

## List of publications

### Original publications

61. Dai Z, Huang M, Chen Y, **Siewers V**, Nielsen J. 2018. Global rewiring of cellular metabolism renders *Saccharomyces cerevisiae* Crabtree negative. *Nat Commun* 9:3059.
60. Teixeira PG, David F, **Siewers V**, Nielsen J. 2018. Engineering lipid droplet assembly mechanisms for improved triacylglycerol accumulation in *Saccharomyces cerevisiae*. *FEMS Yeast Res* 18(6). doi: 10.1093/femsyr/foy060.
59. Ferreira R, Teixeira PG, Gossing M, David F, **Siewers V**, Nielsen J. 2018. Metabolic engineering of *Saccharomyces cerevisiae* for overproduction of triacylglycerols. *Metab Eng Commun* 6:22-27.
58. Wei Y, Bergenholm D, Gossing M, **Siewers V**, Nielsen J. 2018. Expression of cocoa genes in *Saccharomyces cerevisiae* improves cocoa butter production. *Microb Cell Fact* 17:11.
57. Ferreira R, Teixeira PG, **Siewers V**, Nielsen J. 2018. Redirection of lipid flux toward phospholipids in yeast increases fatty acid turnover and secretion. *Proc Natl Acad Sci U S A* 115:1262-1267.
56. Bergenholm D, Gossing M, Wei Y, **Siewers V**, Nielsen J. 2018. Modulation of saturation and chain length of fatty acids in *Saccharomyces cerevisiae* for production of cocoa butter-like lipids. *Biotechnol Bioeng* 115:932-942.
55. Zhou YJ, Hu Y, Zhu Z, **Siewers V**, Nielsen J. 2018. Engineering 1-alkene biosynthesis and secretion by dynamic regulation in yeast. *ACS Synth Biol* 7:584-590.
54. Hu Y, Zhu Z, Nielsen J, **Siewers V**. 2017. Heterologous transporter expression for improved fatty alcohol secretion in yeast. *Metab Eng* 45:51-58.
53. Yu T, Zhou YJ, Wenning L, Liu Q, Krivoruchko A, **Siewers V**, Nielsen J, David F. 2017. Metabolic engineering of *Saccharomyces cerevisiae* for production of very long chain fatty acid-derived chemicals. *Nat Commun* 8:15587.
52. Teixeira PG, Ferreira R, Zhou YJ, **Siewers V**, Nielsen J. 2017. Dynamic regulation of fatty acid pools for improved production of fatty alcohols in *Saccharomyces cerevisiae*. *Microb Cell Fact* 16:45.
51. Tippmann S, Ferreira R, **Siewers V**, Nielsen J, Chen Y. 2017. Effects of acetoacetyl-CoA synthase expression on production of farnesene in *Saccharomyces cerevisiae*. *J Ind Microbiol Biotechnol* 44:911-922.
50. Wei Y, Gossing M, Bergenholm D, **Siewers V**, Nielsen J. 2017. Increasing cocoa butter-like lipid production of *Saccharomyces cerevisiae* by expression of selected cocoa genes. *AMB Express* 7:34.
49. Wei Y, **Siewers V**, Nielsen J. 2017. Cocoa butter-like lipid production ability of non-oleaginous and oleaginous yeasts under nitrogen-limited culture conditions. *Appl Microbiol Biotechnol* 101:3577-3585.
48. Wenning L, Yu T, David F, Nielsen J, **Siewers V**. 2016. Establishing very long-chain fatty alcohol and wax ester biosynthesis in *Saccharomyces cerevisiae*. *Biotechnol Bioeng* 114:1025-1035.

