

STYLIANOS FAKAS

I. PERSONAL INFORMATION

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II. EDUCATION

DEGREE	UNIVERSITY
Ph.D.	Agricultural University, Athens, Greece
M.Sc.	National University of Athens, Greece
B.Sc.	Agricultural University, Athens, Greece

III. APPOINTMENTS

- Associate Professor, Department of Food and Animal Sciences, Alabama A&M University, 2020-today
- Assistant Professor, Department of Food and Animal Sciences, Alabama A&M University, 2014-2020
- Research Associate, Department of Food Science, Rutgers University, 2012-2014
- Postdoctoral Associate, Department of Food Science, Rutgers University, 2008-2012. Advisor: Dr. George M. Carman
- Postdoctoral Researcher, Department of Biology, University of Patras, Greece, 2006-2008. Advisor: Dr. George Aggelis

IV. AWARDS and HONORS

- Excellence in Scholarship and Research Award, Alabama A&M University, 2017
- American Society for Biochemistry and Molecular Biology (ASBMB) travel award, 2013 and 2010
- Carman Prize in Lipids, 2011
- Gordon Conference in Molecular and Cellular Biology of Lipids travel award, 2011

V. RESEARCH AREAS

Biochemistry and molecular biology of lipids

VI. PROFESSIONAL ACTIVITIES

- ASBMB Student Chapter adviser at Alabama A&M
- ASBMB Sub-committee for Department Accreditation (2016-2020)

VII. EDITORIAL BOARDS

- Analytical Biochemistry
- Journal of Nutrition & Food Sciences
- International Journal of Clinical Nutrition and Dietetics

VIII. JOURNAL REFEREE

Reviewer for more than 40 journals such as Analytical Biochemistry, BBA - Molecular and Cell Biology of Lipids, Journal of Biological Chemistry, Nature Chemical Biology, Science Advances.

IX. GRANTS

1. Excellence in Research: *PAH1*-mediated regulation of lipid synthesis in the model oleaginous yeast *Yarrowia lipolytica*. NSF/MCB, 2021-2024, PI (\$534,963).
2. Building capacity in sustainable bioenergy research by integrating molecular lipid biotechnology with multi-omics. USDA/NIFA, 2020-2023, PI (\$300,000).
3. Regulation of phosphatidic acid phosphatase during lipogenesis in the oleaginous yeast *Yarrowia lipolytica*, NIH/NIGMS, 2017-2020, PI (\$315,000).
4. Building capacity in Food Biotechnology at Alabama A&M University by establishing a new research program in microbial lipid biotechnology. USDA/NIFA, 2015-2018, PI (\$300,000).

X. REFEREED PUBLICATIONS

1. UKEY R, CARMON T, HARDMAN D, HILL NT, **FAKAS S**. The *Yarrowia lipolytica PAH1* homologue contributes but is not required for triacylglycerol biosynthesis during growth on glucose. *Yeast*, **2020**, 37:93-102.
2. HARDMAN, D., UKEY, R., **FAKAS, S.**, Phosphatidate phosphatase activity is induced during lipogenesis in the oleaginous yeast *Yarrowia lipolytica*. *Yeast*, **2018**, 35:619-625.

3. HARDMAN, D., MCFALLS, D., FAKAS, S., Characterization of phosphatidic acid phosphatase activity in the oleaginous yeast *Yarrowia lipolytica* and its role in lipid biosynthesis. *Yeast*, **2017**, 34: 83-91.
4. FAKAS, S., Lipid biosynthesis in yeasts: A comparison of the lipid biosynthetic pathway between the model non-oleaginous yeast *Saccharomyces cerevisiae* and the model oleaginous yeast *Yarrowia lipolytica*. *Engineering in Life Sciences*, **2017**, 17: 292-302.
5. HARDMAN, D., FAKAS, S., Polyunsaturated Fatty Acids as Dietary Supplements: Biological Activities and Sources. *International Journal of Clinical Nutrition & Dietetics*, **2016**, 2:113
6. SEMBONGI, H., MIRANDA, H., HAN, G.-S., FAKAS, S., GRIMSEY, N., VENDRELL, J., CARMAN, G. M., SINIOSSOGLU, S., Distinct roles of the phosphatidate phosphatases lipin 1 and 2 during adipogenesis and lipid droplet biogenesis in 3T3-L1 cells. *Journal of Biological Chemistry*, **2013**, 288: 34502-34513.
7. QIU, Y., FAKAS, S., HAN, G.-S., BARBOSA, A. D., SINIOSSOGLU, S., CARMAN, G. M., Transcription factor Reb1p regulates *DGK1*-encoded diacylglycerol kinase and lipid metabolism in *Saccharomyces cerevisiae*. *Journal of Biological Chemistry*, **2013**, 288:29124-29133.
8. SOTO-CARDALDA, A., FAKAS, S., PASCUAL, F., CHOI, H-S., CARMAN, G.M., Phosphatidate phosphatase plays role in zinc-mediated regulation of phospholipid synthesis in yeast. *Journal of Biological Chemistry*, **2012**, 287:968-977.
9. FAKAS, S.; QIU, Y.; DIXON, J. L.; HAN, G.-S.; RUGGLES, K. V.; GARBARINO, J.; STURLEY, S. L.; CARMAN, G. M., Phosphatidate phosphatase activity plays key role in protection against fatty acid-induced toxicity in yeast. *Journal of Biological Chemistry*, **2011**, 286:29074-29085.
10. FAKAS, S., KONSTANTINOU, C., CARMAN, G. M., *DGK1*-encoded diacylglycerol kinase activity is required for phospholipid synthesis during growth resumption from stationary phase in *Saccharomyces cerevisiae*. *Journal of Biological Chemistry*, **2011**, 286:1464-1474.
11. PAPANIKOLAOU, S., DIMOU, A., FAKAS, S., DIAMANTOPOULOU, P., PHILIPPOUSSIS, A., GALIOTOU PANAYOTOU, M., AGGELIS, G., Biotechnological conversion of waste cooking olive oil into lipid rich biomass using *Aspergillus* and *Penicillium* strains. *Journal of Applied Microbiology*, **2011**, 110:1138-1150.
12. CHATZIFRAGKOU, A.; FAKAS, S.; GALIOTOU-PANAYOTOU, M.; KOMAITIS, M.; AGGELIS, G. PAPANIKOLAOU, S.; Commercial sugars as substrates for lipid accumulation by *Cunninghamella echinulata* and

