

Curriculum vitae

Personal:

Name: Prof. Dr. Thomas Noll
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Homepage: <http://www.cellculturetechnology.de>
Date of birth: 12.01.1969
Marital status: married, two daughters

Employment history:

since 12.2016 Chairman of the supervisory board to Xell AG
since 05.2015 Deputy Director of Bielefeld Center for Biotechnology (CeBiTec)
since 10.2005 full professor and chair for cell culture technology, University of Bielefeld
04.2015 – 12.2016 Deputy Chairman of the supervisory board to Biofidus AG
10.2010 – 04.2015 Scientific Director of Bielefeld Center for Biotechnology (CeBiTec)
10.2009 – 09.2010 Dean of Faculty of Technology, University of Bielefeld
07.2009 – 12.2016 Deputy Chairman of the supervisory board to Xell AG
04.2007 – 09.2009 Vice Dean of Faculty of Technology, University of Bielefeld
01.2001 - 04.2001 Research Fellow at the Imperial Cancer Research Fund, London
Breast Cancer Biology Group (Professor J. Taylor-Papadimitriou)
02.2000 – 09.2005 Head of Cell Culture Technology Group
at the Institute of Biotechnology 2 at Research Center Juelich GmbH
05.1999 - 01.2000 Vice Head of Cell Culture Technology Group
at the Institut für Biotechnologie 2 at Research Center Juelich GmbH

Other positions

since 10.2011 member of the advisory board for Bielefeld Center for Interdisciplinary Research (ZiF)
since 01.2011 advisor in patent and patent litigation issues for several patent law firms
since 11.2009 chairman of the Dechema task force for cell culture technology
since 10.2009 member of Scientific Advisory Board for CEVEC Pharmaceuticals GmbH
since 04.2008 member of Scientific Advisory Board for Max-Planck Institute for Dynamic of complex technical systems, Magdeburg
since 2007 member of the Dechema task force for cell culture technology
04.2008 – 09.2010 member of the executive board of CeBiTec (Center for Biotechnology at the University Bielefeld)
2008 - 2010 Speaker of Institute of Biochemistry and Bioengineering (BioChemTec) at Bielefeld Centre of Biotechnology (CeBiTec)
2007 – 2008 Vice-speaker of Institute of Biochemistry and Bioengineering (BioChemTec) at Bielefeld Centre of Biotechnology (CeBiTec)
2006 - 2010 member of the board of Biotech Region OWL
2004 - 2007 member of the organising committee for the 20th conference of the European Society for Animal Cell Culture (ESACT) 2007 in Dresden
2002 - 2009 member of the steering committee of stem cell network NorthRhine Westfalia

Company foundations

04.2015 Biofidus AG (www.biofidus.de)
07.2009 Xell AG (www.xell.ag)

Education:

22.04.1999	Dr. rer nat (Grade: 1)
11.1995 - 04.1999	PhD student at the Institute of Biotechnology 2 (Prof. C. Wandrey) at Research Center Juelich GmbH
10.1995	Diplom-Chemiker (Grade: 1.3)
12.1994 - 10.1995	Diploma-thesis at the Institute of Biotechnology 2 (Prof. C. Wandrey) at Research Center Juelich GmbH
10.1989 - 11.1994	Study of chemistry / technical chemistry at the University of Bonn
07.1988 - 09.1989	military service
05.1988	Abitur 'A-level' (Grade: 1.6)

Fellowships and awards:

07.06.2004	Young-Professor Award (Hochschullehrer-Nachwuchspreis) in the field of biotechnology (DECHEMA, Germany)
23.10.2003	Poster Award Biotechnology/Pharmacy at the LifeTec Xchange 'Technologies for Life Sciences' congress, Aachen
14.05.2003	Lisa Hunt Poster Award of the European Society for Animal Cell Technology (ESACT at the 18 th ESACT conference in Granada, Spain)
10-14.06.2001	Travel bursary of the SmithKline Beecham Foundation for participating the 17 th ESACT conference in Tylösand, Schweden
01.2001 - 04.2001	PostDoc research fellowship from the DAAD, Bonn
01.04.2000	Poster Award of the German, Swiss and Austrian Society of Nuclear Medicine
1990 – 1995	undergraduate scholarship of the Konrad-Adenauer-Stiftung, Sankt Augustin