47. Bergman A, **Siewers V**, Nielsen J, Chen Y. 2016. Functional expression and evaluation of heterologous phosphoketolases in *Saccharomyces cerevisiae*. *AMB Express* 6:115.
46. Fletcher E, Feizi A, Bisschops MM, Hallström BM, Khoomrung S, **Siewers V**, Nielsen J. 2016. Evolutionary engineering reveals divergent paths when yeast is adapted to different acidic environments. *Metab Eng* 39:19-28.
45. Zhou YJ, Buijs NA, Zhu Z, Gómez DO, Boonsombuti A, **Siewers V**, Nielsen J. 2016. Harnessing yeast peroxisomes for biosynthesis of fatty-acid-derived biofuels and chemicals with relieved side-pathway competition. *J Am Chem Soc* 138:15368-15377.
44. Tippmann S, Anfelt J, David F, Rand JM, **Siewers V**, Uhlén M, Nielsen J, Hudson EP. 2016. Affibody scaffolds improve sesquiterpene production in *Saccharomyces cerevisiae*. *ACS Synth Biol* 6:19-28.
43. Zhou YJ, Buijs NA, Zhu Z, Qin J, **Siewers V**, Nielsen J. 2016. Production of fatty acid-derived oleochemicals and biofuels by synthetic yeast cell factories. *Nat Commun* 7:11709.
42. David F, Nielsen J, **Siewers V**. 2016. Flux control at the malonyl-CoA node through hierarchical dynamic pathway regulation in *Saccharomyces cerevisiae*. *ACS Synth Biol* 5:224-233.
41. Shi S, Ji H, **Siewers V**, Nielsen J. 2016. Improved production of fatty acids by *Saccharomyces cerevisiae* through screening a cDNA library from the oleaginous yeast *Yarrowia lipolytica*. *FEMS Yeast Res* 16:fov108.
40. de Jong BW, **Siewers V**, Nielsen J. 2016. Physiological and transcriptional characterization of *Saccharomyces cerevisiae* engineered for production of fatty acid ethyl esters. *FEMS Yeast Res* 16:fov105.
39. Fletcher E, Feizi A, Kim S, **Siewers V**, Nielsen J. 2015. RNA-seq analysis of *Pichia anomala* reveals important mechanisms required for survival at low pH. *Microb Cell Fact* 14:143.
38. Qin J, Zhou YJ, Krivoruchko A, Huang M, Liu L, Khoomrung S, **Siewers V**, Jiang B, Nielsen J. 2015. Modular pathway rewiring of *Saccharomyces cerevisiae* enables high-level production of L-ornithine. *Nat Commun* 6:8224.
37. Zhang Y, Liu G, Engqvist MK, Krivoruchko A, Hallström BM, Chen Y, **Siewers V**, Nielsen J. 2015. Adaptive mutations in sugar metabolism restore growth on glucose in a pyruvate decarboxylase negative yeast strain. *Microb Cell Fact* 14:116.
36. Tippmann S, Scalcinati G, **Siewers V**, Nielsen J. 2015. Production of farnesene and santalene by *Saccharomyces cerevisiae* using fed-batch cultivations with RQ-controlled feed. *Biotechnol Bioeng* 113:72-81.
35. López J, Essus K, Kim IK, Pereira R, Herzog J, **Siewers V**, Nielsen J, Agosin E. 2015. Production of  $\beta$ -ionone by combined expression of carotenogenic and plant CCD1 genes in *Saccharomyces cerevisiae*. *Microb Cell Fact* 14:84.
34. Zhang Y, Dai Z, Krivoruchko A, Chen Y, **Siewers V**, Nielsen J. 2015. Functional pyruvate formate lyase pathway expressed with two different electron donors in *Saccharomyces cerevisiae* at aerobic growth. *FEMS Yeast Res* 15:fov024.

