Young-Kyoung PARK

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Education

AgroParisTech, INRAE, Université Paris-Saclay — PhD in Biotechnology — *Jouy-en-Josas, France*
Thesis: Metabolic engineering of *Yarrowia lipolytica* for the production of even- and odd-chain fatty acids — *October 2020*

Seoul National University — Master in Food Biotechnology — *Seoul, South Korea*
Thesis: Overproduction of Hepatitis B virus surface antigen in recombinant *Saccharomyces cerevisiae* — *February 2009*

Seoul National University — Bachelor in Food Biotechnology — *Seoul, South Korea*
February 2007

Experience

Institut National de la Recherche Agronomique et Environment (INRAE) — Post-Doc — *Jouy-en-Josas, France*
- Metabolic engineering of *Yarrowia lipolytica* — *November 2020 – present*

Institut National de la Recherche Agronomique (INRA) — Assistant Engineer — *Jouy-en-Josas, France*
- Development of synthetic biological tools
- Metabolic engineering of *Yarrowia lipolytica* — *September 2016 – September 2017*

Samsung Advanced Institute of Technology (SAIT) — Researcher — *Suwon, South Korea*
- Pretreatment of lignocellulosic biomass
- Strain development and Fermentation for the production of biochemicals — *February 2009 – December 2013*

Mogam Institute, Green Cross Corp. — Visiting researcher — *Yongin, South Korea*
- Fermentation of recombinant *S. cerevisiae* for the production of sHBsAg (75L-scale) — *March 2007 – July 2007*

Publication

1. **YK Park***, F Bordes, F Letisse, JM Nicaud, Engineering precursor pools for increasing production of odd-chain fatty acids in *Yarrowia lipolytica*, Metabolic Engineering Communications 12 (2021) e00158
2. **YK Park***, JM Nicaud, Metabolic engineering for unusual lipid production in *Yarrowia lipolytica*, Microorganisms 8 (2020) 1937
3. **YK Park***, R Ledesma-Amaro*, JM Nicaud, *De novo* biosynthesis of odd-chain fatty acids in *Yarrowia lipolytica* enabled by modular pathway engineering, Frontiers in Bioengineering and Biotechnology 7 (2020) 484
4. PJ Trotter, K Juco, HT Le, K Nelson, L Tamayo, JM Nicaud, **YK Park**, Glutamate dehydrogenases in the oleaginous yeast *Yarrowia lipolytica*, Yeast 37 (2020) 103-115
5. **YK Park***, JM Nicaud, Screening a genomic library for genes involved in propionate tolerance in *Yarrowia lipolytica*, Yeast 37(2020) 131-140
6. **YK Park**[1], M Vandermies[1], P Soudier, S Telek, S Thomas, JM Nicaud, P Fickers, Efficient expression vectors and host strain for the production of recombinant proteins by *Yarrowia lipolytica* in process conditions, Microbial Cell Factories (2019) 18:167
7. M Larroude, **YK Park**, P Soudier, M Kubiak, JM Nicaud, T Rossignol, A goldengate toolkit for *Yarrowia lipolytica* synthetic biology, Microbial Biotechnology (2019) 12(6), 1249– 1259
8. **YK Park**, P Korpys, M Kubiak, E Celinska, P Soudier, P Trebulle, M Larroude, T Rossignol, JM Nicaud, Engineering the architecture of erythritol-inducible promoters for regulated and enhanced gene expression in *Yarrowia lipolytica*, FEMS Yeast Research 19 (2019) foy105
9. **YK Park**, T Dulermo, R Ledesma-Amaro, JM Nicaud, Optimization of odd chain fatty acid production by *Yarrowia lipolytica*, Biotechnology for Biofuels (2018) 11:158
10. H Gamboa-Melendez, M Larroude, **YK Park**, P Trebulle, JM Nicaud, R Ledesma-Amaro, Synthetic biology to improve the production of lipases and esterases (Review), Lipases and Phospholipases, Methods in Molecular Biology 1835 (2018) 229-242
11. **YK Park**, JM Nicaud, R Ledesma-Amaro, The engineering potential of *Rhodosporidium toruloides* as a workhorse for biotechnological applications, Trends in Biotechnology 36 (2018) 304-317
12. JY Lee, CD Kang, SH Lee, **YK Park**, KM Cho, Engineering cellular redox balance in *Saccharomyces cerevisiae* for improved production of L-lactic acid, Biotechnology and Bioengineering 112 (2015) 751-758
13. **YK Park**, SM Jung, HK Lim, YJ Son, YC Park, JH Seo, Effects of Trx2p and Sec23p expression on stable production of hepatitis B surface antigen S domain in recombinant *Saccharomyces cerevisiae*, Journal of Biotechnology 160 (2012) 151-160
14. SE Park, HM Koo, **YK Park**, SM Park, JC Park, OK Lee, YC Park, JH Seo, Expression of aldehyde dehydrogenase 6 reduces inhibitory effect of furan derivatives on cell growth and ethanol production in *Saccharomyces cerevisiae*, Bioresource Technology 102 (2011) 6033-6038
15. EJ Kim, **YK Park**, K Lim, YC Park, JH Seo, Expression of hepatitis B virus surface antigen S domain in recombinant *Saccharomyces cerevisiae*, Journal of Biotechnology 141 (2009) 155-159

