of protein production. Drug target 3, 20-23

Invited conference presentations

- **Kerstin Otte**, Effective microRNAs for cell line engineering to enhance productivity
  ACTIP meeting, Frankfurt (Germany), 1-2.12.**2016**
- **Kerstin Otte**, Carriers in Academia
  1st ESACT Frontiers Retreat 2016, Lyon (France), 20-22.10.**2016**
- **Kerstin Otte**, Effective miRNAs for cell line engineering and underlying cellular mechanisms of action.

- Cell Culture Engineering XV (CCEXV), Palm Springs (USA), 8-13.5.**2016**
- **Kerstin Otte**, Enhancing Biological Production and CHO Cell Activity Using miRNAs
  Cell Line Development and Engineering, Wien (Austria), 11-13.4.**2016**
- **Kerstin Otte**, Tiny but Mighty - Effective MicroRNAs for Next-Generation CHO Cell Engineering
  Bioprocess International West, Oakland (USA) 14-17.3.**2016**

2015

Scientific publications

- Osswald A, Sun Z, Grimm V, Ampem G, Riegel K, Westendorf AM, Sommergruber W, **Otte K**, Dürre P, Riedel CU **(2015)** Three-dimensional tumor spheroids for in vitro analysis of bacteria as gene delivery vectors in tumor therapy. Microb Cell Fact 14 (1), 199.
- Fischer S, Handrick R, **Otte K (2015)** The art of CHO cell engineering: A comprehensive retrospect and future perspectives. Biotechnol Adv, doi:10.1016/j.biotechadv.2015.10.015.
- Emmerling VV, Fischer S, Stiefel F, Holzmann K, Handrick R, Hesse F, Hörer M, Kochanek S, **Otte K (2015)** Temperature-sensitive miR-483 is a conserved regulator of recombinant protein and viral vector production in mammalian cells. Biotech Bioeng 10, DOI:10.1002/bit.25853
- Fischer S, Mathias S, Schaz S, Emmerling VV, Buck T, Kleemann M, Hackl M, Grillari J, Aschrafi A, Handrick R, **Otte K (2015)** Enhanced protein production by microRNA-30 family in CHO cells is mediated by the modulation of the ubiquitin pathway. J Biotechnol 232, 32-43
- Stiefel F, Fischer S, Hackl M, Handrik R, Hesse F, Borth N, **Otte K** and Grillari J **(2015)** Noncoding RNAs, post-transcriptional RNA operons and Chinese hamster ovary cells. Pharmaceutical Bioprocessing 4, 1-21, doi: 10.4155/pbp.14.65
- Fischer S and **Otte K (2015)** Tiny but Mighty: miRNAs to Boost Biopharmaceutical Production. G.I.T. Laboratory Journal 5-6, 22-23
- Fischer S, Paul AJ, Wagner A, Mathias S, Geiss M, Schandock F, Domnowski M, Zimmermann J, Handrick R, Hesse F, **Otte K (2015)** miR-2861 as novel HDAC5 inhibitor in CHO cells enhances productivity while maintaining product quality. Biotechnol Bioeng. doi: 10.1002/bit.25626.
- Fischer S, Handrick R, Aschrafi A, **Otte K (2015)** Unveiling the principle of redundancy in cellular pathway regulation by microRNAs. RNA Biology 12(3), 1-10

Invited conference presentations

- **Kerstin Otte**, Scale-Down Models Enable Identication of microRNAs to Enhance Cellular Performance of Mammalian Cell Factories
  PEGS Europe, Lissabon (Spain), 6.11.**2015**

- **Kerstin Otte**, Tiny but Mighty - Harnessing microRNAs for Next-generation Cell Engineering of Biopharmaceutical Production Cells
  3rd Protein Expression, Purification and Characterization Conference, Boston (USA), 23.10.**2015**
- **Kerstin Otte**, Cell line Engineering to Boost Biopharmaceutical Production.
  8th Student Symposium on Molecular Medicine, Ulm University, 18.4.**2015**
- **Kerstin Otte**, Werdegang Professorin
  Jubiläumsveranstaltung der LaKof BW, Hochschule Esslingen (Germany), 10.3.**2015**