33. Goossens KV, Ielasi FS, Nookaew I, Stals I, Alonso-Sarduy L, Daenen L, Van Mulders SE, Stassen C, van Eijsden RG, **Siewers V**, Delvaux FR, Kasas S, Nielsen J, Devreese B, Willaert RG. 2015. Molecular mechanism of flocculation self-recognition in yeast and its role in mating and survival. *MBio* 6:e00427-15.
32. Chen Y, Zhang Y, **Siewers V**, Nielsen J. 2015. Ach1 is involved in shuttling mitochondrial acetyl units for cytosolic C2 provision in *Saccharomyces cerevisiae* lacking pyruvate decarboxylase. *FEMS Yeast Res* 15:fov015.
31. Navarrete C, Nielsen J, **Siewers V**. 2014. Enhanced ethanol production and reduced glycerol formation in *fps1Δ* mutants of *Saccharomyces cerevisiae* engineered for improved redox balancing. *AMB Express* 4:86.
30. Buijs NA, Zhou YJ, **Siewers V**, Nielsen J. 2015. Long-chain alkane production by the yeast *Saccharomyces cerevisiae*. *Biotechnol Bioeng* 112:1275-1279.
29. de Jong BW, Shi S, Valle-Rodríguez JO, **Siewers V**, Nielsen J. 2014. Metabolic pathway engineering for fatty acid ethyl ester production in *Saccharomyces cerevisiae* using stable chromosomal integration. *J Ind Microbiol Biotechnol* 42:477-486.
28. Shi S, Chen Y, **Siewers V**, Nielsen J. 2014. Improving production of malonyl coenzyme A-derived metabolites by abolishing Snf1-dependent regulation of Acc1. *MBio* 5:e01130-14.
27. Shi S, Valle-Rodríguez JO, **Siewers V**, Nielsen J. 2014. Engineering of chromosomal wax ester synthase integrated *Saccharomyces cerevisiae* mutants for improved biosynthesis of fatty acid ethyl esters. *Biotechnol Bioeng* 111:1740-1747.
26. de Jong BW, Shi S, **Siewers V**, Nielsen J. 2014. Improved production of fatty acid ethyl esters in *Saccharomyces cerevisiae* through up-regulation of the ethanol degradation pathway and expression of the heterologous phosphoketolase pathway. *Microb Cell Fact* 13:39.
25. Chen Y, Bao J, Kim IK, **Siewers V**, Nielsen J. 2014. Coupled incremental precursor and co-factor supply improves 3-hydroxypropionic acid production in *Saccharomyces cerevisiae*. *Metab Eng* 22:104-109.
24. Valle-Rodríguez JO, Shi S, **Siewers V**, Nielsen J. 2014. Metabolic engineering of *Saccharomyces cerevisiae* for production of fatty acid ethyl esters, an advanced biofuel, by eliminating non-essential fatty acid utilization pathways. *Appl Energy* 115:226-232.
23. Krivoruchko A, Serrano-Amatriain C, Chen Y, **Siewers V**, Nielsen J. 2013. 1. Improving biobutanol production in engineered *Saccharomyces cerevisiae* by manipulation of acetyl-CoA metabolism. *J Ind Microbiol Biotechnol* 40:1051-1056.
22. Kocharin K, **Siewers V**, Nielsen J. 2013. Improved polyhydroxybutyrate production by *Saccharomyces cerevisiae* through the use of the phosphoketolase pathway. *Biotechnol Bioeng* 110:2216-2224.
21. van Eijsden RG, Stassen C, Daenen L, Van Mulders SE, Bapat PM, **Siewers V**, Goossens KV, Nielsen J, Delvaux FR, Van Hummelen P, Devreese B, Willaert RG. 2013. A universal fixation method based on

quaternary ammonium salts (RNAlater) for omics-technologies: *Saccharomyces cerevisiae* as a case study. *Biotechnol Lett* 35:891-900.

