

YONGHUI DONG



EDUCATION

Oct.2010

Jun.2014

● **Trento University, Italy**

Fondazione Edmund Mach, Italy

PhD in Analytical Chemistry

Supervisors: Dr.Pietro Franceschi, Dr.Fulvio Mattivi & Prof.Guella Graziano

Thesis: Mass Spectrometry Imaging: Looking Fruits at Molecular Level

Jun.2012

Dec.2012

● **Max Planck Institute for Chemical Ecology, Germany**

Visiting PhD student

Supervisor: Dr.Ales Svatos

Project: Mass spectrometry imaging of surface lipids on intact *Drosophila melanogaster* flies

Sep.2008

Sep.2010

● **Bologna University, Italy**

Munich University of Technology, Germany

BOKU University, Austria

Triple MSc. in Horticulture Science

Supervisors: Dr. Stefano Tartarini, Dr. Luca Dondini & Prof. Dieter Treutter

Thesis: QTL Analysis of Sugars and Organic Acids in Apricot

Sep.2003

Jun.2006

● **Northwest A&F University, China**

BSc. in Bioengineering

Supervisor: Prof. Zhihui Cheng

Thesis: Effects of UV-C on the control of cucumber powdery mildew

CONTACT

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📄 [ResearchGate](#)

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RESEARCH INTERESTS

- Mass Spectrometry Imaging
- Metabolomics
- Chemoinformatics

SKILLS

Programming:

- R (9/10)
- Python (7/10)
- Git/GitHub (8/10)
- Docker (7/10)

Last updated on 2023-03-18.



RESEARCH EXPERIENCE

- June. 2022
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Now

● **Researcher**

Mass Spectrometry Imaging Unit, Weizmann Institute of Science, Israel
- Jan. 2021
|
May. 2022

● **Researcher**

Blavatnik Center for Drug Discovery, Tel Aviv University, Israel
- Dec. 2014
|
Dec. 2020

● **Postdoctoral Research Fellow**

Weizmann Institute of Science, Israel

Supervisor: Prof. Asaph Aharoni
- Jul. 2014
|
Nov. 2014

● **Research Associate**

Trento University, Italy

Supervisor: Prof. Guella Graziano



PUBLICATIONS

- 2023

● **25. PICA: Pixel Intensity Correlation Analysis for Deconvolution and Metabolite Identification in Mass Spectrometry Imaging**

Analytical Chemistry

Yonghui Dong, Nir Shachaf, Liron Feldberg, Ilana Rogachev, Uwe Heinig, Asaph Aharoni
- 2022

● **24. Image to insight: exploring natural products through mass spectrometry imaging**

Natural product reports, 7, 1510-1530

Yonghui Dong, Asaph Aharoni
- **23. TMT-based quantitative proteomics reveals protein biomarkers from cultured Pacific abalone (*Haliotis discus hannai*) in different regions**

Food Chemistry: X, <https://doi.org/10.1016/j.fochx.2022.100355>

YimuLuan, Yonghui Dong (co-first author), Xuyuan Duan, Xiuli Wang, Yue Pang, Qingwei Li, MengGou
- **22. The metabolic and proteomic repertoires of periderm tissue in skin of the reticulated Sikkim cucumber fruit**

Horticulture Research, doi: 10.1093/hr/uhac092

Gulab Chand Arya, Yonghui Dong (co-first author), Uwe Heinig, Nir Shahaf, Yana Kazachkova, Elinor Aviv-Sharon, Gal Nomborg, Ofir Marinov, Ekaterina Manasheva, Asaph Aharoni, Hagai Cohen