Scientific affiliations

Society for technical chemistry and biotechnology (Dechema)
European Society for Animal Cell Technology (ESACT)

Research Interests

- animal cell process development
- development of genomic, transcriptomic, metabolomic and proteomic tools for mammalian cells
- functional genomics as a tool for cell culture process development and cell characterization
- DNA-methylation analysis of CHO cells
- CHO promoter analysis

Publications

1. Noll T, Biselli M, Wandrey C (1997): *On-line biomass monitoring of immobilized hybridoma cells by dielectrical measurements*. In: Animal cell technology (M.J.T.Carrondo et al, eds.), Kluwer Acad Publ, 289-294
2. Noll T, Biselli M (1998): *Dielectric spectroscopy in the cultivation of suspended and immobilized hybridoma cells*. J Biotechnol, 63, 187-198
3. Noll T, Mühlensiepen H, Engels R, Hamacher K, Papaspyrou M, Langen KJ, Biselli M (2000): *A cell culture reactor for the on-line evaluation of radiopharmaceuticals: Evaluation of the lumped constant of FDG in human glioma cells*. J Nucl Med, 41, (3): 556-564
4. Bohnenkamp H, Hilbert U, Noll T (2001): *Bioprocess Development for the cultivation of human T-lymphocytes*, in Lindner-Olsson E, Chatzissavidou N, Lüllau E (eds.) 'From target to market', Kluwer Academic Publishers, Dordrecht, 503-508
5. Hilbert U, Biselli M, Noll T (2001): *Cultivation of human CMV-specific lymphocytes - an example for adoptive immunotherapy*, in Lindner-Olsson E, Chatzissavidou N, Lüllau E (eds.) 'From target to market', Kluwer Academic Publishers, Dordrecht, 558-561
6. Noll T (2001): *High cell density cultivation of mast cells in fluidized-bed and fixed-bed bioreactors*, in Lindner-Olsson E, Chatzissavidou N, Lüllau E (eds.) 'From target to market', Kluwer Academic Publishers, Dordrecht, 26-28
7. Paul W, de Graaf A, Marx A, Wagner R, Noll T (2001): *Metabolic flux analysis in mammalian cells - network modelling as an example for metabolic design in recombinant BHK cells*, in Lindner-Olsson E, Chatzissavidou N, Lüllau E (eds.) 'From target to market', Kluwer Academic Publishers, Dordrecht, 136-141
8. Noll T, Jelinek N, Schmidt S, Biselli M, Wandrey M (2002): *Cultivation of Hematopoietic Stem and Progenitor Cells: Biochemical Engineering Aspects*. Advances in Biochemical Engineering and Biotechnology, Vol. 74, 111-128
9. Noll T, Eisenkrätzer D, Kiesewetter A, Dinter A, Zeng S, Wandrey C, Biselli M, Berger EG (2002): *Improved product formation in high density Chinese hamster ovary cell cultures transfected at confluency*. Biotechnol Lett, 24, 861-866
10. Bohnenkamp H, Hilbert U, Noll T (2002) *Bioprocess Development for the Cultivation of human T-lymphocytes in a clinical scale*, Cytotechnology, 38, 135-145
11. Link T, Zörner K, Backström M, Hansson G, Wandrey C, Noll T (2002): *Integrierte Bioprozessentwicklung zur Produktion eines potentiellen Tumorstoffwechsels in rekombinanten CHO-Zellen* CIT, 74:671
12. Paul W, Kribben T, Gätgens J, de Graaf A, Marx A, Noll T, Wandrey C (2002): *Identifizierung von Stoffwechsellimitierungen mit Hilfe der metabolic flux analysis am Beispiel des Nukleotidstoffwechsels von rekombinanten BHK-Zellen* CIT, 74:690
13. Bäckström M, Link T, Olson FJ, Karlsson H, Graham R, Picco G, Burchell J, Taylor-Papadimitriou J, Noll T, Hansson GC (2003) *Recombinant MUC1 with breast cancer-like O-glycosylation produced in large amounts in CHO-K1 cells*, Biochem J, 376, 677-686
14. Noll T (2003) *Stammzellen – Möglichkeiten ihrer Expansion am Beispiel hämatopoetischer Stammzellen aus Nabelschnurblut*, Med Klin, 98, Suppl II: 7-10
15. Bohnenkamp H, Noll T (2003) *Process Development for standardized generation of mature monocyte-derived dendritic cells suitable for clinical application*, Cytotechnology, 42, 121-131
16. Link T, Backstrom M, Graham R, Essers R, Zörner K, Gätgens J, Burchell J, Taylor-Papadimitriou J, Hansson G, Noll T (2004), *Bioprocess development for a recombinant Mucin-1 fusion protein expressed by CHO cells in protein-free medium*, J Biotechnol, 110, 51-62
17. Bohnenkamp, H; Coleman, J; Burchell, J; Taylor-Papadimitriou, J; Noll, T (2004) *Breast carcinoma cell lysate-pulsed dendritic cells cross-prime MUC1 specific cytotoxic T-cells identified by peptide-MHC-class-I tetramers*, Cellular Immunology, 231:112