20. Partow S, **Siewers V**, Daviet L, Schalk M, Nielsen J. 2012. Reconstruction and evaluation of the synthetic bacterial MEP pathway in *Saccharomyces cerevisiae*. *PLoS One* 7:e52498.
19. Chen Y, Daviet L, Schalk M, **Siewers V**, Nielsen J. 2013. Establishing a platform cell factory through engineering of yeast acetyl-CoA metabolism. *Metab Eng* 15:48-54.
18. Kocharin K, Chen Y, **Siewers V**, Nielsen J. 2012. Engineering of acetyl-CoA metabolism for the improved production of polyhydroxybutyrate in *Saccharomyces cerevisiae*. *AMB Express* 2:52.
17. Scalcinati G, Partow S, **Siewers V**, Schalk M, Daviet L, Nielsen J. 2012. Combined metabolic engineering of precursor and co-factor supply to increase alpha-santalene production by *Saccharomyces cerevisiae*. *Microb Cell Fact* 11:117.
16. Chen Y, **Siewers V**, Nielsen J. 2012. Profiling of cytosolic and peroxisomal acetyl-CoA metabolism in *Saccharomyces cerevisiae*. *PLoS One* 7:e42475.
15. Chen Y, Partow S, Scalcinati G, **Siewers V**, Nielsen J. 2012. Enhancing the copy number of episomal plasmids in *Saccharomyces cerevisiae* for improved protein production. *FEMS Yeast Res* 12:598-607.
14. Papini M, Nookaew I, **Siewers V**, Nielsen J. 2012. Physiological characterization of recombinant *Saccharomyces cerevisiae* expressing the *Aspergillus nidulans* phosphoketolase pathway: validation of activity through (13)C-based metabolic flux analysis. *Appl Microbiol Biotechnol* 95:1001-1010.
13. Shi S, Valle-Rodríguez JO, Khoomrung S, **Siewers V**, Nielsen J. 2012. Functional expression and characterization of five wax ester synthases in *Saccharomyces cerevisiae* and their utility for biodiesel production. *Biotechnol Biofuels* 5:7.
12. Scalcinati, G, Knuf C, Partow S, Chen Y, Maury J, Schalk M, Daviet L, Nielsen J, **Siewers V**. 2012. Dynamic control of gene expression in *Saccharomyces cerevisiae* engineered for the production of plant sesquiterpene  $\alpha$ -santalene in a fed-batch mode. *Metab Eng* 14:91-103.
11. Van Mulders SE, Stassen C, Daenen L, Devreese B, **Siewers V**, van Eijsden RG, Nielsen J, Delvaux FR, Willaert R. 2011. The influence of microgravity on invasive growth in *Saccharomyces cerevisiae*. *Astrobiology* 11:45-55.
10. Papini M, Nookaew I, Scalcinati G, **Siewers V**, Nielsen J. 2010. Phosphoglycerate mutase knock-out mutant *Saccharomyces cerevisiae*: physiological investigation and transcriptome analysis. *Biotechnol J* 5:1016-1027.
9. Partow S, **Siewers V**, Bjørn S, Nielsen J, Maury J. 2010. Characterization of different promoters for designing a new expression vector in *Saccharomyces cerevisiae*. *Yeast* 27:955-964.
8. **Siewers V**, San-Bento R, Nielsen J. 2010. Implementation of communication-mediating domains for non-ribosomal peptide production in *Saccharomyces cerevisiae*. *Biotech Bioeng* 106:841-844.
7. **Siewers V**, Chen X, Huang L, Zhang J, Nielsen J. 2009. Heterologous production of non-ribosomal peptide LLD-ACV in *Saccharomyces cerevisiae*. *Metab Eng* 11:391-397.

6. Flagfeldt DB, **Siewers V**, Huang L, Nielsen J. 2009. Characterization of chromosomal integration sites for heterologous gene expression in *Saccharomyces cerevisiae*. *Yeast* 26:545-551.
5. **Siewers V**, Kokkelink L, Smedsgaard J, Tudzynski P. 2006. Identification of an abscisic acid gene cluster in the grey mould *Botrytis cinerea*. *Appl Environ Microbiol* 72:4619-4626.
4. **Siewers V\***, Viaud M\*, Jimenez-Teja D, Collado IG, Schulze Gronover C, Pradier J-M, Tudzynski B, Tudzynski P. 2005. Functional analysis of the cytochrome P450 monooxygenase gene *bcbot1* of *Botrytis cinerea* indicates that botrydial is a strain-specific virulence factor. *Mol Plant-Microbe Interact* 18:602-612.  
*\*equal contribution*
3. Chagué V, Danit L-V, **Siewers V**, Schulze Gronover C, Tudzynski P, Tudzynski B, Sharon A. 2005. Ethylene sensing and gene activation in *Botrytis cinerea*: the missing link in ethylene regulation of fungal – plant interactions? *Mol Plant-Microbe Interact* 19:33-42.
2. **Siewers V**, Smedsgaard J, Tudzynski P. 2004. The P450 monooxygenase BcABA1 is essential for abscisic acid biosynthesis in *Botrytis cinerea*. *Appl Environ Microbiol* 70:3868-3876.
1. Rolke Y, Liu S, Quidde T, Williamson B, Schouten A, Weltring K-M, **Siewers V**, Tenberge KB, Tudzynski B, Tudzynski P. 2004. Functional analysis of H<sub>2</sub>O<sub>2</sub>-generating systems in *Botrytis cinerea*: the major Cu-Zn-superoxide dismutase (BCSOD1) contributes to virulence on French bean, whereas a glucose oxidase (BCGOD1) is dispensable. *Mol Plant Pathol* 5:17-23.