- **21. Quantitative Trait Loci Mapping and Identification of Candidate Genes Linked to Fruit Acidity in Apricot Q13 (*Prunus armeniaca* L.)**
Frontiers in Plant Science, doi: 10.3389/fpls.2022.838370
Luca Dondini, Cecilia Domenichini, [Yonghui Dong](#), Fabio Gennari, Daniele Bassi, Stefano Foschi, Martina Lama, Marco Adami, Paolo De Franceschi, Claudia Cervellati, Lorenzo Bergonzoni, Sara Alessandri, Stefano Tartarini
- **20. RawHummus: an R Shiny App for Automated Raw Data Quality Control in Metabolomics**
Bioinformatics, btac040
[Yonghui Dong](#), Yana Kazachkova, Meng Gou, Liat Morgan, Tal Wachsmann, Ehud Gazit, Rune Isak Dupont Birkler
- 2021 ● **19. CCWeights: an R package and web application for automated evaluation and selection of weighting factors for accurate quantification using linear calibration curve**
Bioinformatics Advances, 1(1), vbab029
[Yonghui Dong](#), Tal Wachsmann, Liat Morgan, Ehud Gazit, Rune Isak Dupont Birkler
- **18. Characterization of the PRODUCTION OF ANTHOCYANIN PIGMENT 1 Arabidopsis Dominant Mutant using DLEMMA Dual Isotope Labeling Approach**
Phytochemistry, 186
[Yonghui Dong](#), Liron Feldberg, Ilana Rogachev, Asaph Aharoni
- **17. The GORKY glycoalkaloid transporter is indispensable for preventing tomato bitterness**
Nature Plant, 7, 468-480
Yana Kazachkova, Itay Zemach, Sayantan Panda, Samuel Bocobza, Andrii Vainer, Ilana Rogachev, [Yonghui Dong](#), Shifra Ben-Dor, Dorottya Veres, Christa Kanstrup, Sophie Konstanze Lambert, Christoph Crocoll, Yangjie Hu, Eilon Shani, Simon Michaeli, Hussam Hassan Nour-Eldin, Dani Zamir, Asaph Aharoni
- 2020 ● **16. High mass resolution, spatial metabolite mapping enhances the current plant gene and pathway discovery toolbox**
New Phytologist, 2020, 228:1986-2002.
[Yonghui Dong](#), Prashant Sonawane, Hagai Cohen, Guy Polturak, Liron Feldberg, Shelly Hen Avivi, Ilana Rogachev, Asaph Aharoni
- **15. Rhizosphere microbiome mediates systemic root metabolite exudation by root-to-root signaling**
Proceedings of the National Academy of Sciences, 2020, 7:3874-3883.
Elisa Korenblum, [Yonghui Dong](#), Jędrzej Szymanski, Sayantan Panda, Adam Jozwiak, Hassan Massalha, Sagit Meir, Ilana Rogachev, Asaph Aharoni
- 2019 ● **14. Miso: an R package for multiple isotope labeling assisted metabolomics data analysis**
Bioinformatics, 2019, 35:3524-3526.
[Yonghui Dong](#), Liron Feldberg, Asaph Aharoni
- **13. A Multilevel Study of Melon Fruit Reticulation Provides Insight into Skin Lignification Hallmarks**
Plant Physiology, 2019, 179:1486-1501.
Hagai Cohen, [Yonghui Dong](#), Jędrzej Szymanski, Justin Lashbrooke, Sagit Meir, Efrat Almekias-Siegl, Viktoria Valeska Zeisler-Diehl, Lukas Schreiber, Asaph Aharoni

- **12. In plaque-mass spectrometry imaging of a bloom-forming alga during viral infection reveals a metabolic shift towards odd-chain fatty acid lipids**
Nature Microbiology, 2019, 3:527-538.
Guy Schleyer, Nir Shahaf, Carmit Ziv, [Yonghui Dong](#), Roy A Meoded, Eric JN Helfrich, Daniella Schatz, Shilo Rosenwasser, Ilana Rogachev, Asaph Aharoni, Jörn Piel, Assaf Vardi

- 2018 ● **11. DLEMMA-MS-imaging for identification of spatially localized metabolites and metabolic network map reconstruction**
Analytical Chemistry, 2018, 17:10231-10238.
Liron Feldberg, [Yonghui Dong](#) (co-first author), Uwe Heinig, Ilana Rogachev, Asaph Aharoni

- **10. Mapping of cell wall aromatic moieties and their effect on hygroscopic movement in the awns of stork's bill**
Cellulose, 2018, 25: 3827-3841.
Yael Abraham, [Yonghui Dong](#), Asaph Aharoni, Rivka Elbaum

- 2017 ● **09. TLC surface integrity affects the detection of alkali adduct ions in TLC-MALDI analysis**
Analytical and Bioanalytical Chemistry, 2017, 409: 5661-5666.
[Yonghui Dong](#), Ruggero Ferrazza, Andrea Anesi, Graziano Guella, Pietro Franceschi

- **08. Engineered gray mold resistance, antioxidant capacity, and pigmentation in betalain-producing crops and ornamentals**
Proceedings of the National Academy of Sciences, 2017, 14: 9062-9067.
Guy Polturak, Noam Grossman, David Vela-Corcia, [Yonghui Dong](#), Adi Nudel, Margarita Pliner, Maggie Levy, Ilana Rogachev, Asaph Aharoni

- **07. Impact of tissue surface properties on the desorption electrospray ionization imaging of organic acids in grapevine stem**
Rapid Communications in Mass Spectrometry, 2016, 30: 711-718.
[Yonghui Dong](#), Graziano Guella, Pietro Franceschi

