

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

✉ yonghui.dong@gmail.com

🐙 [Github](#)

📄 [ResearchGate](#)

🐦 [Twitter](#)

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RESEARCH INTERESTS

> Mass Spectrometry Imaging

> Metabolomics

> Stable isotope labeling

> Bioinformatics

SKILLS

Programming:

> R (9/10)

> Python (7/10)

> HTML/CSS (7/10)

> Git/GitHub (8/10)

> Docker (7/10)

Last updated on 2023-08-31.

RESEARCH EXPERIENCE

- **Researcher**
June. 2022
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Now
Mass Spectrometry Imaging Unit, Weizmann Institute of Science, Israel
- **Researcher**
Jan. 2021
|
May.2022
Blavatnik Center for Drug Discovery, Tel Aviv University, Israel
- **Postdoctoral Research Fellow**
Dec. 2014
|
Dec. 2020
Weizmann Institute of Science, Israel

Supervisor: Prof. Asaph Aharoni
- **Research Associate**
Jul. 2014
|
Nov.2014
Trento University, Italy

Supervisor: Prof.Guella Graziano

PUBLICATIONS

- **29. Spatial Metabolomics Reveals the Multifaceted Nature of Lamprey Buccal Gland and Its Diverse Mechanisms for Blood-Feeding**
2023
Communications Biology, 6, 881
Meng Gou, Xuyuan Duan, Jun Li, Yaocen Wang, Qingwei Li, Yue Pang, Yonghui Dong (corresponding author)
- **28. A complete prostaglandin pathway from synthesis to inactivation in the oral gland of the jawless vertebrate lamprey, *Lethenteron camtschaticum***
Developmental & Comparative Immunology
Wang, Yaocen, Yonghui Dong (co-first author), Xuyuan Duan, Yimu Luan, Qingwei Li, Yue Pang, Feng Sun, and Meng Gou
- **27. Parallel evolution of cannabinoid biosynthesis**
Nature Plants, 1-15
Paula Berman, Luis Alejandro de Haro, Adam Jozwiak, Sayantan Panda, Zoe Pinkas, Yonghui Dong, Jelena Cveticanin, Ranjit Barbole, Rotem Livne, Tali Scherf, Eyal Shimoni, Smadar Levin-Zaidman, Nili Dezarella, Ekaterina Petrovich-Kopitman, Sagit Meir, Ilana Rogachev, Prashant D Sonawane, Asaph Aharoni
- **26. PICA: Pixel Intensity Correlation Analysis for Deconvolution and Metabolite Identification in Mass Spectrometry Imaging**
Analytical Chemistry, 1652–1662
Yonghui Dong, Nir Shachaf, Liron Feldberg, Ilana Rogachev, Uwe Heinig, Asaph Aharoni

2022

- **25. Image to insight: exploring natural products through mass spectrometry imaging**
Natural product reports, 7, 1510-1530
[Yonghui Dong](#), Asaph Aharoni
- **24. TMT-based quantitative proteomics reveals protein biomarkers from cultured Pacific abalone (*Haliotis discus hannai*) in different regions**
Food Chemistry: X, 100355
YimuLuan, [Yonghui Dong](#) (co-first author), Xuyuan Duan, Xiuli Wang, Yue Pang, Qingwei Li, MengGou
- **23. 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 Nomberg, Ofir Marinov, Ekaterina Manasherova, Asaph Aharoni, Hagai Cohen
- **22. 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
- **21. Saliva metabolome alterations after acute stress**
Scientific Reports, 12, 18470
Liat Morgan, Rune Isak Dupont Birkler, Shira Shaham-Niv, [Yonghui Dong](#), Tal Wachsman, Lior Carmi, Boris Yakobson, Lih Adler-Abramovich, Hagit Cohen, Joseph Zohar, Melissa Bateson, Ehud Gazit
- **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 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 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 Lignosub-erization 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

- 2016

● **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
- **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. Miso**
 An R package for automated and efficient data analysis workflow to detect the complete repertoire of labeled molecules from multiple-precursor-based labeling experiments.
[GitHub](#), [Scholar](#)
- **02. CCWeights**
 An R package and web app for assessing and selecting the best weighting factors (WF) for linear calibration curve-based metabolite quantification.
[GitHub](#), [Scholar](#)

- **03. RawHummus**
An R package and shiny web app for raw data quality control (QC) in metabolomics studies. It generates a comprehensive QC report that enables quick and effortless evaluation of instrument performance and metabolomics data quality.
[GitHub](#), [Scholar](#)
- **04. MetaboReport**
An R package and shiny web app for metabolomics data analysis.
- **05. ShinyCardinal**
An R package and shiny web app for mass spectrometry imaging data analysis.

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**