18. Bohnenkamp HR, Burchell J, Taylor-Papadimitriou J, Noll T (2005) *Apoptosis of monocytes and the influence on yield of monocyte-derived dendritic cells*, Journal of Immunol Methods, 294(1-2):67-80.
19. Link T, Essers R, Zörner K, de Graaf A, Bäckström M, Hansson G, Noll T (2005) *Development of metabolically optimized fermentation process based on glucose-limited CHO perfusion culture*, Godia (ed.) 'Animal Cell Technology meets Genomics', Kluwer Academic Publishers, Dordrecht, 423-30
20. Fischbach, Noll T (2005) *Membrane-separated cocultivation of cord blood hematopoietic stem cells with stromal cell lines*, Godia (ed.) 'Animal Cell Technology meets Genomics', Kluwer Academic Publishers, Dordrecht, 269-71
21. Bohnenkamp HR, Noll T (2005) *Process development for standardized generation of monocyte-derived dendritic cells: Applicability in breast cancer immunotherapy*, Godia (ed.) 'Animal Cell Technology meets Genomics', Kluwer Academic Publishers, Dordrecht, 221-27
22. Rughetti A, Pellicciotta I, Biffoni M, Bäckström M, Link T, Noll T, Hansson GC, Clausen H, Burchell JM, Taylor-Papadimitriou J, Nuti M (2005) *Recombinant tumor associated MUC1 impairs differentiation and function of Dendritic Cells*, Journal of Immunology, 174(12):7764-72
23. Sewell R, Dalziel M, Backstrom M, Hansson G, Noll T, Clausen H, Burchell J, Taylor-Papadimitriou J (2006) *Human ST6GalNAcI localizes throughout the Golgi and is responsible for the expression of the sialyl-Tn O-glycan in breast cancers*, J Biol Chem, 281:3586-94
25. Brockmeier U, Caspers M, Freudl R, Jockwer A, Noll T and Eggert T (2006), *Systematic Screening of All Signal Peptides from Bacillus subtilis: A Powerful Strategy in Optimizing Heterologous Protein Secretion in Gram-positive Bacteria*, J Mol Biol, 362: 393-402
25. Wiendahl C, Brandner J, Küppers C, Luo B, Schygulla U, Noll T, Oldiges M (2007), *A microstructure heat exchanger for quenching the metabolism of mammalian cells*, Chem Eng Technol, 30(3): 322-28
26. Kubitzki T, Noll T, Lütz S (2008) *Immobilisation of bovine enterokinase and application of the immobilised enzyme in fusion protein cleavage*, Bioprocess Biosyst Eng. 2008, 3:173-82
27. Grimshaw MJ, Papazisis K, Picco G, Bohnenkamp HR, Noll T, Taylor-Papadimitriou J, Burchell J (2008) *Immunisation with 'naïve' syngeneic dendritic cells protects mice from tumour challenge*, Br J Cancer. 98(4):784-91
28. Batista FRX, Ângela M. Moraes AM, Büntemeyer H, Noll T (2008) *Influence of Culture Conditions on Recombinant Drosophila melanogaster S2 Cells Producing the G Glycoprotein from the Surface of Rabies Virus Cultivated in Serum-Free Medium*, Biologics, 2009, 37:108
29. Sihlbom C, van Dijk Hård I, Lidell ME, Noll T, Hansson GC, Bäckström M (2008) *Localisation of O-glycans in MUC1 glycoproteins using electron-capture dissociation fragmentation mass spectrometry*, Glycobiology. 2009 Apr;19(4):375-81
30. Magin AS, Körfer N, Partenheimer H, Lange C, Zander A, Noll T (2009) *Primary cells as feeder cells for clinical co-culture expansion of human hematopoietic stem cells from umbilical cord blood – a comparative study*, Stem Cell and Development 8(1):173-86
31. Grimshaw MJ, Papazisis K, Picco G, Bohnenkamp H, Noll T, Taylor-Papadimitriou J, Burchell J. (2009) *Immunisation with 'naïve' syngeneic dendritic cells protects mice from tumour challenge*, Br J Cancer. 2008 Feb 26;98(4):784-91
32. Widera D, Zander C, Heidbreder M, Kasperek Y, Noll T, Seitz O, Saldamli B, Sudhoff H, Sader H, Kaltschmidt C and Kaltschmidt B (2009) *Adult palatum as a novel source of neural-crest related stem cells*, Stem Cells 27(8):1899-910.
33. Kubitzki T, Minör D, Mackfeld U, Noll T, Oldiges M, Lütz S (2009) *Application of immobilized bovine enterokinase in repetitive fusion protein cleavage for the production of MUC1*, Biotechnol J. 4(11):1610-8
34. Krämer O, Klausing S, Noll T (2010) *Methods in mammalian cell line engineering: from random mutagenesis to sequence specific approaches*, Appl Microbiol Biotechnol (2010) 88:425–436