- 2016 ● **06. More than pictures: when MS imaging meets histology**
Trends in Plant Science, 2016, 21: 686-698.
[Yonghui Dong](#), Bin Li, Asaph Aharoni

- **05. Sample preparation for mass spectrometry imaging of plant tissues: a review**
Frontiers in plant science, 2016.
[Yonghui Dong](#), Bin Li, Sergey Malitsky, Ilana Rogachev, Asaph Aharoni, Filip Kaftan, Aleš Svatoš, Pietro Franceschi

- **04. Identification of microRNAs and their targets associated with fruit-bagging and subsequent sunlight re-exposure in the “Granny Smith” apple exocarp using high-throughput sequencing**
Frontiers in plant science, 2016.
Dong Qu, Fei Yan, Rui Meng, Xiaobing Jiang, Huijuan Yang, Ziyi Gao, [Yonghui Dong](#), Yazhou Yang, Zhengyang Zhao

- **03. Analytical capabilities of mass spectrometry imaging and its potential applications in food science**
Trends in Food Science & Technology, 2016, 47: 50-63.
Bin Li, Sage JB Dunham, [Yonghui Dong](#), Sohee Yoon, Maomao Zeng, Jonathan V Sweedler
- 2015 ● **02. High production of small organic dicarboxylate dianions by DESI and ESI**
Journal of The American Society for Mass Spectrometry, 2015, 26: 386-389.
[Yonghui Dong](#), Graziano Guella, Fulvio Mattivi, Pietro Franceschi
- 2012 ● **01. Combining intensity correlation analysis and MALDI imaging to study the distribution of flavonols and dihydrochalcones in Golden Delicious apples**
Journal of experimental botany, 2012, 63: 1123-1133.
Pietro Franceschi, [Yonghui Dong](#), Kerstin Strupat, Urska Vrhovsek, Fulvio Mattivi



SOFTWARE

- **01. MSbox**
A series of common mass spectrometry tools. It allows checking element isotopes, calculating (isotope labelled) exact monoisotopic mass, m/z values and mass accuracy, and inspecting possible contaminant mass peaks, examining possible adducts in electrospray ionization (ESI) and Matrix-Assisted Laser Desorption Ionization (MALDI) ion sources.
[GitHub](#)
- **02. Miso**
An efficient tool for fishing out labeled molecules from single, dual or multiple isotope labeling experiment.
[GitHub](#), [Scholar](#)
- **03. CCWeights**
The accuracy of any analytical method highly depends on the selection of an appropriate calibration model. CCWeights is designed to automatically assess & select the best weighting factors (WF) for accurate metabolite quantification using the linear calibration curve.
[GitHub](#), [Scholar](#)
- **04. RawHummus**
Robust and reproducible data is essential to ensure high-quality results for metabolomics studies where detector sensitivity drifts, retention time, and mass accuracy shifts frequently occur. RawHummus is designed to automatically detect measurement bias & verify system consistency.
[GitHub](#), [Scholar](#)



POSTERS & TALKS

- 2022 ● **How vampires suck blood? (Talk)**
First Israel Metabolomics Meeting (Israel)
- **Software solutions in untargeted and targeted metabolomics (Poster)**
First Israel Metabolomics Meeting (Israel)
- 2021 ● **Pixel-wise Colocalization Analysis for Metabolite Identification in Mass Spectrometry Imaging (Talk)**
Waterman Seminar Series on Bioinformatics (Germany)

- 2017 ● **Application of MS Imaging in Plant Sciences (Talk)**
Mass Spectrometry Imaging Symposium (France)
- **More than Pictures: When MS Imaging Meets Histology (Talk)**
Spring School for Advanced Imaging in Biological Research (Israel)
- 2015 ● **Mass Spectrometry Imaging of Plant Metabolites (Poster)**
Isranalytica 2015 (Israel)
- 2014 ● **Tissue Surface Properties Jeopardize Quantitative DESI Imaging of Organic Acids in Grapevine Stem (Poster)**
20th International Mass Spectrometry Conference (Switzerland)
- 2013 ● **MS Imaging of Metabolites in Fruits (Poster)**
3rd MS Food day (Italy)
- 2012 ● **MS Imaging of Small Metabolites in Fruits (Talk)**
Ourense Conference on Imaging Mass Spectrometry (Spain)



HONORS & AWARDS

- 2014 ● **COST Action FA1101 trainee fellowship in saffronomics, Spain**
- 2011 ● **Trento University PhD scholarship, Italy**
- 2010 ● **FEM GMPF scholarship, Italy**
- 2008 ● **Erasmus Mundus Scholarship, European Union**
- 2005 ● **Undergraduate Mathematical Modeling Contest, First Prize, China**