

Giuseppe Astarita, Ph.D.

Translational Biomarker & Multi-Omics Scientist

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90+	14,000+	55	89	20+	20+
PUBLICATIONS	CITATIONS	H-INDEX	i10-INDEX	GRANTED PATENTS	YEARS

PROFESSIONAL SUMMARY

Translational scientist with **20+ years of experience** at the intersection of **neuroscience, metabolic disorders, inflammation, rare disorders, and nutrition science**, with deep expertise in **biomarker discovery and development** powered by **multi-omics** approaches. Recognized for translating cutting-edge analytical technologies into clinical applications, supported by **90+ peer-reviewed publications, 14,000+ citations, h-index 55, i10-index 89, and 20+ granted patents**. Platform expertise spans multi-omics mass spectrometry (lipidomics, metabolomics, proteomics) alongside immunoassay technologies (Olink, SomaLogic) and fit-for-purpose assay development. Track record of building biomarker functions from the ground up at biotech (Denali, Arkuda), CRO (Metabolon), and instrument-vendor (Waters) scale, and consulting for 20+ biotech, pharma, and food-science clients.

AREAS OF EXPERTISE

Therapeutic areas: Neurodegeneration (Alzheimer's, Parkinson's, FTD, lysosomal storage disorders), metabolic disorders, inflammation, rare disorders, nutrition and food science

Platforms: Lipidomics, metabolomics, proteomics · LC-MS/MS, ion mobility-MS · Olink, SomaLogic immunoassays · Targeted & untargeted multi-omics

Translational expertise: Biomarker strategy & clinical-trial endpoints · MOA & pharmacodynamic readouts · Patient stratification · Assay development & validation · Multi-site method standardization · CRO management · Regulatory-ready evidence packages

Food & nutrition science: Food composition analysis and essential nutrient ratio determination (2 granted patents) · Nutrient density profiling · Omega-3 index and fatty-acid status · Dietary intervention trials · Decentralized microsampling

Scientific specialties: Endocannabinoid signaling · Lipid mediators (oxylipins, eicosanoids, SPMs) · Omega-3/DHA biology · Sphingolipid & ceramide metabolism · Lysosomal biology (progranulin, GBA, LRRK2)

PROFESSIONAL EXPERIENCE

Principal Consultant — Biomarker & Omics Strategy

08/2020 – Present

MyMetabolome Consulting · Belmont, MA

- Advised **20+ biotech, pharmaceutical, and food-science clients** on translational biomarker strategy, IND-enabling programs, and multi-omics integration.
- Built multi-omics laboratory capabilities and teams from the ground up — platform selection, instrumentation roadmap, assay development, SOPs, and QC practices.
- Identified and characterized biomarkers contributing to patent applications, peer-reviewed publications, and the advancement of proof-of-concept and clinical programs.
- Advised on decentralized and remote sampling strategies for metabolite and lipid monitoring, including microsampling approaches for collection outside the clinic.

Adjunct Assistant Professor — Biochemistry & Molecular Biology

02/2012 – Present

Georgetown University · Washington, DC

- Pioneered lipidomics capabilities at the Lombardi Cancer Center; Principal Investigator on the Alzheimer's Association New Investigator Research Grant (NIRG-11-203674).
- Co-authored 40+ peer-reviewed manuscripts and book chapters; teach *Clinical Metabolomics* (BCHB-596) and serve on Ph.D. thesis committees.

Senior Director, Biomarker Discovery

04/2022 – 10/2023

Arkuda Therapeutics · Watertown, MA

- Led end-to-end biomarker strategy for clinical-stage programs in lysosomal dysfunction, neuroinflammation, and neuronal health — defining MOA, pharmacodynamic, and patient stratification endpoints.
- Built integrated multi-omics pipelines (LC-MS/MS, Olink, SomaLogic); Principal Investigator on a \$350K Michael J. Fox Foundation lysosomal-biomarkers proposal.

Senior Scientific Manager

12/2020 – 03/2022

Metabolon · San Francisco, CA

- Developed **20+ standardized biomarker panels** across neurodegeneration, inflammation, microbiome, aging, oncology, and metabolic disorders.
- Primary scientific and technical liaison for 20+ pharma, biotech, and academic clients.
- Partnered with ambient-temperature collection platform providers to enable stabilized remote sampling into non-targeted metabolomics workflows, including gut-microbiome applications.

Principal Scientist, Head of Omics Mass Spectrometry

08/2016 – 07/2020

Denali Therapeutics · South San Francisco, CA

- Founded and scaled the omics mass spectrometry function into a centralized multi-omics platform supporting **20+ programs** across the development pipeline.
- Advanced biomarker strategy for **6+ programs to Phase 1/2**; the CSF heparan sulfate assay was adopted as a surrogate endpoint in a regulatory submission.
- Co-authored 8+ high-impact publications and co-invented 4 patent families.

Principal Scientist & Global Business Development Manager, Omics

09/2011 – 07/2016

Waters Corporation · Milford, MA

- Managed worldwide metabolomics and lipidomics programs spanning **100+ collaborations with KOL laboratories** across academia, pharma, and industry.
- Pioneered ion mobility MS, novel lipid separations, and data-processing software — contributing to 11 patent families and 20+ publications.
- Collaborated with microsampling and instrumentation partners, and academic nutrition-science groups, on dried-blood-spot and fatty-acid methods for omega-3 status and lipid profiling.