- Mortierella isabellina* fungi. *European Journal of Lipid Science and Technology*, **2010**, 112: 1048-1057.
13. FAKAS S., KEFALOGIANNI I., MAKRI, A., TSOUMPELI G., ROUNI G., GARDELI A., PAPANIKOLAOU S., AGGELIS G. Characterization of olive fruit microflora and its effect on olive oil volatile compounds biogenesis. *European Journal of Lipid Science and Technology*, **2010**, 112:1024-1032.
 14. MAKRI, A., FAKAS, S., AGGELIS, G. Metabolic activities of biotechnological interest in *Yarrowia lipolytica* grown on glycerol in repeated batch cultures. *Bioresource Technology*, **2010**, 101:2351–2358.
 15. PAPANIKOLAOU, S.; CHATZIFRAGKOU, A.; FAKAS, S.; GALIOTOU-PANAYOTOU, M.; KOMAITIS, M.; NICAUD, J.-M.; AGGELIS, G. Biosynthesis of lipids and organic acids by *Yarrowia lipolytica* strains cultivated on glucose. *European Journal of Lipid Science and Technology*, **2009**, 111:1221–1232.
 16. FAKAS, S., MAKRI A., MAVROMATI M., TSELEPI M., AGGELIS G., Fatty acid composition in lipid fractions lengthwise the mycelium of *Mortierella isabellina* and lipid production by solid state fermentation. *Bioresource Technology*, **2009**, 100:6118–6120.
 17. FAKAS S., PAPANIKOLAOU S., GALIOTOU-PANAYOTOU M., BATSOS A., MALLOUCHOS A., AGGELIS G., Evaluating renewable carbon sources as substrates for single cell oil production by *Cunninghamella echinulata* and *Mortierella isabellina*. *Biomass and Bioenergy*, **2009**, 33:573-580.
 18. FAKAS S., PAPAPOSTOULOU I., PAPANIKOLAOU S., GEORGIU C.D., AGGELIS G., Susceptibility to peroxidation of the major mycelial lipids of *Cunninghamella echinulata*. *European Journal of Lipid Science and Technology*, **2008**, 110:1062-1067.
 19. FAKAS S., PAPANIKOLAOU S., GALIOTOU-PANAYOTOU M., KOMAITIS M., AGGELIS G., Organic nitrogen of tomato waste hydrolysate enhances glucose uptake and lipid accumulation in *Cunninghamella echinulata*. *Journal of Applied Microbiology*, **2008**, 105:1062-1070.
 20. PAPANIKOLAOU S., FAKAS S., FICK M., CHEVALOT I., GALIOTOU-PANAYOTOU M., KOMAITIS M., MARC I., AGGELIS G., Biotechnological valorization of raw glycerol discharged after bio-diesel (fatty acid methyl-esters) manufacturing process: production of 1,3-propanediol, citric acid and single cell oil. *Biomass and Bioenergy*, **2008**, 32:60-71.
 21. FAKAS S., ČERTIK M., PAPANIKOLAOU S., AGGELIS G., KOMAITIS M., GALIOTOU-PANAYOTOU M., γ -linolenic acid production by *Cunninghamella echinulata* growing on complex organic nitrogen sources. *Bioresource Technology*, **2008**, 99:5986–5990.