Patent

1. 2015, Genetically Engineered Yeast Cell Capable of Producing Lactate, Method of Producing the Same, and the Method of Producing Lactate by Using the Cell (US9663803)
2. 2014, Genetically Engineered Yeast Cell Producing Lactate Including Acetaldehyde Dehydrogenase, Method of Producing Yeast cell, and Method of Producing Lactate Using the Same (EP2873725, US9617569)
3. 2014, Mutant Microorganism Having Improved 1,4-BDO productivity and Method of Preparing 1,4-BDO using the mutant microorganism (US9416379B2)
4. 2013, Yeast Cell with Inactivated or Depressed Pyruvate Carboxylase and Method of Producing Lactate Using the Yeast Cell (first inventor, US9562243)
5. 2013, Yeast Cell with Increased Pyruvate Pool in Cytosol and Method of Producing Pyruvate-based Metabolite Using the Same (first inventor, EP2853602, US20150087032)
6. 2012, Modified Microorganism for High Efficient Production of Lactic Acid (EP2537935, US9150835)
7. 2011, Recombinant Microorganism for Simultaneously Producing 3-Hydroxypropionic Acid and 1,3-Propandiol(US20120301935A1)
8. 2011, Genetic Modification for Production of 3-Hydroxypropionic Acid (US8541212)
9. 2011, Method of Producing 3-Hydroxypropionic Acid Using Malonic Semialdehyde Reducing Pathway (EP2505656, CN102690774A, US20120244588)
10. 2011, Modified Microorganism Having Enhanced Xylose Utilization (US20120329104)
11. 2009, Method and Apparatus for Pretreating Biomass Using Internal Heat (EP2336291, US9139852)

Presentation

5th Applied Synthetic Biology in Europe — *Virtual conference*
Engineering precursor pools for increasing production of odd-chain fatty acids in *Yarrowia lipolytica* (poster) — *2020*

International Union of Microbiological Societies Congresses — *Virtual conference*
Metabolic engineering of *Yarrowia lipolytica* for production of odd chain fatty acids (poster, *awarded) — *2020*

Korean Society for Microbiology and Biotechnology, International symposium — *Jeju, South Korea*
Metabolic engineering of *Yarrowia lipolytica* for production of odd chain fatty acids (poster, *awarded) — *2019*
Engineering architecture of inducible promoters for regulated and enhanced gene expression in *Yarrowia lipolytica* (poster)

Yeast Lipid Conference — *Ljubljana, Slovenia*
Push and pull of odd chain fatty acids production by *Yarrowia lipolytica* (poster) — *2019*

4th Applied Synthetic Biology in Europe — *Toulouse, France*
Metabolic engineering of *Yarrowia lipolytica* for production of odd chain fatty acids (poster, *awarded) — *2018*

Non-conventional Yeasts — *Rzeszow, Poland*
Metabolic engineering of *Yarrowia lipolytica* for production of odd chain fatty acids (poster, *awarded) — *2018*
Engineering architecture of inducible promoters for regulated and enhanced gene expression in *Yarrowia lipolytica* (poster)

Symposium on Biotechnology for Fuels and Chemicals — *New Orleans, US*
Genome-wide screening of the furan-detoxifying genes in *Saccharomyces cerevisiae* (poster) — *2011*

SIMB (Society for Industrial Microbiology and Biotechnology) annual meeting — *New Orleans, US*
Production of 3-hydroxypropionic acid in *Escherichia coli* — *2011*

Symposium on Biotechnology for Fuels and Chemicals — *New Orleans, US*
Effects of overexpression of NADPH-regenerating glucose 6-phosphate dehydrogenase on caprolactone production in recombinant *Escherichia coli* harboring cyclohexanone monooxygenase gene (poster) — *2008*

Awards

2020 **The excellent E-poster presentation award,** International Union of Microbiological Societies Congresses
2020 **Travel Grant,** COST (European Cooperation in Science and Technology), Short term scientific mission
2019 **Travel Grant,** FEMS conference attending grant
2019 **Travel Grant,** FEMS-Yeast Lipid Conference
2019 **Gold medal,** iGEM Competition (Université Paris-Saclay, Evry team)
2019 **The best poster presentation,** Korean Society for Microbiology and Biotechnology, International symposium
2018 **The best poster presentation,** 4th Applied Synthetic Biology in Europe
2018 **The best poster presentation,** Non-Conventional Yeasts
2018 **Travel Grant,** FEMS-Non-Conventional Yeasts
2017 **PhD Fellowship,** Kwanjeong Educational Foundation

Program Committees

2018 **Doc'Micalis (internal symposium),** organizer — *Jouy-en-Josas, France*
2017 **Yeast Lipid Conference (international conference),** organizer — *Paris, France*