2014

Scientific publications

- Fischer S, Buck T, Wagner A, Ehrhart C, Giancaterino J, Mnag S, Schad M, Mathias S, Aschrafi A, Handrick R, **Otte K (2014)** A functional high-content miRNA screen identifies miR-30 family to boost biopharmaceutical production in CHO cells. Biotechnol J. (10):1279-92.
- Enlund E, Fischer S, Handrick R, **Otte K**, Debatin KM, Wabitsch M, Fischer-Posovszky P **(2014)** Establishment of Lipofection for Studying miRNA Function in Human Adipocytes. PLos One 21;9(5):e98023.

Invited conference presentations

- **Kerstin Otte**, Cell Line Engineering Using the Potential of microRNAs
  PEGS Europe, Lisbon (Portugal), 6.11.**2014**
- **Kerstin Otte**, The potential of miRNAs in genetic engineering of CHO cells
  MipTec, Basel (Swizerland), 25.10.**2014**

2013

Scientific publications

- Fischer S, Wagner A, Kos A, Aschrafi A, Handrick R, Hannemann J, **Otte K (2013)** Breaking limitations of complex culture media: functional non-viral miRNA delivery into pharmaceutical production cell lines. Journal of Biotechnology, 168(4), 589-600
- **Otte K (2013)** Fachkräfte für die Biotechnologiebranche. Ausbildungssituation am Standort Deutschland. Pharmind, 11, 1738 - 1742.

2004

Scientific publications

- **Otte K**, Kranz H, Kober I, Thompson P, Hoefer M, Haubold B, Remmel B, Voss H, Kaiser C, Albers M, Cheruvallath Z, Jackson D, Casari D, Koegl M, Pääbo S, Mous J, Kremoser C, Deuschle U **(2004)** Identification of FXRß as a novel nuclear hormons receptor sensing lanosterol. Mol Cell Biol 23 (3), 864-872.

- **Otte K** and Rozell B **(2001)** Detection of methyl.sensitive DNA-binding proteins with possible involvement in the imprinting phenomeneon. In „Methods in Molecular Biology. Genomic Imprinting". A Ward (eds), Humana Press
- Engstrom W, Shokrai A, **Otte K**, Granerus M, Gessbo A, Bierke P, Madej A, Sjolund M, Ward A **(1998)** Transcriptional regulation and biological significance of the insulin-like growth factor II gene. Cell Proliferation 31 (5-6), 173-189.
- **Otte K**, Choudhury D, Charalambous M, Engström W, Rozell B **(1998)** A conserved structural element in horse and mouse IGF2 genes binds a methylation sensitive factor. Nucleic Acids Research 26 (7), 1605–1612.
- **Otte K (1997)** Equine IGF genes. Structural and transcriptional features. Doctoral thesis, Veterinaria 24, Acta Universitatis Agriculturae Sueciae.
- Raudsepp T, **Otte K**, Rozell B, Chowdhary BP **(1997)** FISH mapping of the IGF2 gene in horse and donkey - detection of homoeology with HSA11. Mamm Genome 8 (8), 596-572.
- **Otte K**, Rozell B, Gessbo Å, Engström W **(1996)** Cloning and Sequencing of an Equine Insulin-like Growth Factor I cDNA and its Expression in Fetal and Adult Tissues. Gen Comp Endocrinol 102, 11-15.
- **Otte K** and Engstrom W **(1994)** Insulin-like Growth Factor II in the Horse: Determination of a cDNA Nucleotide Sequence and Expression in Fetal and Adult Tissue. Gen Comp Endocrinol 96, 270-275.