



Pete Apicella

MOLECULAR BIOLOGIST

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Highly published scientist with expertise in plant and fungal biology and over four years experience in research and development. At the startup, Mydecine Innovations Group, led the implementation of the synthetic biology vision through the creation protocols for bioanalysis techniques for target species.

Education

University of Connecticut

Storrs, Connecticut

MSC PLANT SCIENCES

2020

- Thesis - Studies of the Cannabinoid Biosynthetic Pathway in Developing Cannabis sativa Flowers and Elucidation of Genetic and Physiological Mechanisms Regulating Cannabinoid Production

University of Connecticut

Storrs, Connecticut

BSC HORTICULTURE

2018

- Honors Thesis - Combinations of Allelopathic Crop Extracts Reduce Digitaria spp. and Setaria faberi Seed Germination

Technical Skills

Dry Lab	Wet Lab
Snagene Viewer, BLAST, Ensembl, Microsoft Office, R (ggplot2, agricolae, RMarkdown, corplot, tidyverse, and other packages)	Tissue Culture, Protoplasting, Nucleic acid isolation, Gel electrophoresis, PCR, quantitative PCR, RT-PCR, Experimental design

Experience

Research Associate

Denver, Colorado

MYDECINE INNOVATIONS GROUP INC.

October 2020 → April 2022

- Conceived the design of intellectual property related to increasing the rate biosynthesis of secondary metabolites in a filamentous fungus to be used as a heterologous host.
- Designed and implemented experiments related to nucleic acid isolation, molecular identification of species, gene expression analysis, stimulation of defense compound biosynthesis, cloning of metabolite biosynthesis cassettes, protoplasting, and CRISPR-Cas9 genome editing.
- Created mutants of a filamentous fungus to serve as platforms for ectopic metabolite production.
- Facilitated the acquisition of scientific equipment and overall operationality of a 7500 square foot laboratory.
- Trained colleagues and one intern in fungal tissue culture, molecular biology techniques, and basic use of R for data visualization and statistical analysis.
- Created R Markdown guides on how to implement data visualization and analysis in R.

Graduate Research Assistant

Storrs, Connecticut

UNIVERSITY OF CONNECTICUT

August 2018 → August 2020

- Successfully defended thesis on genetic regulation of cannabinoid biosynthesis in Cannabis sativa.
- Designed and executed experiments in university greenhouses and commercial grow facilities.
- Implemented quantitative PCR to measure gene expression levels of genes in the cannabinoid biosynthesis pathway.
- Analyzed and visualized data in R to facilitate comprehension in invited talks and manuscripts.
- Obtained controlled substances research licenses for laboratory and authored standard operating procedures for the sampling, transport, and secure storage of controlled substances.

Graduate Mentor

Storrs, Connecticut

UNIVERSITY OF CONNECTICUT

August 2018 → August 2020

- Trained undergraduate and graduate students in molecular biology techniques.
- Mentored one student to win a grant, design and execute an experiment, and present findings at a university research forum.

Teaching Assistant

UNIVERSITY OF CONNECTICUT

Storrs, Connecticut

August 2018 → August 2020

- Lectured one laboratory section of woody plant identification. Led 15 students through university campus to teach students characteristics of plants. Graded assignments and recorded grades.

Undergraduate Researcher

UNIVERSITY OF CONNECTICUT

Storrs, Connecticut

August 2016 → May 2018

- Awarded \$8000 in grant funding to phenotypically survey North America's largest Aronia germplasm collection.
- Evaluated sugar and acidity content of fruit juice from 120 Aronia genotypes, commonly referred to as chokeberry. Identified specific genotypes with desirable Brix°: titratable acidity ratios to be used as parentage for breeding varieties with more palatable fruits.
- Presented findings in posters at national and international conferences.

Publications

Apicella, P., Ma, G., Ma, Y., & Berkowitz, G. A. The Cannabis Jasmonate-Independent Homeodomain Zipper Family IV Gene HDG5 Functions in Trichome Morphogenesis and Involves in Immune response in transgenic NICOTIANA TABACUM L. *manuscript in preparation*

Apicella, P., Ma, G., Ma, Y., & Berkowitz, G. A. (2022). Delineating genetic regulation of cannabinoid biosynthesis during female flower development in CANNABIS SATIVA. *Plant Direct*, 6(6). <https://doi.org/10.1002/pld3.412>

Haiden, S. R., **Apicella, P.**, Ma, Y., & Berkowitz, G. A. (2022). Overexpression of CsMIXTA, a Transcription Factor from Cannabis sativa, Increases Glandular Trichome Density in Tobacco Leaves. *Plants*, 11(11), 1519. <https://doi.org/10.3390/plants11111519>

Ma, G., Zelman, A. K., **Apicella, P.**, & Berkowitz, G. (2022). Genome-Wide Identification and Expression Analysis of Homeodomain Leucine Zipper Subfamily IV (HD-ZIP IV) Gene Family in Cannabis sativa L. *Plants*, 11(10), 1307. <https://doi.org/10.3390/plants11101307>

McGehee, C. S., **Apicella, P.**, Raudales, R., Berkowitz, G., Ma, Y., Durocher, S., & Lubell, J. (2019). First Report of Root Rot and Wilt Caused by Pythium myriotylum on Hemp (Cannabis sativa) in the United States. *Plant Disease*, 103(12), 3288–3288. <https://doi.org/10.1094/PDIS-11-18-2028-PDN>

Mahoney, J. D., **Apicella, P.**, & Brand, M. H. (2018). Adventitious shoot regeneration from in vitro leaves of Aronia mitschurinii and cotyledons of closely related Pyrinae taxa. *Scientia Horticulturae*, 237, 135–141. <https://doi.org/10.1016/j.scienta.2018.03.062>

Invited Talks

Apicella P. 'The Plant Science of Cannabis sativa', Tower Hill Botanical Garden, Virtual oral presentation. March 2022.

Apicella P. 'The Plant Science of Cannabis sativa', Groton Garden Club, Virtual oral presentation. May 2021.

Apicella P. 'The Plant Science of Cannabis sativa', Tower Hill Botanical Garden, Oral presentation. March 2020.

Apicella P., Ma Y., Schultz T., Ferrarese R., Picard R., Barolli S., and Berkowitz G. 'Looking Under The Hood Of The Cannabis Plant: A Molecular Evaluation Of Cannabinoid Production', Emerald Conference, Oral presentation. February 2020.

Apicella P. and Berkowitz G. 'The Plant Science of Cannabis sativa', Middlesex Community College, Oral presentation. Middlesex, Connecticut. October 2019.

Apicella P. and Berkowitz G. 'The Plant Science of Cannabis sativa', Metropolitan Horticultural Society, Oral presentation. New York, New York. September 2019.

Apicella P. and Berkowitz G. 'Association of a prenyltransferase (GOT) with THCA production in medical marijuana', American Society of Plant Biology, Brief oral presentation. San Jose, California. August 2019.

Apicella P. and Berkowitz G. 'The Plant Science of Cannabis sativa', Northeast Food And Drug Officials Association Meeting, Oral presentation. Northampton, Massachusetts. May 2019.