

# Young-Kyoung PARK

Postdoc, Assistant supervisor

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## Education

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2017-2020	<b>INRA, AgroParisTech, Université Paris-Saclay:</b> PhD in Biotechnology	<i>Jouy-en-Josas, France</i>
	Thesis: Metabolic engineering of <i>Yarrowia lipolytica</i> for the production of even- and odd-chain fatty acids (Advisor: Dr. Jean-Marc Nicaud)	
2007-2009	<b>Seoul National University:</b> Master in Food Biotechnology	<i>Seoul, Korea</i>
	Thesis: Overproduction of Hepatitis B virus surface antigen in recombinant <i>Saccharomyces cerevisiae</i> (Advisor: Prof. Jin-Ho Seo)	
2003-2007	<b>Seoul National University:</b> Bachelor in Food Biotechnology	<i>Seoul, Korea</i>

## Research Experience

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07/2021 – present	<b>Imperial College London</b>		<i>UK</i>
	<i>Synthetic biology and communities of non-model yeasts</i>	Post-Doc/Assistant supervisor	
	<b>Institut National de la Recherche Agronomique (INRA), Micalis Institute</b>		<i>France</i>
11/2020 – 06/2021	<i>Expanding substrate range to raw materials</i>	Post-Doc	
10/2017 – 10/2020	<i>Understanding of lipid metabolism and metabolic engineering</i>	PhD	
09/2016 – 09/2017	<i>Development of synthetic biological tools</i>	Assistant Engineer	
02/2009 – 12/2013	<b>Samsung Advanced Institute of Technology (SAIT)</b>	Researcher	<i>Korea</i>
	<i>Strain development for producing bioethanol and biochemicals (bacteria, yeasts)</i> <i>Fermentation and Metabolome analysis</i>		
03/2007 – 07/2007	<b>Green Cross Corp. Mogam Institute</b>	Visiting researcher	<i>Korea</i>
	<i>Strain development and fermentation for producing therapeutic protein</i>		

## Publication

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1. **YK Park**, R Ledema-Amaro, What makes *Yarrowia lipolytica* well suited for industry? Trends in Biotechnology (2022)
2. S Abreu<sup>1</sup>, **YK Park**<sup>2</sup>, C Pires de Souza, L Vidal, P Chaminade, JM Nicaud, Lipid readjustment in *Yarrowia lipolytica* odd-chain fatty acids producing strains, Biomolecules (2022) 12:1026
3. WA Sahyouni, SE Kantar, A Khelfa, **YK Park**, JM Nicaud, N Louka, M Koubaa, Optimization of *cis*-9-heptadecenoic acid production from the oleaginous yeast *Yarrowia lipolytica*, Fermentation (2022) 8:6
4. **YK Park**, C González-Fernández, R Robles-Iglesias, L Vidal, P Fontanille, C Kennes, E Tomás Pejó, JM Nicaud, P Fickers, Bioproducts generation from carboxylate platforms by the non-conventional yeast *Yarrowia lipolytica*, FEMS Yeast Research (2021) foab047
5. **YK Park**<sup>\*</sup>, 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
6. **YK Park**<sup>\*</sup>, JM Nicaud, Metabolic engineering for unusual lipid production in *Yarrowia lipolytica*, Microorganisms 8 (2020) 1937
7. **YK Park**<sup>\*</sup>, R Ledesma-Amaro<sup>\*</sup>, 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
8. 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
9. **YK Park**<sup>\*</sup>, JM Nicaud, Screening a genomic library for genes involved in propionate tolerance in *Yarrowia lipolytica*, Yeast 37(2020) 131-140
10. **YK Park**<sup>1</sup>, M Vandermies<sup>1</sup>, 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
11. M Larroude, **YK Park**, P Soudier, M Kubiak, JM Nicaud, T Rossignol, A golden gate toolkit for *Yarrowia lipolytica* synthetic biology, Microbial Biotechnology (2019) 12(6), 1249– 1259
12. **YK Park**, P Korpys, M Kubiak, E Celinska, P Soudier, P Trebule, 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
13. **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
14. H Gamboa-Melendez, M Larroude, **YK Park**, P Trebule, 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
15. **YK Park**, JM Nicaud, R Ledesma-Amaro, The engineering potential of *Rhodospiridium toruloides* as a workhorse for biotechnological applications, Trends in Biotechnology 36 (2018) 304-317
16. 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
17. **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
18. 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
19. 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

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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-propanediol (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

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<b>Metabolic Engineering Conference</b>	2021 <i>Virtual conference</i>
Metabolic engineering of <i>Yarrowia lipolytica</i> for production of odd chain fatty acids (poster)	
<b>5<sup>th</sup> Applied Synthetic Biology in Europe</b>	2020 <i>Virtual conference</i>
Engineering precursor pools for increasing production of odd-chain fatty acids in <i>Yarrowia lipolytica</i> (poster)	
<b>International Union of Microbiological Societies Congresses</b>	2020 <i>Virtual conference</i>
Metabolic engineering of <i>Yarrowia lipolytica</i> for production of odd chain fatty acids (poster, *awarded)	
<b>Korean Society for Microbiology and Biotechnology, International symposium</b>	2019 <i>Jeju, South Korea</i>
Metabolic engineering of <i>Yarrowia lipolytica</i> for production of odd chain fatty acids (poster, *awarded)	
Engineering architecture of inducible promoters for regulated and enhanced gene expression in <i>Yarrowia lipolytica</i> (poster)	
<b>Yeast Lipid Conference</b>	2019 <i>Ljubljana, Slovenia</i>
Push and pull of odd chain fatty acids production by <i>Yarrowia lipolytica</i> (poster)	
<b>4<sup>th</sup> Applied Synthetic Biology in Europe</b>	2018 <i>Toulouse, France</i>
Metabolic engineering of <i>Yarrowia lipolytica</i> for production of odd chain fatty acids (poster, *awarded)	
<b>Non-conventional Yeasts</b>	2018 <i>Rzeszow, Poland</i>
Metabolic engineering of <i>Yarrowia lipolytica</i> for production of odd chain fatty acids (poster, *awarded)	
Engineering architecture of inducible promoters for regulated and enhanced gene expression in <i>Yarrowia lipolytica</i> (poster)	
<b>Symposium on Biotechnology for Fuels and Chemicals</b>	2011 <i>New Orleans, US</i>
Genome-wide screening of the furan-detoxifying genes in <i>Saccharomyces cerevisiae</i> (poster)	
<b>SIMB (Society for Industrial Microbiology and Biotechnology) annual meeting</b>	2011 <i>New Orleans, US</i>
Production of 3-hydroxypropionic acid in <i>Escherichia coli</i>	
<b>Symposium on Biotechnology for Fuels and Chemicals</b>	2008 <i>New Orleans, US</i>
Effects of overexpression of NADPH-regenerating glucose 6-phosphate dehydrogenase on caprolactone production in recombinant <i>Escherichia coli</i> harboring cyclohexanone monoxygenase gene (poster)	

## Awards

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- 2021 **The L'Oréal-UNESCO Young Talents France for Women in Science**
- 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**, 4<sup>th</sup> 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