35. Burgemeister S, Nattkemper TW, Noll T, Hoffrogge R, Flaschel E (2010) *CellViCAM - Cell Viability Classification for Animal Cell Cultures using Dark Field Micrographs*, Journal of Biotechnology, 149(4):310-316
36. Nottorf T, Büntemeyer H, Siwiora-Brenke S, Lütkemeyer D, Loa A, Noll T, Lehmann J (2010), *An integrated production process for human growth hormone*, Noll (ed.), 'Cells & Culture', Springer, 205-8
37. Wingens M, Gätgens J, Hoffrogge R, Noll T (2010), *Proteomic characterization of a glucose-limited CHO perfusion process-analysis of metabolic changes and increase in productivity*, Noll (ed.), 'Cells & Culture', Springer, 265-70
38. Bäckström M, Karlsson H, Gätgens J, Noll T, Hansson GC (2010), *O-glycans on recombinant MUC1 produced in CHO K1 cells becomes less sialylated with increased productivity as determined by LC ESI MS*, Noll (ed.), 'Cells & Culture', Springer, 285-8
39. Wiendahl C, Brandner JJ, Klein B, Küppers C, Luo B, Ritchie S, Mazurek S, Scheefers H, Noll T, Schygulla U, Oldiges M (2010), *Metabolome analysis in mammalian cells: Development and application of a sampling technique*, Noll (ed.), Cells & Culture, Springer, 413-20
40. Northoff S, Sandig V, Zietze S, Büntemeyer H, Noll T (2010), *Characterization of the novel human AGE1hn cell line for production of recombinant proteins*, Noll (ed.), 'Cells & Culture', Springer, 693-8
41. Volmer M, Northoff S, Scholz S, Thüte T, Büntemeyer H, Noll T (2010) *Fast Filtration for Metabolome Sampling of Suspended Animal Cells*, Biotechnology Letters, 33(3):495-502
42. Schröder E, Scholz S, Niklas J, Rath A, Barradas OP, Jandt U, Sandig V, Rose T, Pörtner R, Reichl U, Zeng AP, Heinzle E, Noll T (2011), *Characterisation of cultivation of the human cell line AGE1.HN.AAT*, BMC Proc. 2011 Nov 22;5 Suppl 8:P87
43. Schröder E, Scholz S, Sandig V, Hoffrogge R, Noll T (2011), *Analysis of the mitochondrial subproteome of the human cell line AGE1.HN - a contribution to a systems biology approach*, BMC Proc. 2011 Nov 22;5 Suppl 8:P86
44. Heinrich C, Beckmann T, Büntemeyer H, Noll T (2011), *Utilization of multifrequency permittivity measurements in addition to biomass monitoring*, BMC Proc. 2011 Nov 22;5 Suppl 8:P30
45. Platas Barradas O, Jandt U, Da Minh Phan L, Villanueva M, Rath A, Reichl U, Schröder E, Scholz S, Noll T, Sandig V, Pörtner R, Zeng AP (2011), *Criteria for bioreactor comparison and operation standardisation during process development for mammalian cell culture*, BMC Proc. 2011 Nov 22;5 Suppl 8:P47
46. Heinrich C, Wolf T, Kropp C, Northoff S, Noll T (2011), *Growth characterization of CHO DP-12 cell lines with different high passage histories*, BMC Proc. 2011 Nov 22;5 Suppl 8:P29
47. Klausning S, Krämer O, Noll T (2011), *Bioreactor cultivation of CHO DP-12 cells under sodium butyrate treatment - comparative transcriptome analysis with CHO cDNA microarrays*, BMC Proc. 2011 Nov 22;5 Suppl 8:P98
48. Becker J, Timmermann C, Jakobi T, Rupp O, Szczepanowski R, Hackl M, Goesmann A, Tauch A, Borth N, Grillari J, Pühler A, Noll T, Brinkrolf K (2011), *Next-generation sequencing of the CHO cell transcriptome*, BMC Proc. 2011 Nov 22;5 Suppl 8:P6
49. Scholz S, Luebbecke M, Rath A, Schraeder E, Rose T, Büntemeyer H, Scheper T, Reichl U, Noll T (2011), *Characterization of the human AGE1.HN cell line: a systems biology approach*, BMC Proc. 2011 Nov 22;5 Suppl 8:P78
50. Volmer M, Gettmann J, Scholz S, Büntemeyer H, Noll T (2011), *A method for metabolomic sampling of suspended animal cells using fast filtration*, BMC Proc. 2011 Nov 22;5 Suppl 8:P93
51. Heinrich C, Beckmann T, Büntemeyer H, Noll T (2011), *Utilization of multifrequency permittivity measurements in addition to biomass monitoring*, BMC Proc. 2011 Nov 22;5 Suppl 8:O10
52. Beckmann T, Thüte T, Heinrich C, Büntemeyer H, Noll T (2011), *Proteomic and metabolomic characterization of CHO DP-12 cell lines with different high passage histories*, BMC Proc. 2011 Nov 22;5 Suppl 8:P92