Team Leader, Drug Discovery & Development

2008 – 08/2011

Italian Institute of Technology · Genoa, Italy

- Led lipid biomarker programs for neurodegenerative, metabolic, and inflammatory disorders; established the mass spectrometry facility from the ground up.

Project Scientist & Director, Analytical Discovery Facility

2003 – 08/2011

Department of Pharmacology, University of California · Irvine, CA

- Established and directed the Agilent Technologies/UC Irvine Analytical Discovery Facility — an LC/MS core unit supporting lipidomics and metabolomics research.
- Co-authored 40+ peer-reviewed publications; mentored 10+ scientists, postdocs, and Ph.D. students.

EDUCATION

Ph.D. — Biochemistry and Molecular Biology — University of Rome "Tor Vergata" · Rome, Italy

M.Sc. II — Analytical Chemistry: Quality Control & Assurance — University of Rome "La Sapienza" · Rome, Italy

M.Sc. I — Biochemistry (Final grade 110/110) — University of Naples "Federico II" · Naples, Italy

SELECTED PUBLICATIONS

Complete list on [PubMed](#), [Google Scholar](#), and [lipidomic.com](#).

- Denti V, **Astarita G**, Paglia G. Revolutionizing blood collection: innovations, applications, and the potential of microsampling technologies for monitoring metabolites and lipids. *Metabolites*. 2024;14(1):46.
- Root J, Mendsaikhon A, ... **Astarita G**, Blain JF, Kukar T. Granulins rescue inflammation, lysosome dysfunction, lipofuscin, and neuropathology in a mouse model of progranulin deficiency. *Cell Reports*. 2024;43(12):114985.
- **Astarita G**, Kelly RS, Lasky-Su J. Metabolomics and lipidomics strategies in modern drug discovery and development. *Drug Discovery Today*. 2023;28(10):103751.
- Jennings D, Huntwork-Rodriguez S, ... **Astarita G**, et al. Preclinical and clinical evaluation of the LRRK2 inhibitor DNL201 for Parkinson's disease. *Sci Transl Med*. 2022;14(648):eabj2658.
- Logan T, Simon MJ, ... **Astarita G**, et al. Rescue of a lysosomal storage disorder caused by Grn loss of function with a brain-penetrant progranulin biologic. *Cell*. 2021;184(18):4651-4668.
- Crotty GF, ... **Astarita G**, Schwarzschild MA. Association of caffeine and related analytes with resistance to Parkinson's disease among LRRK2 mutation carriers. *Neurology*. 2020;95(24):e3428-e3437.
- Andreone BJ, ... **Astarita G**, Di Paolo G, et al. Alzheimer's-associated PLCγ2 is a signaling node required for both TREM2 function and the inflammatory response in human microglia. *Nature Neuroscience*. 2020;23(8):927-38.
- Ullman JC, ... **Astarita G**, et al. Brain delivery and activity of a lysosomal enzyme using a blood-brain barrier transport vehicle in mice. *Sci Transl Med*. 2020;12(545):eaay1163.
- Nugent AA, ... **Astarita G**, Lewcock JW, Monroe KM, Di Paolo G. TREM2 regulates microglial cholesterol metabolism upon chronic phagocytic challenge. *Neuron*. 2020;105(5):837-54.

- Paglia G, **Astarita G**. Metabolomics and lipidomics using traveling-wave ion mobility mass spectrometry. *Nature Protocols*. 2017;12(4):797-813.
- **Astarita G**, Kendall AC, Dennis EA, Nicolaou A. Targeted lipidomic strategies for oxygenated metabolites of polyunsaturated fatty acids. *BBA Lipids*. 2015;1851(4):456-68.

SELECTED PATENTS (20+ GRANTED WORLDWIDE)

Full portfolio and current status on [Google Patents](#).

- **Astarita G**, Di Paolo G, et al. Methods for treating dysregulated lipid metabolism. [WO2020112889](#) (2021). *Granted: JP*.
- **Astarita G**, Devos SL, Di Paolo G, Logan TP, Wang J, et al. Methods for treating and monitoring progranulin-associated disorders. [WO2020081575](#) (2021). *Granted: CN, JP*.
- **Astarita G**, Dennis MS, Getz JA, Henry A, Kariolis M, et al. Fusion proteins comprising enzyme replacement therapy enzymes. [WO2019070577](#) (2021). *Granted: US 10,870,837; US 11,866,742 (+ JP, AU, IL)*.
- **Astarita G**, Brousmiche DW. Method of using chemical tags to improve identification, quantification and spatial localization of components in a sample. [WO2017143158](#) (2017). *Granted: US, EP, CN*.
- **Astarita G**, Geromanos S. Chemical class compositions from collision cross-section fragment ions. [WO2018005948](#) (2018). *Granted: US 11,333,628; CN*.
- **Astarita G**. Molecular diagnostics in personalized dermatology, dermatopathology and cosmetics. [US20170004957](#) (2018). *Granted: US 9,881,777; US 10,410,846*.
- Arguello A, **Astarita G**, Bhalla A, et al. Lysosomal storage disorder biomarkers and methods of use thereof. [WO2020123511](#) (2020).
- Piomelli D, **Astarita G**, et al. Methods of treatment for methamphetamine toxicity targeting ceramide metabolic pathways. [WO2013149250](#) (2013).

This is a condensed CV. The full extended CV — including all 90+ publications, patents, talks, posters, grants, and editorial activity — is available at [lipidomic.com](#). For consulting inquiries: [mymetabolome.com](#).