#### Review articles

12. Marella ER, Holkenbrink C, Siewers V, Borodina I. 2017. Engineering microbial fatty acid metabolism for biofuels and biochemicals. *Curr Opin Biotechnol* 50:39-46.
11. Chen Y, Zhou YJ, **Siewers V**, Nielsen J. 2015. Enabling technologies to advance microbial isoprenoid production. *Adv Biochem Eng Biotechnol* 148:143-160.
10. Krivoruchko A, Zhang Y, **Siewers V**, Chen Y, Nielsen J. 2014. Microbial acetyl-CoA metabolism and metabolic engineering. *Metab Eng* 28C:28-42.
9. Zhou YJ, Buijs NA, **Siewers V**, Nielsen J. 2014. Fatty acid-derived biofuels and chemicals production in *Saccharomyces cerevisiae*. *Front Bioeng Biotechnol* 2:32.
8. David F, **Siewers V**. 2015. Advances in yeast genome engineering. *FEMS Yeast Res* 15:1-14.
7. **Siewers V**. 2014. An overview on selection marker genes for transformation of *Saccharomyces cerevisiae*. *Methods Mol Biol* 1152:3-15.
6. Tippmann S, Chen Y, **Siewers V**, Nielsen J. 2013. From flavors and pharmaceuticals to advanced biofuels: Production of isoprenoids in *Saccharomyces cerevisiae*. *Biotechnol J* 8 :1435-1444.
5. Buijs NA, **Siewers V**, Nielsen J. 2013. Advanced biofuel production by the yeast *Saccharomyces cerevisiae*. *Curr Opin Chem Biol* 17:480-488.
4. Kim IK, Roldão A, **Siewers V**, Nielsen J. 2012. A systems-level approach for metabolic engineering of yeast cell factories. *FEMS Yeast Res* 12:228-248.

3. de Jong B, **Siewers V**, Nielsen J. 2012. Systems biology of yeast: enabling technology for development of cell factories for production of advanced biofuels. *Curr Opin Biotechnol* 23:624-630.
2. Krivoruchko A, **Siewers V**, Nielsen J. 2011. Opportunities for yeast metabolic engineering: Lessons from synthetic biology. *Biotechnol J* 6:262-276.
1. Shi S, Valle-Rodríguez JO, **Siewers V**, Nielsen J. 2011. Prospects for microbial biodiesel production. *Biotechnol J* 6:277-285

#### **Book chapters**

3. Bergman A, **Siewers V**. 2016. Metabolic engineering strategies to convert carbohydrates to aviation range hydrocarbons. In: C Chuck (ed). *Biofuels for aviation; feedstocks, technology and implementation*. Elsevier pp. 151-190.
2. **Siewers V**, Mortensen, U, Nielsen J. 2009. Genetic engineering tools for *Saccharomyces cerevisiae*. In: AL Demain, R Baltz, JE Davies (eds.). *Manual of industrial microbiology and biotechnology*, 3<sup>rd</sup> edition, ASM press, pp 287-301.
1. Tudzynski P, **Siewers V**. 2004. Approaches to molecular genetics and genomics of *Botrytis*. In: Y Elad, B Williamson, P Tudzynski, N Delen (eds.). *Botrytis: biology, pathology and control*. Kluwer Academic Press, pp 53-66.

#### **Other**

1. Tyo KE, **Siewers V**. 2011. Meeting report: Gothenburg Life Science Conference XI – Industrial Systems Biology. *Biotechnol J* 6:259-261.