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

- 2024 NSF - Division of Molecular and Cellular Biosciences - Federal Grant Peer Review Panelist
- 2023 NSF - Division of Chemical, Bioengineering, Environmental and Transport Systems- Federal Grant Peer Review Panelist
- 2023 USDA- NIFA – Federal Grant Peer Review Panelist – Food, Agricultural, Natural Resources, and Human Sciences Grant Programs
- 2022 NSF - Division of Molecular and Cellular Biosciences - Federal Grant Peer Review Panelist
- 2022 USDA- NIFA – Federal Grant Peer Review Panelist – Food, Agricultural, Natural Resources, and Human Sciences Grant Programs
- Member of the New Jersey Institute for Food, Nutrition, and Health
- Member of the Rutgers Center for Lipid Research
- ASBMB Sub-committee for Department Accreditation (2016-2020)

VII. EDITORIAL BOARDS

- Analytical Biochemistry
- Journal of Nutrition & Food Sciences
- Lipidology

VIII. JOURNAL REFEREE

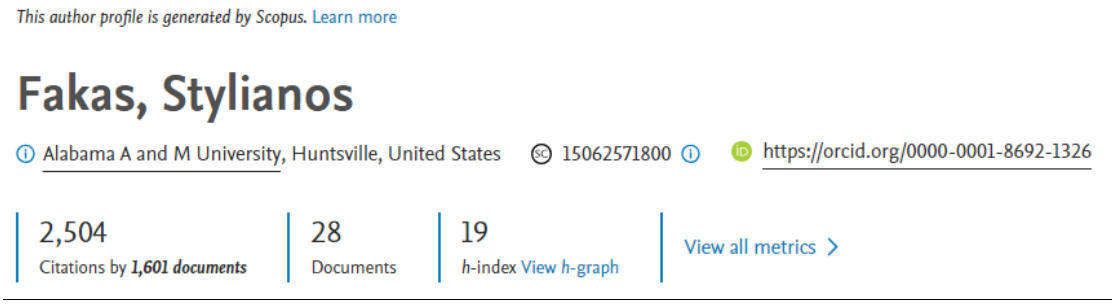
Reviewer for more than 40 journals such as BBA - Molecular and Cell Biology of Lipids, Journal of Biological Chemistry, Nature Chemical Biology, and Science Advances.

IX. GRANTS

1. Graduate Research Fellowship Program (Fellow: Kaleb Jackson, graduate student). NSF/DGE, 2024-2029, PI ($53,000).
2. Multi-omics analysis of *Y. lipolytica* ATP:citrate lyase mutants, DOE/JGI, PI.
3. Excellence in Research: *PAH1*-mediated regulation of lipid synthesis in the model oleaginous yeast *Yarrowia lipolytica*. NSF/MCB, 2021-2024, PI ($534,963).
4. Building capacity in sustainable bioenergy research by integrating molecular lipid biotechnology with multi-omics. USDA/NIFA, 2020-2023, PI ($300,000).
5. Regulation of phosphatidic acid phosphatase during lipogenesis in the oleaginous yeast *Yarrowia lipolytica*, NIH/NIGMS, 2017-2020, PI ($315,000).

6. 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. CARMON, T., SRIPATHI, V. R., GOSSETT, Z. B., **FAKAS, S**. The *PAH1*-encoded phosphatidate phosphatase of *Yarrowia lipolytica* differentially affects gene expression and lipid biosynthesis. *Biochimica et Biophysica Acta (BBA)-Molecular and Cell Biology of Lipids,* **2024**, 159544.
2. 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.
3. HARDMAN, D., UKEY, R., **FAKAS, S.,** Phosphatidate phosphatase activity is induced during lipogenesis in the oleaginous yeast *Yarrowia lipolytica*. *Yeast*, **2018**, 35:619-625.
4. 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.
5. **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.
6. HARDMAN, D., **FAKAS, S.**, Polyunsaturated Fatty Acids as Dietary Supplements: Biological Activities and Sources. *International Journal of Clinical Nutrition & Dietetics*, **2016**, 2:113
7. SEMBONGI, H., MIRANDA, H., HAN, G.-S., **FAKAS, S.,** GRIMSEY, N., VENDRELL, J., CARMAN, G. M., SINIOSSOGLOU, 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.
8. QIU, Y., **FAKAS, S.,** HAN, G.-S., BARBOSA, A. D., SINIOSSOGLOU, 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.

9. 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.
10. **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.
11. **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.
12. 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.
13. 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.
14. **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.
15. 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.
16. 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.
17. **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.
18. **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.

19. **FAKAS S.,** PAPAPOSTOLOU I., PAPANIKOLAOU S., GEORGIOU 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.
20. **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.
21. 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.
22. **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.
23. 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**.**
24. 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.
25. **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.
26. **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.
27. 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. ODUNSI, A., **FAKAS S., (2024)** Loss of ATP-dependent citrate lyase abrogates phosphatidate phosphatase activity in the oleaginous yeast *Yarrowia lipolytica*. Journal of Biological Chemistry 300, 106386. DiscoverBMB 2024 Meeting.
2. PASHAM, S., **FAKAS S., (2023)** Regulation of the *Saccharomyces cerevisiae PAH1*-encoded phosphatidate phosphatase by citric acid cycle metabolites. Journal of Biological Chemistry 299, 103657. DiscoverBMB 2023 Meeting.
3. ANCHE, V., **FAKAS S., (2023)** ATP-citrate lyase regulates lipid biosynthesis in *Yarrowia lipolytica*. Journal of Biological Chemistry 299, 103823. DiscoverBMB 2023 Meeting.
4. PASHAM, S., **FAKAS S., (2022)** Citric acid cycle metabolites regulate phosphatidate phosphatase activity from the oleaginous yeast *Yarrowia lipolytica*. Experimental Biology 2022 Meeting.
5. ANCHE, V., **FAKAS S., (2022)** Regulation of ATP-citrate lyase during lipogenesis in the oleaginous yeast *Yarrowia lipolytica*. Experimental Biology 2022 Meeting.
6. ANCHE, V., **FAKAS S., (2021)** Complementation studies of the *PAH1*-encoded phosphatidate phosphatase in *Yarrowia lipolytica*. Experimental Biology 2021 Meeting.
7. CARMON, T., **FAKAS S., (2020)** Regulation of the *PAH1*-encoded phosphatidate phosphatase during lipogenesis in the oleaginous yeast *Yarrowia lipolytica*. Experimental Biology 2020 Meeting.
8. 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.
9. 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.

10. 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