53. Niklas J, Schröder E, Sandig V, Noll T, Heinzle E (2011) *Quantitative characterization of metabolism and metabolic shifts during growth of the new human cell line AGE1.HN using time resolved metabolic flux analysis*, *Bioprocess Biosystems Engineering*, 34(5):533-45
54. Lenger J, Schröder M, Ennemann E, Müller B, Wong CH, Noll T, Dierks T, Hanson SR and Sewald N, (2011), *Evaluation of Sulfatase-Directed Quinone Methide Traps for Proteomics*, *Bioorg Med Chem*. 20(2):622-7
55. Becker J., Hackl M, Jakobi T, Rupp O, Schneider J, Szczepanowski R, Bekel T, Borth N, Goesmann A, Grillari J, Kaltschmidt C, Noll T, Pühler A, Tauch A, Brinkrolf K (2011), *Unraveling the Chinese hamster ovary cell line transcriptome by next-generation sequencing*, *J Biotechnology*, 156(3): 227-35
56. Platas Barradas O, Jandt U, Da Minh Phan L, Villanueva ME, Schaletzky M, Rath A, Freund S, Reichl U, Skerhutt E, Scholz S, Noll T, Sandig V, Pörtner R, Zeng AP (2012), *Evaluation of criteria for bioreactor comparison and operation standardization for mammalian cell culture*, *Eng. Life Sci.* 12(5): 1–11
57. Carrondo M, Alves P, Carinhas N, Glassey J, Hesse F, Merten OW, Micheletti M, Noll T, Freitas Oliveira RM, Reichl U, Staby A, Teixeira A, Weichert H, Mandenius CF (2012), *How can measurement, monitoring, modelling and control advance cell culture in industrial biotechnology?*, *Biotechnol J*, 7(12): 1522-9
58. Hackl M, Jadhav V, Jakobi T, Rupp O, Brinkrolf K, Goesmann A, Pühler A, Noll T, Borth N, Grillari J (2012) *Computational identification of microRNA gene loci and precursor microRNA sequences in CHO cell lines*, *J Biotechnol*, 158(3):151-5
59. Meleady P, Hoffrogge R, Henry M, Rupp O, Bort JH, Clarke C, Brinkrolf K, Kelly S, Müller B, Doolan P, Hackl M, Beckmann T, Noll T, Grillari J, Barron N, Pühler A, Clynes M, Borth N (2012), *Utilisation and evaluation of CHO-specific sequence databases for mass spectrometry based proteomics*, *Biotechnol Bioeng*, 109(6): 1386-94
60. Beckmann TF, Krämer O, Klausning S, Heinrich C, Thüte T, Büntemeyer H, Hoffrogge R, Noll T (2012), *Effects of high passage cultivation on CHO cells: a global analysis*, *Appl. Microbiol Biotechnol*, 94: 659-71
61. Klenke C, Widera D, Engelen T, Müller J, Noll T, Niehaus K, Schmitz ML, Kaltschmidt B, Kaltschmidt C (2013) *Hsc70 Is a Novel Interactor of NF-kappaB p65 in Living Hippocampal Neurons*, *PLOS ONE* 8(6): DOI: 10.1371/journal.pone.0065280 Published: JUN 7 2013
62. Brinkrolf K, Rupp O, Laux H, Kollin F, Ernst W, Linke B, Kofler R, Romand S, Hesse F, Budach WE, Galosy S, Müller D, Noll T, Wienberg J, Jostock T, Leonard M, Grillari J, Tauch A, Goesmann A, Helk B, Mott JE, Pühler A and Borth N (2013), *Chinese hamster genome sequenced from sorted chromosomes*, *Nature Biotechnology*, 31(8): 694-5
63. Freund S, Rath A, Platas Barradas O, Skerhutt E, Scholz S, Niklas J, Sandig V, Rose T, Heinzle E, Noll T, Pörtner R, Zeng AP, Reichl R (2013), *Batch-to-batch variability of two human designer cell lines AGE1.HN and AGE1.HN.AAT carried out by different laboratories under defined culture conditions using a mathematical model*, *Engineering in Life Sciences* 03/2013; DOI:10.1002/elsc.201200111
64. Rupp O, Becker J, Brinkrolf K, Timmermann C, Borth N, Pühler A, Noll T, Goesmann A (2013), *Construction of a CHO cell line transcript database using versatile bioinformatics analysis pipelines*, *PLOS ONE*, accepted
65. Wippermann A, Klausning S, Rupp O, Noll T, Hoffrogge R (2013), *First CpG island micrarray for genome-wide analyses of DNA methylation in Chinese hamster ovary cells: new insights into the epigenetic answer to butyrate treatment*, *BMC Proceedings* 2013, 7(Suppl 6):O5
66. Gettmann J, Timmermann C, Becker J, Thüte T, Rupp O, Büntemeyer H, Lohmeier A, Scholz S, Goesmann A (2013) *Multidimension cultivation analysis by standard and omics methods for optimization of therapeutics production*, *BMC Proceedings* 2013, 7(Suppl 6):P5
67. Lohmeier A, Northoff S, Munro T, Noll T (2013) *Effects of perfusion processes under limiting conditions on different Chinese Hamster Ovary cells*, *BMC Proceedings* 2013, 7(Suppl 6):P64
68. Klausning S, Krämer O, Noll T (2013) *Enhancing cell growth and antibody production in CHO cells by siRNA knockdown of novel target genes*, *BMC Proceedings* 2013, 7(Suppl 6):P92
69. Aretz J, Thüte T, Scholz S, Kersting K, Noll T, Büntemeyer H (2013) *Understanding cell behavior in cultivation processes - A metabolic approach*, *BMC Proceedings* 2013, 7(Suppl 6):P90