22. PAPANIKOLAOU S., GALIOTOU-PANAYOTOU M., FAKAS S., KOMAITIS M., AGGELIS G., Citric acid production by *Yarrowia lipolytica* cultivated on olive-mill waste water based media. *Bioresource Technology*, **2007**, 99:2419–2428.
23. PAPANIKOLAOU S., GALIOTOU-PANAYOTOU M., FAKAS S., KOMAITIS M., AGGELIS G., Lipid production by oleaginous Mucorales cultivated on renewable carbon sources. *European Journal of Lipid Science and Technology*, **2007**, 109:1060–1070.
24. FAKAS S., GALIOTOU-PANAYOTOU M., PAPANIKOLAOU S., KOMAITIS M., AGGELIS G., Compositional shifts in lipid fractions during lipid turnover in *Cunninghamella echinulata*. *Enzyme and Microbial Technology*, **2007**, 40:1321–1327.
25. FAKAS S., PAPANIKOLAOU S., GALIOTOU-PANAYOTOU M., KOMAITIS M., AGGELIS G., Lipids of *Cunninghamella echinulata* with emphasis to γ -linolenic acid distribution among lipid classes. *Applied Microbiology and Biotechnology*, **2006**, 73:676-683.
26. AGGELIS G., FAKAS S., KLONIS I., MELISSIS S., Growth of *Candida boidinii* in a methanol-limited continuous culture and the formation of methanol degrading enzymes. *Journal of Biotechnology*, **1999**, 71:127-139.

XI. BOOK CHAPTERS

1. FAKAS S., PAPANIKOLAOU S., GALIOTOU-PANAYOTOU M., KOMAITIS M., AGGELIS G., Biochemistry and Biotechnology of Single Cell Oil in “New Horizons in Biotechnology”, A. Pandey, C. Larroche, Eds, Asiatech Publishers, Inc., ND, 2009, pp. 38-60.
2. FAKAS S., MAKRI A., BELLOU S., AGGELIS G., Pathways to aerobic glycerol catabolism and their regulation in “Microbial conversions of raw glycerol” G. Aggelis, Ed, Nova Science Publishers, Inc., NY, 2009, pp. 9-18.
3. FAKAS S., BELLOU S., MAKRI A., AGGELIS G., Single cell oil and gamma-linolenic acid production by *Thamnidium elegans* grown on raw glycerol in “Microbial conversions of raw glycerol” G. Aggelis, Ed, Nova Science Publishers, Inc., NY, 2009, pp. 85-96.

XII. MEETING PRESENTATIONS

1. ANCHE, V., FAKAS S., (2021) Complementation studies of the *PAH1*-encoded phosphatidate phosphatase in *Yarrowia lipolytica*. Experimental Biology 2021 Meeting.
2. CARMON, T., FAKAS S., (2020) Regulation of the *PAH1*-encoded phosphatidate phosphatase during lipogenesis in the oleaginous yeast *Yarrowia lipolytica*. Experimental Biology 2020 Meeting.

3. CARMON, T., UKEY, R., FAKAS S., (2019) The catalytic activity of the *PAH1*-encoded phosphatidate phosphatase is required for lipid biosynthesis in the oleaginous *Yarrowia lipolytica*. Experimental Biology 2019 Meeting. Orlando, FL.
4. HARDMAN, D., UKEY, R., FAKAS, S., (2018) The *PAH1*-encoded phosphatidate phosphatase plays a role in lipogenesis in the oleaginous yeast *Yarrowia lipolytica*. Experimental Biology 2018 Meeting. San Diego, CA.
5. HARDMAN, D., FAKAS, S., (2017) Regulation of phosphatidic acid phosphatase by high glucose in the oleaginous yeast *Yarrowia lipolytica*. Experimental Biology 2017 Meeting. Chicago, IL
6. FAKAS S., CARMAN G.M. (2013) Roles of proline-rich regions of the actin patch protein App1p in its phosphatidate phosphatase activity and membrane localization. Experimental Biology 2013 Meeting. Boston, MA
7. FAKAS S., CARMAN G.M. (2012) Regulation of yeast phosphatidate phosphatase by fatty acids. Experimental Biology 2012 Meeting. San Diego, CA.
8. QIU, Y., FAKAS, S., CARMAN, G. M. (2012) Transcription factor Reb1p regulates *DGK1*-encoded diacylglycerol kinase in *Saccharomyces cerevisiae* Experimental Biology 2012 Meeting. San Diego, CA.
9. FAKAS, S., QIU, Y., DIXON, J. L., HAN, G.-S., RUGGLES, K. V., GARBARINO, J., STURLEY, S. L., CARMAN, G. M. (2011) Phosphatidate phosphatase activity plays key role in protection against fatty acid-induced toxicity in yeast. Gordon Research Conference on Molecular and Cellular Biology of Lipids. Waterville Valley, NH.
10. FAKAS S., CARMAN G.M. (2011) *DGK1*-encoded diacylglycerol kinase activity is required for phospholipid synthesis during growth resumption from stationary phase in *Saccharomyces cerevisiae*. Experimental Biology 2011 Meeting. Washington, DC.
11. FAKAS S., CARMAN G.M. (2010) Yeast diacylglycerol kinase is essential for the resumption of growth from stationary phase. Experimental Biology