

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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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 2023-01-24.



RESEARCH EXPERIENCE

Jan. 2021

Now

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 Wachsman, 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 Wachsman, Liat Morgan, Ehud Gazit, Rune Isak Dupon 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 Lambertz, 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 Ligno-suberization 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**