70. Becker J, Timmermann C, Rupp O, Albaum SP, Brinkrolf K, Goesmann A, Pühler A, Tauch A, Noll T (2014) *Transcriptome analyses of CHO cells with the next-generation microarray CHO41K: development and validation by analysing the influence of the growth stimulating substances insulin and IGF-1 substitute LongR³*, J Biotechnol, 178:23-31
71. Wippermann A, Klausning S, Rupp O, Albaum SP, Büntemeyer H, Noll T, Hoffrogge R (2014), *Establishment of a CpG island microarray for analyses of genome-wide DNA methylation in Chinese hamster ovary cells*, Appl Microbiol Biotechnol 98(2): 579-89
72. Rath AG, Rehberg M, Janke R, Genzel Y, Scholz S, Noll T, Rose T, Sandig V, Reichl U (2014), *The influence of cell growth and enzyme activity changes on intracellular metabolite dynamics in AGE1.HN.AAT cells*, J Biotechnol, 178: 43-53
73. Jakobi T, Brinkrolf K, Tauch A, Noll T, Stoye J, Puehler A, Goesmann A (2014), *Discovery of transcription start sites in the Chinese hamster genome by next-generation RNA sequencing*, J Biotechnol 190:64-75
74. Wingens Marc, Gätgens Jochem, Albaum Stefan, Büntemeyer Heino, Noll Thomas, Hoffrogge Raimund (2015), *2D-DIGE screening of high productive CHO cells under glucose-limitation – basic changes in the proteome equipment and hints for epigenetic effects*, J Biotechnol, 201:86-97
75. Wippermann A, Brinkrolf K, Rupp O, Hoffrogge R, Noll T (2015), *The DNA methylation landscape of Chinese Hamster Ovary (CHO) DP-12 cells*, J Biotechnol, 199:38-46
76. Coronel J, Klausning S, Heinrich C, Noll T, Figueredo-Cardero A, Castilho LR (2016), *Valeric acid supplementation combined to mild hypothermia increases productivity in CHO cell cultivations*, Biochemical Engineering Journal, 114:101-109
77. Beatson R, Tajadura-Ortega V, Achkova D, Picco G, Tsourouktsoglou TD, Klausning S, Hillier M, Maher J, Noll T, Crocker PR, Taylor-Papadimitriou J, Burchell JM (2016), *MUC1 modulates the tumor immune microenvironment through the engagement of Siglec-9*, Nature Immunology, 17 (11), 1273-1281
78. Wippermann A, Rupp O, Brinkrolf K, Hoffrogge R, Noll T (2017), *Integrative analysis of DNA methylation and gene expression in butyrate-treated CHO cells*, J Biotechnol, 257:150-61
79. Müller B, Heinrich C, Jabs W, Kaspar-Schönefeld S, Schmidt A, Rodriguez de Carvalho N, Albaum SP, Baessmann C, Noll T, Hoffrogge R (2017), *Label-free protein quantification of sodium butyrate treated CHO cells by ESI-UHR-ToF-MS*, J Biotechnol, 257: 87-98
80. Wippermann A, Noll T (2017), *DNA methylation in CHO cells*, J Biotechnol, 258: 206-210
81. Romanova N and Noll T (2018), *Engineered and natural promoters and chromatin-modifying elements for recombinant protein expression in CHO cells*, Biotechnology J, 13(3): DOI: 10.1002/biot.201700232

Patents and Patent applications

1. Method for carrying out a measurement of the interaction of chemicals with the cells (2001), EP Patent 1,078,039
2. Method for Culturing Cells in order to produce Substances (2004), WO Patent 2,004,048,556
3. Verfahren zur Kulivierung von Zellen zur Produktion von Substanzen (2004), DE Patent 10,255,508
4. Electrofusion of cells, useful eg in cancer therapy or monoclonal antibody production, comprises exposing cells, flowing one at a time to a plane, to an aligning field and then a fusion pulse (2005), DE Patent 10,359,190
5. Electrofusion of heterologous cells, useful eg for preparing hybridomas and in assisted reproduction, comprises immobilizing different cells close to each other on a carrier then applying an electrical fusion pulse (2005), DE Patent 10,359,189
6. Sampling method and device (2006), EP Patent 1,719,997
7. Verfahren zur Probeentnahme sowie Probeentnahmevorrichtung (2006), DE Patent 102,005,020,985
8. Verfahren zur Herstellung rekombinanter Proteine bei konstantem Gehalt von pCO₂ im Medium (2009), DE Patent 102,008,013,899
9. Method for producing recombinant proteins with a constant content of pCO₂ in the medium (2009), WO Patent 2,009,112,250
10. Method for culturing of cells in order to produce substances (2010), EP Patent 1,585,810
11. Method for cultivating cells for the production of compounds (2011), EP Patent 2,275,530
12. Method for producing recombinant proteins with a constant content of pCO₂ in the medium (2013), EP Patent 2,283,120
13. Method for producing recombinant proteins with a constant content of pCO₂ in the medium (2013), US Patent 8,460,895
14. Method for recombinant protein production (2013), EP Patent Application 13 177 678.3

Bielefeld, 23.12.2016